Centers for Disease Control
National Institute for Occupational Safety and Health
Subcommittee for Procedure Reviews
Tuesday, Feb 15, 2022

The Subcommittee convened via Teleconference at 11:00 a.m. EST, Josie Beach, Chair, presiding.

Members Present:

Josie Beach, Member
Loretta Valerio, Member
Paul Ziemer, Member

Also Present:

Rashaun Roberts, Designated Federal Official
Nancy Adams, NIOSH Contractor
Dave Allen, DCAS
Bob Anigstein, SC&A
Bob Barton, SC&A
Kathy Behling, SC&A
Fin Black, SC&A
Ron Buchanan, SC&A
Grady Calhoun, DCAS
John Cardarelli, DCAS
Rose Gogliotti, SC&A
Lara Hughes, DCAS
Alek Kranbuhl, DCAS
Lori Marion-Moss, DCAS
Robert McGolerick, HHS
Michael Rafky, HHS
Lavon Rutherford, DCAS
Tim Taulbee, DCAS

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Proceedings

(11:00 a.m.)

Roll Call/Welcome

Dr. Roberts: So welcome to the Advisory Board on Radiation and Worker Health. This is a meeting of the Subcommittee on Procedures Review. I'm Rashaun Roberts and I'm DFO for the Board.

There is an agenda for today. It's on the NIOSH website. It's under February 2022.

Now since the Subcommittee will be discussing a number of different documents some of which involve specific sites, we do need to address our conflicts of interest. So if a conflict does happen to come up during the course of the meeting, Subcommittee members do need to recuse themselves from the discussion where their conflict may apply.

So as we move through the roll call, Subcommittee members and others, please state whether you have a conflict of interest. And we will start with Chair Beach.

(Roll call.)

Dr. Roberts: Okay. Great. All right. Well, thank you and again welcome to all of you. I do need to go over a couple of additional items before I give the floor over to Josie Beach, who is our chair.

In order to keep everything running smoothly and so that everybody can be heard, please mute your phone unless of course you're speaking. If you don't have a mute button, please press *6 to mute. To take yourself off, press *6 again. And again the agenda, the presentations, background documents, et cetera that are relevant to today's meeting can be found on the DCAS website. And all of these materials were sent to the Board members and other staff prior to this meeting.

So with that, Josie, over to you.

Chair Beach: Okay. Thank you, Rashaun.

So as Rashaun said, our meeting agenda is posted. I do want to ask -- we're scheduled to (telephonic interference). And we typically don't take a full lunch break. If that's going to be an issue with somebody, please message me or let -- speak up. We'll go half way through the agenda and then take a 15, 20-minute break and then get back onto the agenda. We do have a full agenda and I'm wondering if there are any changes in the order that people need to possibly do one before the other. Is there anything like that happening today?

Kathy, do you know of anything?

Ms. Behling: No, Josie. The only thing I will mention is if the presentations that are coming in perhaps this afternoon, the PER presentations, if they start to encroach on the 3:00 time frame, I think we should move to items such as selecting documents that have already been reviewed by the Subcommittee that we want to present at the full Board meeting in April so that we cover all of those items before maybe all of the presentations. So we'll base that on the time frame.

Chair Beach: Okay. That sounds good. And we are scheduled to go to 3:30, so --

Ms. Behling: Yes.

Carry-over Items from Feb. 13, 2019, Feb. 18, 2021, & Nov. 3, 2021 Subcommittee Meetings

Chair Beach: -- we'll definitely keep an eye on that. So thank you for that.

I do want to mention that there was a lot of work that went into -- if you were reading and getting prepared for this meeting, you saw that there was a lot of work that went into prepping for this meeting. So I want to thank everyone for that ahead of time.

And we are going to start with the carry-over items.

I know we're not going to be able to close out all of them. There may be a couple. Kathy said she was prepared to take us through those. And of course, NIOSH, jump in where you would need to.

So with that said, if there's no other comments or announcements, we can go ahead and start with our carry-over items and the OTIB-0006.

Kathy, are you going to present anything during the carry-overs?

Ms. Behling: There's going to be some presentations, yes.

Chair Beach: Yes.

Ms. Behling: I can lead into that. And I can also put the agenda up on the screen, if you want. I just --

Chair Beach: Sure.

Ms. Behling: -- have not been able to share my -- okay. Looks like I am able to do that now. Okay. Hold on one second.

(Pause.)

ORAUT-OTIB-0006

Ms. Behling: All right. There's the agenda.

All right. We're going to start with, as Josie said, OTIB-0006, and that's the dose reconstruction for occupational medical X-ray procedures. And Ron Buchanan has been involved in this OTIB, so I'm going to turn it over to him and let him give just some response to this carry-over item.

Chair Beach: Okay. Thank you.

Dr. Buchanan: Okay. Yes, this is Ron Buchanan. Can you hear me okay?

Chair Beach: Yes.

Dr. Buchanan: Okay. This is OTIB-0006, which is the

occupational dose reconstruction for medical X-ray procedures. And this is a fairly lengthy one. It's been revised six times, and so I'll go back and just let you know that what we're focusing on here is the Revision 6 to see if it addressed our issues from our evaluation of Revision 5.

So Revision 5 was issued in August of 2018, and SC&A did an evaluation of Revision 5 and issued a report in January of 2019. We had no findings. We had 7 observations and about 10 documentation items to address.

And so in the meantime Revision 6 was issued in September of 2019. And so in January of 2021 the chair of this Committee tasked SC&A with a focused review to determine if Revision 6 addressed our concerns from our evaluation of Revision 5.

And so we performed that review, that focused review, and issued a report on the 3rd of February of 2021. And this Committee discussed that during a meeting on February 18th of 2021 and seven observations -- of the seven, five were closed during that February meeting a years ago and two remained open. And the two that remained open was No. 2 and No. 7 and most of the documentation issues were addressed and satisfactory during that meeting a year ago.

Now the two that remained open concerned the chest thickness being changed from 23 centimeters in older editions of OTIB-0006 to 24 centimeters in Revision 5 and 6. And so we didn't have a problem with it being changed from 23 to 24 centimeters because the literature showed that it ranges from 20 to 25 centimeters, but did want some documentation on how they arrived at that.

And NIOSH responded to our concerns about documentation on the BRS on February the 19th of 2021, a day after that Committee meeting, and stated that they derived that 24 centimeters using the Monte Carlo neutron-photon edition on ICRP-1010 and they arrived that 23.9 centimeters and

rounded it up to 24 centimeters.

And so we -- that's the information we requested and so we at this time recommend that that observation be closed; it's been satisfied.

Chair Beach: Okay. So let me make sure I understand. So we closed 2 at the last meeting, so the last one was just the update for 7, and you're recommending you -- closure?

Dr. Buchanan: No, this was 2. We closed all but No. 2 and No. 7, yes. And I was discussing No. 2, which is the chest thickness. And we received documentation on that, on the BRS. And we agree with that, and so we recommend that the Committee close Observation 2.

Chair Beach: Okay. I just had 2 as closed last meeting, so I have that incorrect. Okay. Thank you.

Dr. Buchanan: Okay.

Chair Beach: And then --

Dr. Buchanan: No. 7.

Chair Beach: Yes, go ahead.

Dr. Buchanan: Okay. And then No. -- yes, No. 7 had to do with Procedure 61. Now Procedure 61 was being phased out and replaced by OTIB-0006 revisions, and Attachment C contained a breakdown of medical X-ray doses for the skin other than entry dose. And so we had been using it in a dose reconstruction, been using it. And OTIB-0006 Revision 5 and 6 no longer contained that information in it. And so we questioned on how we were supposed to do it. Then we had some discussion and then NIOSH said they would respond in a BRS, and they did on the 29th -- let's see, the 19th of February. They explained that page 24 of the new revision of OTIB-0006 provided equations. Instead of using the tables out of Procedure 61 or OTIB-0006 that we were to use the table out of NCRP-102(b)(8), I believe it was. And so

we followed that trail and we agreed with that. And so we recommend closure of Observation 7 also.

Chair Beach: Okay. Thank you, Ron.

Questions, Paul or Loretta?

Member Ziemer: I have no questions. Thank you.

Member Valerio: I don't have any questions, Josie.

Chair Beach: Okay. So then we're in agreement with, Ron, your assessment of that and agree to close.

Member Ziemer: I'm comfortable with closing, yes.

Chair Beach: Okay. Thank you.

Member Valerio: I'm good, Josie, thank you.

Chair Beach: Okay. Thank you.

Thanks, Ron.

Dr. Buchanan: Okay. Thank you.

Ms. Behling: Okay. I think can we move on?

Chair Beach: Yes, please.

OTIB-0011

Ms. Behling: Okay. The second item under the carry-over is OTIB-0011, and OTIB-0011 is the dose conversion factors for radon working level months. And to the best of my knowledge, when I went back through this, the only thing that I could see that might be outstanding is during the last meeting Steve Marschke presented information regarding OTIB-0066, and OTIB-0066 -- let me go here and -- that is calculation of dose from intakes of special tritium compounds. And as part of our review of OTIB-0066 our first finding had to do with the fact that they were recommending using the methodology in OTIB-0011, and that was imbedded into OTIB-0066. However, that -- we discussed that finding and as a resolution to that Finding 1 NIOSH did remove those statements

and they are no longer referring to OTIB-0011 for calculating doses from intakes of organically-bound tritium. So that resolved the issue. And that's the only thing that I could find under OTIB-0011. So it was discussed at the November meeting and I believe it was closed.

Now did you have something else in mind when you put that on this list, Josie?

Chair Beach: Well, from what I remember it was a clean-up item in the BRS. And without being able to backtrack and look at the BRS, I'm going to have to go with your comment there.

Ms. Behling: Okay.

Chair Beach: So that's all that was.

Ms. Behling: Okay.

Chair Beach: And that's the note that I wrote down.

Ms. Behling: Okay.

Chair Beach: So I --

Ms. Behling: And that's good.

Chair Beach: -- (telephonic interference) --

Ms. Behling: And, yes, what we should make sure to do, I have put together along -- Josie and Lori Marion-Moss -- we put together a temporary BRS matrix. And we should make sure that this item gets put in there so that when we do get access to the BRS again we update any information associated with OTIB-0011.

Chair Beach: Yes, and I think we need to do that with the previous one, too, 0006. So, yes.

Ms. Behling: Yes, anything that we talk about today -- when I put together that BRS matrix, I tried to include all of the discussions that we had at the last meeting. The prior meeting in February I had the

opportunity to actually go into the BRS and update the BRS before we lost access. So the temporary matrix that we have will include anything from the last meeting and all of the items that we discuss today.

Chair Beach: Okay. Yes, and that was my whole point of this was just trying to clean up so things made sense when we --

Ms. Behling: Right.

Chair Beach: -- went into the BRS. Ms. Behling: Great. Great.

Chair Beach: So, perfect. So we can consider that item closed out, thank you --

Ms. Behling: Okay.

Chair Beach: -- and added to the matrix.

Ms. Behling: Okay.

Chair Beach: Paul, Loretta, okay with that? No disagreement?

Member Valerio: I'm good with that, Josie.

Member Ziemer: Yes, we're good.

Chair Beach: Okay. Thanks.

Mr. Barton: This is Bob. If I might though -- and maybe this is not the

right --

Chair Beach: Sure.

Mr. Barton: -- moment for this, but we've talked about how NOCTS is never coming back the way it used to be and the SRDB is going to be different. Is the BRS going to be essentially the same, or do we not even know at this stage how that's going to progress? (Telephonic interference) --

Mr. Calhoun: This is Grady and --

Mr. Barton: Yes.

Mr. Calhoun: -- I think we don't know for sure. They've committed to us that everything including NOCTS and BRS is going to have the same functionality, but it may not look the same and it may function differently but still be able to do what we want. So something will be available and it should be similar, we hope. That's what we're hoping for. So that's all I can really tell you.

Mr. Barton: Fair enough, Grady. Fair enough.

Chair Beach: Thanks.

OTIB-0001

Ms. Behling: Okay. If we're ready, we'll move on to Item No. 3, which is OTIB-0001. And OTIB-0001 is maximum internal dose estimates for Savannah River site. And that was actually canceled, and based on the note on the internet on the NIOSH website the guidance was moved to OTIB-0018.

So at the last meeting I believe Josie indicated that there are still some open findings in OTIB-0018 and we need to go back and look at those.

So I did that and what I found from OTIB-0018 -- and I will mention that I believe I updated the information that we found -- in fact it was Lori that provided me with the PDF from the BRS that she had luckily captured before we lost access. And I uploaded that to the ABDA virtual volume so you can look at what the discussion was throughout the time frame.

And actually we reviewed that back in like the 2006 time frame and the Finding 5 that is still open; it's in progress, has to do with -- we felt that there should be a more thorough evaluation of their monitoring programs at the DOE facilities in order to ensure that OTIB-0018 represents claimant-favorable approach to assessing internal dose.

And there was a great deal of discussion at various meetings in 2007 and 2008 and I think what it really came down to is Mark Griffin was on the Board at the time and he had some very specific questions. He was concerned that the list of radionuclides did not include all the worst-case radionuclides and specifically associated maybe with Mound.

And he had questions such as what is NIOSH's evidence that sites covered by OTIB-0018 had a robust air sampling program? He also asked what is NIOSH's evidence that those sites took appropriate action when air sample action levels were exceeding and are the worst-case radionuclides covered. Specifically he was referring to various radionuclides at the Mound site.

And NIOSH's response was that there was not a rigorous review program, but that they really needed to go to the authors of the various TBDs and that the authors would need to be queried again for more definitive information to answer his questions. And that's the last that we had any discussion on this issue. And I'm not sure that there was -- that NIOSH followed through with that and so I'm really not sure how to proceed from here.

Chair Beach: Well, and, Kathy, that's one instance, but I also went back through and I read the transcripts from that 10/2/2007 meeting and nowhere did it talk about that specific 0018. So that was the other thing I had. There was quite a bit of notation in that whole document that shows that it was discussed and decided and closed, but really if you go back and read that transcript, it's not there. So I think that was one of my issues with 0018. And I don't -- has 0018 even been revised since that? It's an old document.

Ms. Behling: It is. No, it has been. And in fact that was going to be my next comment. Our other finding was Finding 6 and we indicated that OTIB-0018 may not be claimant-favorable for organs of the respiratory tract. And the response to that was

NIOSH indicated that they were going to put more specific information into that OTIB to ensure that the dose reconstructors understood that. And that was a comment that was made back in 2007 and the revision -- there has been no revision to OTIB-0018. Rev. 1 was dated August 9th, 2005 and it has not been revised. But that's (telephonic interference) --

Dr. Taulbee: This is Tim.

Chair Beach: Yes, go ahead, Tim. Thanks.

Dr. Taulbee: I just wanted to give an update that we are revising OTIB-0018. It is currently working its way through the review cycle at this time so there is a new revision of OTIB-0018 that will be coming out.

Chair Beach: Terrific. Okay. So I guess I would propose that we hold this discussion. This was a twofold: We hadn't fixed the findings, but there was also some question on the BRS and being able to backtrack who put what in. And there was two I think that were transferred, but it never said where they were transferred. There were several that said they were closed, but there was really no notation or documentation that the Subcommittee closed. It was just recommended closing.

So I guess I would say that we hold off on any more discussion on this until the new issue is released and then we can task SC&A to review. Does that seem agreeable?

Member Ziemer: Could you clarify for me now -- and this is Paul. So OTIB-0001 is canceled. That was correct to start with, right?

Ms. Behling: Correct, that was my understanding.

Member Ziemer: (Telephonic interference) that's canceled. On 0018 is -- Kathy, is -- Findings 5 and 6 were the only ones you said appeared to be still open, or was there --

Ms. Behling: That's correct

Member Ziemer: -- lack of documentation on the other ones, on the other findings?

Ms. Behling: As Josie mentioned, some of them were transferred, but I do agree with Josie, I think we need to go back and review all of these findings once again and especially in light of the revision that's going to be coming out.

Member Ziemer: Yes, that makes sense. And take a look at the revision and any findings that need to go forward or haven't been handled in the revision. Even if they have we need to make sure that we've handled 5 and 6 and any of the others that are unclear.

Ms. Behling: Yes, agreed.

Dr. Taulbee: Josie, can I make a recommendation here that you kind of close out the OTIB-0001 since that document is canceled and just make this OTIB-0018, because that seems to be the concern here?

Chair Beach: Yes, I would agree with that.

And we would want to add that to our matrix, Kathy, if that seems agreeable to everybody. Because 0001 is canceled, correct?

Ms. Behling: Yes. Yes, definitely we --

Chair Beach: Okay.

Ms. Behling: -- should move it to OTIB-0018.

Chair Beach: Okay. So let's do that formally today if everybody's in agreement and document it in the matrix and then with the notation that things are moving to the OTIB-0018. And then we'll add the revision and review also.

Does that make sense, Paul and Loretta?

Member Ziemer: Yes.

And, Tim, could you clarify, when is the timeline roughly on the revision?

Dr. Taulbee: I knew you were going to ask that. I'm sorry, Paul.

Member Ziemer: Well, I don't -- I know you can't fully commit, but I mean are we talking in the next few months or is this off a ways, I mean in the priority list?

Dr. Taulbee: I'm hoping it's in the next few months, but it could be longer than that. It could be six months because --

Member Ziemer: Okay.

Dr. Taulbee: -- of some of the other things -- other TBDs we're trying to get out right now.

Member Ziemer: Yes. Likely it will be this year though? That's (telephonic interference) I'm getting at, yes.

Dr. Taulbee: Yes.

Member Ziemer: Okay. Thank you.

Chair Beach: And, Tim, this is Josie. You said that was in the review process. Has it been updated?

Dr. Taulbee: It has, but one of the -- several of the review comments are quite significant, so it's --

Chair Beach: Okay.

Dr. Taulbee: -- kind of going back.

Chair Beach: Okay. So we'll keep track of that. And then if you could let us know when that comes out?

Dr. Taulbee: Yes, will do.

Chair Beach: Okay. Everybody agree with that?

Member Ziemer: One other question. So have we -- by this action are we actually tasking SC&A to do those things once the revision is out?

Chair Beach: That's a great question. I would agree

with that, however I'll have Rashaun answer that, if that's something we can do in advance.

Dr. Roberts: I would suggest waiting for the revision.

Chair Beach: Okay.

Ms. Behling: Okay. This is Kathy, and would you like to move on?

But if I may -- and this is something I was going to discuss later in the day under the supplemental topics, but since it seems relevant now and I'm not -- I'm hoping we're going to get to the supplemental topics. One of the things that has become a little bit more challenging for SC&A at this point in time is becoming aware of when new revisions are put out, when new documents have been issued, when documents have been canceled.

And I know that there's usually some type of an email sent out, but I'm wondering if we could set up better communications or a more formal means or communication so that we become aware when these documents have either been revised or newly issued or canceled. Is that something we can talk about now in light of this OTIB-0018?

Chair Beach: I don't see why not. And I found in my documents there's a review status of NIOSH's technical guidance documents and we received it -- this is dated as of October 21st, 2018, and it was -- it's a whole -- several pages of all the documents. So I know that they have that in their system. I'll turn it over to Tim or Lori to answer the full question though if that's something that we can have access to more often.

Ms. Marion-Moss: Josie, this is Lori. Normally when a document has been revised and published an email was sent to Rashaun. I mean I can add you guys, SC&A, on the distribution of that when that happens the document, the published document into a folder, their old O: drive. So now I'm sure most of you are aware that I have the approved documents in the

virtual volume and I will continue to add documents to that as they are published.

I guess the question remains (telephonic interference) else be added to the distribution that I send out when the document is (telephonic interference).

Ms. Behling: And I would appreciate --

Ms. Marion-Moss: I still --

Chair Beach: Oh, go ahead, Lori. Oh, I'm sorry. Kathy.

Ms. Behling: Okay. I was going (telephonic interference) that in the past -- and I don't know this is -- but Ted used to send to SC&A like a (telephonic interference) a list of documents that were recently issued or revised to ask us if we could review that, look it over and to ask if we thought that it was worth being -- having it reviewed. So that was what we used to do in the past also. So I don't know if Rashaun wants to do that or if we want to just add SC&A onto some distribution list.

Dr. Roberts: I think just maybe to regulate this a little bit I can take up that practice that Ted had and do that --

Ms. Behling: Okay. Thank you.

Dr. Roberts: -- do what was done in the past.

Ms. Behling: Yes. Okay. That would be very helpful for us.

Chair Beach: Well, and since we're on this, does that include the templates, too, Lori?

Ms. Marion-Moss: Sorry. I didn't hear your question.

Chair Beach: Oh, I was wondering does that also include the templates when they're revised, because I know those go through revision occasionally. Would that be added to that?

Ms. Marion-Moss: Templates?

Chair Beach: Yes.

Member Ziemer: Yes, I think you're talking about the work books that -- there was something in the discussion for today's meeting that mentioned that a couple of I think the work books got changed and SC&A wasn't aware of it.

Ms. Behling: Yes, they're called templates. They're dose reconstruction methodology --

Member Ziemer: Yes, templates.

Ms. Behling: -- templates, yes.

Member Ziemer: Yes.

Ms. Behling: Yes, we will have that discussion during one of my presentations.

Member Ziemer: Right, but I think she --

Ms. Behling: Perhaps (telephonic interference) --

Chair Beach: -- Josie's asking if you should get notified when those are revised or changed.

Chair Beach: I was asking Lori --

Member Ziemer: Wasn't that what you were asking, Josie?

Chair Beach: Yes, I was asking Lori if that -- if her documentation that she sends to Rashaun -- if that includes the templates. That's what I was asking.

Ms. Marion-Moss: In the past, Josie, it did not include the DR methodology templates.

Member Ziemer: Okay.

Ms. Marion-Moss: And I guess that's something we can discuss.

Chair Beach: Okay. We'll leave that for later

discussion though because I know it's coming up. I just thought I'd check with you now.

Okay. Any other questions or comments regarding the last issue?

Member Valerio: I don't have any, Josie.

Chair Beach: Okay. Thank you.

And I know, Paul, you asked one.

The next issue --

Member Ziemer: Yes. No, we're good on the path forward. Sounds good.

ORAUT-TKBS-0060

Chair Beach: Okay. Thanks, Paul.

And the next issue is (telephonic interference) 0060. And I know that NIOSH has a memo issued, so, Lori, -- or not Lori, NIOSH, are you going to take that up or is Kathy going to go through it?

Mr. Kranbuhl: Yes, this is Alek Kranbuhl. Can everyone hear me okay?

Chair Beach: Yes. Hi, Alek.

Mr. Kranbuhl: Hi. Like I said, I'm Alek Kranbuhl. I'm the site lead for Grand Junction so I'll be just covering the memo real quick.

So we issued this memo in response to the five observations --

Chair Beach: Can I ask a question? Can that be posted on the Skype since we have Skype? Can these (telephonic interference) --

Mr. Kranbuhl: I can try to share my desktop if that's okay.

Chair Beach: I was thinking Kathy's already sharing. She may have that available.

Mr. Kranbuhl: Oh, sure.

Chair Beach: (Telephonic interference).

Ms. Behling: Do I have access to that? I'm not sure I have it.

Chair Beach: Oh, I don't know if you do. Yes, (telephonic interference).

Ms. Behling: Oh, okay. Okay. Was it put on the website?

Chair Beach: Yes, it was.

Ms. Behling: Okay. Let's see if I can find that.

Chair Beach: It was one of the earlier ones.

Ms. Behling: Okay. Now was this put on the virtual volumes, or was this actually posted on the website.

Ms. Marion-Moss: Kathy?

Ms. Behling: Yes?

Ms. Marion-Moss: This is Lori. It was put on the website as well as virtual volumes.

Ms. Behling: Okay. I am scrolling through here. Do you see my screen? Okay. And this is --

Chair Beach: Sorry to throw that at you.

Ms. Behling: No, that's okay. I'm just not seeing it.

(Pause.)

Mr. Rutherford: Is it down under discussion papers?

Ms. Behling: Okay. Because I --

Chair Beach: It was the meeting -- one of the biggest problems with this situation is we don't have access to those readily.

Mr. Barton: I think I see it. It's actually under the Grand Junction web page --

Chair Beach: Yes.

Mr. Barton: -- instead of under the procedures.

Ms. Behling: Okay. I can go there.

Ms. Gogliotti: And perhaps for record keeping we could get it added to the meetings for future meetings.

Chair Beach: I thought it was in the meetings list.

Ms. Behling: I am not having much success here.

Chair Beach: Should I give control over to NIOSH at this point? I apologize.

Chair Beach: Yes. Yes, that's probably --

Ms. Behling: Okay. I'm going to stop presenting.

Mr. Kranbuhl: All right. I should be sharing my screen. I don't know if everyone can see.

Chair Beach: No, not yet.

Mr. Kranbuhl: No?

Chair Beach: Oh, there (telephonic interference).

Mr. Kranbuhl: Okay.

Ms. Behling: (telephonic interference).

Dr. Taulbee: Try now, Alek.

Mr. Kranbuhl: Okay. Let me try again.

Chair Beach: Ah, there we go. Seeing something.

Mr. Kranbuhl: All right. Should be seeing a memo.

Chair Beach: Yes, it's there, Alek. Thank you.

Mr. Kranbuhl: Oh, okay. Is this a good size for everybody? Do I need to zoom? I'll zoom in a little bit.

Okay. So like I was saying, we issued this memorandum in response to the five observations that SC&A had for the Site Profile for Grand Junction.

So the first observation was just concerning some unclear language in the occupational medical dose section. The wording in there basically said that pre-employment, annual, and post-employment PA and AP X-rays be assigned for each year, which would be incorrect. So they were to do that literally. So since we will be revising the technical basis document based on some other observations we're going to go ahead and commit to just straightening out that language. So making sure that's clear that the pre-employment and post-employment X-rays are only one time and then annual PA and AP exams for each year of employment.

And I guess I'll go ahead and after we address each one I'll open up to questions. Or if there are no questions, I can just move onto the next one.

Dr. Buchanan: Yes, this is Ron Buchanan with SC&A and we reviewed that and we agreed with that.

Mr. Kranbuhl: Okay. So for the second observation -- so this was pertaining to the use of the incorrect DAC to -- for co-exposure intakes after 1990. So this is table 5-6 from the TBD. So the issue was that when the TBD was written and the values in the table were calculated a DAC of 3 times 7 minus 12 microcuries per milliliter was used for thorium because it was the more limiting DAC. The issue is that the site was actually using a DAC of 7 times 7 minus 12 as their actual control level for thorium-230. So based on this we're going to have to revise that table using the correct DAC value. And like I said before, this is kind of the main reason that we will be revising the TBD.

So we verified this, the 7 times 7 minus 12. This was actually in a couple different site documents as well as some of their radiological work procedures, so we have reasoning to think that seven should be correct.

So are there any questions about this one?

Chair Beach: None here.

Mr. Kranbuhl: Okay.

Chair Beach: I was just pulling up the matrix because if you have access to the matrix it is -- all of these listed in that as well.

Mr. Kranbuhl: Okay.

Ms. Marion-Moss: This is Lori Marion-Moss. Before we move on, Josie, I have a question. Are we going to determine the status of each of these observations after Alek presents?

Chair Beach: Yes.

Ms. Marion-Moss: Okay.

Chair Beach: And I guess we can do each one of them if that's easier.

Subcommittee, what do you think? Each one or just take them at the end?

Member Ziemer: I'm okay either way. I'll let it be your call, Josie, whether --

Chair Beach: Okay. Well, maybe -- let's see, we've covered a couple of them. The first one I know SC&A agreed with.

Any comments on the second, Ron?

Dr. Buchanan: No. This is Ron Buchanan. We agree with that.

Chair Beach: So you agree with both the first and the second one? Okay.

Dr. Buchanan: Correct.

Ms. Marion-Moss: So the status -- this is Lori again. The status would be what? In abeyance, closed, or --

Chair Beach: I believe those would go into abeyance,

correct, since we're waiting for the revision?

Mr. Barton: Yes, Josie, this is Bob. I think that's the way we normally do things because there's an agreed-upon path forward.

Chair Beach: Yes.

Mr. Barton: But we still need to see the change actually manifest itself. So I think in abeyance is correct here.

Chair Beach: Okay. I agree. Yes, I agree with that also.

Okay. Alek, if you want to go ahead and move to the next one?

Mr. Kranbuhl: Yes, I will move on. Thank you.

So the third observation had to do with potential exposure. So there's a fairly large radon calibration chamber at the site and so the technical basis document basically says that any exposure while working around the chamber would be calculated as working level month and should be in the worker's exposure files.

So we went back and we reviewed several -- really all the claimant files that we could find. And reviewing transcripts from a couple of interviews with individuals from the site really the radon calibration chamber was the only routine airborne radioactivity area on the site. And based on interviews it was really only posted as an airborne area while it was in use. And then once they were done calibrating with whatever equipment they were calibrating, the chamber was actually -- the radon in the chamber was exhausted to the environment and then the chamber was de-posted prior to anyone going in the chamber.

So we went back and looked at records and there were actually no working level month entries in any of the records that we reviewed, so I don't think we

see this as a potential issue, not being bounded by the levels from Building 30B. And I will -- if anyone has questions on this one, we'll go ahead and --

Chair Beach: Ron, any discussion on this one?

Dr. Buchanan: No, we had no -- they did what we asked them to do, to look at the working level months in the records and there wasn't any there. We haven't had a chance to -- did you interview -- you said this would have been recent that you interviewed a former employee?

Mr. Kranbuhl: No, this was a pervious interview. I think this was Tom Tomes' interview from a few years ago, but I -- going through the transcript they were very clear in the actual controls that were used for operating the chamber. And then so that coupled with the fact that there were no working level month entries in any files kind of would suggest to me that the area should be bounded by the same levels as in the building.

Dr. Buchanan: No, we have no further issues with it as far as SC&A is concerned.

Mr. Barton: I mean, this is Bob. I'm a little uncomfortable here because I mean it's one interview. And like you said, it was an airborne radioactivity area, but we don't have any measurements from what that is. And we have the one interview that says nobody would be in there. I'm not sure that the simple lack of records means that the approach is going to be bounding. I'm not sure this is a real serious issue, but I mean simply not having reports of working levels in a claimant's record I'm not sure really justifies the approach from a separate area.

I don't know, it's just -- we haven't had a lot of time to look into this I guess, but again I mean it's basing it on one interview (telephonic interference).

Chair Beach: Yes, I was going to bring that up, too. I'm not sure I'm comfortable with that one either.

That's something we're going to have to determine where we would go from here on in.

Other Subcommittee members?

Mr. Barton: Well, that's the other thing. As Ron mentioned, I mean NIOSH went and did what we were asking for was to go look through the claimant files.

Chair Beach: Correct.

Mr. Barton: And certainly a weight of evidence could be -- argument could be made that we're not seeing any monitoring for it, so it wasn't actually a real source term per se I guess, but lack -- is lack of evidence -- evidence.

Member Ziemer: Was the original question whether or not the chamber was evacuated or purged prior to people going into it?

Mr. Kranbuhl: The original question was --

Mr. Barton: The original question was that it had stated in the TBD that any workers who were in there possibly exposed would have been monitored and had a working level exposure report in their files. And so we asked well, do you actually see that ever happening? And the answer to that is no, none of the claimants have any of that monitoring record. And so the question is is it an actual exposure source that we need to be worried about? And again weight of evidence would be that we have at least the one employee interview that said nobody would have been in there ever if it was in use. At the same time it is labeled as an airborne radioactivity area.

So again it come down to weight of evidence. I'm not sure that we need to spend that much time really debating this, but it (telephonic interference) the question of we were expecting to find these monitoring records for at least a few employees who would have been involved. Those don't exist, so is the approach that's being proposed bounding? And

I'm not sure that we have a connection between the number right now, which is 5.7 picocuries per liter with Building 30B as being reflective of if there is even is a potential exposure source with these radon chambers.

Dr. Taulbee: This is Tim. If I could follow on here, I mean what is it that you're wanting us to go and demonstrate here? I mean we've looked at interviews, we've looked into what people have said about -- the chamber was evacuated and nobody would go into there. I mean do you want more interviews? What is it that you're looking for here?

Mr. Barton: No, I understand, Tim. I understand because the question is what would be a viable path forward to get through this? I just -- I want to point out that basically the statement was made in the TBD; it probably should be removed certainly, that says that these records would exist in the claimant files. We have no evidence that that occurred. And now it's just simply a question of whether the chosen radon value would sufficiently bound it. And I guess I'm not seeing that connection between Building 30B and -- I guess the argument that's really being made; and you can verify this, is that it's simply not an exposure source. Do I have that correctly?

Dr. Taulbee: Yes, that's how I would interpret it.

Member Ziemer: Where is the 5.7? Where does the 5.7 picocuries per liter value come from? Was that a typical background measurement for the room in which the chamber exists, or existed?

Dr. Buchanan: No, this is Ron with SC&A. No, 5.7 was the -- they did a survey and found that the radon concentration was highest in Building 30B. And so they used that as a limiting intake to assign. And the rest was less than that. And so that's where the 5.7 came from before they tore these buildings down.

Mr. Kranbuhl: Yes, the radon chamber was actually in Building 32, so 5.7 -- 30B was the highest (telephonic interference).

Member Ziemer: Well, they must have had some measurements from 32 as well then. Did they or not?

Mr. Kranbuhl: I would have to double check but I believe so.

Member Ziemer: Well, so if you're calibrating instruments you can't have somebody in there while they're calibrating them. The instrument has to be --

Chair Beach: Correct.

Member Ziemer: Yes, so the only way you could have someone in there -- so to make up this scenario, oh, somebody forgot to evacuate the -- or to purge the chamber before it was opened for further use. So if somebody opens the door and the radon that's in there escapes into the room or something like that, I suppose -- I don't know how big this chamber is compared to the room, but I suppose one could calculate what the mixed value or the concentration would be in the room if the radon were allowed to escape into the room instead of into the atmosphere. But I don't see people being in there when -- with the radon level at whatever it was for calibrating the instruments because you couldn't do that. As soon as you open the door you lose that even if you forgot to purge it. But they must have also have had a procedure. Do we have the -- a written procedure for how you --

Mr. Kranbuhl: So I managed to actually find the technical manual and there is an operating procedure for the chamber within that document.

Member Ziemer: Okay. So the SOP would -- I mean, you'd have to say they routinely ignored the SOP for someone to not purge the chamber before -- you know, you have to open it up to change instruments and so on.

Mr. Barton: Well, this is Bob again. It seems like the issue here was that it was identified as a potential source of exposure in the TBD (telephonic interference). And so --

Member Ziemer: Yes. Yes.

Mr. Barton: -- perhaps we're just getting too far ahead of ourselves and we should just think about the fact that it really wasn't an exposure source. So the fact that you're using the radon (telephonic interference) other buildings is sort of beside the fact, that we don't really have necessarily a credible source of exposure and so we don't need to necessarily worry about it.

Member Ziemer: Yes.

Mr. Barton: I guess that's what I'm hearing.

Chair Beach: Okay. Bob, I'm going to back to you. Are you comfortable with closing this or do you want some internal discussion on a path forward? Do you agree with the 5.7? I don't think that's going to change in the revision.

Mr. Barton: Right.

Chair Beach: You mentioned --

Mr. Barton: I mean I think it would be -- just for due diligence I think it would be important for SC&A to look through that SOP and verify exactly what's being said so that we can all come to closure that it really wasn't an exposure pathway that needed to be considered. It was -- and we're adding on the amount from the highest building on site, so even if it was an exposure pathway, it's not being ignored completely. So I think if we could look at that SOP, I think that might just close out this issue.

Chair Beach: What about records from Room 32? Any need to look at those?

Mr. Barton: Well, Ron, you can correct me, but I don't think that we had measurements necessarily from this area, which is what kind of spawned the whole issue to begin with. That's why we were using the surrogate essentially of 30B to reconstruct doses potentially from this exposure pathway which may or

may not have even existed.

Ron, I mean please weigh in here. If we had measurements from that room that were credible, I mean I don't know why wouldn't have used those in the first place. I'm a little confused here.

Dr. Buchanan: Yes, I'm not aware of any unless NIOSH has some. The way I understood it they went around and took measurements and then used the highest one at the building. I don't know if -- I'm not aware of continuous measurements they did that would reflect operating -- through operating time of the chamber, unless NIOSH has other information.

Mr. Kranbuhl: There wasn't anything that I saw reviewing, going through a lot of the old records.

Chair Beach: Okay, so moving --

Dr. Buchanan: That's what I understood.

Chair Beach: Oh, sorry.

Dr. Buchanan: Yes.

Ms. Behling: And this is Kathy. I think perhaps we should also look at the interview information. It didn't seem to me that Ron had access to that.

Chair Beach: Okay. So moving forward could the interview notes and the SOP be put onto the website? In this folder.

Ms. Marion-Moss: The virtual volume?

Chair Beach: Yes, the virtual for Grand Junction. Could that be added?

Dr. Taulbee: Yes, we can do that.

Chair Beach: Okay. Thanks, Tim. And then we'll keep this one in progress. Any other comments or questions? We can move on to 4.

Member Ziemer: So Observation 3 will remain open then, right?

Chair Beach: Correct. We'll carry it over to our next meeting.

Member Ziemer: Thank you.

Chair Beach: Okay.

Member Valerio: Josie?

Chair Beach: Yes.

Member Valerio: So just to clarify --

Chair Beach: Yes.

Member Valerio: -- they're going to provide us with the interview and the standard operating procedures, correct?

Chair Beach: Yes. That's what I asked for. And I'm not sure if I got enough affirmation on that or not.

Ms. Marion-Moss: Yes, we'll get that here. The volume.

Chair Beach: I guess Tim did say he would.

Member Valerio: Thank you.

Chair Beach: Yes. So that's what, and then the SC&A can look at that and we'll carry it over to the next meeting.

Member Valerio: Got it. Thank you.

Chair Beach: All right, thank you, everyone.

Ms. Marion-Moss: Josie, this is Lori. So that status will be in progress on this --

Chair Beach: Correct.

Ms. Marion-Moss: -- observation?

Chair Beach: Correct.

Ms. Marion-Moss: Okay. Thank you.

Chair Beach: Thanks.

Mr. Kranbuhl: Okay, I'll go ahead and continue with Observation 4 if that's okay.

Chair Beach: Yes, that's great. Thank you.

Mr. Kranbuhl: Okay. So Observation 4 had to do with assignment of 95th percentile neutron doses only to personnel under the job category. Sorry?

Chair Beach: Alek, can you advance your screen because it's not showing. We're still on 3.

Mr. Kranbuhl: Okay.

Chair Beach: Anybody else see that?

Dr. Taulbee: Actually, it's on 4 for mine.

Mr. Barton: Actually, it's showing 4 to me.

Chair Beach: Ah. Maybe mine froze up. Okay, go ahead then. I'll just --

Mr. Kranbuhl: Okay. So the TBD has personnel under the job title of geologists being assigned 95th percentile. And basically they're the only individuals who would be assigned there.

So SC&A's observation was that there is a possibility that people other than geologists were handling neutron sources at the site. And after the review we concur that there is a possibility that workers who weren't just geologists were handling the sources.

So we're kind of in the process of continuing to investigate this. And we'll need to come back to this after we've looked into it a little more at the next Subcommittee meeting.

Chair Beach: Okay. Any questions or comments on that?

Ms. Behling: So that observation will be in progress?

Chair Beach: Correct.

Ms. Behling: Okay, thank you.

Member Ziemer: Yes. Agreed. Agreed.

Member Valerio: Agreed.

Mr. Kranbuhl: Okay. And then, so for the final observation. So the technical basis document didn't do a good job of explaining why neutron co-exposure doses don't need to be applied after 1995.

So after reviewing, going back and actually looking at dosimetry records from the site, as well as there is a large amount of dosimetry records from Idaho National Lab for the Grand Junction site. So we went back, looked at all these records.

And from looking at this documents, every non-zero neutron dose that was in site documents shows up in rems. As well as additional doses where you can see from internal documents where they did dose investigations, personnel who were exposed to neutron sources but came back with a TLD reading of zero.

They were actually going back. They were doing in investigations and assigning neutron doses based on co-worker exposures.

So just based on the volume of dosimetry records, both from the site and INL, we think that it's safe to think that all of this information made it two rems. So the rems data is complete after 1985.

Mr. Barton: So this is Bob. So the, I guess presumption here is that if you don't have it in your records there will not be a co-exposure assignment of neutron dose after 1985, is that correct?

Mr. Kranbuhl: Correct. Yes.

Dr. Buchanan: Were they doing neutron logging, usage neutron sources after 1985?

Did they like remove most of them at that time?

Do you know if there is a definite time that they shipped these neutron sources out or they just wasn't using them as much or do you know any history on the use of the neutron sources? A cutoff date or something.

Mr. Kranbuhl: Yes. So you can pretty clearly see, so I was actually able to find some old source inventories from the site. And after really around 1981 there was a large shift in how they were controlling the sources at the site.

And then about 1985 they really dropped off. And that's when they also started reporting neutron doses via rems. So that's kind of why that is the cutoff based on this.

So they were doing less logging. A lot of the sources actually went away. And then on top of that they were reporting the neutron doses in rems.

Dr. Buchanan: Well --

Mr. Barton: This is Bob. The question here is, and we encounter this all the time is, we have records. There was positive neutron doses after 1985. And the question is, is there the potential for workers to be out there who don't have the record of their neutron dose.

I think this is one that we might have to carry forward because, I mean, this is one of those co-exposure issues where you have records. We have monitoring records.

But is there the potential out there for claimants who have been exposed who either their records are, happen to be missing or they weren't monitored up to monitoring standards like we usually expect. Where we want to apply some sort of total exposure dose to sort of fill in those gaps.

I mean, I guess --

Dr. Taulbee: Bob?

Mr. Barton: I mean this is completely -- yes. Go ahead.

Dr. Taulbee: Bob, this is Tim. I mean, if you look at the dosimetry results that we got there from those SRDB numbers, I mean, there is over 16,000 of them here in this time period.

So there are a large number of people who are monitored here. So I guess I would ask SC&A to look at those then. If you still have concerns about it then we can talk about it.

But I think when you look at all of the information here noted in our response that I think you'll come to the same conclusion as us. Maybe not. But certainly --

Dr. Buchanan: They were monitored -- this is Ron. They were monitoring for neutrons after '85. Was everybody at the site or were just the geologists?

Was there some places would monitor for beta/gamma and only specific employees would be monitored for neutrons. In this case, did Grand Junction do that after '85 or were they, was the neutron, I mean, according to all these records you have, dosimetry records, did they include just a couple neutron dosimeters or was everybody in a zero or what did that look like?

Mr. Kranbuhl: So from what I saw the area monitoring program really ramped up in the early '80s. So they had several, I think they had 30 different area of neutron dosimeters.

And so those area of badges, I think there were only, I'd have to go back and double check to look at the actual data. But really I think there was only, Building 30 was the one that was higher than background.

And in the dose records they do list zeros for neutron doses for zero dose. So that's the values that they were getting from INL were zeros for neutron.

Dr. Buchanan: Was everybody wearing these neutron badges?

Mr. Barton: Yes, how were we doing --

Mr. Kranbuhl: I can't confirm that.

(Simultaneous speaking.)

Mr. Barton: I mean, if it was Building 30 where it was slightly elevated above background, were the employees in Building 30 all monitored?

I mean, it sounds like there were area badges that indicated that, but how do you assign an area badge to a claimant necessarily. And that's where my co-exposure question really arises.

I guess if everybody in Building 30, which is the location that was, that had elevated results, was also monitored via a neutron dosimeter than great. It just seems like a very high bar to set to say, everybody who should have been monitored was monitored. And we have all those records.

And there would be nobody that we don't have a record for that might have been exposed. Even if it was just slightly above background. I think that's where we're coming from.

Chair Beach: Okay.

Dr. Buchanan: Yes, were individuals assigned neutron dosimeters or were everybody? I guess that's the question at this point.

And recorded as zero or do we just assume that if a few people were monitored for neutrons, they were the only ones with potential exposure? I guess that's the question at this point.

Dr. Taulbee: So this is Tim. If I can summarize. You're wanting us to demonstrate that people with the potential to exposure to neutrons that all of them were monitored?

I'm not quite sure how you're wanting us to demonstrate that but I guess we'll see what we can do from that standpoint. I think more importantly, if we were to get more of the details on the monitoring of the personnel of everybody, if the badges all contained neutron TLDs in this time period, then that would really put this to bed when you look at all of the zeros that we see in the dose records, correct?

Dr. Buchanan: That's correct. Yes.

Member Ziemer: Yes, I, this is Ziemer. I think they're asking whether the 66 doses were the only people monitored or were those 66 that were non-zero and there is, what, 16,000 other values of zero. Or whatever.

Dr. Buchanan: Right.

Member Ziemer: Whatever it is.

Dr. Taulbee: I can tell you --

Member Ziemer: That should be fairly simple to answer that, I think. And then put this to bed. But I guess we need to take a look at it.

Mr. Barton: Yes, I think --

(Simultaneous speaking.)

Mr. Barton: -- rare to assume that everybody was monitored. I think it's pretty rare in this program that we just blanket assumption that there was no unmonitored person out there that shouldn't be assigned some form of co-exposure value. I think that's, it's that.

I mean, we're not asking you to verify that everybody was absolutely monitored and we have all those records. I think we're saying that given the potential uncertainty there that I think it's kind of rare to not have any sort of co-exposure approach for workers who, you know, you look at their file, they're rad workers, and they might have been exposed. And usually something is assigned.

So to have a situation where we're saying, no, everything was complete and there doesn't need to be any sort of co-exposure approached, it's somewhat rare. It seems rare to me anyway.

Dr. Taulbee: Well, I can tell you, Bob, from looking at the records coming from INL and their printout, I mean, virtually everything I'm looking at here is zero. And I scroll down page after page after page of dosimetry data. And it's got, it's broken out for skin, whole body and neutron. And they're all zeros here.

So the big question in my mind right now, what you're raising is, is that are these zeros actually measurements from that TLD, and if they are, then with all of these zeros, with a large number of people that are being monitored, I don't think there would be a need for a neutron co-exposure model from that standpoint.

If the monitored people with neutrons, with neutron TLDs are all showing zero except for a few 66, then I don't see a need for a co-exposure model. I mean, we are talking here in the modern era of this is a post-1986 type of time frame out through 2007.

So this is a, there is a lot of records here showing zero dose is what I'm trying to get to. And I just need to verify, I think we just need to verify that those neutron measurements are in fact neutron measurements. And there is hundreds of people here being monitored and they're all showing zero dose.

So if your monitored workers are showing zero dose, your unmonitored workers, why would they have a positive dose?

Member Ziemer: Or would it even, as a maximum, be any higher than the 66 that you have positives. Anyway, yes.

Dr. Taulbee: Sure.

Member Ziemer: Can you confirm that those are actually monitored values, those zeros? That should

answer the question easily.

Dr. Taulbee: Yes. And we will do that.

Mr. Barton: And I certainly didn't want to infer that there was this group out there that is going to be higher than the 66. I was simply pointing out the fact that if there is a group out there doesn't have that monitoring record, they're getting assigned nothing rather than even just the 50th percentile of those 66 measurements or something like that. I mean, it seems like something so standard that we usually do, but we're not doing it in this case.

I don't think we need to belabor this much longer. I think, Tim, you're correct characterizing who is getting monitored, checking those neutron doses to see they are in fact positive neutron doses. I think that's going to get us a lot closer.

Chair Beach: Okay, thank you. Any other discussion on 5? So that one will remain in progress with the action on NIOSH and then SC&A to follow up.

Let's circle back to the first and second. Paul and Loretta, you agreed with NIOSH. We talked about putting those in abeyance waiting for the update on 60. Do you agree to close both the first and second observation? I think we talked about the first one already.

Member Ziemer: Yes, I agree.

Chair Beach: Okay. So we're good. And, Loretta --

Member Valerio: Quick question, Josie.

Chair Beach: Yes.

Member Valerio: I have meeting notes that Observation 2 would remain in abeyance.

Chair Beach: Correct.

Member Valerio: Okay. So is it closed --

Chair Beach: Yes.

Member Valerio: -- or is it going to remain in abeyance?

Chair Beach: Well the issue is closed. It will stay in abeyance for the, until the updated --

Member Valerio: Okay.

Chair Beach: -- 60 comes out. And then it will be verified.

Member Valerio: Okay.

Chair Beach: And then it will go away.

Member Valerio: Okay.

Chair Beach: Assuming that it --

Member Valerio: Got it.

Chair Beach: -- gets followed up then properly. So then I have for 3, that's an SC&A action after NIOSH puts those two documents in for review, 4 is in progress with a NIOSH action, and 5, NIOSH with a follow-up on SC&A. Does that close those out and we can move on?

Member Ziemer: One other quick question. Can we, or maybe you already agreed to do this and I missed it. Will a copy of this document be distributed to us, I don't think I have it.

Chair Beach: Oh, it's in the virtual, so that's, yes.

Member Ziemer: Yes, I mean I'm looking at it --

Chair Beach: Yes.

Member Ziemer: -- but can we get a copy of it? Yes.

Chair Beach: Can that be sent to NIOSH to, well, I don't know if you can get it on your personal because it's in the NIOSH --

Mr. Barton: Yes, it's posted on the website. It's posted on the website.

Chair Beach: Yes.

Mr. Barton: So we can send him a link. We can send a link. That's fine.

Chair Beach: Oh, perfect. Okay.

Ms. Behling: And, Josie --

Member Ziemer: Thank you.

Ms. Behling: -- one last question.

Chair Beach: Yes, go ahead.

Ms. Behling: And, Josie, one last question. This is Kathy. I just want to confirm that Observation 1 and 2 are in abeyance? They are not --

Chair Beach: Correct.

Ms. Behling: -- close they're in abeyance? Great. Okay, thank you.

Chair Beach: Oh, you're right. Yes. Yes, we agreed to move them into an abeyance. You're correct.

Ms. Behling: Okay, thank you.

Chair Beach: Thanks.

Member Ziemer: Will this be posted on the meeting website for the public? There is nothing in this one that's confidential, is there?

Ms. Behling: No it is not.

Mr. Barton: It's already been posted.

Ms. Behling: It's been PA-cleared and posted under the Grand Junction site.

Member Ziemer: Oh, it is already there? Okay. Sorry.

Ms. Gogliotti: But for posterity it would be good if we

could get it posted under the meeting files also.

Chair Beach: Yes. And no reason not to.

Dr. Roberts: Yes, I believe Lori had done that. I'm not sure.

Ms. Marion-Moss: This is Lori. I'll follow up on that to get it posted under the meeting.

Chair Beach: Thank you, Lori. Okay, are we ready to move on to PER-087? The next carryover item.

DCAS-PER-087

Ms. Behling: Yes, Josie. PER-087 is Clarksville and Medina Modification Center. And there was, we had a discussion on this at the last meeting. And Finding 1 had to do with substantiating the use of the Pantex dose data as the surrogate for Clarksville.

And I believe we were waiting on NIOSH to provide that clarification. I don't know if they're in a position to do that.

Dr. Taulbee: This is Tim. And I can provide an update on this. Okay.

Ms. Behling: Okay.

Dr. Taulbee: We concur with SC&A's finding that we need to do a, we need to justify the use of surrogate data for Clarksville from Pantex.

Now, in going through this we felt this was going to be fairly straightforward. And it is for the years post-1967. However, for the earlier years it's not as straightforward.

The monitoring at Pantex when they were coming online was much diminished, as I believe SC&A even pointed out in there. And so as we go in to look at this more, what we found is that Pantex, in the TBD that we are using, basically back extrapolated from their latter year work two years prior to 1957.

Now for the Pantex plant that was clearly bounding because they didn't have a lot of the cores onsite in doing that type of work. And so that was one of the issues that was closed out during the SEC evaluation.

But for Clarksville they did have them in that time period. So what we've done is we've looked hard at the Clarksville's data.

That we're doing, people that were doing the modification work, and there was a large number of, not large, but a number of Sandia workers stationed at Clarksville that were doing this work. And these workers appear to have been monitored during this early time period in 1949 and 1957.

In reviewing this data set though we realized the data set is incomplete. We only have examples of it in the SRDB. And so we're currently requesting the complete data sets from Sandia. And once we get that, then that is the data we'll be using for Clarksville.

So it won't be a surrogate from Pantex anymore from that standpoint. We concur with SC&A that when we started to do the justification we really couldn't.

So we're working on developing an exposure model approach for the model based upon the dosimetry that we have examples of. But we recognize that it's not complete. Doesn't meet the implementation guide standards for co-exposure.

But we are requesting that additional data. Unfortunately we don't have a time line for the receipt of this yet. But once we do we will be updating the Clarksville TBD.

And very likely issuing another PER from that standpoint. At least we will be evaluating which way the doses go up or whether they go down from that standpoint. So is there any questions with Finding 1?

Chair Beach: No, but thanks for that update.

Dr. Taulbee: Okay.

Chair Beach: SC&A, questions?

Mr. Barton: This is Bob. That sounds like the right path forward to me.

Ms. Behling: Agreed.

Dr. Taulbee: All right. So this one I would say is in, or not in abeyance but in progress.

Chair Beach: Right. Yes.

Dr. Taulbee: Our goal is that once we get the exposure model done, before we put it into the TBD I would like to present it to the work group, or to the Subcommittee here, if that's okay. Kind of get your buy in before we go through the revision process.

Chair Beach: Yes, that sounds like a good idea, Tim. Thank you. Yes.

Dr. Taulbee: Okay. And so the other open issue with Clarksville PER-087 was the observation. And we agree that the language, I believe we agreed to this during the last meeting, we agree that the language is not clear from that standpoint. And the calculation that SC&A noted in their observation is the one that we are actually following.

So when we revise the TBD for this, for the early dosimetry issue, early exposures, we will also clarify that language. So this one I would basically say we agree, the language is not clear and we will clarify it. And so I would suggest or recommend that you all put this one in abeyance.

Chair Beach: Okay.

Ms. Behling: It's currently in abeyance.

Chair Beach: And that's what my suggestion was going to be. Thank you. Any comments? And --

Ms. Behling: Just --

Chair Beach: -- Kathy, can you make a note to update the matrix for this new information?

Ms. Behling: Yes, I will. And both the Finding 1 is currently in progress. And the Observation 1 is in abeyance. But I will add wording to the effect of what we talked about today.

I just want to add one additional item to this. During our discussion of Finding 1, Finding 1 was actually Finding 7 from our original review of the Clarksville Medina TBD. And that was done back in 2012.

And I think Lori asked, if the findings from that 2012 TBD review were being tracked. And I attempted to find an answer to that without having access to the BRS.

And I do not think they have been tracked. And I don't think that they exist in the BRS at this point. So I made a note in our temporary matrix that once we have access to the BRS all of those findings will be updated.

Chair Beach: Okay, great. That's --

Dr. Taulbee: This is --

Chair Beach: -- clarification on that.

Dr. Taulbee: This is Tim. If I could add on to that a little bit. When we started researching this as well we ran into quite a bit of difficulty tracking down the use of Pantex data as well. And part of this is because of the way the SEC is evolved for Pantex and then for Clarksville and then back to Pantex under admin review.

So, it actually got really jumbled as to us trying to figure out the basis that we initially had here. So when you go through and you're looking through that, Kathy, I guess I would ask that you look at the SECs as well. Because I think some of those early findings may have gone away due to the SECs that were established.

Ms. Behling: Okay, very good. Thank you.

Dr. Taulbee: Okay.

Ms. Behling: Okay, I'm making a note of that. Thank you. Okay, are we ready to move on to OTIB-0088?

Ms. Marion-Moss: Before we do that --

Chair Beach: Yes.

Ms. Marion-Moss: -- Lori, I have a question.

Chair Beach: Go ahead.

Ms. Marion-Moss: Josie, I was thinking, I know this, these findings for Clarksville are tied to PER-087. But is there a way for the Subcommittee to consider closing out the review of 87, the PER itself, and basically transfer these findings to the Clarksville TBD?

Chair Beach: Oh, yes. Without confusing it even more. I don't see, as long as we document it, that that would be a problem. Kathy, what do you think?

Ms. Behling: I agree. I think it should be under the Clarksville Medina. It's more easily to be tracked under that.

Chair Beach: Okay.

Ms. Behling: But yes, I can do that once we have access. I think it's a good idea.

Chair Beach: Okay. And it would just mean updating this temporary matrix to say what we're --

Ms. Behling: Okay.

Chair Beach: -- doing and why.

Ms. Behling: Okay. All right.

Chair Beach: And that way we can keep track of it here.

Ms. Behling: Okay.

Chair Beach: So yes, I think that's a good idea. Thanks, Lori.

Ms. Marion-Moss: No problem.

Ms. Behling: All right, let me just --

Chair Beach: Can you, what's the Clarksville number?

Ms. Behling: Good question. The TBD number?

Chair Beach: Is that the, is that under 039? No, that's the older one. You can give that to us, we can get that later. That's okay.

OTIB-0088

Ms. Behling: Okay. All right. Okay. All right, we will move on them to OTIB-0088 if we're ready.

Chair Beach: Yes.

Ms. Behling: OTIB-0088. Okay, OTIB-0088 is the external dose reconstruction to OTIB. And we had reviewed Rev 1.

And there were two observations. Observation 4 and Observation 5 that were still in abeyance after the last meeting.

And as a result of that, the Subcommittee tasked SC&A to review Rev 2 and determine if that closed these in abeyance items. And Ron has done that. And I will attempt to see if I can pull that up.

I don't know why I'm having problems here. I'll go a different route. I'm pulling up Ron's presentation. Can you see that?

Chair Beach: Yes.

Dr. Buchanan: Yes.

Ms. Behling: Okay. Hey, Ron, are you ready.

Dr. Buchanan: Okay. Okay, this is Ron Buchanan again with SC&A and I'll be presenting SC&A's focused evaluation of OTIB-0088, Revision 2 for external dose reconstruction.

Next slide. Okay, now, OTIB-0088, just to refresh your memory, Revision 0 was issued in 2018. Revision 1 was issued in 2019. The Subcommittee tasked SC&A with a review of Revision 1 in March of '21. And we had performed that review and issued our report in September of '21.

Now, while we was doing that, Revision 2 was issued in June of '21.

(Telephonic interference.)

Ms. Behling: Sorry about that. Let me see if I can go back here. Can you hear me?

Chair Beach: Yes.

Dr. Buchanan: Yes, I can hear you.

Ms. Behling: Okay. I'm sorry.

Dr. Buchanan: We just have --

Ms. Behling: Yes, I'm sorry. Let me see how I get out of this. Rose, can you give me assistance.

Ms. Gogliotti: You're in the slide master.

Ms. Behling: Okay. How do I get out of here? Close slide master view. Okay, I'm sorry about that. Go ahead. I thought I was going to make it a bigger screen and I didn't do that.

Ms. Gogliotti: If you hit view, Kathy --

Dr. Buchanan: Okay.

Ms. Behling: Pardon me?

Ms. Gogliotti: View at the top of the screen. And then you can show it as a presentation.

Member Ziemer: Well, you're back on the slide so you're okay now.

Dr. Buchanan: Yes. Yes, I think it's okay.

Ms. Behling: Okay.

Dr. Buchanan: Let's see. We was, Revision 2 was issued during Revision 1. So the Subcommittee asked SC&A to do a focused review on Revision 2 to see if it answered our earlier items. And that was during the November 3rd, 2021 committee meeting. And so SC&A did that focused review and issued a report on January 7th of 2022.

Okay. Now, to just go over the review here. The purpose of this OTIB was to provide external dose reconstruction guidance using the approved documents. Such as IG-001 technical base documents, site profiles and ORAUT procedures. And there was concern with exposure to photons, neutrons, electrons, ambient dose and x-rays.

Now an overview. Their approach was to look at external dose records, occupational medical x-ray doses, incident investigation reports, types of external radiation exposures and a conversion of external dose to organ dose and uncertainties.

The document contained three attachments, A, B and C. Attachment A was concerned with assigning miss dose. Attachment B was concerned with onsite ambient dose. Attachment C was a list of DOE neutron weighting factors according to ICRP, which were implemented at DOE sites in approximately around the year 2010. And we'll talk a little more about that as we go on here.

Okay. So our focused review was to evaluate the changes in 02 to compare it to 01 to determine if our five previous observations had been addressed by these changes and/or were addressed by the discussion we had during the recent November 2021 committee meeting.

Okay, now if you look at the Revision 2 of this OTIB you will see the notes with changes was on Page 16 were recommended applying the ICRP Publication 60 weighting factors after the dates listed in Appendix C. And K-25 was added to that list.

Now, a little background. Before 2010 DOE sites were using the NCRP neutron weighting factors. And then in around 2010 they started applying ICRP 60 neutron weighting factors which were more conservative and had a other factor of two greater than NCRP.

So the data at the sites, when they were recorded, used NCRP. And so when we do dose reconstruction they had to take that recorded dose and multiple it by a correction factor to convert to the ICRP. And usually it's ran around the factor of about two.

But after the DOE site implemented the ICRP neutron weighting factor in their dose recording methods for neutrons, then that conversion factor should not be applied because you'd be increasing the dose by a factor of two shouldn't. And so that's what Appendix C of OTIB-0088 lists the dates that each individual DOE site implemented this weighting factor. And we concur with these changes that NIOSH has made so far in Revision 2.

Now one of the questions on, we formally had Observation 1 was path forward concerning Procedure 60 data contained in OTIB-0088. And we discussed this at the November meeting. And I'll just briefly go through these because we just did it a few months ago. But I'll cover the ones that were closed there also.

And they indicated, NIOSH indicated that the specific external ambient dose that was contained in procedure 60 would be included in the revised site profiles. So the committee accepted that action and closed this Observation 1.

Observation 2 was concerning the x-ray doses that were to be assigned. And SC&A pointed out the

diagnostic and therapeutical x-ray doses were not supposed to be included.

And NIOSH indicated that dose reconstructors were well aware of this and would not sign those. And so the Committee, they discussed that and closed Observation 2.

Observation 3 was concerned with unmonitored worker potential exposure. And we discussed that during a November meeting.

And NIOSH stated that they would remove that in the next revision of 0088. The statement that in general it is expected that reconstructed dose to unmonitored workers will be less than doses to monitored workers. Discussed that and the Committee accepted that and closed Observation 3.

And Observation 4 was concerned with use of multiple badge records. And this was discussed during the November meeting.

And what this consists of is that some places, such as INL, you use different badges depending on what facility you was at there. And so we brought that to NIOSH's attention.

Because they had stated in there for cases in which multiple badges were issued for a particular monitoring period, only one zero measurement should be assigned per monitoring period. But in some DOE sites you should use all the badges.

And so NIOSH will revise this statement in the next revision. And the Subcommittee accepted that. And it remains open pending the review in the OTIB and our review of that.

Chair Beach: Should this one --

Dr. Buchanan: Observation --

Chair Beach: I'm sorry for interrupting, Ron. Should Observation 4 be moved to in abeyance?

Dr. Taulbee: This is Tim. I would actually like to clarify this a little bit, if that's okay?

Chair Beach: Sure. Go ahead.

Dr. Buchanan: Okay.

Dr. Taulbee: Okay. What we had stated, that we would review that particular statement, I didn't recall acknowledging that we would revise the statement in the next revision, but maybe I did say that mistakenly during the last meeting. But we have reviewed this over the past couple of months.

And so I have an update for you all. And basically we agree with SC&A that all dosimeters need to be considered.

One of the things that SC&A indicated in their previous review is that they believed that all dosimeters were being considered in dose reconstructions. And while this is generally correct, it's not actually true for all cases, as we have learned over the past couple of months. It's generally for just overestimating type of cases where the dose reconstructor will go through and thumb through all the dosimetry. And then the INL TBD has specific guidance on how to address multiple dosimetry.

But another site, Hanford, doesn't specifically address this. So during best estimate cases the language in OTIB-0088 is what is actually followed. That we only assign one measured dose.

But we agree that this is not what we should be doing from that standpoint. So simply deleting the language, as indicated here, of revising the statement doesn't really make the issue, doesn't really fix the issue for us. So because we need to issue some guidance of what are we going to do for dose reconstruction.

So a little bit of background here. Early in the program, in Rev 0 and Rev 1 of the external dose implementation guide, there was guidance on how to

handle all dosimeters when people were issued different dosimeters in multiple locations.

And then in 2005, 2007, in Revisions 2 and 6 of IG-001, that guidance got removed. In the past couple of months we've done a few, we've done quite a bit of research. Going through meeting transcripts, historic emails. We asked Jim and Stu to go through theirs and see what they could recall as to the reason that guidance was removed.

And we have not been able to find anything specific to that. So we went through work group meetings back in the 2007, 2006 time period. And we can't find anything as to why that guidance was removed.

Our best guess is that the removal was inadvertent in an attempt to be responsive to a different comment that the uncertainty discussions in the external Imp Guide were complex and needed to be simplified and streamlined. That's where we think this guidance got removed.

And so, our initial proposal was to simply reinstate this early programmatic guidance. And keep in mind that that guidance was developed back in 2001. And our program has advanced quite a bit over the last 20 years.

So, as we're working through that, during the internal review last month we identified the significant weaknesses with the method that these were actually identified by our statistical team and it causes some pause here. So we're working with our statisticians currently to develop some new guidance to consider all the dosimeters with a situation where a worker has multiple dosimeters across the same facility, during the same exchange site.

We're not ready yet to present that to the Subcommittee here, but we are working on that. I would like to point out though that this is really only an issue for some workers at a few facilities. Hanford and INL are the two, two of the biggest ones.

This isn't a widespread dose reconstruction issue for the complex. And it's really only workers that would have dosimetry issued at multiple facilities.

So much like the Clarksville discussion before, we plan to present this new methodology for discussion at the next Subcommittee meeting. And once agreed upon we'll revise OTIB-0088 to incorporate that.

So this one, although Josie had just mentioned to put it in abeyance, I actually feel like this one is in progress on our end to come up with the new methodology and present it to you all.

Chair Beach: Okay. How does that sound --

Dr. Taulbee: Any questions?

Chair Beach: Thanks, Tim. Any other Subcommittee members or SC&A questions for Tim?

Member Ziemer: Well, it's clear based on what Tim said that this is not in abeyance, an abeyance issue, we need to keep this open and review the material that NIOSH presents next time.

Chair Beach: Yes. No, no, I agree with that. I was wondering if you had any other clarifying questions for Tim.

Member Ziemer: No. It's kind of puzzling as to what happened. But it is certainly something that is worth putting back in. We need to have some particular approach to this issue.

Ms. Behling: And this is Kathy. Tim, you did indicate that this new guidance will be put into OTIB-0088. Because you mentioned also, IG-001. And I think it's best put into 0088 as opposed to IG-001 because it's more, it doesn't get used as much, I wouldn't think, by the dose reconstructors.

So I --

Dr. Taulbee: That's correct. Actually, it's going to end up in both.

Ms. Behling: Okay.

Dr. Taulbee: But IG-001, when it's revised for IPR-P-116, at that time we'll add it into IG-001 as well.

If you noticed, OTIB-0088 actually is what the dose reconstructors use, you are correct. But it actually parrots everything that's in IG-001. So it provides some additional clarification but it follows IG-001, which is why it's clear in the language that it is going to be removed.

(Telephonic interference.)

Dr. Roberts: All right, please make sure your phone is on mute.

Ms. Behling: Okay, this is Kathy. I think that's a good idea to enter them both, IG-001 and the OTIB-0088. And good, that answers my question.

Chair Beach: Okay. Does that cover 5 as well or can we move on to 5.

Dr. Buchanan: Okay, Observation 5 was clarification of an NCRP to ICRP correction factor. And I discussed that a little bit earlier and we recommended that the site profile contains the recommendation to convert from NCRP to ICRP up until the date, 2009 to 2010, or excuse me, 2011 time frame. Most the DOE sites converted around 2010.

And this was discussed again at the November meeting. And that the, NIOSH indicated at that time that there was, this item was --

(Telephonic interference.)

Dr. Roberts: Hi. Can we take a minute to try to figure out where that's coming from?

So if anyone, if everybody could check their phones.

Dr. Buchanan: Okay, it sounded like we got it fixed.

So this was discussed at the November meeting. And

NIOSH indicated that there was a section in the Revision 2 that addressed this. And so the Subcommittee tasked SC&A with a focus review of that to determine if its observations was adequately addressed.

So we can go to the next slide. Okay, so we reviewed Revision 2 and found that they did add text on Page 16 concerning missed neutron dose. Not to apply the ICRP weighting factors if implemented at DOE sites.

However, we feel that that didn't completely answer the question because it also needs to state measured neutron dose. You wouldn't want to apply it to measure as well we missed.

And so it could be correctly simply by adding measured, or just say neutron dose. And so we recommended Observation 5 remain open. And for that to be corrected.

We can go to the summary. So in our --

Dr. Taulbee: Can I --

Dr. Buchanan: -- evaluation we find that the discussion during the November meeting addressed and closed Observations 1, 2 and 3. Observation 4 we just discussed on a multiple badge records and that remains open pending that insertion and our review of that.

And Observation 5, we just recommend it be worded to include all neutron doses and not just missed dose. So we recommend that Observation 5 remain open.

Dr. Taulbee: Could I comment on these here?

Chair Beach: Yes. I was just going to ask you for your comments, Tim.

Dr. Taulbee: Okay. Observation 5, we don't have any problems with updating the language since we're reopening OTIB-0088. If we weren't reopening OTIB-0088 I'd probably be arguing more about not doing so.

But because we know from Observation 4 we got to revise OTIB-0088, we will incorporate observation, actually Number 3, which we committed to early, to modify whenever we open OTIB-0088 again. And we'll do the same with Observation 5. We'll clarify that language.

So I'd like to propose to you, Josie, that Observation 3 and 5 be held in abeyance and Observation 4 be in progress. That's my proposal to you.

Chair Beach: Okay. And I am in agreement with that. I just opened up the matrix and was going to ask Kathy to update that. Because that, right now, 4 and 5 are both listed as in abeyance. And I believe 3 is listed as closed. So, Kathy, if you don't mind making note of that?

Ms. Behling: Yes. I will make that change.

Chair Beach: Okay, thank you. And other Subcommittee Members agree?

Member Ziemer: Yes, I agree with Tim's recommendations.

Member Valerio: I agree, Josie.

Chair Beach: Okay. I do too. So I believe that closes out OTIB-0088.

We have one more if we could, I don't think OTIB-0049 is too long, if we could go through that and then --

Ms. Behling: Okay.

Chair Beach: -- and do a quick summary and then we'll take a break.

ORAUT-OTIB-0049

Ms. Behling: All right. OTIB-0049, that's our Super S OTIB. And I believe it was Observation 7, SC&A asked if we could have an internal discussion over the issuance of whether this OTIB should have a PER

issued in its behalf. And we did that.

And Rose presented OTIB-0049. And I'll let her continue with this discussion.

Ms. Gogliotti: Sure. Just a brief reminder, OTIB-0049, the purpose was to specify a biokinetic model for the use in evaluating the deposition and retention of inhaled very insoluble plutonium. Which we generally call type SS, or Super S, plutonium.

And the old model you see as an adjustment factor, a factor of four, we saw it a lot. However, when we reviewed the new revision NIOSH made quite a few changes to the method.

It's kind of a hybrid approach that uses updated guidance from ICRP 130, 67 and 30. And they developed a whole new workbook called IDOT. And our Observation 7 had to do with a PER.

We thought a PER would likely be necessary because our preliminary calculations showed that organs in the thoracic and extrathoracic regions would receive higher doses in some instances.

And when we discussed this at the last meeting NIOSH indicated that they did not have a PER in the works currently. And didn't really have a plan to implement a PER. Or weren't going to put it into the queue because they intended to eventually update all of their guidance to newer ICRP guidance. Specifically including ICRP-141.

And it was our position that that will eventually lower all doses. And it would be a lot of work essentially to do a PER to increase doses when they plan to eventually decrease those doses again with a new ICRP guidance.

And where we left it last time was SC&A requested to discuss some things internally to make sure we were all on the same page going forward. And we have had those discussions.

But there is a few things we'd like clarified just because that was not the path forward that we thought. Rev 2 is currently being used is that correct?

Mr. Allen: Yes, that's correct. This is Dave Allen.

Ms. Gogliotti: Okay. So it was our previous understanding that any change in dose reconstruction method that increased dose would lead to a PER or at least minimum --

(Simultaneous speaking.)

Mr. Allen: That is correct. I'm sorry, go ahead.

Ms. Gogliotti: But we have an instance here where dose is increasing but you don't plan to do a PER and so we are kind of curious what decides when a PER is necessary and when it actually gets done.

Mr. Allen: Okay. I can speak to that. The standard approach is we make a change, we look to see if any doses go up.

If they do we put it on the list for a PER and the first step in our PER process is to determine whether additional changes are coming in the future.

If we know there are additional changes coming then we say it's, you know, my wordage is it's not ripe for a PER yet.

We hold off on it and we usually put the new steps somewhere else in our project plan and we link to that so that the PER does not start until those steps are all done.

So in this case the standard approach would be we would put the OTIB-0049 PER on, actually I'd probably call it Super S PER, on our plan and link it to implementing ICRP-141, which would be several years down the road to get it completely done.

Once that is done then we would be looking at the PER for Super S. However, we already know implementing ICRP-141 is a big chore and it involves

much, much more than plutonium and we also already know that the doses would be lower.

Therefore, it seems silly to put it on there only to eliminate it later because it would no longer be a Super S PER. It's going to be an ICRP-141 PER. Actually, ICRP-130 PER is what it would amount to.

I don't know if that made any sense, but that is pretty much our standard approach is we make a change, if we know additional changes are coming we do not PER it until we are done with all the changes.

Otherwise, we would be piecemealing these PERs frequently and that's a testament that you can see by all the different revisions to all the different TBDs you have seen over the years.

Ms. Gogliotti: So this is the standard approach --

Mr. Barton: This is Bob. Thank you for that clarity, Dave. And, again, I think we were sort of caught off guard because, like you even intimated, you know, when a dose reconstruction method changes, especially if it's going to increase dose then the PER gets put on the schedule.

And what I think we wanted as far as to approach and closure for this was sort of to clarify how that process works because I think even some of the Subcommittee members were a bit confused.

If you look at the transcript saying, well, if the doses are going up you have to do a PER, and I guess the question from our standpoint was, well, how does that process either get initiated or put on hold.

I completely understand from a pragmatic sense what you are saying, that, listen, we're going to be overhauling the entire system.

I guess where it's a little troubling for us is the notion that, well, it's going to be a few years down the line and there could be claimants out there, we don't know for sure, but, you know, that certain illnesses

are more affected by Revision 2 of this TIB that we might increase their doses to say that, well, we're not going to re-work your dose reconstruction because we're going to, we would essentially end up changing it a few years down the line anyway, which would lower the outcome.

I guess we were just seeking that sort of clarity of how the process works because, again, we were taken aback a little bit saying, well, if the doses go up then you have to do a PER.

But I think we certainly all agree from a pragmatic sense what you are saying that you can't have a constant influx of PERs, it just doesn't make sense.

But we just wanted the clarity you provided on how that decision is made because we were certainly unclear on it from SC&A's side and I think it's important that the Board also understands the approach because there could be a claim that was evaluated under Revision 1 that might get comped under Revision 2 but wouldn't be comped under Revision 3, which is a few years down the line.

And so that process was a little murky for us and I appreciate your candor in explaining how it is that that decision is made. I don't know if the Subcommittee has any comments on that front.

Chair Beach: No. This is Josie. I don't. I agree with that and the clarification is helpful. Loretta? Paul?

Member Ziemer: Well it makes sense if we get those other items that we know will result in changes that are possibly in process or about to be in process.

Otherwise, if there is no immediate prospect for a change I think you can just say, well, there might be in the future. I assume, Dave, you are talking about cases where you know there is a change coming.

Mr. Allen: Right. I mean it's not a speculation that maybe just someday there will be some. I will clarify that one time. There was a little bit of speculation if

there is like an SEC review or a TBD review going on and they are still sorting out findings.

At that point I can't really say there is definitely a change coming on, but a lot of times we will wait until those reviews are settled before we try to proceed with the PER because they often result in a change.

Member Ziemer: Exactly.

Mr. Allen: But other than that --

(Simultaneous speaking.)

Member Ziemer: Yes. I agree with that, yes.

Mr. Allen: Okay. I was going to say other than that it just has to be --

(Simultaneous speaking.)

Member Ziemer: But typically you will know what's going on that could affect it and if there is nothing going on then you have to take action.

Mr. Allen: If there is nothing going on, yes. I can't just speculate that there may be some day.

I will point out one thing about this particular one, it was for the example case that SC&A wrote in their review, it was ET2 dose and L and ET dose were the only ones that actually went up and I don't think ET2 dose even went up much.

There are very few -- Just to point out, there are very few cases that actually use those as the organ of interest. Those that do are either very easily compensated already without the Super S part of it or there are a very small intake in no matter how high, you know, like a small short-lived environmental intake, short-term environmental intake. Those are so low it doesn't matter how high we do it.

So it kind of comes down to the, you know, there is a slim, very little chance that anybody's case is

actually going to flip because of this little bit.

And, as I said, we already know there is going to be another change that is going to actually knock it down below where we used to be, so the decision is fairly clear on this one that we don't want to go through and try to PER this at this point when we know we're going to have to do that PER again in a few years.

And it's not like it's small -- Well --

(Simultaneous speaking.)

Ms. Gogliotti: You just made a document that was a small PER.

Mr. Allen: I was going to say it's hard to say, it's not a small PER but it is, it takes a lot because it's not one site.

You have to go through 50,000 claims pretty much to figure out what your population is and then at that point I know it's a pretty small population.

But then there is no way to say anything other than just calculating the doses again and in reality a hundred claims is pretty small when it comes to 50,000 claims, but that's still a lot of recalculating and a lot of documentation to deal with in a PER.

So, I don't know, there it is. It is what it is at that point. Like I said, our standard approach is we know there is something coming soon or coming in the future that we are not going to PER this at this point.

Member Ziemer: Thank you, Dave.

Ms. Gogliotti: Have you actively started working on that --

(Simultaneous speaking.)

Mr. Barton: Dave, at the same time you just pointed out that it wouldn't be a huge population, so in that case it's like, well, if it's not that difficult then why

aren't we doing it with this kind of --

(Simultaneous speaking.)

Mr. Allen: Granted. I know I just pointed that out but I also know that it was based on SC&A's review of an example case. I can do example -- I am not sure if all example cases are going to end up being ET2 and L and ET.

It could end up being lung and then it ends up being a much larger population. I don't know at this point. I would have to do some more calculations, but I think there is probably scenarios where it could be lung.

And at that point you've got 20 percent of the cases, or about 10,000, you have to calculate numbers for that you don't want to. I think it would only be a really weird situation where it would be lung, but then you are looking at it's only lung cancers with only acute and not a chronic intake or something along that line.

That is impossible to figure out without going through case by case by case and it has the potential of blowing up into a huge issue.

And, again, I didn't want to dig that deep into it just because we are going to change things and we know it's going to go down. So just back to the standard approach is we don't do it if we know there is another change coming.

Ms. Behling: And, Dave, this is Kathy Behling. I am hearing that you have not run any calculations on your end to determine which cancers may be impacted. You are just basing it on our calculations.

Mr. Allen: I have done similar and probably more than what SC&A has done, but it comes down to the idea that there is no definitive calculation you can make.

It's pretty much all scenarios and there is an infinite

number of scenarios that changes with the length of chronic intakes and whether or not it's chronic or acute.

I think ingestion might affect it versus inhalation. I know injection does. It just gets ugly as far as trying to show or prove that you've got the right population.

But I mean normally my approach would have been essentially all respiratory tract, and I would have to look into GI tract, I'm not quite sure on that one. I think that's okay, but I would have to look, and, again, that would be some 10,000 claims or so to deal with.

So I have no belief that it would affect a large number of claims even at this point if we intended to leave it, but I think I would have to go through some 10,000 claims to show that is kind of my point.

Ms. Behling: Thank you.

Ms. Gogliotti: Is there a timeframe that you have come up with to implement your changes?

Mr. Allen: No. I mean this was something that long ago we wanted to implement with ICRP-116, if I remember right, which is the external dose conversion factors.

The thought early on, we would implement ICRP-130 changes along with ICRP-116 and have all the -- This will affect every claim ever done.

This is all the DCS for external dose and all the internal dose models for every isotope. This is not a small deal, obviously. I also think the 116 might beat us to the punch on 130.

So, again, it's not going to be a small deal. As far as timeframe, I have absolutely no clue. It's going to be quite some time. It's going to be a few years for sure.

Dr. Taulbee: So if I can add on to that just a little bit. Part of why this is going to be, you know, a few years is that programs such as IMBA use the old models,

so there would be a new program to implement the ICRP-130.

And so there is a lot of work that is here, beginning in the background here, but it's going to take a few years for us to get and, you know, that's kind of where we are at right now.

Mr. Barton: And this is Bob. I think that's where we kind of got kind of hung up on this thing because -- We understand the process, and, again, thank you for clarifying that because I don't think it was quite clear at the last meeting.

But, you know, if we are looking at years down the line it's just a, it's difficult to, or it would be difficult to explain to a claim how their dose might be calculated going up, but since we are changing something that may take years -- And like you said you'd have to re-write IMBA essentially or create an entirely new IMBA program.

So I mean if this thing was like, yes, well, we're making changes, you know, in a couple months so we're obviously not going to do a PER, you know, of course that makes sense, but when we're talking about years, without really a definite date, I think that's what gave us pause.

But, you know, I think the whole purpose here was to gain clarity on the PER process, how NIOSH's procedures work in that avenue, and I think that we accomplished that.

We know how it works. We know how it works now.

Chair Beach: Okay. Good discussion. That leaves us with seven. Are we satisfied with that? Should we put that into --

(Simultaneous speaking.)

Mr. Barton: I think the resolution was to have that conversation that we just had about how the PER process works and how the decisions are made in the

best interest of the program.

Chair Beach: Yes.

Mr. Barton: So I mean I would recommend, and I will defer to Kathy here, certainly, but I think we're probably ready to close that one out.

Ms. Behling: I would like to hear the Subcommittee's feeling on whether a PER should be issued or not based on this conversation.

Chair Beach: I don't think -- Paul, do you have any comments on that?

Member Ziemer: Yes. On this one, this is one where -- Well, let me ask first, what was the observation itself again, how is it worded?

Ms. Gogliotti: We just noted that a PER may be required.

Member Ziemer: Yes, okay. And I think we heard from Dave that that will occur when the other items that are underway are resolved, isn't that correct, Dave, on this one?

Mr. Allen: Yes, that's correct.

Member Ziemer: Yes. So --

Chair Beach: And, Paul, they are tying it to ICRP-141, which we already know is years in the making, so essentially the PER is a long ways off, correct?

Mr. Allen: Correct. Let me -- Can I point out one last thing before you finish this discussion?

Chair Beach: Certainly.

Mr. Allen: I mean we're talking about a PER here. We're not talking about using the doses. We are currently using OTIB-0049 Rev 2.

So some people are going to get a dose reconstruction between now and the time we implement this that we know is going to be a little

more elevated than it should be. That happened and that's not part of the PER process.

The PER process is whether we go to the Department of Labor and ask them about all those previous claims that we have already completed long ago and whether we should get them back and then redo the dose reconstruction to make them higher and get them paid before we change the things that we know is going to happen to cause the doses to go down again.

Chair Beach: Right. What's the possibility of doing that?

Mr. Allen: I don't know. I mean we do PERs all the time but the assumption is always that the change is done, or at least we don't know of any that are going to be coming.

I mean to get these claims back, which is the only purpose of a PER is to get a claim back that's already been completed, to get it back we've basically got to tell DOL the real dose should have been higher, you need to vacate your final decision and return the claim to us, and I am not going to say that because I know it shouldn't be higher.

Chair Beach: Yes.

Mr. Allen: It's temporarily higher.

Mr. Barton: This is Bob. I understand. I understand absolutely where you are coming from.

I guess the only retort to that would be, you know, if you were the claim submitted the day before Rev 2 started being used in dose reconstruction you got a lower dose than you would have got if you submitted your claim the day that Rev 2 started being put in use, and I think that's what we are looking at.

And, again, it's the timeframe on this where it is years down the line that it would actually be changed and would there really be a PER, not necessarily for

the Super S, because those are going down.

But, again, I think we just needed clarity on the entire process, the thought process, and what procedures were in place and how those decisions are made, because I think, at least I know I was taken aback last weekend, or the last meeting, by the discussion that happened.

But ultimately it is NIOSH's -- What I am hearing is ultimately it is NIOSH's decision when and where to hold the PER and there is no timing restrictions.

It's really just pragmatically how you evaluate the situation, what changes might be coming down the line. I think that's the summary here, right?

Chair Beach: Yes. I think you're right.

Mr. Calhoun: Yes, this is Grady. That's correct.

Chair Beach: And I don't think the Subcommittee can probably override that, at least I don't believe we have that power. Paul, and you were --

Member Ziemer: Yes. Well, it seems to me the Subcommittee right now we're dealing with whether or not SC&A is satisfied with NIOSH's, I don't know if I would say position, but has NIOSH satisfied the issue that they have raised.

Whether or not a PER should actually occur now, to me that's a -- The issue that was described on this particular case seems me that would be a Board decision whether you would wait for -- Theoretically you could, you raise some values, you may pay some claims which you know if you waited longer wouldn't be worthy of paying, so that's kind of the issue.

Chair Beach: Right.

Member Ziemer: I think that's the issue.

Mr. Calhoun: This is Grady. I think to be clearer on that --

Member Ziemer: All right. I think --

(Simultaneous speaking.)

Mr. Calhoun: The issue is that we know that there is another one coming up. You know, we don't care if they get paid or not, it's just the function of our workload.

We know that there is another item coming up that could affect the process of the PER. So I wouldn't put it such that, well, they shouldn't get paid because we're not going to pay so we're not going to do it.

Member Ziemer: Okay.

Mr. Calhoun: That's not our position.

Member Ziemer: Yes, I understand what you are saying. It has to do with just the process itself and not anticipating who or who will not get paid. It's just when --

Mr. Calhoun: That's correct.

Member Ziemer: It's just -- Do you do the process, overload the system, doing it twice in a sense.

Mr. Calhoun: That's exactly right.

Ms. Behling: Yes. And this is Kathy. As Bob mentioned NIOSH has answered our question and we do understand the process.

I think the confounding variable was the timeframe for the new revision coming out and I think OTIB-0049 there was a PER back in like 2005, so there would be some cases.

But, no, we are satisfied with I think NIOSH's response. I just wanted to hear from the Subcommittee about --

(Simultaneous speaking.)

Chair Beach: Thanks, Kathy.

Member Ziemer: Yes. And typically if SC&A is satisfied with NIOSH's response we normally recommend closing the issue.

Chair Beach: Yes, I agree with that.

Mr. Barton: Hello. Dr. Ziemer, this is Bob. I mean certainly we are looking for the clarification we got and I think basically what has been said is that it's not our purview at SC&A or really the purview of the Subcommittee to --

(Simultaneous speaking.)

Mr. Barton: -- those PERs take place. That's kind of what I have been hearing. I mean maybe I am misconstruing things here, but --

Member Ziemer: No. I think you are correct that our process for this Subcommittee is what you just described. It's not to at this point recommend how NIOSH handles their workload.

Chair Beach: Okay. I agree with that. So we are in agreement to close Observation 7. And, Kathy, if you don't mind again updating that matrix.

Ms. Behling: Yes, I will do that. Okay, so --

Chair Beach: Okay. All right, so with a recap on the carry-over items, there were two that were dropped from the list and I am just going to circle back to those briefly to ask NIOSH for an update, the DCAS-PER-073, the Birdsboro Steel, I'm sure I said that wrong, and the Peek Street template.

Is there any -- Do you have any idea of when we can move forward with those?

Dr. Taulbee: This is Tim. We are -- Fortunately, we have assigned people to those now.

Chair Beach: Okay.

Dr. Taulbee: Those are crazy things that were being transitioned as people had left and so forth. Mark

Rolfes will be taking over Birdsboro and Angelica Gheen will be taking over for the Peek Street, I guess response in a sense.

So we do have those assigned. I don't have a timetable but I am hoping that by the next Subcommittee Meeting, as long as it's not in, you know, the next month type of thing --

Chair Beach: Yes, no.

Dr. Taulbee: -- we should be able to address those.

Chair Beach: Okay, great. So we'll carry those over.

Dr. Taulbee: But those appointments were just made a few weeks ago, so we don't have an update.

Chair Beach: Okay. So we'll carry those forward to our next Subcommittee Meeting, which I am sure is going to be two to three months, maybe four months out. So, okay, thank you.

Any other comments on the carry-over items?

Member Valerio: None here, Josie.

Member Ziemer: No. I have no further comments.

Chair Beach: Okay. Thanks, Paul and Loretta. A break time, let's take, does 15 minutes work for everybody?

Member Ziemer: That will work for me.

Member Valerio: Works for me.

Ms. Behling: That's fine.

Dr. Roberts: So reconvening at 1:40?

Member Ziemer: Reconvene at -- Okay.

Chair Beach: Sure. Is that enough time for people? I know there is no lunch break included in this, but we do have a lot to get to.

Member Valerio: And that's going to be 15 minutes,

Josie?

Chair Beach: Yes.

Member Valerio: Okay.

Member Ziemer: Okay.

Chair Beach: Be back at 1:40. Thanks.

Member Valerio: All right.

(Whereupon, the above-entitled matter went off the record at 1:24 p.m. and resumed at 1:40 p.m.)

Dr. Roberts: Okay, great, all right, well, then I will do a quick roll call.

(Roll call.)

Dr. Roberts: So, Josie, did you want to give Loretta a couple of minutes to get back on?

Chair Beach: Yeah, I think we need to, don't we?

Dr. Roberts: Well --

Chair Beach: Or are we okay with just Paul and I?

Dr. Roberts: Yeah, I think that's a quorum, but we could certainly wait a couple of minutes.

Chair Beach: Okay.

Dr. Roberts: And in the meantime, if people who are on, there is like a lot of racket or something in the background, so make sure that your phone is on mute and that you're not off mute in Skype somehow.

Chair Beach: Yeah, that was a pretty noisy break time, wasn't it?

Dr. Roberts: It really was. I heard all kinds of noises.

Member Valerio: Rashaun and Josie, this is Loretta. I'm back on.

Dr. Roberts: Oh, great.

Chair Beach: Terrific.

Dr. Roberts: All right, so we are back.

Newly Issued SC&A Reviews

Chair Beach: Okay, so this is Josie again. We are onto the newly issued SC&A reviews. And understanding these are new, I don't expect NIOSH to be ready to pursue any of these, though I may be wrong. I've been wrong in the past, so we'll just go through each one of them.

And keeping in mind the time, Kathy, how much time do we need at the end for the Board prep and the newly issued guidance documents? Is 30 minutes enough or do you need more you think?

Ms. Behling: I think 30 minutes is plenty of time, yes.

Chair Beach: Okay, so at 3:00, we'll stop the new presentations.

Ms. Behling: Right, because we'll also need to plan for the next meeting, so I think half an hour will be plenty of time. Thank you.

Chair Beach: Correct, okay, thank you. So, we can start with the Battelle-TIB-5000.

Ms. Marion-Moss: Josie, this is Lori. Before you get started, I just wanted --

Chair Beach: Okay.

Ms. Marion-Moss: -- to mention that the NIOSH DCAS memo on Grand Junction is now located on the meeting page on the web under the discussion paper section.

Chair Beach: Okay, great, thank you.

Ms. Marion-Moss: You're welcome.

Chair Beach: Appreciate it. Okay, the Battelle-TIB-

5000, that is Bob Anigstein, and Bob, are you on the line? Okay, I --

Dr. Anigstein: Hello?

(Simultaneous speaking.)

Dr. Anigstein: All right.

Mr. Barton: We can hear you, Bob.

Dr. Anigstein: Yeah, I'm just trying to figure out how to get my presentation on the screen.

Ms. Behling: Okay, I gave up control, so you can take control. At the bottom, on the right-hand side --

Dr. Anigstein: Okay, feel free to start sharing, and it's the -- okay, sorry. Okay, okay, here we go. Feel free to start sharing and I don't -- it keeps --

Ms. Behling: Okay, at the bottom, there is a screen with an arrow in the corner, if you select that?

Dr. Anigstein: I'm sorry. On the bottom, I have the S for Skype with a red dot on it. Oh, I see. I got you. Start sharing your desktop.

Ms. Behling: And that will bring up the --

Dr. Anigstein: Okay.

Ms. Behling: There we go.

Dr. Anigstein: And, oh, it keeps coming up and then disappearing.

Ms. Behling: We're seeing it.

Battelle-TIB-5000 "Default Assumptions and Methods for Atomic Weapons Employer Dose Reconstructions"

Dr. Anigstein: No, I'm trying to use -- I have a -- okay, now let's see if I can get this, all right. Yeah, I got it now.

Okay, well, last year, just about a year ago at the meeting of the SCPR, SC&A was tasked with reviewing Battelle-TIB-5000. Now, the Battelle-TIB-5000, the title is default assumptions and methods for atomic weapons employer sites.

This TIB was issued, was completed in 2006 and was adopted in 2007, so it's 15 years old. It was prepared by a statistician, Daniel Strom, working for Battelle at the time, and is heavy on statistics and statistical theory, but also includes procedures for dose reconstruction and related matters.

Being a 15-year-old document, we naturally anticipated there would be some obsolescence in it, there would be some differences, and so therefore, we sort of reviewed it with a light hand. We didn't have any findings.

If this had been a more recent document that was currently in use, some of these may have been elevated to findings, but instead, whenever we found an issue, a discrepancy, we called it an observation.

And so, there are 13 observations in all of various degrees. Some of them are technical, minor, but we felt we should call attention to anything we found which should be -- we avoided any editorial comments. We found that's not, from previous, those aren't necessary welcome.

So, I'll go through in order. So, okay, now the observations, we issued the report on the review, I believe it was January 10, and it's the same observations, but because of the limitations of the format of the PowerPoint slides, we're limited to how many characters, how many words can go into the title of each slide.

So, since I wanted to make the observations the titles, some of them are abbreviated or condensed, so if you were to look at the full report, it's the same observation, but the wording is a little lengthier.

Okay, so there was a program called LOGNORM4,

which is a freeware computer program that was developed prior to the issuance of TIB-5000 and is no longer publicly available, and even if we were able to get a copy of it, it wouldn't do very much good because it's a 16-bit computer code and all Microsoft Windows computers running Microsoft Windows 7 or later require at least a 32-bit code or a 64-bit code, so they cannot -- even if we could get it, we couldn't use it.

So, the options we propose to NIOSH is to make a Windows 10 compatible version, which could be done by simply taking the -- they could get the original source code, I assume it's in Fortran, and simply using a new compiler, a contemporary compiler.

Anyway, NIOSH responded that the program is no longer is used, and considering the Cybersecurity Modernization Initiative, developing a Windows compatible version is not likely to occur. So, that remains unresolved. It's not a major issue.

Okay, observation two, the wording a little cryptic because it had to be condensed, but there are more modern methods than the ones that TIB-5000 proposes for treating censored data.

Now, censored data, you run across censored data frequently when you have sets of environmental measurements or it could even be urine specimens, and that is when there are some measurements that are below the lower level of detection.

So, then all we know is that there is, for example, there is uranium in the soil and all we know is it's greater than two picocuries per gram. I'm just making this up. So, you don't ignore those samples that were below. And a more common way that you would have censored data is if you took background samples.

You have your contaminated site and you take samples from it, but you know there's uranium in the soil everywhere, so you go offsite to a representative area and collect samples there and come up, say,

with a distribution or an average, and you subtract and those are your background samples that you subtract those from your samples of your real data that you're interested in.

And sometimes the background will be higher than the measured value, and so rather than reporting it as a negative value, it just gets reported as censored. That's censored, left censored, left because, you know, you go from left to right, so left is at the bottom of the scale.

You can also have, which is less common and I haven't run across it, but in theory, you could have a right censored where the instrument gets overwhelmed. Maybe a counter cannot count such a high count rate, and so you simply say well, we know it's more than 1,000 picocuries per gram or we don't know how much more.

So, there is a method called regression on order statistics and that can be used to fit below normal distribution to a value that contain, to data sets that contain some values that are less than some number or reported as zero.

And this was a good method. I used it myself, but it's outmoded and there is a more modern one. For example, there is an R package. R is a programming language for statistical analysis and there is a program called NADA, which is available on the web, which has a more sophisticated method, which I won't go into the details. The function is little, in lowercase letters, ros, so that's our observation two.

Observation three, which we were getting to, deals really with an error in transcription where we thought it necessary -- somebody called attention to it in our group, necessary.

And this is a table that is taken from the TIB-5000 data and it shows rather than individual measurements, it's groups of measurements in ranges. So, here is the exposure in milligrams per cubic meter, and in 1949, there were 13 samples

between zero and 0.1 milligram per cubic meter, 14 samples between 0.1 and 0.5, and so forth.

Two or three pages later in the same report, there's a section, Section 2.1.4.1, states the first data point in 1949 represents 13 of the 119 total observations. The second, 14, the third, 31, and the final point, 64.

Well, if you add up these numbers that I told you, they're not 119. They're 122. So, what's the correct value? Well, we go back to the table and the four data points for 1949 do add up to 119, so presumably those are the correct values from the observations, right, and 61 is the correct number for the fourth data point and 64 is an error.

We just brought this up because it shows perhaps a lack of proofreading, a lack of QA in the original document, which does not reflect well on it even though it is of any great significance in this instance.

Okay, now going back to the censored data, they proposed a mirror image method to characterize zero or negative results, and according to TIB-5000, this sounds counterintuitive. It took a little while for me to grasp it.

You delete -- you have a set of data, some of which includes values of zeros and includes negative values. You delete all of your positive values, and then for each negative value, you add a new record which has the same absolute value, but is positive instead of negative.

So, if you have a value of minus two, you add a plus two to the record. If you have a zero, you add another zero, and the result is a symmetric distribution centered on zero by definition. Since there is just as many minus twos as plus twos, the average is going to be zero or the sum would be zero.

And so, if you plot these, you get something to the left, which are your negative values, and something to the right of the y-axis, which are your mirror image of the negative values.

And then the analyst computes the standard deviation of the new symmetrical distribution and constructs a normal distribution with a mean of zero and a new standard deviation.

Then there is another method which TIB-5000 uses called the preserved mean and variance method, and the instructions are to characterize a normally-distributed measurement uncertainty and an underlying lognormally distributed measurand, which is the true but unknown value of the specific quantity subject to measurement.

So, according to TIB-5000, it's a more sophisticated alternative to the crude mirror image technique and is based on four assumptions, but whenever you see quotation marks in this presentation, those are direct quotes from TIB-5000 unless there's another document which would be referenced.

So, we have the observed probability density function is the result of combining a normally-distributed measurement uncertainty with a lognormal-distributed measurand.

The reason for this, the logic behind this is random errors in measurement or the lack of complete -- you never have total accuracy in measurements, or you measure the same quantity 100 times, if your measurement is precise enough, you have 100 different results, but the average should be the true value and the error or the discrepancy is normally distributed. You have just as many on the right as on the left and it follows a family bell-shaped curve. That's for a single measurement.

The underlying data is lognormally distributed. In other words, the logarithms of the measured values follow a normal, have a normal distribution.

So, now you have two different shapes, and then the -- anyway, according to the next step, the mean of the lognormal true value of nature is equal to the mean of the observations. That's an assertion. Hopefully it's true unless there is some bias.

The mean of the uncertainty is zero. That just explains just as many high values as low values. The error goes equally on both sides, so the mean would be zero.

The variance of the sum, X and Y, where is X and Y are some quantity being measured, is equal to the sum of the, excuse me, equal to the sum of the variance of X and the variance of Y. The variance is just the spare of the standard deviation, provided X and Y aren't correlated.

If there are enough data to estimate the variance of the uncertainty of the measurement procedure, say by repeated measurements of blank samples, then there remains only one parameter to be estimated, the variance of the lognormal dose distribution.

Okay, observation four, the mirror image and preserved mean and variance methods are not supported by theory. There is no literature on this. These two methods are not supported by any technical background in statistical theory of which SC&A is aware.

The examples given in TIB-5000 which applied these methods are just that, examples, not proofs. Conclusions are based on the specific data sets used in the analyses, but are not necessarily applicable to other data sets. So, we basically reject these methods.

Going onto the discussion of uncertainty in biokinetic models, I'll preface this by saying that in 1998, I believe, NCRP issued commentary number 15 which was titled Evaluating the Reliability of Biokinetic and Dosimetric Models and Parameters Used to Assess Individual Doses for Risk Assessment.

And the focus of that commentary was ICRP 30. ICRP 30 came out in 1979. It was an improvement on ICRP 2, which was, I think, from the 1960s, and they did an extensive critique. I, frankly, didn't read the entire report, but the relevant portions. They also mentioned an NCRP model, which I don't believe is

widely used now, which came out later.

In the meantime, ICRP Publication 66 had been issued in 1994, but the commentary 15 deals fairly lightly with it. They have one small section on it. Most of it discusses ICRP 30 which was no longer the accepted model. I don't know the history behind those decisions.

So, the author, Daniel Strom, of Battelle-TIB-5000, felt it necessary to have some evaluation of the reliability or the accuracy of the current, by this time, ICRP 66, which was the -- let me just read the title of it. It's the human respiratory tract model for radiological protection.

So, that was used and there were major changes for some radionuclides, particularly for the actinides and alpha emitters, but there is not an evaluation of the reliability of the ICRP 66 model.

So, what TIB-5000 did was simply say well, we'll use the ICRP 30, the critique of ICRP 30, and then he said the results of the ICRP Publication 66, which is incorporated into IMBA, may not be that much better than the ICRP 30 models for some radionuclides in cases where f sub 1, which is a fractional absorption in the gastrointestinal tract, is the dominant uncertainty.

Well, we're critical of that because ICRP 66, by its title, is a lung model. Now, there is an absorption in the alimentary canal incorporated into this model in that when you inhale radioactive material, radioactive dust, some of it lodges, gets localized in the region called ET2, the extrathoracic, I always have trouble with that word, the extrathoracic region, which is the back of the nasopharynx.

The anterior portion is just your nose, which is aligned with skin and therefore is not absorption, and the ET2. And when it lodges there, some of it ends up going into the mouth, into the esophagus and gets swallowed.

So, in that sense, there is some absorption from the alimentary canal of inhaled material which does not stay in the lung, but is swallowed.

However, that does not seem to be a very appropriate criticism, and just the wording of it may not be that much better, is subjective and to me sounds pejorative since that is the model that is being used now.

So, I just, the observation is that the TIB-5000 lacks a sound basis for speculating what I just briefly said. I won't repeat it.

Also on this same topic, there was an email cited from three members of the -- they were then members of the team, Donald Bihl, Liz Brackett, who is still working on the project, and Richard Toohey, who retired some years ago.

And the email justified the use of a lognormal distribution with a GSD of three and said this is reasonable consistent with NCRP findings.

However, NIOSH no longer possesses that email, so we could not examine it to determine whether or not this, in fact, supported what is said to be supported here, the use of three.

Going onto observation six, in our summary observation is a GSD of ten is excessive for a sitewide assessment of individual workers.

The background of that is TIB-5000 stated that the current default assumption when no information is available on uncertainty in aerosol measurements is that they are lognormally-distributed with a GSD of five for a single process or activity and a GSD of ten for an entire site, plant, or factory.

So, the GSD for a single process, this is based on a publication by Christofano and Harris which is entitled, I believe it's the Industrial Hygiene of Uranium Processing, and this was performed in conjunction with the AEC HASL laboratory, Health

and Safety Laboratory.

They were in charge of inspecting various sites that were working under contract with the Atomic Energy Commission.

So, this is a very extensive document, very detailed. It contains a large number of tables, of data sets based on actual measurements for different processes at different plants or calculated values.

What we are critical of is that they mix the TIB-5000, mixes the single process where you have a single worker and you have values for the time-weighted average, or daily weighted average as they call it, for the working environment, so t's a fair representation of his exposure during the workday.

And sometimes there are also spot measurements. They simply take a -- there is a procedure which might, like an opening, and I'm just sort of making it up, which might cause some activity in the air, but for a very short period of time, and they use this also.

So, the data analysis combines the daily averages and the spot measurements of different plants, and that is not a fair way of representing a worker's exposure day in and day out during the work year for purposes of dose reconstruction, so we disagree with that assumption.

So, we tried to reproduce what NIOSH did. They didn't go into detail, not NIOSH, what TIB-5000 did, and we picked -- we noted that Christofano and Harris listed 33 instances that they labeled as daily weighted averages or simply weighted average, probably means the same thing, that represent the chronic exposures of workers form a given process, and for each one of them, they listed a range, a max and a minimum and the average.

So, we applied the equation that's in TIB-5000, they call it Equation 10, which is based simply on the definition. It can be derived directly from the definition of a lognormal distribution.

So, the natural log of the geometric standard deviation sigma equals the square root of twice the logarithm of the average value minus the logarithm of the minimum minus the logarithm of the maximum.

And of these 33, in four cases, the quantity under the square root sign was negative, so in physical measurements, a negative square root does not make any sense. We took it to indicate the data did not, in fact, fit a lognormal distribution and those four sets were rejected.

Of the remaining 29 sets, we were able to evaluate the GSD and we got a range of values from 1.07 to 4.57, so we concur that -- we take the 4.57 and round it off to five and say GSD equals five is a plausible upper bound for the exposures of a single worker at a given uranium refining plant. So, we agree with the single process. We've verified with the single process evaluation.

Now, we're trying to see where did they come up with the ten? So, we took the entire set of aerosol concentrations for 136 processes tabulated by Christofano and Harris.

So, in each case, there was an average. We just took the average and performed a fit to a lognormal distribution, and we ended up with a GSD of 9.05.

So, if you round that up, you get ten, so that would account in my mind for how they got to ten, but that's not an appropriate number to use for dose reconstruction because these 136, no one worker would ever have been exposed to all of the processes all day long, particularly in they are from seven different refining plants.

So, it might be a -- we don't really know what the meaning of that is or what meaning to attach to that result, so we say the GSD of ten is not a useful value.

All right, then the TIB-5000 raises the question what happens if there is a large variation of values in this

set of measurements? So, this was data taken -- let me backtrack.

There was a report, a trip report by a man named Heatherton in 1951, and he was working most likely for the -- it was done in conjunction with the Health and Safety Laboratory, and took radon measurements over a two-day period at the Lake Ontario Ordinance Works.

And there were a number of operations that were discussed. The one in question right now is simply called removing covers. Now, BZ stands for breathing zone, removing covers at the Lake Ontario Ordinance Works.

So, on May 8, 1951, we presume, there were two samples taken, starting time 2:55 p.m., stopping time 2:56.5 p.m., and we're not sure what the AT stands for, but obviously it's the interval during which the sample was collected, 1.5 minutes.

Then the second one was taken over a four-minute period starting a minute and a half later, and then the next day, there were four samples taken, each of them of less than 0.5 minutes in duration, again one or two minutes apart, and there's a wide range of values.

Now, the TIB-5000 makes the assertion these came from two different populations because they're so different and there is no historical or physical basis for asserting that.

They were taken at practically the same time and they were taken under the same conditions from the same process, so it just happens that there is a lot of variation.

So, what TIB-5000 maintains is that they're not from the same population. Three were in the range of 0.1 to 17 times 100 picocuries per liter and three were in the range of 450 to 2,370, so they called these two separate populations.

And since the entire operation was known to occupy 24 minutes -- not a single, but this occupied 24 minutes out of the worker's work day, so whatever is the radon exposure during these operations should be apportioned over 24 minutes.

Well, what TIB-5000 did was simply say okay, these are two separate populations. The low values, even though they were taken on two different days, were one population, and then the high values are the second population.

And we'll assume that each of these represent a separate operation, and they will take the 24 minutes for the total removing covers and divide it into two operations of 12 minutes each. We simply find that this is not justifiable, that these samples -- I'm basically repeating myself, so I won't read the slide.

So, the way we suggest as an alternative way of handling it is to simply take all six values, weight each one by the sample duration.

The sample that was collected over a four-minute period has a greater statistical weight than one collected over a half-minute period. And we ended up with a median value of 5.65 times 100 picocuries per liter, a very high GSD of 31, but we did calculate the 95th percentile of 1,612 times 100.

And we got a confirmation in that there was a square of the correlation coefficient by setting this through a lognormal distribution of 0.944, which is a very high correlation, but it's a good fit to a lognormal distribution.

However, we would propose, if this analysis was to be employed, rather than taking the entire distribution, because that's a very wide range, take the 95th percentile.

And to see whether this is plausible, we see, remember this 5.65 median, 1,612, and the 1,600 is just below the top value between the highest value and the second highest value, and the median is

among the low values. Remember, this are slightly distorted because there's weighting.

So, I'm not saying that this is the best answer, but it's a reasonable answer, and it does not involve this artificial breakup of the exposure into two 12-minute periods.

So, you have a 12-minute period with high exposure, a 12-minute period with low exposure, so the low exposure, for all the effect it has on the outcome, could be a zero, so you're cutting his exposure period in half and that is not justifiable and it's not claimant favorable.

Okay, observation eight deals with inadvertent ingestion, and this, the committee should be familiar with, because it was involved in it.

TIB-5000 states that the intakes by inadvertent ingestion are determined according to OCAS-TIB-009. That's the TIB on ingestion that was written by Jim Neton, a former associate director for science with DCAS, and it's still in use for ingested intake, inadvertent ingestion during the operational period at AWE sites.

However, it has at times been incorrectly applied to the -- let me just go into the logic of this. The logic of this is there is -- I won't go into the details of this TIB, but the conclusion from the TIB is that if you take the ingestion pathway, which includes an open beverage container, hand to mouth contamination, and I think other contamination with food, it happens that the calculated amount is equal to 20 percent of the activity in one cubic meter of air during that time.

However, this was incorrectly applied during the residual period where the airborne, the residual, the concentration on the floors or on the accessible surfaces is still there and was accumulated during the operating period, but now there is, instead of the airborne activity which contributed to that floor and surface contamination, you now simply have resuspension.

There's no more uranium, say, is being produced, and no more is being handled, and you simply have resuspension, and resuspension is much lower. So, therefore, using that 20 percent is not valid, and I think it was NIOSH that actually brought it up.

And there were meetings. The SCPR met twice to discuss this and NIOSH proposed a solution to the problem which is to take the last year of the operational period and the calculated ingestion rate to then be assigned to the first year of the residual period.

In successive years of the residual period, you should still use the same number as a basis, but now decrease it by the annual depletion factors recommended in ORAUT-OTIB-0079, Rev. 01.

And everyone, the subcommittee and SC&A agreed with that, so that is the current methodology. So, you know, the TIB-5000 was not wrong at the time. It's just that information is outdated.

And then here, TIB-5000 refers to occupational medical dose guidance that has been revised. There is a problem here with this slide and with the report and that is, as I learned during the earlier discussion this evening, the current version of OTIB-0006 is Rev. 06, not Rev. 05.

We were not aware, we meaning the team working on this review, was not aware of that, so we focused on Rev. 05. TIB-5000 said that you should use Rev. 03 because that was the current version at the time and one significant difference --

And Rev. 05 is a complete revision, a complete rewrite of the earlier revisions, and the primary impact that I saw was the direction not to assume photofluorography.

The photofluorography results in a much higher radiation exposure, but was most likely not used at AWE sites, so it should not be assumed.

Next, observation ten is the protocol for assigning missed doses is inconsistent with current guidance. Again, this is a matter of the age of the document.

TIB-5000 prescribed the procedures in OCAS-IG-001, Rev. 01, and ORAUT-OTIB-0020, Rev. 01, for assigning external doses to normally monitored workers whose doses were not reported or recorded for one or more time periods.

Both documents have been revised since the release of TIB-5000 and replaced by the current OCAS-IG-001 is Rev. 03, and the ORAUT-OTIB-0020 is also Rev. 03.

And those are the procedures, and I won't go into the details, that should be followed for assigning missed dose, but specifically the guidance in Rev. 01, which is to substitute a value for each dosimeter reading, assign a triangular distribution with a minimum of zero, a mode of one-half the LOD, and a maximum of equal to the LOD is no longer recommended. That's the significant difference.

Observation 11 is a minor one. There was a section on environmental dose where TIB-5000 lists five components of environmental dose, but omits the ingestion pathway, which should be added, inadvertent ingestion from environmental sources.

And there's the issue of equilibrium factors for radon isotopes. So, exposures to workers with inhalation of a radon isotope results in radiation doses almost entirely from the short-lived alpha-emitting progeny.

The radon itself does not really interact. It's an inert gas that does not interact with tissues chemically.

As a practical matter, the concentrations of these progeny are usually unknown, so the direct calculation of doses to the lungs is generally not feasible.

Instead, input to IREP is in the form of working level months, which is a product of the working level and

the exposure duration in work months.

So, reading this slide, the concentrations of a radon isotope, Radon-220, which is also known as thoron or Radon-222, which is commonly just referred to as radon, in the ambient air are known, but the actual concentrations of its short-lived progeny are unknown.

The working level, which is a unit of potential alpha-energy concentration, that's the concentration of alpha emitters, of alphas in a volume of air stretched out to infinity, meaning until all of the alpha emitters are decayed, which isn't very long, which in reality is they have a short half-life.

And so this is used to assess the effect of exposure to radon isotopes, can be in principle estimated by assigning equilibrium factors.

An equilibrium factor is defined as the actual PAEC to the PAEC that would prevail if all the decay products in each series were in equilibrium with the parent radon or thoron, as the case may be.

According to TIB-5000, lognormal distributions are assumed for equilibrium factors with mean values of 0.4 for radon and 0.02 for thoron.

Well, we don't have a quarrel with the radon. That's a commonly accepted value of 0.4. However, with thoron, the UNSCEAR, the United Nations Scientific Committee on the Effects of Atomic Radiation, report to the General Assembly states that more caution should be exercised in assuming the average value of the equilibrium factors for dose assessments from inhalation of thoron decay products.

Objection to the use of thoron gas measurements for dosimetric purposes is that thoron may not be well-mixed in the indoor air because its short half-life, which is less than one minute.

Only where a room fan is used would thoron be well-mixed and a large variation of the thoron

concentrations in the room not be found. Thus, the use of any grouping factor for thoron should be limited to situations where large spatial variation is not found.

And more recently than that, Harley et al. in 2010 derived an equilibrium factor for both outdoor and indoor thoron environments, 0.004. Outdoors is never a problem, and 0.04 for indoor. Now, this is twice the value that is suggested in TIB-5000.

So, we just say that representing the equilibrium factor by a lognormal distribution with a mean of 0.02 is questionable. I'd say that any equilibrium factor for thoron should be carefully looked at.

And finally, our final observation deals with assumptions, and this is a little redundant from earlier discussion, that the air sample distribution is unbiased.

By that, it means that the errors in measurement cancel out and you get a true value of the measurement in the air sample. Therefore, the uncertainty distribution due to lack of representativeness must be unbiased, that is, have an arithmetic mean of one.

And our opinion of SC&A, that even if the true underlying distribution of concentrations were lognormal, there is no real reason to submit a distribution of the uncertainty if the representative parameter is also lognormal. We just question that assertion, that assumption. Any questions?

Chair Beach: I suspect there's probably a few.

Dr. Anigstein: Excuse me?

Mr. Barton: Yeah, Josie, that was a lot of material and really well explained. Like you said at the outset, I think we probably need to give NIOSH a chance to really look at this and get back to us.

One of the issues, as Bob pointed out, it's an older

report, so some of the issues may no longer even be in practice, but they do appear in this document which hasn't been canceled, so I think it's --

I mean, certainly NIOSH, if you have comments to make at this stage, great, but obviously this only came out last month, so it's new.

Dr. Taulbee: This is Tim. Our only comment is just we are looking at this, but as Bob had pointed out multiple times throughout this, you know, this is kind of a dated document that was still out there on our books.

And I can note from the observations going through that there's many of the things we don't do anymore, and so one of the things we're actually looking at with this is potentially canceling this document.

What we've got to do is make sure that all of the guidance that's in there is actually in other documents, which we believe it is, you know, if there's anything in there that we are using.

But with regards to these observations and so forth, you know, we'll get back to you on it, but my impression at this time is that we are probably going to end up canceling this document because it is so dated.

Dr. Anigstein: All right.

Chair Beach: Okay, thanks, Tim.

Dr. Anigstein: There is one -- the only result that I came across which is being incorporated into current DR procedures is the assumption of a lognormal distribution with a GSD of five when there is no other information to the contrary, and that is incorporated and cited in the, what is, TBD-6000, which is heavily used in dose reconstruction, and it cites that value.

Dr. Taulbee: Okay, thank you, Bob. We'll look specifically at that.

Dr. Anigstein: Okay, I guess in this case, I'll sign off.

Chair Beach: Okay, thank you so much, Bob, good presentation.

Dr. Anigstein: Okay, thank you for the opportunity to present it.

Chair Beach: Yes, we appreciate it. We'll leave that in progress and wait for NIOSH to report back on that. I don't know if the next meeting -- I guess we can tentatively put that on for the next meeting, at least an update from NIOSH on that document.

So, looking at the time, we have just about 20 minutes to get us into that time frame. Is 045 something that we can go through, Kathy? It looks like it might be a little longer than -- well, there's, what, 15 or 16 slides? Kathy, are you online?

Ms. Behling: Okay, I'm sorry. I was talking on mute. Forgive me. I can -- PER-045 should not take me very long. I was hoping I would actually get the opportunity to go through PER-052, which is quite a bit longer, but I'm not sure about the time element here. Let's start with 045.

Chair Beach: Yeah, I think --

(Simultaneous speaking.)

Chair Beach: Okay, sorry, Kathy. Yeah, I think we're going to run out of time for that, so.

Ms. Behling: Okay, all right.

Chair Beach: Okay.

Ms. Behling: Let me share my screen here. Can you see that?

Chair Beach: No, I cannot, but --

Ms. Behling: Okay.

Dr. Taulbee: We're getting a message that says all windows are minimized.

(Simultaneous speaking.)

Ms. Behling: You don't see that?

Mr. Barton: It's up on my screen, Kathy.

Ms. Behling: Okay.

Chair Beach: Well, it's not on mine, but I have it up from the website, so I'm good. I don't know about anybody else.

Member Ziemer: I'm not seeing it, but I can pull it up also. Actually, I had to pull up from the distribution from Rashaun in fact.

Chair Beach: Right, that's true. She did print that out.

Ms. Behling: Right, yeah.

Chair Beach: Mine says all windows are minimized, so, but like I said, I'm okay. Loretta?

Member Valerio: I'm pulling it up on the website now.

Chair Beach: Okay --

Ms. Behling: Okay, I'm sorry.

Chair Beach: -- I think you can go ahead, Kathy.

DCAS-PER-045, Subtask 4 "Aliquippa Forge TBD Revision" case review

Ms. Behling: All right, okay, this presentation is the review of one reworked case for the Aliquippa Forge TBD revision that was initiated under PER-045.

And just as a reminder that, you know, due to PA concerns, Privacy Act concerns, when I'm discussing this case, you know, I will be vague and -- however, I have uploaded the full report onto the virtual volumes, so you do have access to that.

I will move on here, but I'm sorry if you can't see this, but on slide two, Aliquippa Forge produced uranium rods from uranium billets. Their operational period was from January of 1947 to the end of February of 1950.

And the residual period spanned two time periods, the first being from March 1 of 1950 through the end of 1987, and again January 1 of 1989 through December 31 of 1992. NIOSH --

Participant: I guess you heard that.

Dr. Roberts: Excuse me, someone is off mute. Please mute your phone.

Ms. Behling: Okay. All right, I will move on then to Slide 3. And NIOSH issued PER-045 in April of 2012, as I said, due to the changes in the Aliquippa Forge TBD. The revision resulted from the identification of new data, and incorporating revisions to OTIB-0070.

External doses increased during the residual period. And although in most years the internal doses decreased, there were some years where there was some increase in internal dose.

So, SC&A submitted our review of PER-045 in August of 2014. And as part of that review, we had not previously reviewed the Aliquippa Forge TBD methodology, so that was incorporated into our review. And as a result, we had eight findings and two observations. I'll just briefly summarize the findings.

Finding 1, the TBD did not account for decontamination and decommissioning effort that was done in 1988, and the 1993-'94 time frame.

And Finding 2, since D&D was not considered, a back extrapolation to years prior to 1988 would underestimate external doses.

In Finding 3, we were unable to match the inhalation and ingestion rates that were given in Table 3 of the TBD.

Finding 4, the TBD did not use the reported air sampling data that was 20, approximately 20-fold higher than the assumed value of the approximately 9 dpm per cubic meter.

If we go on -- oh, I'm not moving this. I'm sorry.

We move on to Slide 5. Finding 5, NIOSH used a measured air concentration of the 9 dpm per cubic meter and reduced it by more than 42-fold to a modeled air concentration. And SC&A considered this to represent a major error in deriving the inhalation and ingestion doses for the period of 1950 through 1995.

Finding 6, the resuspension factor of 1 times 10 to the minus 6 cubic meters -- meters was associated with a post-AEC work which is inappropriate for active operation.

Finding 7, the use of the 1992 survey data postdates interim decontamination efforts in 1988.

And Finding 8, NIOSH did not derive inhalation and ingestion doses in accordance with the recommendations of OTIB-0070 Rev. 1.

There were also two observations.

Observation 1, the minor issue that NIOSH should rephrase the role of OTIB-0070 in the PER. They indicated that the PER was initiated because of revisions to OTIB-0070, when actually the TBD predates OTIB-0070, so the wording should have stated the existence and substitution of OTIB-0070 Rev. 1, the revision.

Observation 2, neither of the TBD revisions, the Aliquippa Forge TBD revisions have been reviewed by SC&A. And as part of our PER review, we focused only on the methodology for deriving the residual period exposures.

All of those discuss -- all of these findings and observations were discussed at the May 16th, 2016 Subcommittee meeting. And most of the findings, or some of the findings they were, they were actually resolved in a Revision 2 of the TBD.

So, if we move on to our Subtask 4 review, which is

the case review, SC&A assessed a reworked case in behalf of the issuance of PER-045. And the case was selected based on criteria that the internal and external doses were assigned during the residual period.

We submitted our review of that case in December 2021 to assess those pathway doses and that those doses were derived in accordance with OTIB -- oh, PER-0056.

When NIOSH reworked their case they used all the applicable dose reconstruction tools and current methodology. They recalculated all the doses, and they reran IREP. However, the revised report was not sent to the Department of Labor because computations did not change.

A little background regarding the case.

The EE worked at Aliquippa Forge for two brief time periods during the residual period.

The EE worked throughout the site and was not monitored.

And the EE was diagnosed with a qualifying cancer approximately 25 years after employment termination.

On Slide 10 I show you a comparison table and just put in percentages the Privacy Act issues. But as you can see on this table, the external doses significantly increased, which is expected because of the change to the PER to this TBD. But in this case, the internal doses did decrease somewhat.

All right. For the original external dose, it was calculated using doses from what was Table 13 of Rev. 1, PC-1 of the TBD. The doses were prorated for partial years of employment.

And what was stated in the report regarding the dose conversion factors was that it was based on the thyroid as being the surrogate organ. However, when

we reviewed the documentation we realized that they actually used the maximum thymus DCF value, which resulted in a slight over-estimate.

The total dose that were -- that was assigned to the cancer sites was approximately 300 millirem.

For the reworked external dose calculations, they used, obviously, the revised external doses from Table what is now 5-1 of the TBD. NIOSH for the rework they did not prorate for partial years of employment, which is a claimant-favorable approach.

They applied the -- (telephonic interference) -- from the Implementation Guide 001 for the thyroid as a surrogate organ, which is appropriate, and which resulted in a total dose of approximately 1.1 rem to the cancer site.

So, SC&A evaluated the external doses. And we found that NIOSH appropriately selected values from Table 5.1, the revised TBD.

And based on TIB-005, Rev. 5, selection of the surrogate organ was appropriate.

They also applied the appropriate DCF value from IG-001.

As I mentioned, no prorating was claimant-favorable.

Doses were correctly entered into IREP.

And the external doses did increase.

And so, SC&A had no findings with the calculation of external dose.

For the internal dose, the original dose reconstruction calculated inhalation and ingestion intake from Table 13. They compared uranium solubility types M and S. And S resulted in the higher dose. And this resulted in a total assigned dose of approximately 2.2 rems for each of the cancer sites.

For the reworked internal dose calculations they selected inhalation and ingestion values from Table 5.1 -- 5-1.

They also compared solubility types M and S, with S representing the more claimant-favorable dose.

And based on these updated values, internal values in the TBD, they calculated a total dose that was nearly -- approximately 400 millirems, which is a significant reduction from the original.

For SC&A's conclusion on the internal dose, SC&A reviewed the CADW files. We confirmed that the correct intakes were entered from Table 5-1.

We also verified that the type S solubility resulted in the higher dose, and that the annual doses were appropriately entered into the IREP table, and that these doses were assessed to the data for cancer diagnosis.

And we had no findings for the internal dose.

So, that sums up PER-045 Subtask 4.

Do you have any questions?

Chair Beach: Thank you, Kathy.

Questions, Subcommittee?

Member Ziemer: I have no questions. I think the review was very thorough.

Member Valerio: I have no questions, Kathy. No questions.

Chair Beach: Great. Thank you.

And, Kathy, I have just a -- we kind of talked about report size last Subcommittee meeting. And it would seem after reading the White Paper for PER-045 and the Subtask 4, it would seem that both reports and your slide presentation satisfies both Subtask 4 and 5.

Is that a correct assumption?

Ms. Behling: Yes. Yes. We, Subtask 5 is really just us publishing, submitting a report on our PER review, which includes Subtasks 1 through Subtask 3. And then a review of one or several cases representing certain selection criteria.

So, Subtask 5 is just really submitting the reports for the review of the PER and the case review.

Chair Beach: Yeah, which this satisfied I would say. So, okay.

Member Ziemer: Right.

Chair Beach: Perfect.

Member Ziemer: What you've done here easily.

Chair Beach: Yep.

All right. So, I am in agreement. I think this has been presented and we can consider this closed.

Ms. Behling: Okay. Now, --

Chair Beach: All right.

Ms. Behling: Go ahead.

Chair Beach: Well, I was going to say, again, I didn't mention it for Battelle-TIB-5000, but if we could add that to the matrix and this one as well, so we can just keep track of what we discussed.

Ms. Behling: Yes. I will, I will do that, yes.

Chair Beach: And I'm thinking we're going to need to carry over to the next meeting PER-052, 059, and 062.

Ms. Behling: Okay.

Chair Beach: And then move on to the next two topics: the preparation for the full Board, and then the newly-issued guidance, so we have time to do

both of those.

Ms. Behling: Okay. If you'd like, I can begin.

Chair Beach: Yes.

Preparation for April 2022 Full ABRWH Meeting: Review of Technical Guidance Documents Ready for Full Board Approval

Ms. Behling: With regard, okay, with regard for preparation for the April full Board meeting, I, I developed a handout. And we, actually we had put this together, I think, for the previous meeting.

And the -- I did not have this PA cleared, but you should have all received it and it is in the virtual volumes.

And so, so documents that we think are ready for full Board discussion are in this table. And what I've done, I've updated this table somewhat, as I've updated the handout to include documents with no findings. Because we had discussed that with the full Board. And they said even if there were no findings, let's have a brief discussion of what that TBD entailed and what we looked at, and so on and so forth.

So, I added those documents to this handout.

I also added a column for the date of document review and a column for comments. And what I did is I tried to sort on those comments. And we're going to do that in a little bit. So, that may help us in determining what documents would be most relevant to present at the next Board meeting.

And then, finally, I added a column for full Board closure date. And so, you should be able to see that.

So, what, and the very first document that we have in Table 1 on this handout is OTIB-0014. And I should have actually included something in the comments that indicated the finding associated with this document has to do with OTIB-0052, the construction trade worker OTIB. And that is a

complete discussion onto itself.

In fact, that was going to be a part of my discussion in the PER-062 review.

There's a long history there. And I think there are several documents in several PERs and this particular OTIB that when we discuss the construction trade worker topic we combine those all together.

So, what I am going to suggest to the Subcommittee is that perhaps the next five I would say, five to six OTIBs.

There's an OTIB-066; there's a Report 86; there's PER-080, and PER-067, and those are both general steel industries, so I would like to keep those together; and there's also a PER-063.

And PER-063 would be the first one that has no findings, so I'm going to try to be creative here in coming up with a nice presentation for that.

But based on, based on the last time that we made a presentation to the full Board, I presented five, five reviews, document reviews. I expected it to take maybe an hour. However, there were no Board comments, so we were able to do that presentation I'd say within 30 or 35 minutes.

So, even though PER-057 does have 11 findings, just based on what transpired during the last full Board meeting, I think I would suggest maybe five to six of these document reviews. And just wanted to get your opinion on that.

Chair Beach: Well and, Kathy, this is Josie. I think we could probably include PER-065. That's, that's a relatively quick one. And that would take us to six, which I think we were actually slated for the last meeting but then you pulled one.

Ms. Behling: Rashaun, I guess I'm going to ask you, have you determined what kind of a time frame we have at the next meeting in April? Do we have a full

hour?

Dr. Roberts: It really depends on what you want to present. I suspect that there will be planning upon for you to go an hour. Could be more if you need it.

Chair Beach: Okay. So, I would suggest going to six. And I don't know if even incorporating the next one, 064. But, you know, that's your workload, too, Kathy.

And other Subcommittee members holler. Loretta, any comments?

Member Ziemer: Well, I think you've got a better feel for how much time that would take. And so I'm not -- I'll defer to what, what you feel you need on that.

Chair Beach: Okay. Thank you.

I'd just assume move through these quicker, if we can, and get rid of some of our backlog. That would be my feeling, as long as we have the time.

Ms. Behling: Josie, this is Kathy. I, I could certainly try to fit in seven. That's fine with me. And the seventh one on the list is zero findings. So, we shouldn't have a lot of discussion on that.

So I, I certainly have the time to put together a presentation with seven, if that's what you're inclined to do.

Chair Beach: Yeah. I think with hearing from others, if it goes the full hour, if we get into an hour and 15 minutes, or an hour and 30 minutes I think we'll be okay.

I'm inclined to says an hour and 30 minutes. That way we have room for that one with 11 and any questions.

Ms. Behling: Okay.

Member Ziemer: I wouldn't anticipate that there would be a lot of input from the Board. I think we've handled these and they, they mostly are pretty

straightforward. I think the Board won't have a lot of questions, so.

Ms. Behling: Yeah, I agree.

Member Ziemer: That should be adequate, yeah.

Ms. Behling: Okay. And I stand corrected. I think we did get this PA cleared. So, okay. And so it is on the website.

Chair Beach: Oh, okay. Great.

Member Valerio: Josie, this is Loretta.

Chair Beach: Okay. Hi, Loretta.

Member Valerio: Hi. So, I think going with the seven, and I agree completely to go through as much of this backlog as we can. I think we should maybe anticipate maybe a little more than an hour. If we finish earlier, then we do, if there's not a lot of questions. But we should always try to present as much as we possibly can to get these older ones cleared up.

So, I think an hour and 15 minutes or an hour and a half. I think an hour and 15 minutes should be enough. Again, I question the General Steel Industries with the 11, you know, items to be presented. That might take a little bit longer just presenting it. But, again, that's just my thought on it. I would say at least an hour and 15 minutes just to be safe.

Chair Beach: Okay. And we'll leave that fine tuning for the time when the presentations are underway.

Kathy, if you feel like they're going to take longer, you can let us know or let Rashaun know.

Ms. Behling: Okay. Very good.

Chair Beach: All right, thank you.

Ms. Behling: We can have this, yeah, we can have

this prepared as what you said. And if we don't have the time, we don't, but at least they'll be prepared, ready to go.

Member Ziemer: Are you certain that the GSIs were not presented before, General Steel?

Ms. Behling: Not to the full Board. I don't believe they have been presented to the full Board.

And the one that has the 11, the 11 findings is from our case reviews of tests of --

Member Ziemer: All the case review ones. Okay, got you.

Ms. Behling: Yes.

Member Ziemer: Got you.

Ms. Behling: Okay?

Member Ziemer: Okay.

Ms. Behling: Yeah.

Member Ziemer: Uh-huh. Got you.

Ms. Behling: All right. Is it okay if I move on to the newly issued guidance and supplemental topic?

Chair Beach: Yep. I was just going to suggest that, so.

Ms. Behling: Okay. All right.

Now, I do have this up on the screen. I don't know, is anyone seeing it? I'm showing that I'm presenting it, but.

Chair Beach: I don't have it. But I think mine was disrupted. I actually have it up on my screen, so I'm okay.

Ms. Gogliotti: Kathy, we can see your screen.

Member Ziemer: Yeah, it is showing.

Chair Beach: I think I just lost connection. Though I'm fine.

Member Valerio: I can't see it either.

Newly-Issued Guidance Documents and Supplemental Topics

Ms. Behling: Okay. All right.

I'm going to start by just identifying, at least to the best of my knowledge, there have been two new reports issued that have not been reviewed by SC&A. I'll just give you a summary.

One is Report 97. And the title of that is Breathing Zone to General Air Concentration Ratios in Small Rooms. And it's pretty much what the title says.

They've evaluated several air sampling studies that were performed in small rooms and developed this report. And so I just wondered if that's something that the Subcommittee would like us to review?

Chair Beach: I would be agreeable with that.

Rashaun, can we do our tasking here or would you prefer to do it via email after the meeting?

Dr. Roberts: Well, we can go ahead with the tasking.

Chair Beach: Okay. Other Subcommittee members?

Member Ziemer: Yes, let's proceed with that.

Member Valerio: Yes, Josie. Thank you.

Chair Beach: Okay. So, yes, you are tasked with that first one, 0097, Breathing Zone to General Area Air Concentration Ratios in Small Workrooms.

We can go ahead and move forward.

Ms. Behling: Okay. And the second report is Report 0102. And this is the Assessment of Los Alamos National Labs Plutonium Bioassay Programs from 1996 to 2001.

And this is actually the development of a co-exposure model. So, I felt it might be something you would like us to look at.

Chair Beach: Yeah. I would agree with that for sure.

Mr. Barton: Well, also, I think we're having a meeting about LANL pretty soon. Correct?

Dr. Taulbee: This is Tim. This is Tim. This, I think, should actually be addressed under the Los Alamos Work Group.

Ms. Behling: Okay. I was wondering. Because I, I looked ahead and I wondered, is that Work Group still active? I didn't see much.

Chair Beach: Yeah. We are actually having a meeting in March, the 23rd of March.

Ms. Behling: Okay.

Chair Beach: To have a presentation from NIOSH, so.

Mr. Rutherford: Yeah. I will be presenting that, that report.

Chair Beach: Yes? Okay.

Mr. Barton: That came together very recently, I think. That's, that's why it appears in this presentation.

But, yeah, I mean, we're talking about the two reports from LANL that LaVon just mentioned, or LaVon intimated. So, I think that probably could go under the LANL Work Group.

Ms. Behling: Yeah, I agree.

Mr. Barton: As a simple paperwork issue.

Ms. Behling: Okay. I agree.

Yeah, I apologize because when I looked at the Los Alamos National Lab I didn't see that there was a lot of activity going on when I put this together. So, I

apologize for that. Okay?

Chair Beach: Oh. No, no apology necessary.

Ms. Behling: All right. Okay, there have also been three newly-issued PERs.

The first one is PER-090. And that's for Grand Junction. And, again, external and internal exposure pathways impacted.

And we've been looking at all of the other Grand Junction TBDs, so I thought it was appropriate to look at this PER-090.

Dr. Taulbee: This is Tim.

If I could interject here again. Please remember that we're going to be revising the Grand Junction TBD following the review that SC&A just did. Specifically, we're going to be revising that table. I can't remember if it's 2 or 5. But it was Observation 2 that SC&A had.

And so, we're going to be redoing that.

And, you know, at that time we'll be basically doing another PER to see, you know, what goes on. So, I would actually recommend you defer on this one until we revised the Grand Junction TBD that we thought we were done with.

Ms. Behling: Well, I know in the past we usually look at all of the PERs. But that's up to the Subcommittee. Just like with I know there's been multiple PERs for various facilities, various sites, GSI and so on and so forth. And we usually take these as, as they're issued, so.

Dr. Taulbee: Yeah. This is up to the committee from that standpoint. But you just, you know, identified several observations in the Grand Junction TBD which is part of your PER process, you look at all of this. You know, are there any outstanding issues, or findings, and that type of thing?

And we've already acknowledged that we're addressing some of those and going to be revising them.

So, it seems to me that's duplicative work. That's my only comment.

Ms. Behling: Okay. Well --

Mr. Barton: Tim, this is Bob. I mean, part of our job here is to look at the process as a whole, though. So, I mean, obviously --

Ms. Behling: And the other example -- Excuse me. I'm sorry, Bob.

The other thing that will happen is when the new PER is issued for Grand Junction, the cases that are going to be looked at are going to exclude anything that was already looked at under PER-090.

So, we need to also ensure that the selection criteria for this, up until this point in time, is appropriate.

Mr. Allen: This is Dave Allen. That's absolutely not true. Any PER, we evaluated all the changes from the what it is today versus, you know, what it was in the past essentially. If it was, if a population was already reviewed under PER, an earlier PER and nothing changed with those things, that's not being somehow that we zeroed the population down and not have to review them.

But, I mean, if we change something like, say, increase the intakes at Grand Junction, we will look at all the cases.

Ms. Behling: Okay. And the next PER it would be a reduced population because of anything you've already looked at under this PER. Correct?

Mr. Allen: If we -- it will, it will reduce the population if we already looked at it, yes. But if we're doing something in the next revision that affects everybody, then we will redo all the cases.

I mean, we don't eliminate them because they were reviewed under PER-090. We, we look at what it is today, and could anything have been missed in the past, essentially.

Ms. Behling: Okay.

Chair Beach: Well, we would typically do a review and then do a focused review of the next one that comes out for any changes. Yeah.

And, Tim, did you say Grand Junction is in the works, correct, but there was not really a time frame?

Dr. Taulbee: That is correct. I mean, we've got two issues but we are, but since there's three, Observation 1 is in abeyance, Observation 2 is in abeyance. Observation 2 is the big one, that's where the intakes are changing, so the internal bases are going to change from that standpoint.

And Observation 3 you guys are going to be following up on.

Observation 4 is in RCORP for the neutron exposures.

And Observation 5 is for us to better define why we don't think neutron doses, why you need -- why you don't need a co-exposure model for the latter years.

So, my point though is, is that really Observation 2 is changing the internal doses, so.

Chair Beach: Right, right.

Paul, Loretta, any comments on that, postponing or?

Member Ziemer: Yeah. My inclination would be to do the whole thing at the same time.

I think if you go ahead and do the revision, anything they do there, the other will still carry forward, you'll see where it was before. Those observations you can, I don't see why you can't still look at those and look at the total package of what the final product is.

My inclination would be to go ahead and wait for -- now, again, we're talking about a timeline that's not too far distant; right? Maybe later in the year?

Dr. Taulbee: That's correct, yes.

Chair Beach: That's the hope.

Okay. Let's kind of keep this in mind, Kathy, but just let's not assign that one at this time.

Ms. Behling: Okay. I understand. That's fine.

The next one is PER-092. And that's the Weldon Spring Plant Division. This involved changes to environmental intakes and onsite ambient doses. And Uranium-234 intakes were added.

I don't know that there is a Work Group for Weldon Spring.

Chair Beach: It may have been retired.

Ms. Behling: Yes. Not an active Work Group, right.

Chair Beach: Correct.

I'm okay with tasking this one.

Member Ziemer: I am too.

Member Valerio: I'm okay with that, Josie.

Chair Beach: Okay. So, Weldon Spring has been tasked.

Ms. Behling: Okay. And then the last PER is PER-093, and that's Texas City Chemicals, TBD revision. And this revision increased the ingestion intakes during the residual period.

Chair Beach: Okay. And I don't believe we have a Work Group for that either at this time. So, I am okay with tasking that as well.

Paul and Loretta?

Member Valerio: I'm okay with tasking that as well.

Member Ziemer: I am, too.

Chair Beach: Those three have been tasked.

Ms. Behling: Okay. I had a few other supplemental topics to talk about. However, I don't know if we still have time to discuss those or if you want to start preparing for the next meeting?

Chair Beach: The next meeting is actually a date which we could probably send around. Or, I think we could have that meeting fairly soon, within the timeline that we need for the notification.

Member Ziemer: We can decide that online, can't we?

Chair Beach: Yeah. Yeah, I think so.

And I'm okay with carrying on if we have about 15 minutes left.

Rashaun, are you okay with that?

Dr. Roberts: Sure. That's fine.

Chair Beach: Okay. But I would add that I think we should schedule another Subcommittee meeting as soon as possible in the time constraints that we have, because we do have items we could go forward with ready right now, so.

Ms. Behling: Okay. If we're ready to move on.

Prior, I'm just going to preface with this, prior to losing access to the BRS, when I was generating this table of Subcommittee-approved documents that still need, you know, Board review and approval, I encountered several limitations with the BRS, the tracking system, that I just wanted to bring to your attention.

And I just want to note that Lori Marion-Moss and I discussed this, so it's not a surprise to her. And, you know, she seemed to be in agreement that, you

know, if there could be improvements to the BRS at some point in time, that would be a good thing.

So, when you go into the BRS and you generate a report, there is no indication that the document's been canceled, or it's been revised, or that there is a new document.

And so when I generated the report and I started to put together these tables I realized, oh, well, this really, this document is not really of relevance anymore because the document's been canceled. And I couldn't prioritize things very easily unless I went into each and every document and tried to trace back where we are with that particular document.

I guess the other issue was I would generate a report that would show one finding. And I assumed there was a finding there. But when I went into the BRS, I realized it was just an entry that says there are no findings associated with this report.

So, it would be nice in the future if the BRS could possibly be updated with this type of information. I don't know if that's a possibility or not, but I'm just, just putting that out for consideration by the Subcommittee.

I will move on.

Chair Beach: Well, Kathy.

Ms. Behling: Okay, go ahead.

Chair Beach: Well, no, before you move on.

Ms. Behling: Okay.

Chair Beach: So, this is something that I think is necessary. However, with what Grady said earlier, we don't know really what the BRS is going to look like.

So, my question is can you add these items to our matrix so we don't lose them, so we can, when we do have access and we know what it's going to look like, then we can work with you and Lori and try to figure

out if we can add these?

Ms. Behling: Yes.

Chair Beach: Does that seem reasonable, Lori? I think you're a big part of this. What are you, what are your comments?

Ms. Marion-Moss: This is Lori.

Yes, this sounds reasonable, Josie.

Chair Beach: Okay. So, maybe add this as a matrix just to keep, so we don't lose track of it, Kathy, if you don't mind.

Ms. Behling: Okay. Not at all.

Okay, going --

Member Ziemer: I can under -- Let me insert one comment on handling the assignments tissue. It would be very easy to add a minor column to the matrix that says "number of findings."

Chair Beach: Correct. Yeah. To the BRS.

Ms. Behling: Okay. Okay, yes, I can do that.

I do have it in the handout with the documents for that have already been approved by the Subcommittee. But I could add also to the matrix. Okay.

All right, moving on.

Earlier today during our earlier discussions, I did talk about the fact about communicating to SC&A when there are canceled documents or revised documents or new documents. And I think we resolved that issue. And we will be included in that notification.

Chair Beach: Except for, except for the templates. We didn't really finalize it for that.

But we can probably keep that for our 052 discussion --

Ms. Behling: Right.

Chair Beach: -- unless we can cover it now. I don't know if we have time or if anybody has an answer. That would fall under Lori again.

Ms. Behling: Yeah. And I guess this has been a topic that I know I personally have brought up several times during previous meetings. And I thought at one point in time, and we had gone through and looked at some previous discussions, and there was, you know, various discussions in the 2015 and '16 time frame, 2017.

And the templates are not, as far as SC&A is concerned, we don't have access to the templates. We -- they are not published anywhere. They're not on the NIOSH website. There's no real location, even under the controlled documents where we can access or see those documents.

We sometimes stumble across them. And it would be nice if, and I've mentioned this before, and I thought that Ted was even going to put together what I was going to request, is a list of all of the sites that have a template generated for them or and that's their means of dose reconstruction methodology.

And it would also be nice if the Subcommittee would be aware as to what those documents are and when they are changed, when they get changed. Because, as we'll discuss under the PER-052 I believe, we, we realized that there was a PER issue because of a change to a, to a template. But we also recognized that there were two additional revisions made. In some cases that doesn't get a PER because the doses decreased.

And but I just think it would be useful for the Subcommittee to, or the Board to be aware of these changes, and of the existence of these documents.

Chair Beach: Yeah. Kathy, and you mentioned that. I thought we did get a list a couple of years ago about the templates when we were discussing it prior to

this.

Does anybody remember that? I'd have to go back through.

Ms. Marion-Moss: I do. This is Lori.

I sent a list of all the sites' names that had templates. Date was September the 28th, 2018.

Chair Beach: Yeah, okay. I thought we had.

If you could resurrect that and send it or put it in the virtual volumes again, or send it to Kathy. Is that something you could do, Lori?

Ms. Marion-Moss: You should receive it in a couple minutes.

Chair Beach: Oh, thank you. Yeah, I thought we had done that. So, okay, perfect.

Ms. Marion-Moss: Yeah.

Chair Beach: And I don't know if you're updating that or have updated that from the 2018 time frame. I guess that's something we can discuss moving forward.

Ms. Marion-Moss: Sure.

Ms. Behling: Okay, that's for Lori.

Yeah, I was under the impression I had that Ted had distributed that list. But I don't know whatever happened to it. And I don't think -- somehow that may have fallen through the cracks. And I, I think that's something that would be very useful to resurrect.

So, I think your recommendation to include this is a good one.

Chair Beach: Let's add that to the matrix, also, that we discussed it, and that we looked -- we'll look at the two, the one that Lori just sent you and then discuss it at the next meeting, where we go from

there.

Ms. Behling: Okay. And I guess just to get back to the two -- the BRS again. And Josie, I know you had identified the fact many meetings ago that review of the BRS just lacks clarity.

And examples of that that I came across when I was preparing for the full Board meeting were things like OTIB-0052, OTIB-0020. There were discussions of OTIB-0052 for the full Board. And even though we had closed the findings, there were a lot of follow-up questions by Board members. And that didn't really get captured anywhere.

And so I'm thinking that when we gain access to the BRS and I update it with information from the full Board finalization process that I'm going through right now, that I include this, this expanded, hopefully expand on some of these findings and follow-up discussions when we get access to the BRS, if that's agreeable to the Subcommittee.

Chair Beach: Yeah, it is to me, because I think we definitely need to have clarity in all of this so that years later we can go back and understand what was done, why, and who. So, I agree with that.

Anybody else?

Member Ziemer: Yeah, I agree as well.

Member Valerio: I agree as well.

Ms. Behling: Okay. And then, lastly, again, as I was putting together all this information and going -- went back through transcripts of documents that were already presented to the Board, several items came up, came to my attention for regarding follow-up issues.

In the past -- and I made sure that this didn't, you know, or I tried to be sure that this didn't happen in today's, in our discussions today -- but we've closed findings that were designated as in abeyance with the

indication from NIOSH that this procedure is going to be revised and updated, and it was going to take care of all of the findings associated with that.

And as I was going through, as I said, the documentation, OTIB-0017 is an example of one that was going to be revised many years ago, but that didn't happen. There were overarching issues in under the skin exposure, the overarching 009 -- 0009.

And, like, OTIB-0011, these are all examples of where the Subcommittee felt comfortable in closing the findings that perhaps should have been kept in abeyance until we followed through. Because then we can track those a lot easier.

That is one thing we can sort on in the BRS. What are the in abeyance items that are still out there?

Have they been resolved?

Has there been a revision to that TBD or to that document?

And so, I would just encourage the Subcommittee to continue on the path that you've been doing. But in the past somehow that got away from us. And that is the not-closed items that should be in abeyance because there needs to be a change to a TBD or procedure.

Member Ziemer: Kathy, I'm wondering if those go back to some of the earlier times when we might have actually added the category of "in abeyance" to handle that very question.

I think, I think you're right. Originally we closed stuff when we were sure they were going to be changed. But have you found any of those? The ones you mentioned, were they more recent in the sense of within the past few years?

Ms. Behling: No.

Member Ziemer: Because I think the abeyance

category was added to actually handle this issue.

We didn't --

Ms. Behling: Right.

Member Ziemer: I don't think we originally had that as a category.

Ms. Behling: Yeah, it was added. But there were, I did certainly find circumstances where we said, okay, it was in abeyance for a couple meetings here. And now NIOSH says they're in the process of reviewing this TBD. I am clear there was a lot of discussion on that on the OTIB-0017.

So, we all walk away feeling comfortable with that, and it just didn't happen.

And that only came to light --

Member Ziemer: Those closed too soon.

Ms. Behling: Right.

Member Ziemer: Closed too soon.

Ms. Behling: And it only came to light when I went through the transcripts to prepare for Board meetings that had already been set.

Member Ziemer: All right. Okay, thank you.

Ms. Behling: Uh-huh.

Chair Beach: So, I guess moving forward, as -- And I don't really want to task you with going through all the transcripts and coming to closure on these, but the ones that you have identified here we probably need to think about, moving forward, how to capture these and correct them, or at least add verbiage that we closed it but the procedure never got updated. So, now where are we at?

I guess we need to think about that. And maybe have it as a topic at our next subcommittee meeting.

Ms. Behling: And I do know when we had access to the BRS, occasionally I would prepare a table for Wanda of in abeyance findings that were still out there. And we would make that a topic of discussion during these meetings.

But with not having access to the BRS right now, that would be a little bit difficult.

We have recently discussed this OTIB-0017 issue with NIOSH where they did indicate that they are definitely working on an update for that, a revision for that. Which I assume --

Chair Beach: Okay. I think the best thing to do here is just categorize these in a BRS matrix item and list these last several slide topics we talked about, so that when we do have access we can figure out how to move forward with them all.

So, just for clarity in, you know, finishing things up.

Ms. Behling: Okay. And then, lastly, again, in reading through transcripts I remember when I made the presentation on OTIB-0082. And that happened to be a document that we reviewed. We didn't have any findings. But because of the complexity, we did present it to the full Board.

And as a result of that, the Board members had questions and a lot of follow-up, or maybe one or two follow-up questions. And that doesn't get captured anywhere.

And I don't know that they, the questions were ever really answered.

And the same with OTIB-0052. There is a series of questions that were asked by the full Board that I've lost ends and you don't see any follow-up.

And Lori and I have talked about this, too, because we feel almost that for OTIB-0052, because of just the long history, we almost need, like, an internal discussion on that one by itself.

But I think somehow we need to capture when the Board members have questions during the finalization process and not lose that.

Chair Beach: Yeah. And I think we have that well in hand going forward. But, yeah, we, how do we go back and capture the past closures?

Any comments or thoughts on that, Paul or Loretta?

Member Ziemer: Yeah. I'm mulling that over in my mind. Certainly, going forward, if the Board, if the Board has issues that they want clarification on or don't -- basically, in those cases we, we should say the issue is not closed.

Typically, when we say it's closed in the Subcommittee, we are recommending closures. Isn't that the case? The Board has to put the final stamp on it, I think. And if that doesn't occur at the meeting, then we've got to continue it some way.

Chair Beach: Yep. And I would say the only way to go back to 0082 or 0052 is to go back through the transcripts and capture those questions, document them, and then move forward with the answers. I mean, that would be a tasking for --

Member Ziemer: Well, we need to have a -- do we need to differentiate in the matrix something like the Subcommittee's recommendation and then have a final column "Board's action"?

Ms. Behling: In my temporary matrix I do have a Board action resolution column. And it was designed for exactly that.

However, in the BRS as it exists, like after I did the OTIB-0082 presentation, I -- there was nothing added to the BRS that would indicate there should be a follow-up. So, that, it was easily lost because we didn't really have a mechanism to capture that.

Member Ziemer: Yeah. Well, when we get the new system we can look at that. But it seems to me a

possibility would be to differentiate between the subcommittee's recommendation to the Board and the final Board action.

Ms. Behling: Yes. Yes.

Ms. Marion-Moss: This is Lori. Shortly before we lost access to the BRS we did add a feature in the BRS. We just didn't use it. But the feature had been added to distinguish what issues or findings closed by the Subcommittee, and which ones were closed by the Board, the full Board.

Member Ziemer: Well, that's good. Yeah.

Ms. Marion-Moss: We just have not implemented it.

Member Ziemer: Uh-huh. But it can be done readily then, or at least conceptually it can be done.

Ms. Marion-Moss: I think that's the right, that's the right term, Paul.

Member Ziemer: Right.

Chair Beach: Yeah. My recommendation is, again, to capture this in the temporary matrix and under the BRS wish list, or whatever you want to call it. And, and once we have access, then we'll have a whole list of things that we're going to have to work on, it sounds like.

Ms. Behling: Okay.

Chair Beach: If that seems agreeable to everyone. Obviously, we can't really do anything now.

Member Ziemer: Right.

Member Valerio: Second to that. But I agree. I'm sorry, this is Loretta.

Going back to the OTIBs, it seems the only way to capture the information that we need, OTIB-0082, is this something that we're going to have to do on other OTIBs, go back through old transcripts?

Chair Beach: Probably. At least which ones have been presented to the Board, and then see if there was any comments that didn't get resolves at some point. Yes, I would say yes.

Ms. Behling: And I have already done that. I have already gone back through all of the previously presented documents and gone through the transcripts and made notes of what was discussed. And so I've already done that.

Chair Beach: Okay. Is that something that you can put together in a White Paper or a presentation of some kind or just so we --

Ms. Behling: Okay.

Chair Beach: -- so we don't lose track of all that?

Ms. Behling: Okay, yes.

Chair Beach: I would say that was a tasking that the Subcommittee would need to agree on.

Ms. Behling: Okay.

Chair Beach: Since you've already done it, it would be nice to finalize at least what you have done.

Ms. Behling: Okay. Sure.

Member Ziemer: You know, and Kathy, if you do that or you have done it, but sort of a difference between answering some questions for the Board and having the Board say we don't want you to close this. You know what I'm saying?

Ms. Behling: Yes.

Member Ziemer: The Board, Board may raise questions in a discussion, and we may say we have to come back and let you know the answer to that. But in the meantime, they are not objecting to closing it.

Ms. Behling: Absolutely.

Member Ziemer: If we can restate it. Yeah. Yes.

Ms. Behling: Yes, you are 100 percent correct. There were a lot of -- now, I think OTIB-0052 they maybe want to close everything. Or, I don't know, there was just a lot of questions there.

But with, I think, OTIB-82 they just wanted some follow-up questions, not that they didn't want to close out that document review, but there were some follow-up questions that I don't think were addressed.

Okay, that's all I have for the supplemental part.

Chair Beach: Okay. Again, thank you for all the work, extra hard work that went into this.

Next WG Meeting/Plans

Chair Beach: I think the last thing is just sending around dates for a new meeting. And unless there's other comments, questions?

Member Valerio: Josie, this is Loretta. I do have a question on Texas City Chemicals.

Is there still an active Work Group on that site or has that moved over as part of the AWE Work Group?

Chair Beach: I believe that was closed. But Rashaun maybe has a better idea.

Dr. Roberts: Yeah. I will have to look at my notes then and see, and see what happened with that group?

Member Ziemer: I think AWE handled it. But, yeah, Rashaun needs to double check.

Ms. Behling: Yeah, I think --

Mr. Barton: Yeah. This is Bob. I agree with that. I'm not sure there was ever a Texas City Chemicals Work Group separate from the AWE Work Group. I think it was all just handled --

Member Ziemer: Yeah, I don't remember one.

Ms. Behling: There was, I think --

Member Valerio: There was one I believe with -- I'm sorry, I didn't mean to interrupt. This is Loretta.

I believe there was one. But two of the members are no longer on the Board. And I didn't know if there had been new members assigned or it had been retired. I don't recall.

Ms. Behling: Yeah. And I'm sorry for interrupting Loretta.

I'm looking on, under Texas City on the NIOSH website, and it looks like there were a lot of discussions for this particular site under the Surrogate Data Work Group. Because there was a discussion of using surrogate data for the Texas City Chemicals.

So, it seems like, and that's the last meeting for -- under the Surrogate, the Surrogate Data Work Group was back in two thousand and -- November of 2010. So, that's why I included it in this review.

Chair Beach: Okay. Any other comments or?

(No audible response.)

Adjourn

Chair Beach: Then I move that we adjourn.

Member Ziemer: Agreed.

Member Valerio: Agreed.

Chair Beach: I'm waiting for Rashaun. I think she must be looking at Texas City.

Dr. Roberts: Yeah. That's something I'll need to look further into. I don't see where that has been put with other groups off the top. So, I'll need to consult a little bit further.

Chair Beach: Okay. Are we okay to close then, Rashaun?

Dr. Roberts: Yes.

Chair Beach: All right. Thank you, everyone.

(Whereupon, the above-entitled matter went off the record at 3:41 p.m.)