U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
CENTERS FOR DISEASE CONTROL
NATIONAL INSTITUTE FOR OCCUPATIONAL
SAFETY AND HEALTH

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ADVISORY BOARD ON RADIATION AND
WORKER HEALTH

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SUBCOMMITTEE ON PROCEDURES REVIEW

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THURSDAY
NOVEMBER 7, 2013

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The Subcommittee convened via teleconference at 11:00 a.m., Eastern Standard Time, Wanda I. Munn, Chair, presiding.

PRESENT:

WANDA I. MUNN, Chair
JOSIE BEACH, Member
RICHARD LEMEN, Member
PAUL L. ZIEMER, Member

ALSO PRESENT:

TED KATZ, Designated Federal Official
HANS BEHLING, SC&A
KATHY BEHLING, SC&A
RON BUCHANAN, SC&A
ROSE GOGLIOTTI, SC&A
STU HINNEFELD, DCAS
JOYCE LIPSZTEIN, SC&A
LORI MARION-MOSS, DCAS
STEPHEN MARSCHKE, SC&A
JOHN MAURO, SC&A
JAMES NETON, DCAS
STEVE OSTROW, SC&A
L. MICHAEL RAFKY, HHS
MATTHEW SMITH, ORAU Team
JOHN STIVER, SC&A
ELYSE THOMAS, ORAU Team

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(11:01 a.m.)

MR. KATZ: Good morning everyone who's on the line already. This is the Advisory Board on Radiation Worker Health Procedures Review Subcommittee. And let's get started first with roll call.

Let me just say ahead of roll call, two of our Members, Wanda Munn and Josie Beach have conflicts with Hanford. I don't know that we have any Hanford business to do today, but otherwise have no prospect of conflicts with our Board Members. So just to note that up front instead of them having to address that during roll call.

So let's begin with roll call.

(Roll call.)

MR. KATZ: The agenda and various meeting materials are posted on the NIOSH website under the Board page under today's date, and everyone I've heard here should

have the agenda anyhow, and all of these materials.

And it's all yours, Wanda. Everyone please mute your phone except when you're speaking, *6 if you don't have a mute button. Thanks.

CHAIR MUNN: Thank you, Ted. I have only one proposed change to the agenda. I've been notified that Joyce has a report on OTIB-83 and 34, which we would probably insert directly after our OTIB-54 responses if that is amenable with everyone here. Do we have any objection to that or any other further additions to the agenda?

MR. KATZ: Okay, Wanda, I thought I had that OTIB-34 and 83, is that not correct?

CHAIR MUNN: That's correct. I've got 83 and 34.

MR. KATZ: Oh, very good.

CHAIR MUNN: I think so.

MR. KATZ: Okay.

CHAIR MUNN: Any other changes or additions, corrections?

MR. KATZ: Okay, that's on the agenda, actually, already.

CHAIR MUNN: Just wanted to make sure that we had it under 54 in the same order. Any other changes? I said that once. I think we'll go on.

Our first item on the agenda is the status of the BRS entries. I've been told that Lori has gotten all of the PERs loaded, and if you filter on the Board system, a review page under Document Types for PERs, we have quite an extensive list there. I believe they're all up and running.

Stu, Lori, can you verify that and give us any additional information that we might need?

MR. HINNEFELD: Well, no. I think that Lori has worked with our TST folks

and have gotten, from the PER standpoint we think they're all on there now. They're either in the queue called Documents under Board Reviews called Unassigned.

So we worked from the list that John Stiver sent out about the identities of the PERs that SC&A has been assigned to work on and that list should coincide with the list that appears under the Documents under Board Review.

CHAIR MUNN: Oh, I haven't made that correlation, but thank you, John, for getting that extensive list out. It's very helpful for us, I think, to see the full list in one spot.

MR. HINNEFELD: Okay, and then the remaining completed PERs are in the queue that is titled something like Unassigned or something like that.

CHAIR MUNN: Right. Good. That's great. Are there any questions, any

additions, any additional information we need to have with respect to those PERs right now?

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

CHAIR MUNN: Yes, Lori.

MS. MARION-MOSS: I would like to add that in total, there are 46 PERs in total with 23 being assigned to SC&A.

CHAIR MUNN: And 40, how many in total?

MS. MARION-MOSS: Forty six.

CHAIR MUNN: Forty six total, okay, 23 assigned. Got it. Thank you. Anything else? If not, next item that we had carried over from last time was an expectation of a document on localized skin exposures.

MR. HINNEFELD: Yes, this is Stu. I think I'll let Jim Neton take that up to start.

CHAIR MUNN: Okay. Jim?

MR. HINNEFELD: Are you muted, Jim?

CHAIR MUNN: Have we lost Jim?

DR. NETON: I am. Okay. Well, this localized skin exposure is an overarching issue and I actually went out to the database and noticed that it's not listed there now, possibly because it's not associated with any finding. So that's the first thing I'd like to figure out is how we're going to track this thing because again it doesn't appear anywhere in the BRS.

CHAIR MUNN: That is a problem because we, I don't believe that we have faced the issue of incorporating anything that wasn't specifically a finding, have we?

DR. NETON: These were noted as concerns in the draft, in the document that SC&A issued June 2013 where they prepared this sort of side White Paper. It was a fallout from some reviews of, I think,

Bridgeport Brass cases or something like that.

CHAIR MUNN: Yes, well, it's come up in several venues, I think.

DR. NETON: Right. So it's truly an overarching issue, but I think it should be added to the list so that we can get those relevant documents out there and track.

CHAIR MUNN: This is a new question, how to address the question.

DR. NETON: Yes.

CHAIR MUNN: We'll need a document of some sort and some way for us to identify it other than the document sources that we currently have stipulated. I wonder if we can, we're open to suggestion if anyone has any specific ideas. We might consider taking a look at one of the documents where the question was raised whether it was a finding or not, and in some way attach it to that document. Any other ideas?

MEMBER BEACH: Wanda, I would worry -- this is Josie -- that it would get lost if we try to track it that way.

DR. NETON: Yes, Wanda, what happened is this got transferred over from the DR Review Subcommittee, I think, because it was identified in, I think it was a Bridgeport Brass review. Yes, it was.

And as a fallout of that DR review, SC&A, asked Ted, he agreed to have them develop this sort of position or concern paper on skin doses in general. And there's a couple issues there. And like I said, the only thing that existed that I'm aware of is in the Procedures Subcommittee arena is this discussion points document that SC&A issued on June 2013.

MR. MARSCHKE: This is Steve Marschke. I mean we have, or NIOSH has created this group of findings, if you will, or entries into the BRS which are identified

as overfinding.

CHAIR MUNN: And it'll go there, Steve. That's where it'll go.

MR. MARSCHKE: It'll go in there. So all we need to do is, you know, kind of put some kind of a document associated with it and it would be in that as over 9, and then once we got that entered as a document we would be tracking over 9 and we could put in, you know, whatever the finding was under that.

DR. NETON: There are no findings. That's the problem.

CHAIR MUNN: That's the problem.

MR. MARSCHKE: Well, I guess we would, what comes out of that White Paper that SC&A put together --

DR. NETON: There are concerns.

MR. MARSCHKE: -- those are the concerns. Well, the BRS doesn't really differentiate between findings and concerns.

That's true.

DR. NETON: Yes. So I mean I don't really care either way. I just think it needs to go there, and if everybody's comfortable putting it in there and recognizing it's a concern not a finding, that doesn't really matter to me.

CHAIR MUNN: I'll tell you what. Why don't I go back and establish at least a note tying this directly to the transfer from Dose Reconstruction, and then I'll work with Steve and Lori to get it into overarching issues based on, we'll get some way to reference the document so that we know where we're going --

DR. NETON: And one thing that I think would be helpful to NIOSH is that if SC&A would review that document again and concisely issue what they consider are the concerns. Because I won't say they're vague, but they're --

CHAIR MUNN: They're significant.

DR. NETON: There's two or three issues in here, I think, that are lumped together and they need broken out.

MR. HINNEFELD: This is Stu. I would offer that it's clear what they're writing but the document's not organized with Finding 1, Finding 2 and so on.

DR. NETON: Yes, right.

MR. HINNEFELD: So, you know, it would be helpful. We don't want, I mean, I think I could probably the write the findings but I'd be paraphrasing. I think SC&A would do a better job of writing the findings because they're going to relate to the duration that the contamination remains for the model that we proposed, which is the airborne settling model.

So you've got a concern about the duration between cleanings, the effectiveness of cleanings. There's a concern about the

contribution from contaminated clothing and the risk basis being, you know, a fraction of the total skin or the appropriate skin.

It seems like there's one more in there I thought of a while ago that I can't think of.

DR. NETON: Well, there's the magnitude of the deposition of the contamination on --

MR. HINNEFELD: Oh yes, the --

CHAIR MUNN: Yes.

MR. HINNEFELD: You know, it's the flakes rather than --

CHAIR MUNN: Hot particle, yes.

MR. HINNEFELD: -- airborne deposition.

DR. NETON: They're not really what I could call hot particles, but just sort of how much deposition can you get --

MR. HINNEFELD: Yes, so there are about five things, and I think SC&A could

write them much easier than us and much simpler than us. And it could be as simple as like an Appendix that we'd stick on the same report, I think.

I wasn't proposing writing another report. We just need, you know, a Statement of Finding which then allows, you know, we'll enter it. We can make an entry in Overarching and use the existing document sort of as the basis for it.

MR. KATZ: But Stu, what is -- this is Ted. What is the OTIB or document related to settling that this ties in with?

MR. HINNEFELD: Well, it's not really a settling rate question. They didn't question the settling rate.

DR. NETON: No, this is generically related to skin dose assignment itself.

MR. HINNEFELD: I think we could go back to probably a dose reconstruction

review.

MR. KATZ: So there's no OTIB that governs how this is handled site to site?

MR. HINNEFELD: Not yet. No, not at this time.

MR. KATZ: Okay.

MR. STIVER: Ted, this is John Stiver. This came out of the dose reconstruction, the partial, I believe it was.

MR. KATZ: No, it's okay, John. I remember how it is written. It is actually written a number of times. This wasn't the first time this came up. It's come up before too and --

MR. STIVER: The point being there is no technical basis for --

MR. KATZ: Anyway, I was just trying to pin down whether there was any kind of procedural document to pin it to which

would be helpful, but I gather there's not.

MR. STIVER: One thing we could do, we could have John and Hans write the findings into the BRS, but if you would like a separate document or an Appendix that calls them out for the record, we could certainly do that too.

MR. HINNEFELD: I don't really care if there's a separate Appendix or not.

DR. NETON: No, I think just the findings as you see them as a result of this. I point back to the discussion paper. That's the only thing I have on record that is sort of our marching orders will be towards.

MR. KATZ: So this is Ted again. Just a suggestion then for how to do this just so that everybody has clear records as well as not just in the BRS, so if they would that's fine for them to do that, to write the findings in for the BRS, but then just a make

a memo for the record saying, here are the findings that we've incorporated into the BRS arising out of this White Paper or whatever. And then everybody has in their own files too a record of how these were synopsized.

DR. NETON: I think if we just attach the White Paper to that finding.

MR. KATZ: Yes, just a memo following up on the White Paper. That's what I'm saying.

DR. H. BEHLING: This is Hans Behling. Let me point out something, and I can't really be sure I remember what it is, but there was a finding associated with a document where we had skin contamination, where the model involved a daily shower and you started out with a clean slate. And it may have been either Bethlehem Steel or some other facility where people were exposed to radioactive deposition on their skin on a daily basis.

And right now I'm at a loss to tell you which document I'm referring to, but that was one of the items that we identified as a finding in that particular model.

MR. HINNEFELD: Yes, I think it was a Y-12, Hans.

CHAIR MUNN: Hans, if this is transferred over from DR then there was a original finding on something, otherwise we --

DR. MAURO: This is John Mauro, just real quick. There is a link though to a procedure, I believe, OTIB-17, which deals with non-penetrating radiation. It does have an Appendix or an attachment to it that does talk about skin dose calculations, I seem to recall.

So the only reason I'm bringing it up is that certainly there is the Bridgeport Brass story that triggered a lot of this. There is the special White Paper

that Hans and I worked on that will identify issues. And certainly we can do all the things that you folks just described.

But for completeness, I do believe there's also a link to OTIB-17. I believe that's the one that deals with --

DR. NETON: Yes, that's Interpretation of Dosimetry Data for Shallow Dose.

DR. MAURO: Yes, and I think in the back of it there's some material there that I read and to see the degree to which that material addressed many of the issues that, you know, we raised. And I think there were places where it does not.

So I'm talking more programmatically. You know, it's probably a good idea to somehow to get that into link, because I think there's a connection there that we don't want to lose.

MR. STIVER: Yes, John, I believe

that was related to the issue of the risk and the fractional amount of skin that was being irradiated.

DR. MAURO: Okay. Okay.

DR. NETON: That is brought up in this White Paper.

DR. MAURO: Yes.

DR. NETON: And we talked about that a little bit at the last meeting.

DR. MAURO: By the way, I think, this is just as an aside, notwithstanding procedurally how we handle this is that I think the vast majority of the issues have been resolved in principle through many of our discussions.

And one of the ones that seems in my mind that it still sticks, so I don't think this is as looming as it might sound, certainly the clothing issue and, you know, the duration is still in play.

But I like to say the glass if

half full. I think a lot of the places where we had concerns from conversations that we've had during our discussions, I believe, was on Bridgeport Brass in one of the cases, we're pretty close to resolving a lot of that. But we do need to find a way to administer the issues and how they're being closed.

DR. NETON: All right.

CHAIR MUNN: Does anyone have right off the top of their head, the Finding number from the DR Subcommittee on that so that we could check the original finding? I'll go back and check it anyway.

And SC&A is going to -- is it agreed, do I understand correctly? SC&A will create an addition to the White Paper which will be a specific listing of more focused finding statements so that we can deal with them. Is that what we're doing?

MR. STIVER: Yes, this is John. We could either do it as an addendum to the

paper or as a separate memo. I mean, either way we'll get that done. But whatever your choice is.

CHAIR MUNN: Whichever is easier for you.

DR. MAURO: Would it also be helpful that, and given the time that has passed since we've done that and the discussions we've had, SC&A has a certain understanding now of how NIOSH plans to deal with skin dose as, you know, in both the fine particle settling issue and the flake issue, which we raise and express some concern about, which I believe both of those have been resolved in terms of the models and methods and approach that would be used to deal with it.

Now there are still some questions that need to be resolved which include this risk business and the clothing business. So I think that we could kill a

few birds with one stone here.

Maybe we could sort of do a better job in structuring our findings, but also at the same time identify our understanding, and we could even cite where it is in the transcripts that I think maybe this issue has been resolved at least in the transcripts and the discussions that we've held related to the Bridgeport Brass business.

So anyway, I'm saying maybe we could do a little bit more than just simply create a record, but actually begin the process of saying that SC&A has, you know, it is SC&A's understanding that this is the strategy that NIOSH plans to use to deal with this particular issue and, you know, that will sort of help move the thing along. And it wouldn't take very much to add that in.

MR. STIVER: I think we could do that in the BRS and it could include links to

whatever documents or transcript sections that we wanted to add.

MR. MARSCHKE: The problem I have with that is the same problem Stu had with adding, for NIOSH adding the findings on behalf of SC&A.

Again, if we put in our understanding of what NIOSH's approach is, we're kind of paraphrasing what we think NIOSH is doing. I think it would be cleaner if we put in the findings, NIOSH put in their approach to resolving the findings, and then we go back and we put in our recommendation. Okay, we agree with that approach, and we basically are going, and we close it out.

I think it's just basically a cleaner approach, you know, and otherwise again, we end up trying to interpret what we, or, you know, we're giving our understanding of what NIOSH is doing as opposed to them --

MR. STIVER: Yes, we're kind of

skipping a step there.

DR. MAURO: Yes, you're right, Steve. I think we'd be jumping over the standard protocol. You're right.

DR. NETON: Actually, I was kind of interested to hear what John had to say, because I don't remember some of those.

MR. MARSCHKE: Well, I mean you can do it offline, John. I mean --

DR. NETON: Yes, I think maybe we can have a status chat or something.

DR. MAURO: If it's okay with you folks, I could give Jim a call and just let him know my, again it would not be an issues resolution, it would simply be SC&A's understanding of what NIOSH plans to do with respect to doing these kinds of calculations, and Jim could either say no --

DR. NETON: That would save a lot of work, I think, in the long run.

CHAIR MUNN: Well, it would save

a lot of work and it would be the reasonable approach to it, especially in view of the fact that, I think John Mauro's comments are well taken, and that most of these issues, certainly a large number of them we did address in OTIB-17.

And the problem as I see it is just that this particular, these questions have come at us from several different directions. They're essentially the same question. They are an overarching issue, and we have just simply not codified them in one spot.

DR. NETON: And I'm at a little bit of disadvantage because I was not privy to any of those Dose Reconstruction Subcommittee conversations that you all --

CHAIR MUNN: Right, right. But those are, most of them were quite some time ago. But I think we'll proceed in the manner that's just been most recently suggested. I

think the first step would be for SC&A and NIOSH to have a technical call to identify precisely how we're going to move forward with this, and we'll take that as an action. Can that be done before our next meeting which won't be for several months?

DR. NETON: Yes. I was thinking not today, but down the line. Yes, I think that's, and I'll try to refresh my memory and read what I can before we talk. It will be very helpful. Yes.

CHAIR MUNN: Okay, that's good.

MS. K. BEHLING: Wanda, this is Kathy Behling. If you do want to go back to that Bridgeport Brass case it's in the 8th set.

DR. NETON: Right. I've got the email trail but I just haven't been able to pull that out. I know at one point after that whole discussion there was some recommendations that we start looking at like

one of the DTRA documents that John Stiver was familiar with, which I did find and it was very helpful.

And then apparently as part of the review of one of the cases, SC&A had outlined an approach that they thought was a reasonable way to go about business in one of their responses to the DR. So there's some stuff on the table but I have not found all of that yet.

CHAIR MUNN: Well, if you folks will set up the technical call, give the Subcommittee Members a notice of when that's going to take place so that if any of us can or want to sit in we can, it would be helpful. We'll look forward for a note about when that's going to happen in the immediately foreseeable future I hope. Good.

MR. STIVER: Okay, we've got it under advisement.

CHAIR MUNN: Thank you. Anything

else to say about localized skin exposure documents right now? It would be helpful to get this moved along and have something to point to in our overarching issues with, get it added to. Nothing else to say with respect to the BRS? Thanks again.

MR. MARSCHKE: Oh Wanda, I just wanted to say that we've been working with Lori and we've been, you know, working with the, and it's making good progress. I think the BRS is in very good shape.

You know, whenever we do have a problem with it we let Lori know and it gets fixed right away and, you know, we've been successfully using it quite often since the last meeting.

CHAIR MUNN: I know the DCAS team has been working pretty hard on that and the few times that I've checked in on it it's operating fine for me. But the proof of the pudding is what we have to cope with when

we're in real-time meeting here.

So thanks much, Lori, and your team, and Steve too. We'll just keep tweaking it as we go along. Thanks much.

MS. MARION-MOSS: This is Lori. I would just like to remind users of the database to be cautious with entering information into the BRS. When you do a copy and a paste you run into formatting problems.

We're working on that but currently it still causes a problem in the system. You get a lot of strange characters that show up and things of that nature. So just to warn you that the copy and paste feature from a Word document into the BRS causes formatting problems.

CHAIR MUNN: Well, one step at a time. Thank you, Lori. Appreciate it. PERs 0031 and 0030 and the responses, NIOSH.

MR. HINNEFELD: Okay, this is Stu again. We have entered those responses in

the BRS. If Steve wants to bring it up we can take a look at them. I don't remember them off the top of my head.

CHAIR MUNN: Which would you prefer to start with, 0030 or 0031?

MR. HINNEFELD: I don't know. I don't remember which is which.

CHAIR MUNN: I don't either.

MS. MARION-MOSS: This is Lori. 0030 is Savannah River and 0031 is Y-12.

CHAIR MUNN: Oh okay. Well, Steve has 0031 up. All right.

MR. HINNEFELD: Okay, I think this one has four findings, right? Yes, if you expand on that first one you can see our response.

MEMBER LEMEN: This is Dick. Just for your information, the Live Meetings never come up for me.

CHAIR MUNN: Oh dear.

MEMBER LEMEN: Has it for

everybody else?

CHAIR MUNN: Yes.

MR. HINNEFELD: Yes, it worked for me.

MEMBER LEMEN: I'm just too far out in the hinterlands.

MEMBER BEACH: It's working for me.

MEMBER LEMEN: Well, I did everything it said to do so I don't know what to do. I'll just let you draw me pictures of it in my mind.

MR. HINNEFELD: Then I'll go into a little more detail here. The Finding Number 1 on the PER had to do with a statement that was made in the PER that changing the, this finding has to do with the interpreting in vivo results from Y-12, from the Y-12 plan, and interpreting in vivo results for thorium.

When you do an in vivo count for

thorium-232, you don't actually count thorium-232 because it doesn't give off any photons. You look for a couple of, one or the other or two of the items, you know, daughters in its decay chain, either actinium-228 or lead-212. And then you have to make some judgments about what that tells you about how much thorium-232 is there. And of course there's also thorium-228 there in that decay chain. It's a fairly complicated decay chain. The statement made in the PER was that one of the changes that was made to the Y-12 Site Profile was that these in vivo results at this time at Y-12 were being reported in milligrams of thorium-232 even though that's not what they were measuring. And the original Site Profile said we're going to assume that the ratio of thorium-232 to thorium-228 is 1:1, meaning that they're in equilibrium conditions.

And then the revision to the Site Profile said, well, you know, it's not likely that they're going to be in equilibrium conditions because of the complexity of the decay scheme, and so we're going to assume that thorium-228 to thorium-232 ratio will be 0.8:1. And the PER said that this is one of the changes that would increase the doses to people, and so it's one of the reasons why we're doing the PER.

SC&A's Finding Number 1, which I'm finally getting to, is that if you reduce that ratio that would actually reduce the dose. It wouldn't increase the assigned dose if you changed that ratio. So that was the finding. Our response was, well, yes, that's true if you take the milligram thorium-232 result at face value, meaning that that's the value you're going to consider its true value.

But if you know that you're

counting actinium-228 and/or lead-212 and that's what you're actually measuring when you make that disequilibrium assumption, what that would cause you to do is actually increase the thorium-232 present to a higher value than what the in vivo mantra reported.

But regardless of how everything works out, it's really unimportant. It doesn't matter in terms of how the PER is done and if the PER is done correctly. So we think that the finding can just go away. It doesn't really matter whether change in assumptions raises the dose or not.

So that's kind of where we are on the first. That's our response to the first finding is that, you know, there's a lot of stuff to think about in terms of, and the revised Site Profile is not very specific in terms of what does this change in equilibrium, what does that do to how you should interpret this in vivo result.

So it's a fairly difficult interpretation and not really important to the outcome of the PER, and it's kind of going to be overcome by the response to the other findings that are coming up anyway.

So this one, I think, was just put in there. I don't think anybody's really seen it yet but us, so I wouldn't expect anybody to rule on this. But you can think about it. If anybody has any questions about that I'd be glad to answer them.

CHAIR MUNN: Any questions?

MR. STIVER: This is John Stiver. I agree with Stu on this. We discussed this at the July meeting. And in regards to the SEC granted for Fernald based on the exact same chest counting methodology, and a lot of these findings I think you'll see in later on, Stu's recommended that they be moved over to a Work Group, a Site Work Group, and I would tend to agree with that.

There was also some discussion about what really, the interpretation of that Finding 1. Clearly, if you're using the progeny to get back to a thorium intake, well, you know, any disequilibrium is going to increase the thorium-232 intake.

But by the same token, the progeny that would be in equilibrium would be contributing less because they're downstream from thorium-228 in the decay chain. So again, I mean it's kind of an interesting technical question, but I don't think that it really bears much on whether the PER is done correctly.

DR. H. BEHLING: This is Hans Behling. Is Ron Buchanan on the phone?

DR. BUCHANAN: Yes. I do want to state -- this is Ron Buchanan at SC&A -- that the five cases we looked at, the dose reconstructor was using the milligrams of thorium to convert to the thorium-232 and

then he was using 80 percent of that to assign the thorium-228.

And so that would, the way it was actually to be done in the case we looked at was decreasing the dose in three out of five. The other case, they used a 40/60 combination which was incorrect.

And so the dose reconstructions that we looked at were actually using 80 percent of the thorium-232 as the thorium-228 intake. So the way it is being used, the 0.8 does reduce the intake and resulting dose compared to using a 1:1.

MR. HINNEFELD: Okay. Well, it's all, I think, going to be overcome by events anyway. If you go on to the other second finding, and actually the second through the fourth findings, we listed our response as the same.

I'll say the second finding has to do with essentially the difficulty in

interpreting the in vivo, thorium in vivo counts based on because you're counting those progeny and the relationship of the progeny.

The relative activity of the progeny to the parent is a fairly complex function that follows, depends upon how long it's been since you separated the thorium. The thorium is purified.

And then the other two findings I don't remember real well because I just felt like this issue needs to go. I felt like there, you know, a Y-12 Work Group needs to consider this. Because this is the exact issue that added a Class at Fernald from '68 to '78, was the inability to reliably interpret the in vivo monitoring results for thorium when the in vivo monitoring reported the results in milligrams of thorium-232.

So since that issue arose there, and apparently at Y-12, of the Y-12 Site Profile it tends to rely on this thorium in

vivo monitoring which seems to be the same technique, maybe not the same device but the same technique and results reported in milligrams of thorium-232, we think we need to take another serious look at that and whether we do, in fact, have a way to estimate thorium during that time or not.

It may be that we don't, or it may be that there's air sampling data or some other method that would be used. But I'm questioning whether these in vivo results, the thorium milligram in vivo results really can be interpreted appropriately for that.

And if you recall, way back in the old days, Y-12 Work Group, at the time the Class was added at Y-12 through, what, 1957, I believe that was largely because that's how long the petition lasted. You know, the petitioner who petitioned for a Class only petitioned, I think, through '57. And I think we kind of left open the

question that well, should this go further or not. I think we kind of left that open.

And at any rate, there were Site Profile issues that were identified during that discussion that haven't been resolved yet either. So I think there's really work here for a Y-12 Work Group.

MR. KATZ: Stu, this is Ted. But I mean, by virtue of what you just explained, it seems like the next step is not really assembling a Work Group but for NIOSH to grapple with this and make decisions about whether it has a method for this for Y-12 or not. Because if it doesn't, then it can go, you know, the 83.14 route and add a Class to address this problem.

But it seems like it would be premature to have a Y-12 Work Group come together before you'd have a chance to do your homework and sort out the path forward.

MR. HINNEFELD: Yes, I think

that's fair. We'll get it on our task list along with the other 80 things we have.

CHAIR MUNN: Well, these thorium chain issues are thorny whenever we hit them, and they're so extremely technical that it's unlikely that anyone other than specific personnel who deal with these decay issues on a fairly regular basis can even assess them very well.

So if we're going to undertake this issue that we have with PER-31, it appears that the point Ted has made, I think, is a good one.

We are going to have to do it almost as, it's not an overarching issue because everybody doesn't deal with thorium, but most of the sites that do have thorium issues have some aspect of these same types of problems to wrestle with.

MR. HINNEFELD: Well, I think there are actually a limited number of sites

that did in vivo monitoring --

CHAIR MUNN: That's true.

MR. HINNEFELD: -- or thorium-232.

CHAIR MUNN: From information we have it is limited indeed.

MR. HINNEFELD: Yes, there are other issues with thorium too, if you don't have in vivo.

CHAIR MUNN: Yes, that's true. So doing it under this wing seems to be just as effective as doing it under any other wing.

MR. HINNEFELD: That's fine with us. I think Ted was right, is that the next task for us is to sort out what, if anything, we can do and what period of time we're talking about here.

We know that Y-12 did in fact, was a heavy user of thorium for like, starting around 1960 or just before and going

for awhile. I don't know how long it went for. And they probably did not report in milligrams of thorium for very long. By, well, let's see, it was by the, well, they could have for awhile. Fernald didn't switch until the late '70s, and Fernald relied to great deal on Y-12 for their, well, they relied on Y-12 for the mobile counter which is what's used.

MR. STIVER: Stu, this is John. I think I recall reading somewhere in one of those millions of documents that it was based on a change at Y-12, but I can't tell you exactly where I found that.

MR. HINNEFELD: Yes, I don't recall that. I would suspect it was the same. I suspect that Fernald took their lead from Y-12 and if Y-12 may have changed somewhat earlier, but maybe not a lot.

DR. BUCHANAN: This is Ron Buchanan. Fernald used Y-12's equipment and

method and thought it was the same. So --

MR. HINNEFELD: Well, they used a mobile counter. I think Y-12 also had a fixed one that they used for their own.

DR. BUCHANAN: Yes, that they received from Y-12.

MR. HINNEFELD: Y-12 did. Y-12 had a fixed counter, I believe.

MR. STIVER: Yes, they did. Yes. They had a fixed counter and the mobile counter was patterned exactly.

MR. HINNEFELD: A counter they sent around to the various, not only to Fernald but to the gaseous diffusion plants as well.

MR. STIVER: Yes, exactly.

DR. NETON: Hey, Stu, this is Jim. I'm looking at the PER-31 and as far as I could tell it specifically only addresses this lung counting issue and the change in the equilibrium ratio. And if that's the

case I wonder if it wouldn't just be prudent for us to just maybe withdraw --

MR. STIVER: Did everybody else drop off?

DR. NETON: What's that?

MR. STIVER: Everything went quiet for a second there.

DR. NETON: Could we actually sort of withdraw this PER and go back to the drawing board and see what needs to be done? That would sort of, you know, there's no reason having these findings on the table if we're going to redo something, right? I don't know, just a thought.

CHAIR MUNN: Well, we're just finding our way along here with the issues that arise from PERs, so that's certainly a suggestion that's worth considering as long as we don't lose track of the issue. That's a big deal. So how we do it is up for discussion.

MR. HINNEFELD: Well, this is Stu. I'm personally okay with just leaving them here and leaving them open. It's kind of like a sore tooth. It won't leave you alone, you'll have to do something with it.

CHAIR MUNN: Yes.

MR. STIVER: Maybe we should just put a note today that it's going to be considered by NIOSH in a larger sense in regards to a potential reconstructability.

CHAIR MUNN: Okay, I'm going to say that NIOSH is going to revisit this, and that we'll have at least a White Paper report from NIOSH as to how to proceed with this specific PER. And the thorium issues in a larger sense obviously are going to have to be resolved somewhere.

But if we're trying to expand this PER, which addresses specific lung exposures, we need to be careful that we don't go beyond the limits of the concern

that generated the PER to begin with.

So we're going to have to rely on NIOSH, I think, to give us recommendations on how we need to proceed. Any comment from any of the Committee Members? Any thoughts? Any suggestions?

MEMBER BEACH: Wanda, this is Josie. I think that's a reasonable path forward.

MEMBER ZIEMER: And this is Ziemer. It certainly makes sense to me. I don't think we want to sort of, you know, after you go through that if you feel like you need to withdraw the PER, then I think that's your decision at that point.

MEMBER LEMEN: This is Dick. Okay with me.

CHAIR MUNN: All right, is it clear, Jim, Stu? Clear in your minds where we're going with this?

MR. HINNEFELD: Well, I know what

our next task is, is to look back to the Y-12 approach to what we've adopted in light of, and see if the in vivo monitoring is the key to it and if so, what does that tell us about maybe an infeasibility and during what times?

CHAIR MUNN: All right. Very good. We'll expect your report on the thorium chest count issues with PER-31. That being the case can we go on to PER-30 then. And how many --

MR. HINNEFELD: I think we only have two findings on this one.

CHAIR MUNN: All right.

MR. HINNEFELD: Okay, the first finding is comments that the PER states that there have been a number of revisions to the Savannah River Site Profile, but these didn't always result in needed modifications to dose reconstructions.

And the reason for this is that the Profile was issued and then maybe a first

revision or something was issued that said, that reserved certain types of exposures during certain times, during certain periods.

So the thought process behind publishing a Site Profile with information missing was that that missing information wasn't needed for all dose reconstructions, and so some dose reconstructions could go forward while this missing information was found or additional research was done in order to be able to fill in, essentially fill in the blanks.

But there was some cases, do, and so those were done. But then when you would issue a revision it just added another, you know, that added a technique that hadn't been available before, and it was, you know, this is to cover people who didn't have bioassay before 1960, for instance.

Then that revision would not change any that were already done, any dose

reconstructions that were already done, it would only make more dose reconstructions, then, available to do.

And there was some revisions like that and that was the explanation for why we've had a number of revisions, sometimes in some cases there were revisions where there's no need for a PER at all.

And so the finding had to do, was, do we document that in some way that that's what happened and a particular claim was documented for, you know, there was some document generated that that particular claim, or a list of claims that couldn't be done yet? And the answer is no. There was no documentation of that of the dose, you know, there are some pends. Sometimes the case will be pended. Sometimes our contractor even for awhile would put a claim what they called on hold, which was their own sort of pend.

I think we've gotten away from that now. They also have the power to pend the claim. And so when you get to a claim and there's information that doesn't, you know, so that claim can't go forward, it gets pended for this technical reason.

Now there's some things like that, but I don't believe we have a method to reconstruct the claims and find out what claims were pended for what thing over history.

If you look at a specific claim and look at its, I believe it's called its QA history, or at least it's one of the parts of NOCTS that describes the history of the claim, it will describe when the case was pended and unpended if it ever was, and it gives a sort of a one-line description of the pend reason, which may or may not be very explanatory today.

So there's some things you need

to look at it, and the answer to the first finding is no, we don't have a way to document that the cases were held and held correctly and things like that. So that's our response to the first one.

DR. BUCHANAN: Well, this is Ron Buchanan, SC&A and I'm the one that posed that question. I guess outside the documentation question, say you've got ten claims and you can work five of them and the other five can't be worked because they're waiting on information for that TBD.

Three years later that information comes available. Is there a method that pulls those other five claims in and has them worked?

MR. HINNEFELD: Well, which five claims? The five that we didn't do?

DR. BUCHANAN: Yes, the five that you didn't do.

MR. HINNEFELD: Yes, that was the

pend process I was talking about. Normally what happens is if you have a technical reason why these five claims, we can't do them yet and we say they are pended and waiting for a method to do internal dose reconstruction before 1960, something like that.

Say those other five claims we did, those people all hired in after 1960. So then when we have a method for doing internal dose reconstruction before 1960, then we go back and release those pended cases, the cases that were pended for that reason. So that's how then they become available to the pool to be done.

DR. BUCHANAN: Okay, so NIOSH does have a way to link pended cases to information when they know why it's been pended some way, and when that information becomes available they are brought back into the queue to be reworked automatically.

MR. HINNEFELD: Right.

DR. BUCHANAN: Okay. Well, that was my question and I figured there was an answer to it, but several of these PERs I've worked on I've noticed these sections were reserved and then filled in, and I didn't know if everybody was aware of how that was done. I wasn't. It wasn't obvious. And so it was a question.

MR. HINNEFELD: Yes, there's an end report that we generate that it's marginally descriptive in terms of the categories of why things, you know, what cases are pended or how many. It doesn't necessarily name the cases.

But I mean, that's a current thing and we can do it current, but I don't think we can regenerate the history of it.

DR. BUCHANAN: I just wanted to make sure that the claims weren't sitting there not being done as later on the

information becomes available and some of them fall through the cracks.

MR. HINNEFELD: Yes, that's done through the pend process. And we've gotten better at keeping track of claims as the years have gone on, and our contractor now sends us a really detailed weekly report of how they're keeping track of the cases.

If you're interested, Ron, I can send you their weekly report. I mean they really keep track of the cases that they have now and the issues that are keeping them from moving forward.

DR. BUCHANAN: Okay, well, I was just looking for the general information and I figured that maybe other people would have the same question.

CHAIR MUNN: Yes, it's so easy to look at their reports, and if it isn't an issue that isn't pertinent to the reader then sort of skip over it.

And I guess the question in my mind would be, and is the pend report reviewed by the people who have this specific responsibility for generating whatever documents or whatever information is necessary to address the matter that caused the pending?

MR. HINNEFELD: Yes, well, the pend report is the report we generate internally off of NOCTS, and we, meaning the HP Team leaders and Jim and I, go over that once a month to make sure that it stays in our minds, anything that's pending, and nothing gets forgotten about.

But actually, more frequently than that ORAU, our contractor, every week publishes a report where they describe the categories of things that are preventing claims from moving forward.

CHAIR MUNN: Right, right.

MR. HINNEFELD: And for instance,

there are always a bunch of claims where we're awaiting for the initial response from DOE for this claim's exposure history.

CHAIR MUNN: That's about as real-time as you can get, I think.

MR. HINNEFELD: There are still some claims that we don't have the CLL tool in place for because those CLL tools are site specific. And we've gone through the sites with the large number of claims, but we're still finishing out all the CLL tools that are needed in order to do the CLL cases because there's some categories, there's some things in that. There's some claims that we've, you know.

So that would be an example of a technical pend. This claim is pended until we have a CLL method for, pick your choice of a small site. So those are examples of technical pends.

CHAIR MUNN: That's a good

concern. Thanks for raising it, Ron, and thank you for the good answer.

DR. MAURO: Stu, this is John Mauro. A quick question for you. When you give your overarching summaries during the full Board meetings, very often you would present the age of some of the cases. In other words, you try to clear those backlogs of DR reviews that may have been lingering for a year or two or whatever.

I know there's a lot of emphasis placed on trying to get those taken care of. Is this the reason why you have some cases that are sort of sitting unresolved that may go back a year or two? In other words, I always a notice the graph and I know that you speak a lot to that issue. And I guess is this like the underlying reason why some of these are sort of sitting in limbo for awhile?

MR. HINNEFELD: Yes. The reason

being that there are periods of time where we haven't quite resolved all the questions at certain sites. I mean certain sites are very responsive and some are not. And some are periodically responsive.

And so I could probably think of a couple if I really spent some time at it, but there are some data captures that have gone on longer than, you know, we had hoped because of the difficulty in dealing with the holder of the records. And so sometimes things have to wait until we can resolve the technical issue needed to do that claim.

So yes, that's what makes them stop is a technical pend of some kind. Because if we have all the information we need and the techniques we need to do a dose reconstruction we get it done in less than six months.

DR. MAURO: Okay, thanks.

CHAIR MUNN: Great. Finding 2?

MEMBER ZIEMER: Well, I would consider that one resolved. It seems to me that Ron Buchanan, it sounds like you're satisfied with the answer.

DR. BUCHANAN: Yes. It was more of a question in clarification and I'm satisfied with the answer. Thank you.

CHAIR MUNN: So the question is now resolved, correct?

DR. BUCHANAN: Yes, I consider it resolved.

CHAIR MUNN: All right, any comment from any of the other Board Members? If not, Steve, can we indicate that NIOSH response was accepted by SC&A and the Subcommittee closed that finding?

MEMBER ZIEMER: Are we still on line? This is Ziemer.

CHAIR MUNN: Yes, we are.

MEMBER ZIEMER: Okay. Getting a lot of silence there and I wasn't sure what

was happening.

CHAIR MUNN: Yes, what's happening is, do you have your Live Meeting screen up? Steve is typing.

MR. MARSCHKE: I can't talk and type at the same time. Is that response, for people who can see the screen, is that response message acceptable?

CHAIR MUNN: That's correct. Anyone unhappy with that wording?

MEMBER LEMEN: I'll have to rely upon you all to say that it's correct. I cannot see it. I've downloaded Java again and it just doesn't work.

CHAIR MUNN: I'm really sorry. I've been in that position and it's hard to deal with. It says "The NIOSH response was accepted by SC&A and the Subcommittee closed the finding." Is that acceptable with you, Dick?

MEMBER LEMEN: Yes.

CHAIR MUNN: All right, very good. Any other comments? If not, let's move on to the next finding, Finding 2.

MR. HINNEFELD: Yes, I think Finding 2 had to do with a Rev 4 of the Site Profile changed some of the medical doses that includes some that went up.

And so there's a question, and the PER addressed this, additional PER concerning Rev 4 would be appropriate. Yes, what's going on with Savannah River though of course is that there's a fairly lengthy discussion underway about the SEC petition, and things are being resolved and not resolved, you know, Classes being added and other approaches are being proposed there.

So at some point there will be a solution there, an end, when the Class will be added through whatever year it's added through for whatever exposures. The Site Profile will need to be revised to reflect

any methods that were revised as part of that SEC discussion. And so what we're intending to do then is to do the PER at that point and capture all these changes in that one PER.

CHAIR MUNN: It appears that this needs to be in abeyance, is that correct?

MR. HINNEFELD: Yes, you could put it in abeyance if you want because we, you know, we do agree that there will need to be another revision to the Site Profile which will then kick off the PER that will close this. So yes, we are kind of promising something later on. Savannah River being what it is that might be awhile.

CHAIR MUNN: Any other views on how do deal with this? Is in abeyance appropriate in the minds of the Subcommittee?

MR. KATZ: This is Ted. Just a suggestion, but I don't know why you can't close it, because when they get through all

that process of sorting out what should be done at Savannah River there will be another PER.

I mean that's a train that will come without a doubt, so I don't know. Tracking this as in abeyance doesn't really get you anywhere. I mean it doesn't add any value.

MEMBER ZIEMER: This is Ziemer. It does in the sense that it alerts you that something has yet to occur. That's the way we're using abeyance in general that action to occur in the future has not yet happened. So closing it implies that everything's been resolved.

CHAIR MUNN: That was my understanding of how we've done things in the past. Josie?

MEMBER BEACH: I think it should go in abeyance. It makes sense.

CHAIR MUNN: Dick?

MEMBER LEMEN: It's okay with me, I think it should go in abeyance.

CHAIR MUNN: All right. Very good. You have no objection, do you, Ted?

MR. KATZ: Oh no, it's fine. It's fine.

CHAIR MUNN: Let's just indicate that it's in abeyance, Steve. And Dr. Lemen, for your information Steve is typing again. We'll have a brief pause here.

MR. KATZ: Just as long as we're waiting anyway, just to explain what I was thinking, but it's fine in abeyance. But in abeyance, normally we use that because we've asked for a resolution but until we see it we don't know that it'll actually be implemented in the way we expect it. So that's the normal process.

In this case there's going to be a new PER that just redoes everything and it's not like as part of this process we're

going to look at that PER to see if it implemented what we expected.

What's going to happen in that case down the road is there will be a new PER and then it'll be reviewed by SC&A or whoever, if we have a different contractor, and then the Board will, you know, tangle with it. So it's a slightly different circumstance.

CHAIR MUNN: Yes, it is a slightly different circumstance. The only real value that this has is keeping us aware of the fact that this hasn't actually gone away and that something else will have to happen.

Dr. Lemen, the final comment indicates "The Subcommittee has placed this finding in abeyance until such time as a new SRS PER is issued."

MEMBER LEMEN: Okay.

CHAIR MUNN: Hearing no

objection, we will consider that our closing comment on the PER-30 Item 2.

Our next issue is PER-14 findings. Responses are due from NIOSH, I believe.

MR. HINNEFELD: Yes, this is Stu again. There are a couple categories of findings here. There is Finding 1 and 3 which relate to whether the 1.4 is favorable or not. I think Jim and Matt Smith might be able to talk about those more than I.

And then when you get down to there's some Subtask 4 findings, Finding Number 8 and it looks like 14 and 15. I might be able to talk to those. So what order do you want to do these in?

CHAIR MUNN: Well, the person who feels most comfortable addressing them. Let's just address them in order unless there is some pressing reason for us to lump them together in a different way.

MR. HINNEFELD: Okay, I may start with Jim and then he may want to hand off to Matt on this 14-1 which is the adjustment of 1.4, is that favorable, and it has to do with construction workers maybe not working the full year.

CHAIR MUNN: All right, that's good.

DR. NETON: Okay, this is Jim. And this TIB goes way, way back to Construction Worker TIB. The adjustment factor 1.4 was developed, and this was for external doses, was developed after a lot of deliberation at the Working Group level.

And that 1.4 came about at Hanford, and it was the only site that we evaluated out of the six sites that we reviewed at an external dose for construction trades that was higher by a factor of 1.4. I believe it was prior to 1960.

In that TIB, we went ahead and

said okay, we're going to use an adjustment factor of 1.4 over all time for all sites to try to be very claimant-favorable and conservative. And that's what was agreed to.

Now this latest issue about it not being claimant-favorable to maybe construction workers who had worked, maybe the data for construction workers was only from a part-time limited basis, is a new twist and I'm not sure really applicable, because now you're trying to get down into sort of the per hour of, you know, exposure per hour scenario where we really can't do it.

We compared, you know, the database as it existed, which is exposures to regular workers or, you know, non-construction and then trades workers, and then developed those ratios based on the datasets as they exist, which I think is still a valid comparison.

I think Matt had indicated, and I'm new to this part of the issue, that we may be able to go back and look at one site, which I think was the Hanford site, that had some data that were available to compare working times, and he developed a spreadsheet.

I don't really know what those findings were on that spreadsheet, but I suspect that they tended to support our cause here. So Matt, I don't know if you're prepared to talk about that or not.

MR. SMITH: Sure. Excuse me, my voice is still recovering from the early onset of the cold and flu season. The site --

CHAIR MUNN: We're sorry you're so fortunate, Matt.

MR. SMITH: Well, don't worry, Wanda, it's probably coming your way.

CHAIR MUNN: Yes, sooner or later

it'll come home.

MR. SMITH: Yes. But the site that actually, of the ones used for OTIB-52 that have some information on employment periods would turn out to be Rocky Flats.

And so when people are looking at the BRS you'll probably notice there's an attachment called "Construction External Dosimetry RFP Construct CPW." I'm also, like others on the phone, not able to get on the Live Meeting today due to the security and Java issues.

This particular Excel workbook does have the start and stop dates both for all monitored workers and the construction trade workers. And I don't know if Steve is able to --

MR. MARSCHKE: It's on the screen now, Matt.

MR. SMITH: That's great. Steve, if you could click on the tab for 1970. I'm

just picking a year of the data.

MR. MARSCHKE: 1970 is up. 1970 is up.

MR. SMITH: All right. If you slide the slider over so we're starting at, you know, Column A, you'll notice that Columns F and G have our begin date and end date. Now granted, not all the other sites had this start/stop information, but Rocky Flats did. You'll notice the authors in Column L are computing the fraction of year of exposure, and then further on in Column AA you'll see, if you click on that and look at the formula, they're referring back to that fraction and using it.

So the data that were processed for Rocky Flats did consider prorated time. And again like the other sites that were part of OTIB-52, when looked at overall the Factor 1.4 was certainly bounding for what we found

for the data for Rocky Flats.

CHAIR MUNN: Matt, what are the units in the AA/AP/AC columns?

MR. SMITH: Let me scan back to it here. I moved off of it. Those are millirem.

CHAIR MUNN: Thank you.

MR. SMITH: So the response here was trying to address the concern of, you know, does prorated dose or workers that worked for less than a full year, does that affect whether or not 1.4 is a favorable bounding? The Rocky Flats data would indicate that 1.4 is, in fact, still bounding. And that's what I had to throw in on that.

CHAIR MUNN: It's edifying to see such good data. Thank you.

DR. H. BEHLING: This is Hans Behling, because I'm the person who actually reviewed PER-14 and I did have some question.

I didn't have really a chance to look at that particular spreadsheet.

I looked at something else and was at a loss to figure out why or how that would provide me with the necessary data that would support the fact that there was no difference between construction and all monitored workers with regard to the actual time frames in which a yearly dose was defined. And so I have to say I haven't really looked at that particular view of the spreadsheets that just came up here.

Let me just ask, is it reasonable to conclude that based on the information which I haven't really looked at that the construction trade workers, which are usually people at least from my point of view and my experience, are people who are brought on site for particular job and then terminated. They're not the equivalent of an in-house person who is expected on average to be

monitored and exposed for a full year.

So that when you drew the comparison between doses, annual doses among construction trade versus all monitored workers that you -- my feeling at the time, and it was speculation, as I said I didn't have the data to support it, but just based on my personal experience I always found that in the utilities when you, for instance, bring in people during an outage they're there for a particular job and then they leave.

Some of the people may be there for a period of weeks, months or even a good part of the outage if it's a full six months. But in most instances, people who qualify for the term construction trade workers are people from union halls and subcontractors that come in for a specific job.

And my question was, the annual dose for a construction trade worker may in

many instances be considerably less than a full year's worth of exposure, which would mean that comparing as you did in your write-up there in your table of OTIB-52, when you compare the two groups of individuals you're really comparing apples with oranges there, when you realize that in most instances in-house people or all monitored workers you're referring here are probably people who are employed at the facility as opposed to trade workers who are obviously brought in as needed. And that was my question.

And as I said, in general in my write-up I had, by and large, stated that this whole issue of the guidance, and I'm looking at my own write-up 2.3.1, that is, guidance for the construction workers of external penetrating dose for unmonitored CTWs involves the use of a 1.4 adjustment factor multiplier and the 95th percentile site specific coworker dose.

And I concluded that that was a very, very conservative and claimant-favorable approach to assigning dose. But I wasn't sure as to whether or not the 1.4, which you appear to show but the data is not convincing, it's at this point that the time frame for employment was not necessary the same for both the construction workers as well as the all monitored workers.

And as I said, if that turns out to be a comparable number then I would say this issue is closed.

DR. NETON: This is Jim. I think there's two things to say there. One is, until you get a chance to look at -- we don't have data to do that comparison apparently except at Rocky Flats and --

DR. H. BEHLING: Yes, I understand. But at least --

(Simultaneous speaking.)

DR. NETON: -- Rocky Flats that

holds. The second thing I'd point out is remember who that these doses are being applied to. These are being applied to unmonitored construction trades workers.

So that's in a different class by itself. I mean, you know, here we have monitored constructions trades versus regular workers, we've compared them and we're going to apply, you know, the 95th percentile to the unmonitored workers who are probably more, less likely exposed than not.

And again, this 1.4 only showed up in before, I think, 1961 at Hanford. We saw it nowhere else in any of the other sites we evaluated. So I think it's a pretty favorable adjustment.

DR. H. BEHLING: And as I said, I just quoted to you what I wrote. I said the use of the 95th percentile and the 1.4 is a very, very claimant-favorable approach to assigning dose.

The only thing is, as I said, I would like to see some support for the idea that construction trade workers there, their annual doses were, in fact, an annual dose not a partial dose that you're comparing to. That's all.

DR. NETON: And I guess until you look at Matt's piece, and I don't know if that will satisfy you or not, but that's all we have.

DR. H. BEHLING: Yes, yes. And I will say this. There may be instances where in days past, especially in certain areas where construction trade workers who were there for a very short time may not have been monitored, because it's a very costly issue when you have to go through a whole various process involving the qualification of a worker such as rad worker training, the whole issue of assigning a dosimeter, the whole issue of fitting them with respiratory

protection and qualifying them.

In many cases in days past, at least in the early years, people may have just sidestepped that whole process, and so that the unmonitored construction trade worker may not be different from those who were monitored.

It may be based on the fact that they were there for a very short period of time, where the employers just simply said we're not going to invest that kind of effort.

DR. NETON: But I would think that the 95th percentiles were the ones that were there for quite some time.

DR. H. BEHLING: Yes, it's possible. As I say --

DR. NETON: That's what I'm saying. You know, you can envision that a lot of the ones may have been short-term exposures and they would be balanced on the

low end of the spectrum, but it would be hard to convince me that the 95th percentile workers were the ones that were there for weeks.

DR. H. BEHLING: Well, Jim, the fact is that that is lost too. When you do a dose reconstruction and you find out that a claimant was a construction trade worker and then you look at his employment record, you're not going to give him the 95th percentile of a coworker model that represents a full year's worth of exposure. You're going to prorate that person obviously so that that argument you just mentioned is not necessarily applicable.

DR. NETON: I'm not sure if we have that level of detail, Hans, but yes.

DR. H. BEHLING: Well, I mean if you have a claimant and he is a construction trade worker and you look at his records, you're probably going to look at the

employment record, and if it turns out he was only there a --

DR. NETON: Yes, if he was there a month, you're right.

DR. H. BEHLING: If he's there for a month he's going to get 1/12th of the annual dose of a 95th percentile coworker.

DR. NETON: Right. But again that 95th percentile surely was representative of cases that were there for a longer period of time than a couple weeks. That's what I'm saying, if you use the 95th percentile --

DR. H. BEHLING: Yes, that's good. I know that. But you're only giving him a fraction of that value. You're not going to --

DR. NETON: Right. But that's what he would have received if it was prorated over the year. Right. I'm missing it. If the 95th percentile is based on

people who had long --

DR. H. BEHLING: Yes.

DR. NETON: -- work histories for that year and you're going to prorate it based on his amount of time he was there, right.

DR. H. BEHLING: Yes. And so it doesn't really matter whether he was there for a week or nine months or even 11 months. The fact is you're not going to give him the full 95th percentile of an annual dose for a coworker if you know for a fact the person was there for a fraction of that time.

DR. MAURO: This is John. I'm listening, but when you do a dose reconstruction and you're applying your coworker model and your 1.4 and you've got a worker, okay.

And you look at him and you say, oh, this person was only present for three months out of one year, and you're going to

reconstruct his dose. And you know that your coworker model says, well, here is, the coworker model calls for taking on, and let's say you decide you take off your distribution for all workers.

You take off the upper 95th percentile, which will give you an annual dose for a given year, let's say, that you believe to be an upper bound coworker assignment, and that's an annual dose. Then you multiply that by 1.4, and certainly you are way up there now.

Now what Hans just said, and this is what I heard, is that you do one more thing. You take that dose, and if it was only three months you would divide by four and that would the dose you would assign to this guy. Do you do that?

That is, I would have never thought about it before, but do you do then say, oh no, the guy was only there for three

months so therefore we're going to divide that dose that we just arrived by a factor of 3? And I think that that could be a problem. Did you understand the question I posed?

DR. NETON: Yes, I understand. I think that's what we would do, yes.

DR. MAURO: Okay, so that makes it an interesting circumstance, because remember, I believe that once you constructed the coworker model for construction workers, what you do is you collected all this data for all the construction workers and you sort of stack them up and then you compare them to all workers.

And you say, oh, lo and behold, it looks like the geometric mean or whatever the parameter is for the subcategory called construction workers is a bit higher. And --

DR. NETON: Only in one case, at one site.

DR. MAURO: In one case at one

site and for one time period. And you're saying, well, I think at least under those circumstances it would be only fair that whatever the coworker model calls for we do know that construction workers, at least under those circumstances, tend to have higher exposures, and therefore you're going to multiply by 1.4.

I have to admit that I didn't even think about the idea that at the back end of the actual implementation that you might actually take that resulting dose that you're going to give the guy, and if it turns out he's only there for -- now, if he's there for a year it's not a problem.

But if he's there for only a fraction of a year and you're about to assign the dose of that year you would prorate him down to that. And that just then throws in something that's thought provoking. That is, did you defeat the original approach that you

used to get to the 1.4, if you see what I'm saying.

DR. H. BEHLING: Yes. John, let me interrupt. And I'm not opposed to the fact that a person should be prorated. If I give him or use further exposure from a coworker at the 95th level when he was there for a month, I don't mind that.

What I'm really questioning is the Figure 5.2 of OTIB-52 which I included in my write-up, which shows that for a number of years at the Savannah River site, for instance, there were a total of one, two, three, four, five, six, seven, eight years during which the construction trade workers were higher than all monitored workers. And the ratios ranged from 1.3 to 1.5.

Now the question I have is that if the construction trade workers' exposure had been normalized to represent at least the equivalent of what the total duration of the

average all monitored workers were, or just on a reasonable presumption that they would have been there for a whole year, what would their exposure has been an on annual basis and would that graph look differently? And that's the question.

DR. MAURO: Yes, I think we're both saying the same thing in a different way. I don't know the answer to this. And what, Jim, you're saying is by using the 95th percentile you're sort of playing it safe. That is, that sort of accounts for this adjustment.

DR. NETON: Well, if the 95th percentile is those workers that worked there for most of the year.

DR. MAURO: Yes, yes.

DR. NETON: The workers that had the longer work histories. And so when you're doing that you're sort of then getting, I don't think that it's necessarily

inappropriate then to consider prorating those people. You know, what you're trying to get at is what is the average hourly exposure difference, and I don't think that's a knowable answer.

DR. MAURO: And I agree with you. I just, no --

DR. NETON: Those are going to have approximations, and I think by taking a 95th percentile and assuming that that is an approximation of a lengthy exposure cycle for those people, you sort of get down to it. And I don't see that we can do any more fine tuning than that.

DR. H. BEHLING: No, Jim, you're missing the point here. I'm just looking at that one particular table, Figure 5-2, that shows the 95th percentile value for all monitored and the 95th percentile value for construction trade workers.

DR. NETON: I know.

DR. H. BEHLING: And for most years in that graph you will see that all monitored workers are significantly higher than construction trade workers with exception of the eight years that I just mentioned --

DR. NETON: I think those are for later years, right, Hans, after the '80s?

DR. H. BEHLING: They start in 1962 and go through 1999.

DR. NETON: No, no. Savannah River was higher in 1962? I don't think so.

DR. H. BEHLING: Yes.

DR. NETON: No.

DR. H. BEHLING: Yes, for 1962 the ratio was 1.3. In other words, that was one of the eight years during which construction trade workers were higher than --

DR. NETON: I thought there was only one time where it was higher, which was

Hanford.

DR. H. BEHLING: No. Well, but the table that I'm looking at that comes out of --

DR. NETON: I've got to get this. Let me see if I can get this.

DR. H. BEHLING: OTIB-52 shows eight years for Savannah River. And like I said, if I had some reasonable assurance, even if it involves just one site, Rocky Flats, that the average employment period for construction trade workers was relatively close to one year, that would satisfy the whole issue. Because I stated that the 95th percentile and assuming the duration of employment periods between the two groups were comparable, then the 95 and the 1.4 multiplier would be a very, very claimant-favorable, fair way of dealing with it. And I stand by that.

MR. SMITH: Well, this is Matt.

And again that's what this response was meant to do. So if you look at Figure 5-5 of OTIB-52, we're looking at Rocky Flats.

And the basis of this response is that the data for Rocky Flats, we do have the benefit of knowing the begin and end date for the dosimetry for both all monitored workers and construction trade workers. So we're comparing apples to apples when it comes to looking at Rocky Flats.

DR. H. BEHLING: And that's what I'm looking at, Matt.

MR. SMITH: And much like all of the other sites that were analyzed in this document, it turns out 1.4, when looked at overall it turns out to be a good bounding value to choose.

As Jim pointed out, when we get into the modern era, and you can tell for Rocky Flats it's when we get into probably the D&D era, the shutdown period, there are a

few years that run a little high. Certainly for those years we're highly likely to have dosimetry from the site during that post CFR 835 era.

But again, what you're asking for is exactly what's provided here, an apples to apples comparison where we have normalized the dose based on wear time between the construction trade worker group and all monitored workers.

And we see the same exact trend. The file that was provided is exactly the file that was used to develop the OTIB-52 data.

DR. H. BEHLING: Okay. And Matt, as I said, I had looked at the wrong spreadsheet in preparation for today's meeting, and the spreadsheet I was looking at gave me no indication.

But the one that has just been pulled up here I do want to look at that.

And if it turns out that you're correct, then I will just simply notify Wanda or whoever to say let's close this issue out.

MR. SMITH: Yes, as you check through each of the yearly analyses you'll see as I pointed out in those columns where the begin and end date data are, where they've computed the fraction of the year for exposure, and then further use that fractional correction when it came to the deep and the shallow dose, because this issue comes up in -3 as well.

DR. H. BEHLING: Yes, I realize that, that the third finding is basically the shallow dose which has the same issue. And so if we can resolve this one, we can resolve a Finding 3.

CHAIR MUNN: Good. So shall we leave this one as it is for the time being until Hans has an opportunity to review Matt's work?

DR. H. BEHLING: Wanda, can I ask you how we go about this? Because it'll just take me a very short time to go through the data that Matt has identified. And if turns out that I'm in total agreement, who do I contact to resolve this issue?

CHAIR MUNN: You can just send an email message. Send it to me with a copy to Jim Neton and to Ted.

DR. H. BEHLING: Okay.

CHAIR MUNN: And we will see that the other Members of the Subcommittee receive your communication and that we'll incorporate it into where we are with the database.

DR. H. BEHLING: Okay, very good. I'll do that.

CHAIR MUNN: Great. Thank you much. We'll expect that on Items 1 and 3, correct?

DR. H. BEHLING: Yes.

CHAIR MUNN: Findings 1 and 3,

Hans will respond. Okay. What is the next, is it Finding 8 that Steve has up? I believe that's correct. NIOSH?

MR. HINNEFELD: Yes. Steve, do you want to expand the answers there? What the finding was, was that some of the cases that we asked to be returned, to be reworked on this PER weren't reworked.

And actually the statement of the finding is that, let's see what is the statement of the finding? No, that was it. The reason why they weren't all reworked was not everything we asked to get returned got returned.

And we've noticed this on the first, you know, couple or three times when we were doing PERs, when we would ask DOL to send these claims back sometimes we didn't get them all back.

And so we would check and see why didn't we get these back, and they were all

explainable. Either the case had been paid via SEC, or that had been put in place since the dose reconstruction was done the first time, or the other common category would be that the claimant had died and there wasn't a survivor who had been identified.

So we didn't, you know, after a couple or three of those, we didn't bother to keep checking every time but we did the cases that DOL sent back to us.

One thing to also keep in mind is that this PER goes back to the days when DOL essentially was returning every claim that might be impacted by the change and that could feasibly go over 50 percent.

So we reworked a lot of cases back in those days that didn't change. They didn't get a change in the outcome, compensability outcome. Now that was a fairly unpopular maneuver on DOL's and our part to reopen these claims after they had

been closed for awhile, you know, write a letter out of the blue to somebody, hey, we're reopening your claim to take another look at it.

We rework the claim and we tell them once again that they're not going to get compensated. So that really went down sideways.

And so DOL after awhile stopped that approach, and we agreed with them that from that point forward that we would reevaluate the cases first, let them know which ones looked like they were going to change compensability and then they would only reopen those.

So PER-14 was done in the old approach. And I think we would have closed this last time except that I got confused by the conversation that was going on in the Committee meeting when Scott Siebert was talking about what's done now in the SEC

process.

And he was talking about claims that, you know, things that he was doing that didn't show up in NOCTS because they were sort of preliminary files and they weren't relevant, they didn't affect the outcome of the claim. And I didn't quite understand what he was talking about.

Well, I know what he was talking about now. So he's talking about the current process not the PER-14 process. When we were doing PER-14, each case got what was called an Individual Case Evaluation, or ICE form.

And Kathy, I think, described seeing those, in particularly one or two of the cases that she looked at there was an ICE form where we said we should get the claim back but there was no dose reconstruction done after that. Well, that was the case where we asked for that claim back but it didn't get here because of the reasons I

mentioned earlier.

So I'm thinking that 0014-8, I think we pretty much answered last time is that we reworked every claim we got back, but there were some cases that we told DOL we should rework this one and they didn't return it because either/or it had been paid through SEC or that there wasn't a claimant in good standing anymore.

MS. K. BEHLING: This is Kathy Behling. Can I ask a question here or at least maybe some suggestion?

I think one of the other things that we were questioning is whether there would be any indication on the NOCTS file that shows that this fell into an SEC category, or so that this doesn't continue to be a reoccurring finding.

I was just thinking along the lines of the fact that if NIOSH sends a list of cases that they believe need to be

returned for a PER, couldn't a separate column be added for DOL where they could perhaps put in a one or two word saying yes, this case is returned, SEC, or claimant deceased, something like that that could then ultimately get sent back to NIOSH and updated into the NOCTS system? Is that reasonable?

MR. HINNEFELD: Well, I don't know. See, I don't know how DOL would react to a request like that. They might or they might not.

MS. K. BEHLING: Because it seems like it could be a one word in a column just so that there is a paper trail so that NOCTS is always updated and we all know why that case wasn't returned.

And ultimately when you go back to the case -- because as I said, it's not just one or two cases that we have encountered that have the ICE form in there that would give us the indication that there

was a dose reconstruction done, but as Scott Siebert said, perhaps this list gets sent to ORAU, they look at all the cases. It gets sent back to NIOSH, NIOSH believes that there's going to be a rework and then DOL doesn't send the case back.

So it just seems a way of closing the loop. And what you'll find interesting is when I talk about the PER-20 cases, the Subtask 4 work, which will be later this afternoon, initially when the Subcommittee selected two cases for us, when I went to look at those cases there was one that was not reworked.

And so even NIOSH was under the impression that this was a case that we could look at that was reworked, however, there was no indication in the file that it was an SEC until we really dug. And then I had to come back to you and ask for an additional case so that we would have two.

So it's not like this is a real minor issue. I mean, even NIOSH seems to have been confused as to what the status is on some of these.

MR. HINNEFELD: Well, I guess when we selected cases we didn't look to see if the DR, if in fact it came back to do that. I mean, that's something we could add to that process when we select cases for a Task 4. I don't know how DOL would react.

And then again, once we have that list, say we get a completed list from them, because they don't all, you know, typically they don't come back at once. They come back over a period of weeks maybe. Once we have a completed list and we have it back, then are you proposing we put it in the NOCTS record for each of the claims that were on the list?

MS. K. BEHLING: Well, all I'm saying is that I had asked last time if we go into NOCTS will we see that this case fell

under an SEC status? And you said in some cases it will show up in NOCTS that way and in other cases it will not because DOL just doesn't send it back.

And so it requires us then to determine why wasn't this reworked, and we would have to go in then and revisit the SEC issue, look at the claim, be sure that this claim would have fallen under that category.

But I just wondered if it would be a simpler approach that would complete the paper trail and anyone who went back into that file, into the NOCTS file, would know exactly what happened with this case and perhaps why it wasn't returned. And it becomes doubly confusing when there are these ICE forms in there indicating that it was reworked but it wasn't.

MR. KATZ: So Kathy, this is Ted. I mean we've actually, I thought we had a lot of this conversation once before. But it

seems like the most pertinent thing here is that the cases that are sent back, I mean as Stu has said they have pretty good certainty now that when Labor doesn't send a case back it's for good reason that they didn't send it back. So they're getting the cases they should be getting.

And then, you know, from our discussion earlier, you know also that when a case is sent back to NIOSH it has to do it. I mean because there's very good tracking of the cases that come in and they're all tracked and resolved as soon as they can. Or pended if they can't be tracked right away, but they're all done and there's very good accounting.

So my suggestion the last time was this is not really worth looking at from an SC&A perspective. So SC&A really doesn't need to be reviewing, did they rework the cases they should have reworked, because

that's almost an automatic fact that they're going to get reworked and then the problem goes away. I mean, we don't need DOL to be doing some more accounting for us, because it's really, all that accounting is just for the Board to convince itself that the cases that should have been reworked were reworked, but there's really no way they're not going to get reworked.

MS. K. BEHLING: Okay. I just thought if there was some easy, simple solution to ensure that the NOCTS database is updated with the most current status which would be perhaps an SEC, it would make it simpler on everyone.

But if it's too complex and too difficult for DOL to be filling this out and then NIOSH to be reentering this data into the NOCTS, I understand. But you do understand why this question came up to start with.

MR. KATZ: Oh, absolutely.

MR. HINNEFELD: Yes, and in a similar vein, we don't get the final decision letters necessarily. When a claim is filed, sometimes we get those from the Department of Labor and sometimes we don't.

CHAIR MUNN: Well, that's unfortunate information.

MR. HINNEFELD: Well, so that's why when we do dose reconstruction selections now we select a bunch and then we send them over to DOL and say, if any of these aren't done yet let us know. Take them off the list.

CHAIR MUNN: Interesting. Well, it's unfortunate that we can't have something like an ICE form in all the files. But if it seems to be an unreasonable clerical burden to do so, then we don't really -- certainly your comment about not being able to impose or even request additional information from

Labor is a reasonable one. There's not much we can do about that.

But if we don't have a simple internal method for letting reviewers years from now be aware of what transpired, then it's an open issue that we obviously can't resolve without unreasonable effort on anyone's part.

What is the consensus of the Committee Members with respect to the appropriate closure of this Item Number 8 Finding?

MEMBER ZIEMER: Well, this is Ziemer. My opinion is that we should close it, unless we felt that our task was assuring that DOL sent the right cases back or all the cases that needed to be, and I don't think that's our task. And then I think we'd end up having to operate under the assumptions that any that didn't come back are somehow not qualified to.

And I see two things. You know, NIOSH never receives all the SEC cases anyway, only the ones that have been changed. There's probably a lot of SEC cases that Labor deals with that never do get to NIOSH because they haven't been in the category of initially being dose reconstructed.

So the SEC numbers are ones that sort of fall back into Labor's. If they hold it back for that reason it's out of the picture.

CHAIR MUNN: Yes.

MEMBER ZIEMER: But I don't think we can monitor that DOL's done their job correctly. I mean one could be uneasy that they might not have sent everything back that they should, but I don't think we can monitor that.

CHAIR MUNN: No. We most certainly can't, in my view.

Richard?

MEMBER LEMEN: I say close it out.

CHAIR MUNN: Josie?

MEMBER BEACH: I agree, with the appropriate paragraph just stating why.

CHAIR MUNN: All right. Let's do close it.

MR. HINNEFELD: Wanda, do you have any suggestions of words to put in here?

CHAIR MUNN: Let us think for just a moment before we actually start putting words together. Let us perhaps agree that the wording should say possibly --

MEMBER LEMEN: Can't we just paraphrase what Dr. Ziemer said?

CHAIR MUNN: We can just close, but we have to identify in our record why we closed it.

MEMBER LEMEN: Yes, but can't we do what Dr. Ziemer said? Just kind of paraphrase what he said. I thought he summed

it up pretty well.

CHAIR MUNN: Well, yes. Yes, that's what I'm trying to do.

MEMBER LEMEN: Well, let him do it. He's a great wordsmith.

CHAIR MUNN: There you are, Paul. Do you have wise words?

MEMBER ZIEMER: Well, you know, at my age I can remember things I said many years ago, but --

CHAIR MUNN: But not five minutes ago.

MEMBER ZIEMER: You're right.

CHAIR MUNN: That's what I was coping with is that --

MEMBER ZIEMER: Well, I was just pointing out that we can't monitor what DOL, our job is not to monitor what DOL sends back. What they send back, we have to accept that that's the pool of cases.

I understand Kathy's concern, and

I guess what I'm saying is we're going to have to rely on NIOSH if we're looking for the specific cases to monitor. I think Kathy said, you ran across somewhere that NIOSH thought they were back or being dose reconstructed and they weren't, or how did that go?

MS. K. BEHLING: Excuse me one second, Wanda, and that is correct. I do believe that this item can be closed.

And I think as Ted mentioned, the primary concern is the fact that we were initially questioning, is everything that is being sent back being reworked because there was some confusion with this paperwork trail and with what was posted on NOCTS.

But now that we can convince ourselves that DOL is sending back what they feel is appropriate to send back or the ones that need to be reworked and anything that gets sent back is definitely being reworked.

So that's the primary issue.

I was just hoping we could make it a little cleaner with the paperwork, but I agree with closing the finding, primarily because of what Ted indicated. That we are now convinced everything that has come back to NIOSH is being reworked.

CHAIR MUNN: Steve, why don't you put a period at the end of what you have. This Subcommittee feels they cannot monitor what cases DOL returns to NIOSH, period. However -- no, no, don't. No however. Since all cases returned are reworked, comma, there is no reason to pursue the questions, plural, regarding those not returned.

MEMBER ZIEMER: You've got a misspelling on the word "cases" up there earlier in the sentence there.

CHAIR MUNN: Right.

MEMBER ZIEMER: Same sentence, just down the line from where you are.

CHAIR MUNN: Back, back, back.

MR. MARSCHKE: Oh, cases. Got you.

CHAIR MUNN: Yes. Period at the end of that sentence. The Subcommittee has closed the finding. Now for Dr. Lemen's benefit I'll read what Steve has written.

"The Subcommittee feels that they cannot monitor what cases DOL returns to NIOSH. Since all cases returned are reworked, there is no reason to pursue the questions regarding those not returned. The Subcommittee has closed the finding.

MEMBER LEMEN: Very good, Wanda.

CHAIR MUNN: Okay. Steve, there's a misspelling in the first Subcommittee, first line. A double I there, I think.

MR. MARSCHKE: I see it. Thank you.

CHAIR MUNN: All right. Any other comments? Finding 8 is closed. Is our next finding 14? Did I have that correct?

MR. HINNEFELD: Yes, this is Stu. The next one's 14. This is a case in Subtask 4, one of the cases that was reworked, in the reworked dose reconstruction an external dose conversion factor was not applied to the unmonitored portion of the dose only.

So there was, I think, a relatively short period of unmonitored where the unmonitored dose was assigned and the 1.244 DCF was inadvertently left out, and that it's a fact, you know, that's a correct finding.

We've attached to the BRS, the attachment is to show what's the impact of correcting that. And it doesn't change the outcome, the compensability outcome of the case.

CHAIR MUNN: For Dr. Lemen's benefit we're reading entry, the impact of Findings of 13 and 14 on Claim Outcome.

The recalculation of doses including the photon DCF and exposure DCF of 1.244 through 1984, and deep-dose equivalent DCF of 1.00 from 1985 and later.

And the 1.4 CTW adjustment applied for the first eight months of employment was performed along with the same assumptions applied in the dose reconstruction. The changes in the unmonitored doses are listed below.

They include dose categories, unmonitored photon, unmonitored neutron and the total. For the prostate cancer, the total was 2.847, in 2001 revised to 3.293. And the notation is, the application of the organ DCF for years where unmonitored dose was assigned, and the CTW adjustment to the unmonitored dose for the first eight months

of the claimants' employment where no external monitoring was performed, changed the PoC from 43.24 to 43.53 when the revised unmonitored doses were applied to the original, or the 2008, dose values.

So the change in PoC was less than one percent, as a matter of fact, only about a quarter of a percent. All right, thank you.

DR. MAURO: Wanda, this is John. I have a process question.

When we go through the PER process and a couple of cases are selected for us to review, as was just done, and we uncover a quality assurance problem in one of the cases we look at, to what degree, since we're only looking at a small sample perhaps of the population of cases that were redone under the PER, and we find, let's say, this quality assurance, I'll call it a quality assurance question, where the 1.244 should

have been applied, is there any process whereby NIOSH goes back to see if this particular problem occurred on other cases would then that had to be redone under the PER?

CHAIR MUNN: Stu, do you have a response to that?

MR. HINNEFELD: Well, I don't have a response now. I don't know of one, but that doesn't mean there wasn't something done in response to this. I don't have anything to add today.

CHAIR MUNN: Is that a question that we need to keep open and ask for a response next time? Any thoughts on that? I guess we can ask if you would respond to John's question, seems a valid one.

MS. MARION-MOSS: Wanda, this is Lori. John, could you repeat that again?

DR. MAURO: Yes. You know, when we go through the PER process, usually a

couple of cases are selected for us to review and to see if in fact changes that needed to be made were in fact made and closed the loop. Now what I just heard is that we did look at a case here, Kathy looked at it and found that -- and correct me if I misunderstood. But Kathy found that yes, it seems that in the case that we looked at there was the need for a dose conversion factor adjustment to the 1.244, a very common adjustment factor for AP geometry that was not applied in this particular case we looked at. And now the question becomes, I'm envisioning that, well, there are a lot of cases that may have been redone under this PER and is there any reason to believe that this might be a problem with some other cases that we didn't review that need to be looked at?

Perhaps there's, you know, a particular person that handled all those and

was not aware that you had to apply the 1.244 factor to those readouts that were less than detectable level.

So it's sort of like, is there a possibility there's a training problem here that perhaps a person didn't realize that you have to do it here also. And I don't know, that's what I was thinking. Is it possible this is a systemic problem for this particular PER that needs to be checked out?

MEMBER ZIEMER: This is Ziemer. I think that's a great question. And, you know, from my perspective, the first thing I would want to have done would be to see who did that dose reconstruction.

And if they did others I would as a starter say, okay, spot-check a couple others by that dose reconstructor. It may answer the question whether this is just a, you know, unique glitch or whether it's a systematic thing by that particular person.

That would be a valid question.

MR. STIVER: This is Stiver. You know, in the Dose Reconstruction Subcommittee we've come across what we call systemic problems, and often it's more related to a tool that might have a glitch in it more so than the particular reconstructor. But it's something that's certainly worth looking into.

MEMBER LEMEN: This is Dick Lemen. Is there any quality control program that NIOSH, Stu, you have in place that would kind of catch these kind of things, or is that --

MR. HINNEFELD: Well, it's largely an inspection program and our response, it even says that this mistake was missed by the peer reviewer. So --

MEMBER LEMEN: So you did catch it?

MR. HINNEFELD: No, it was not.

It was missed by the peer reviewer. That's why it went out the way it was. There are two inspections of the dose reconstruction. There's what we call the peer review by ORAU, by the contractor, and there's an HP review over here. So I'm at a loss as to why neither of those found it.

MEMBER LEMEN: So both of them missed this one.

MR. HINNEFELD: Yes. Is there --

CHAIR MUNN: And the whole purpose in our incorporation of these quality issues into the review is to identify a trigger whereby we might try to define whether there's a systemic issue involved in not catching these small things.

MEMBER LEMEN: Well, would one, as suggested earlier, go back to the individuals that did the review and see if there are others that they reviewed that have similar problems, or is it actually to go

back to the person that did the original calculations to see if they're the ones where the problem occurred or is it both?

MR. HINNEFELD: Well, I mean theoretically it's both. Why didn't the inspection, you know, why was the mistake made and why didn't the inspection find it? I mean, there's two questions.

MEMBER LEMEN: Well, is there something that should be put in place then to try and mitigate these from happening in the future, or is it --

MR. HINNEFELD: I'd like to know more about how it happened before I can get down that path very far.

MEMBER LEMEN: Maybe the Board could suggest to Stu that he put this on hold for awhile and make a more thorough investigation and then report back to the Subcommittee about what future we might plan to catch these. Do you follow what I'm

saying?

MR. KATZ: Dick, this is Ted. Let me just explain a little because you don't sit on the Dose Reconstruction Review Subcommittee. But these sort of incidents, they come up all the time.

I mean, so this is really not, you couldn't really classify it as a rare event. I mean, clearly I think there's no reason to believe that -- most dose reconstructions, you know, have one flaw or another, I don't mean that in what I'm saying. I'm just saying the Dose Reconstruction Subcommittee has come across lots of QA issues.

And when these arise in that form, you know, what NIOSH folks do is go back and look and see, is there a systematic issue here or is this just, you know, one of these one-off where, and there have been plenty where both the dose reconstructor and

the peer reviewer and maybe even another peer reviewer that, you know, if there was a peer reviewer at ORAU there's also, in effect, peer review that happens by NIOSH DCAS before the dose reconstruction goes out. You know, they may all miss it.

And in some cases, I mean, I don't know whether the explanation for cases like this is just that there's so many details in dose reconstruction that, you know, there are some things that are just going to slip through, I don't know.

But anyway there's always that effort made to look and see if there's a systematic issue, or if this is just one of those where you say, you know, somehow everybody managed to miss it, this detail.

So I would assume that NIOSH will take every case that comes to them like this, whether it comes through the Dose Reconstruction Subcommittee which is the way

it usually comes since they're really auditing for this sort of thing, or through a PR review here but, you know, and follow up on it, because it's a little red flag that something slipped.

MEMBER LEMEN: I guess my concern is that since it came to a PER Review Committee to us, do we have an obligation to flag this and follow through on it or --

MR. KATZ: Well, I guess what I'm saying is, I mean, Paul, I think, asked that there be some sort of response at the next meeting, or I think Wanda said --

MEMBER LEMEN: That's fine.

MR. KATZ: -- just to see what was learned about this. That's what happens at the Dose Reconstruction Subcommittee, you know, you find these QA issues, and then when they can figure it out they say, well, here's what happened and we don't know why, or here's what happened and we can fix in the

workbook or what have you.

So I mean, I think the same kind of follow-up is appropriate here because, like I said, it occurs frequently at the Dose Reconstruction Subcommittee already.

MEMBER LEMEN: Ted, if I understand what you just said, the Dose Reconstruction Subcommittee really has the primary responsibility for finding out these things.

MR. KATZ: Yes.

MEMBER LEMEN: And this just happened to occur to our Subcommittee because we picked it as one to review and we don't have, therefore, a responsibility to worry about all the rest of the ones except the ones that we pick to review. Is that what you're saying?

MR. KATZ: Yes. So I'm saying, you know, Stu can report back at the next meeting. Because normally we have someone on

who's sort of intimately involved in these DR cases and he will have already reviewed that.

But in this case, you know, with this Subcommittee we don't have that person on, but they can follow up on that and just report back to you at the next meeting, you know, here's what we found. This is what happened with this case.

MEMBER LEMEN: That sounds good, but let me ask you one last question. How much of a problem would this be to the individual that's trying to get compensated? In other words, this type of mistake or whatever you want to call it, how much is that going to affect a person getting compensated? A big deal or a little deal or it's not going to affect them at all, or what?

MR. KATZ: I mean, in this case it didn't impact the PoC beyond 50 percent so it didn't change the outcome, right?

CHAIR MUNN: It didn't even affect the PoC one quarter of one percent.

MR. KATZ: Right.

MR. HINNEFELD: The problem with answering that question, Dick, is that when you say what is this type of mistake, what do we mean by this type? What type is it?

MEMBER LEMEN: Well, I don't know. That's why I'm asking you.

MR. HINNEFELD: You know, one way to categorize this mistake was that it was one component of the dose for a limited period of time, for a very short period of time, and an adjustment was not made to that dose.

If that's the type of mistake you're talking about, I think there's a little opportunity for a claim to be affected, a claim outcome to be affected.

MEMBER LEMEN: Okay, that's what I was asking.

MR. HINNEFELD: Okay.

MEMBER LEMEN: Thank you.

CHAIR MUNN: And I suggest that we put this particular finding in progress and make a notation that NIOSH will follow up as a quality assurance question and report at our next meeting.

And Steve is typing what I just said. Does anyone have any changes or corrections to the statement?

MR. MARSCHKE: Is that all you need, Wanda?

CHAIR MUNN: That's all I need, Steve. That should just be quite adequate. NIOSH will follow up on the QA questions and report at the next meeting.

Let's go on to Finding 15. Is that the right number? Did I get that correct?

MS. K. BEHLING: This is Kathy Behling. Maybe I can take this, because I

believe this was an SC&A response that was required. This particular --

CHAIR MUNN: I can hardly hear you, Kathy.

MS. K. BEHLING: Okay, I'm sorry. Is that better?

CHAIR MUNN: Oh, much better. Thank you.

MS. K. BEHLING: Okay. This particular finding had to do with the Y-12 TBD and the fact that for film badges prior to 1980 they suggested that there be a 30 percent uncertainty assigned to those badges, and we wanted to ensure that the coworker dose was also having that uncertainty assigned.

And initially we thought that it was going to be a situation where the film badge would be multiplied by a factor of 1.3 to account for this uncertainty, but Stu indicated last time that the way they view

this is that it would be the 30 percent uncertainty is a standard deviation around the central value.

And I asked that it be remained open just so that I could go back into the Y-12 TBD and ensure that there was no specific instructions to the dose reconstructors to apply a 1.3 correction factor.

And I did that and there is no such instruction to that level. It just simply says that they want to ensure that there's a 30 percent uncertainty associated with those badge ratings. So I'm recommending that we close that after my review of the Y-12 TBD.

CHAIR MUNN: All right. Any comment one way or the other? If not, Steve, will you close the item and indicate that SC&A has agreed the finding can be closed?

Any other comments with respect to either this item or others before we go to

lunch? If not, can we take, how long are we going to need for lunch?

MS. K. BEHLING: Excuse me, Wanda. Now I'm having a hard time hearing you.

CHAIR MUNN: Oh, I'm not sure why. Let me try changing phones. Did that help?

MR. KATZ: That's much better, Wanda.

MEMBER LEMEN: Wanda, you faded out.

CHAIR MUNN: I'm sorry.

MEMBER LEMEN: You're much better now.

CHAIR MUNN: It's obviously the phone that I was using. All right, I had suggested that we close it, SC&A having satisfied themselves that we are okay. And how long do we need for lunch?

MEMBER BEACH: Wanda, this is

Josie. Do we have one more open item, Number 17?

MS. MARION-MOSS: Yes.

CHAIR MUNN: I'm relying on Steve to get me to the right spot.

MEMBER BEACH: And back to your original question, 30 minutes works for me for lunch.

MEMBER ZIEMER: That's all I need. This is Ziemer.

CHAIR MUNN: All right, let's take a quick look at --

MEMBER LEMEN: That's fine with me and I'll be in and out a little bit this afternoon, but just carry on. If I don't answer you'll know I'm out. If I do answer --

CHAIR MUNN: All right, Finding Number 15 is now closed with the notation, "SC&A reviewed the TBD, was satisfied with the approach and" -- Steve got ahead of me.

He's already gone. It's closed. It's adequate. It's fine. We are now at Finding Number 17.

MR. HINNEFELD: Okay, this is Stu one more time. The finding is that there's no construction worker correction applied to the unmonitored CTW dose. NIOSH did not take into account the recommendation of ORAU OTIB-52, and the DR was revised and unmonitored internal dose was assigned without any modification intake rates to account for the EE being a construction worker.

This particular case, the employment in this case was in 1944, and the intakes in 1944 on this site are based on Battelle TBD-6000 rather than of the bioassay coworker data.

And that 1.4 factor was developed for times when you have a coworker model based on all monitored workers and then you're going to apply that to construction

workers, so it was not intended to apply that 1.4 to a situation where the intake is calculated in a different fashion.

Now in our response there are a number of other things we mention here about, you know, the air data probably being higher during an operation that generates the airborne, so that's kind of what most of our response is. But the key part of the response is that OTIB-52, the adjustment of OTIB-52 is to apply to a coworker based on a bioassay approach, and 1944 intakes were not based on that approach.

MEMBER LEMEN: So can you explain to me, Stu, real quickly what that actually means?

MR. HINNEFELD: Well, I can try. This person worked at Hanford in 1944 and apparently was a construction worker. We have, OTIB-52 is a technique we have adopted for adjusting construction worker internal

exposures upward.

MEMBER LEMEN: Right.

MR. HINNEFELD: If your coworker model is based on all workers, all monitored workers or in-house workers, then we've agreed the construction workers' intakes based on that bioassay data should be adjusted higher. And that was based on comparisons of bioassay data, you know, the bioassay data of construction workers where it's available compared to the bioassay data for the in-house workers.

So that's where that 1.4 multiplier came from, and it was intended to be applied in that circumstance where you have a coworker model based on urine data.

And in this case, in Hanford in 1944, first of all, Hanford in 1944 is in the SEC so this must be a non-SEC cancer or less than 250 days of employment.

And so for 1944, for intakes in

1944 at Hanford we use, would be a surrogate data approach. It would be data from other facilities where the air sampling, air data was measured at these other facilities, and those facilities were doing the same types of work that Hanford was doing in 1944 at this particular time.

So that was the basis of the intake and that's why, since it was not based on a urine bioassay coworker set, the 1.4 wasn't applied.

MEMBER LEMEN: Okay, thank you.

CHAIR MUNN: All right, and did we have a response? Did SC&A have an opportunity to look at that?

MS. K. BEHLING: This is Kathy. No, I didn't look at NIOSH's response and so I really can't comment until I look at this a little closer.

MR. HINNEFELD: You know, as I read the response that we have in there it's

not quite as, it doesn't quite say what I thought we were going to say. So I think maybe we should have an action to put another response in here and then we'll let Kathy look at that one.

DR. MAURO: This is John Mauro. I'll just let you know that I'm intimately familiar with TBD-6000, the dataset that builds the matrix that's being used as a surrogate for metal handling facilities, and I could speak to confirm what Stu just said.

That is, the context is completely different between the issues that are raised on a coworker model and the application of OTIB-52 and the 1.4 multiplier for external or any other multiplier.

TBD-6000 we looked at very, very carefully and it's basically internal exposure. It's default air sampling data that are being arrayed based on lots of experience in the early years, and we could

say with conviction that they are bounding.

And the distinction between worker and coworker model, I can't see it applying to that circumstance. We've never done it before. We've reviewed many, many cases where there are workers who were exposed in the early years to metalworking activities where there was airborne uranium dust loadings, and every case we found that that dust loading, based on a lot of data that was collected by the Health and Safety Laboratory back in those days, bounds the airborne dust loading that these workers could have experienced.

I agree with Stu that the concept of adjustments because of construction versus non-construction just does not apply to this kind of situation.

CHAIR MUNN: Do I hear properly that NIOSH would like to reword their

statements?

MR. HINNEFELD: Well, I offered to reword it. It would be fine if you just closed it, but I offered to reword our statement to put another response in that's worded somewhat differently.

CHAIR MUNN: What's the feeling of the Subcommittee?

MEMBER LEMEN: Why don't you just close it.

MS. K. BEHLING: One other comment I just wanted to make, Wanda. Excuse me, this is Kathy. The correction factor for the internal for Hanford is 2 times not 1.4. But just for the record that internal is 2 not 1.4.

MR. HINNEFELD: Okay.

CHAIR MUNN: Josie?

MEMBER ZIEMER: This is Ziemer. I don't think NIOSH needs to reword it unless SC&A believes there needs to be more

clarification. But if SC&A believes that the NIOSH position is clear and concurs with it then we can close it.

CHAIR MUNN: Kathy, are you satisfied with the response that NIOSH has currently?

MS. K. BEHLING: Well, I have to be honest. I didn't take enough time to look over that response. Perhaps I could do that during the break and then I could get back to you after lunch.

CHAIR MUNN: That would certainly be satisfactory for me. I don't think anyone would mind that. Let's leave that as-is for a half hour while we go to lunch, and we will pick it up exactly there before we go into the item that was transferred over most recently from the Dose Reconstruction Committee regarding the geometry issues from dose reconstruction.

All right, without objection

let's take 30 minutes for lunch. We'll be back at what, five minutes to the hour? Is that satisfactory?

MEMBER ZIEMER: That sounds good.

CHAIR MUNN: Very good. We'll see you then.

(Whereupon, the above-entitled matter went off the record at 1:21 p.m., and resumed at 1:59 p.m.)

A-F-T-E-R-N-O-O-N S-E-S-S-I-O-N

(1:59 p.m.)

MR. KATZ: Okay, great. So we have all our Board Members. And, Wanda, we can carry on.

CHAIR MUNN: That's wonderful. Kathy, are you on line?

MS. K. BEHLING: Yes, I am.

CHAIR MUNN: Good. Then we're back in session. Kathy, have you had a chance to look at Finding 17?

MS. K. BEHLING: Yes, I have. And I read through NIOSH's response. And I believe that it is adequate. And in fact, I did go back to our initial finding.

And I think in that finding we also made mention that the dose that was assigned, based on the Battelle information, was more conservative and with a higher dose

than would have been assigned to the coworker anyway. But yes, that response, from my perspective, is adequate.

CHAIR MUNN: Wonderful. Thank you for taking the time to look it over. And thank you, John, for backing up information from TBD-6000. And if I hear no objection from anyone else on the Board, then Steve already has closed in there.

And let's just say SC&A accepts, agrees, well accepts the NIOSH statement. And the Subcommittee has closed the finding. And that will wrap up PER-14 for us.

And we'll go directly to the item which has been transferred from the Dose Reconstruction Subcommittee, an overarching issue with respect to rotational geometry.

For those of you who are not familiar with the original finding, which was being handled by the Dose Reconstruction Committee, I believe that the facility was

Paducah, I think.

And the original finding read: the rotational geometry organ dose conversion factors are higher than the anterior/posterior geometry for the red bone marrow. And additional corrections are required when the dosimeter was worn on the chest. It is not clear if the anterior/posterior rotational or isotropic geometry is the most applicable, based on the employees' duties and work locations. However, since the reconstructed dose results in a compensable decision, it is appropriate to apply the dose conversion factor that gives a lower dose.

For this claim, that is the dose conversion factor for anterior/posterior exposure. The use of the anterior/posterior dose conversion factor may have been inadvertent for this claim. And its use as an underestimating assumption should have

been noted in the report for clarity.

And SC&A said they accepted NIOSH's response, since the case was compensated. But the geometry issue was to be addressed again in other findings. It was considered to be a QA issue, saying NIOSH should have used a DCF that gives a higher dose, even when underestimating. And refers to Table 4.1(A) of IG-001 Rev 3 addressing this issue.

NIOSH will consider whether a PER is needed. And then in March of this year, NIOSH agreed to review the situation and determine if a PER was required. In May, NIOSH to follow-up on whether they're implementing Section 4.4 of IG-001.

And in August, NIOSH to follow-up in implementation. Transferred to Procedures Subcommittee to determine if IG-001, Section 4.4 is correctly worded. So that's what was sent to us by the Dose Reconstruction

Committee.

And, excuse me. It's my understanding, based on the wording of the most recent comment in the findings section for DR folks, that it's NIOSH's ball to give us any follow-up that they have so far on IG-001, Section 4.4.

MR. HINNEFELD: Well, this is Stu. And I'll give it a shot.

CHAIR MUNN: Okay.

MR. HINNEFELD: I think we don't have anything new to report today. What we'll need to do is to look at this particular section. My recollection of this is that the current wording of IG-001 in that section, if I'm not mistaken, is the product of a review by the Subcommittee.

And I have to go back and refresh my memory exactly in that history. And I haven't managed to do that yet. And then the finding, you know the reason this -- I'm not

real sure on how they sent up an overarching. I think it's overarching because of this broader issue of dose conversion factors that may have to be addressed at some time.

It's going to have to be addressed at some time, because the ICRP has published a new document that gives all these new dose conversion factors for external exposures. It's ICRP 16. And they've essentially redefined the whole process, you know.

I mean, there used to be, there did not use to be gender-specific DCFs. And in ICRP 16, there are. There are different DCFs for men versus women, for a particular organ.

DR. NETON: Stu, that's 116.

MR. HINNEFELD: ICRP 116 also adds a lot of organ DCFs that were not in the previous version, which I think might have been 74. I'd say it would be 74 or

something. But anyway, the previous version had a certain list of organs.

And then when we were doing dose reconstructions from an organ that wasn't on that list, we would use one of the nearby organs as its replacement, you know, as a pretty good indicator. Since it's close, the external dose would be similar.

Well now, ICRP 16 has a whole bunch of more, you know, has the organs it used to have, plus a whole bunch more. So there's a whole lot of stuff that could possibly be affected. And we're in the process of trying to sort out how and if to incorporate this new guidance. So that's kind of the overarching thing.

But the specific item I think that we can deal with, which is IG-001, I just need some more time to go back to and see why IG-001 reads the way it does now for these, there's like four target organs in

terms of the, sort of the default geometry.

And the way the finding was written up, and dose reconstruction, the way I read it, was that, you know, IG-001 says that for these four target organs, red bone marrow being one of them, IG-001 says you should default to, I think it's rotational. Because that gives you a higher DCF than A-P, which is what -- A-P gives you the highest dose in almost, in most circumstances. And IG-001 says if, you know, for red bone marrow, a target organ, you use rotational as the default. And Doug Farver, the reviewer, has commented that, look I've seen this a few times now where that rotational is not used. And the dose reconstructor doesn't explain why they departed from the default guidance in IG-001. So that was the nature of the finding.

So I think the key element we need to get back to is, you know, should we

in fact have been doing, using rotational geometry for those four target organs, you know? And should we do it, should that be our default? Or was there some -- or is that not necessarily the case?

Because intuitively, when you think of someone's work, in most work situations the predominant exposure geometry is A-P, meaning the guy, the person is facing the material they're working with.

So it's just, you know, something we haven't gone back and figured out exactly how IG-001 got to read the way it does read now. And that's the first thing I think we have to do.

CHAIR MUNN: All right. Do we have any concept of time, with respect to when we can expect that to happen?

MR. HINNEFELD: Well, not really. These tasks compete with every other task for the time of our contractor and us. And

so, I don't know that it would be a terribly long process to figure out how we got to the wording we have.

Resolving the question of whether, does IG-001 really read correctly the way we have it now? Resolving that question might take a little more, might take longer.

CHAIR MUNN: Well, and it looks as though we probably are going to need to do that, especially with respect to the new ICRP, and how that affects everything that this kind of basic document covers.

The other thing that I did not check our BRS to see is whether we've made any effort at all to include this rotational geometry issue. And I didn't check to see if we've included that in our overarching issues already. I guess I can go to Page 7, and take a look there to see. Oh, maybe it's Page 8.

MS. K. BEHLING: And, Wanda and Stu, perhaps I can add a little bit to this. I believe what has been happening with this IG, there was a table put in there. It was Table 4.1A.

And as Stu indicated, there are four: the bone, esophagus, lung, and I don't know what the fourth one was, that it indicates in there that it is more kind of favorable to use either the rotational or the isotropic and apply a conversion factor to those values from the Appendix in IG-001.

I think what has happened is, often the Implementation Guide is more of an over -- it's not a guide, I don't think, that the dose reconstructors go to each and every time they do a dose reconstruction. They perhaps would look for this kind of guidance in like a PROC-6, the external dose procedure.

And the fact that this got put

into the Implementation Guide, so often we will see on a dose reconstruction for these types of cancers, this correction factor for the rotational and isotropic, and a comparison between that and the A-P, isn't being applied. And so whether this is correct or not, or they're going to change this.

But what the primary reason that we wanted to look -- we see it so often, we didn't want this, if it's going to turn into a PER, to wait until perhaps, who knows, years down the road, or a year or so down the road, before they make other changes to Appendix A. We wanted to call this out separate. I don't know if that provides any assistance at all.

CHAIR MUNN: Yes, it does. That's helpful, Kathy. All right. At least for us. Or I hope, for NIOSH as well. It seems to me that until NIOSH has an

opportunity to take a look at, to report to us what their position is with respect to the existing tables and the impact that a new ICRP might have on any of this, we're kind of spinning our wheels.

Does anyone else have any feeling one way or the other? Shall we simply put this in process and await a report from NIOSH?

DR. H. BEHLING: Wanda, this is Hans. I was just going to ask Stu on the issue of this ICRP 116, that I have to question again whether or not those doses will be similar to the ones that were originally used to create the DCFs in the Implementation Guide?

And that was the issue I raised earlier on that. It was one of my first reviews, Implementation Guide 1. And I addressed the issue of DCFs, and I found them to be in error. And one of the reasons being

is that those tables, we usually refer to a free air dose rate, or dose measurement.

And what we have to do, however, is to convert a dosimeter reading, whether it's a film or TLD worn on the chest, to a conversion that involves, whether it's an A-P or isotropic elsewhere, dose value to a given organ. And this is where the problems came in.

And when I remembered, when I talked about it, the most blatant error was the PA geometry. Because you're basically measuring a dose on a film or TLD that's worn on the chest on the A-P, on the anterior side. And therefore, dose values for, especially for 30 to 250 keV, no actually below 30 keV, were off by a factor of 1,000.

And this is why I'm just going to throw up a warning flag in saying the ICRP 116 tables may very well have the same flaw in the sense where they do not consider the

fact that we're trying to convert a measured dosimeter dose worn on the chest to a different geometry or skin on the back, that will have very little to do with a free air measurement.

MR. HINNEFELD: Okay. I remember the discussions, yes. I don't remember where we got with them.

DR. H. BEHLING: Well, I think what we did --

MR. HINNEFELD: I think we mainly just said we=re going to use A-Ps that avoided the --

DR. H. BEHLING: Yes, we used A-P. Because that's the only legitimate value. Because that's where the TLD or film dosimeter is worn. And you have to make use of what the empirical data suggests.

Now you could possibly modify that, if you assume that the geometry is at say is PA, and you're wearing your film

dosimeter on the chest. You have to realize, you're seeing an attenuated dose as a result. And you could possibly modify. But the only thing I wanted to state here is that let's not make the mistake being made in the first place.

MR. HINNEFELD: Right. Right.

CHAIR MUNN: All right. That should be helpful. Any other comments to be made? I have a process question for us, since we do not appear to have this included in our current list of overarching issues.

We have only eight, and geometry is not one of them. Should this be incorporated into our database as Overarching Issue 9? Or is this to be continued to be addressed as new activity under IG-001?

MEMBER ZIEMER: Wanda, this is Ziemer. I'm not sure of the answer to that part. But I did have an information question here. Was there a particular finding in IG-

001 that this focused on? I'm sitting here looking at IG-001 on the Board's system and it looked like everything was closed.

CHAIR MUNN: Yes, it was. All of our issues were closed. This one has been transferred in from the Dose Reconstruction --

MEMBER ZIEMER: Oh, oh, that's right. Okay. Transferred from Dose Reconstruction.

CHAIR MUNN: Right.

MEMBER ZIEMER: So Class 1 doesn't show up in our matrix yet?

CHAIR MUNN: No, it doesn't.

MEMBER ZIEMER: Okay.

CHAIR MUNN: That's why I read the entire finding.

MEMBER ZIEMER: Got you.

CHAIR MUNN: That was Dose Reconstruction=s Finding 195.1. And as I said, I believe that it was from Paducah, if

I remember correctly. But it was interpreted there in that Subcommittee as being an overarching issue. One that was not involved with only badge size.

MEMBER ZIEMER: Right, right. Thank you.

CHAIR MUNN: So hence, my question whether we should begin tracking this as an overarching issue? Or whether we should incorporate it as a transferred finding into IG-001.

MR. MARSCHKE: Well, Wanda, this is Steve. I mean, even though it touches on other sites, IG-001 is not a site-specific document. I mean --

CHAIR MUNN: No, it isn't.

MR. MARSCHKE: So if you put it in IG-001, I think it would, you know, it would affect -- I would think that that would suffice.

CHAIR MUNN: You can certainly

interpret that as being -- because of its complex-wide applicability, one can see that as an overarching type of document.

MR. MARSCHKE: Exactly.

CHAIR MUNN: I don't have any objection to that. It seems logical to me. Is that all right with everyone else?

MEMBER ZIEMER: Fine with me.

CHAIR MUNN: Let me pull up IG-001, and see how many findings we had. Shall we incorporate, should this then be incorporated as a transferred finding with a new number? That seems the logical thing to me. If someone else thinks the process is better served some other way, let us know.

MEMBER LEMEN: I'm okay with it, Wanda.

CHAIR MUNN: All right. What's the final finding number that we have on our closed findings, Steve?

MR. MARSCHKE: Last number

appears to be 24.

CHAIR MUNN: Twenty-four. Then this will need to be transferred, number 25. And I think the appropriate thing to do, because of the amount of wording that's necessary, is to transfer the finding as it was worded originally.

And that was probably best served by -- why don't I just send that to you after we're finished here? And we can incorporate this new finding, 25, following the meeting --

MR. MARSCHKE: Will do.

CHAIR MUNN: -- with the original words from the Dose Reconstruction Committee, if that's all right with everyone.

MEMBER ZIEMER: I think it's all right. It's not going to match up with the original findings, the original review documents, since it=s transferred in.

CHAIR MUNN: No.

MEMBER ZIEMER: Is there some way to also indicate that, I mean, the 25 won't correspond to anything.

CHAIR MUNN: No, it won't.

MEMBER ZIEMER: Because the 23, is it 23? Yes, 25.

CHAIR MUNN: It's 25.

MEMBER ZIEMER: That doesn't correspond to anything. So is there anything in the database that -- I don't know what those noises are. Are you getting noises and beeps?

MR. MARSCHKE: Yes.

MEMBER ZIEMER: Well, anyway. Is there some way to identify this that it has been transferred in, and therefore doesn't correspond with the original question used?

MR. MARSCHKE: Well, Paul, when you see, or if you look at Finding 24 it has, you know, the finding number, an SC&A page number, and so on and so forth. That little

heading up there, that's editable for each finding. And we can put in there that this was transferred --

MEMBER ZIEMER: To the 24 or 25 dash transferred, or something --

MR. MARSCHKE: Yes, 25-1, transferred from the DR group, or something like that, yes.

MEMBER ZIEMER: Yes, good.

MR. MARSCHKE: And maybe, I don't know, when we put in, who puts in? I'm not sure when we enter the finding, you know, we can maybe enter -- instead of having it as an SC&A person, maybe we'll have it entered under Wanda's name, or something like that, to kind of indicate that it's not an SC&A-generated finding.

MR. KATZ: Well, it is SC&A-generated.

MR. MARSCHKE: It is, okay.

MR. KATZ: It's the Dose

Reconstruction Review.

MR. MARSCHKE: That's true. That's true.

CHAIR MUNN: Yes, just done from that Committee, yes.

MR. KATZ: I mean, you can put Doug Farver's name on it if you want.

MR. MARSCHKE: Okay. Good.

CHAIR MUNN: All right. I will send you that finding in its complete language, so that you can incorporate it into -- I'll send it to both you and Lori. And whoever is the appropriate person to enter it, can do that.

And we will anticipate that it will remain an open item until we have some information from NIOSH to begin the process. We'll carry it that way, if that's amenable with everyone. Any problem with that? If not, then let's go on to PER-20. And, Kathy, I believe that's yours.

MS. K. BEHLING: Yes, that's mine, PER-20 is, and this is the Subtask 4 portion of PER-20. And PER-20 was due to Blockson TBD revisions. The full report went out on October 15th. You should have received that on October 15th of this year. And I also sent out a presentation --

CHAIR MUNN: I was going to say, we do have a presentation that I believe we can follow.

MS. K. BEHLING: Yes. And that came out on Monday. And I'll try to be brief. But if there's questions along the way, just stop me. First of all, PER-20, as I indicated was from Blockson Chemical. And it was due to numerous revisions to the TBD.

Those revisions affected both internal and external dose pathways. And it increased dose in both dose pathways. The magnitude of the changes initially, there were 91 claims that, they looked at all of

the claims that were less than 50 percent.

And of those, 32 were actually compensated. And so there were 59 remaining, from which the Subcommittee selected two cases, that is part of the Subtask 4.

Now if we go on to the next slide, the complexity associated with this TBD is the fact that there were so many changes, and it changed hands. Initially, the TBD was put out by ORAU. It was ORAU-TKBS-0002. And that was in October of 2003. There was a revision in 2004. And that revision changed the AEC contract period from starting in 1952 to starting in 1951.

Thereafter, in September of 2006, this Technical Basis Document became the authority of OCAS, now DCAS. And so we now have an OCAS-TKBS Rev 1. In June of 2007 it was another revision. And that revision had to do with these internal and external dose modeling parameters, methodology. That's

what initiated PER-20.

Now, in November of 2007, there was another change. Shortly after this Rev 1, there was a Rev 2 change that required the dose reconstructors to consider both Type-M and Type-S thorium in Building 55 and a few other changes.

And to the best of my understanding, and certainly for the two dose reconstructions that I looked at, they were not completed until the Rev 2 was out. And so, as we always state that NIOSH uses the most current documentation. So even though PER-20 states that it addresses up to Rev 1, Rev 2 came out. And I believe that all of the reworked cases were done under Rev 2.

SC&A submitted our initial Subtask 1 through 3 report associated with the Blockson TBD in March of 2009. We had three findings that were subsequently resolved at the Procedures Subcommittee. And

I'll continue on here, just because, to point out a few things.

Again then, in December of 2010 there was another Rev 3 to this TBD that had to do with the SEC determination. There was a change in AWE coverage periods. There were some radon issues that were affected, and doses associated with the residual contamination period. Also, some of the model=s external doses actually went down in this revision.

And this particular revision, Rev 03, also requires a PER. That PER was issued in April of 2012, that is PER-36. And that has not been assigned to SC&A yet. So that will not be part of what you're going to be hearing today. But there is another PER out there, just for your information.

So, as I said, you, the Subcommittee selected two re-worked cases. And that's the subject of this report. Now,

the first, if we move on, the first re-worked case is an individual that worked from [identifying information redacted] of '47 through [identifying information redacted] of '71. He was a maintenance worker. And he was not monitored for internal or external radiation. He was diagnosed with a bladder cancer in January of 1960.

Now the dose for this particular case was assigned for just the operational, for a portion of the operational period, from -- and as you'll see in the table below, the initial dose reconstruction was done for '52 through January of 1960, which was the date of the cancer diagnosis.

There was a re-work of that dose reconstruction due to the added year of operational period, which was from 1951 through 1960. As you'll see in the table below, that's the DR Rev 1, done in August of 2004. And then, due to the PER being issued,

PER-20, this dose reconstruction was redone again in October of 2008.

And you can see, I'll go through, you can see in the table, there were some significant changes to internal and external doses, which I'll explain in a little more detail as we go through this case.

For the next slide I will just go through, this individual wasn't monitored. And so there was modeled photon doses that were assigned. And I looked at the original in Rev 1. I compared those two, and then compared that to Rev 2.

So what you're seeing in this slide is my assessment of the original and Rev 1, are the re-worked one of this first dose reconstruction. In both cases, the individual was assumed to be chronically exposed to the natural uranium in the yellowcake. He was given annual doses from exposure to drums in the yellowcake, that

were calculated based on Table 8 of the two revs of the Blockson TBD at the time.

Those doses were entered into IREP, and they were divided equally between the energy ranges of 30 to 250 and greater than 250, entered as a geometric mean of a log-normal distribution of 2.7. They also calculated annual photon doses from exposures to contaminated surfaces. And that's based on Table 6 of the TBD.

These doses again were entered into IREP, equally divided between the two energy ranges, and entered as a log-normal distribution, with a GSD of 4. The resulting doses -- and as you can see, it was just one, the second dose reconstruction was adding one year. So the doses are close.

And the photon dose for the first was .918 rem, and for the second, reconstruction was 1.10 rem. Now, when we compare that to what was done in Rev 2 of the

dose reconstruction, or Rev 2 of the TBD, here again, they, NIOSH made the same assumptions that the EE was chronically exposed to the drums of yellowcake. They assigned an annual dose that was, again, based on Table 8. But this table was completely revised in this revision to the TBD.

The TBD recommends for photon exposures in this Rev to apply that dose, ten percent for the range of 30 to 250, and 90 percent for greater than 250, entered as a geometric mean of a log-normal distribution of GSD of 2.7.

Now, the doses from contaminated surfaces are not included in the operational period, based on guidance in the TBD, because they felt that the doses assigned to standing near the drum bounded any doses that would be added from the contaminated surfaces.

Now, that's not the case for the

residual period. And we'll see that in the next case that I looked at. And then this dose resulted in a significant increase from one rem to over 28 rem.

The primary reason for this change, and a significant change in the external dose, was because NIOSH, in their revision, they added numerous radionuclides that were considered when you were standing close to the drum of yellowcake, inclusive of thorium-232 and its progeny.

And this expanded list of radionuclides increased the dose rate at 30 centimeters from the drum of yellowcake, by a factor of about 6.6. So that's what accounted for this increase in external doses.

If we go on to the medical doses, I looked at both the original and the re-worked, the Rev 1 of the dose reconstruction report. They both considered annual

diagnostic X-rays for the operational period. Those doses were pulled out of Table 9 from the Blockson TBD. That was appropriate, applicable for that point in time.

The only thing I will make mention of, for whatever reasons, the second dose reconstruction that should have followed the medical dose guidance that had been revised in the revised TBD, would have been a little bit lower than the actual doses they used.

For some reason they went back to the original TBD and pulled the medical doses. So the doses were -- but it would have been reduced. So it was a claimant-favorable issue in the second revision. And, as you can see, the dose was 666 millirem versus 740 millirem for the added year.

In Rev 2, that was prompted by PER-20, now the medical doses are pulled out of Table 10. If they resulted in 250

millirem, those were entered into the IREP as 30 to 250 keV, with a 30 percent standard deviation. And that's consistent with the guidance in the revised TBD. And we had no findings with the occupational medical dose.

If we move on to internal dose, again they assumed that the EE chronically inhaled a source of uranium during extraction operations. They assumed a Type-M solubility. And they used a chronic natural uranium intake rate of 24 picocuries per day.

This was entered into IMBA. And the resultant doses were three and four millirem. We verified all that information. It's consistent with what's in the TBD. And we were able to reproduce those doses.

Now, in Rev 2, they, NIOSH, made the same assumptions. They assumed that he is a production worker. And that the internal doses were based on the 95th percentile of the inhalation rate of 82

picocuries per day of total uranium.

Now this change, again, the Rev 2 change increased the intake from 24 to 82 picocuries per day for production workers, due to, again, considering additional radionuclides such as thorium-230, radium-226, lead-210, and so on. So the dose, they also considered a radon dose in this particular case.

And they have a tool, a workbook, called Blockson Building 55 Inhalation Tool. And based on using that tool, the dose went up to 381 millirem. And we had no findings with the internal dose assigned. So really, for the first case that we looked at, we had no findings associated with all of the exposure pathways.

And if I didn't state it up front, and I hope it was obvious, because there were changes to both internal and external, we had to look at the entire dose

reconstruction for these. It wasn't a focused review like we normally do.

If we go on to the audit of the second reworked case that you all selected, this is a Blockson employee that worked from [identifying information redacted] of '59 through [identifying information redacted] of 1971. He was a purchasing agent. Again, he was not monitored. And he was diagnosed with a stomach cancer in June of 1969. So he was included in the entire operational period.

And up until the date of his cancer diagnosis in '69, from '62 to '69, he would be included in the residual period. And the table below shows the comparison of doses between the original dose reconstruction and then the revised dose reconstruction, due to PER-20.

Now for the modeled photon doses, again, NIOSH assumed that the chronic exposure to the drums of yellowcake. And

that information was taken, the doses were calculated based on Table 8 of the Blockson TBD. And for the operational period, as I said, from '59 to March of '62. And this was in the original dose reconstruction.

They were again, as in the previous one, equally divided between the two photon energy ranges. And entered as a geometric mean of a log-normal distribution. Exposure to contaminated surfaces was considered, as in Table 6. And again, equally divided and entered into the IREP -- equally divided between, 50/50, 30 to 250 keV, and 50 percent greater than 250 keV.

Lastly, because the person did work also, or was employed through the residual exposure period, he was assigned annual doses up to the date of diagnosis, which was based on Table 10 of the TBD that was applicable at the time of the original dose reconstruction.

And these doses were entered appropriately into IREP. And the combined dose from operations, contaminated surfaces and the residual period was 679 millirem.

Now, when we looked at the revised dose reconstruction, again they made the same assumptions, chronically exposed throughout the operational period. But, as I mentioned before, the photon doses increased dramatically.

And the distribution of the energy ranges was ten percent for 30 to 250, 90 percent for greater than 250, entered as a geometric mean of a log-normal distribution. And that was done appropriately.

Here they also assigned a residual exposure period, from April '62 through June of '69. And that came from Table 11 of the TBD. And as I mentioned earlier, the external exposure to contaminated surfaces is considered during

the residual period. And that was calculated, and entered appropriately into IREP.

And this resulted in a total stomach dose of 11.983 rem. And we had no findings associated with NIOSH's approach to calculating the photon dose.

Medical dose, similar to previous case, no findings. They used appropriate tables. They assumed an annual X-ray dose during the occupational period. And the same doses resulted. And we have no findings with medical dose.

Now, the internal dose, here's where we do have a few findings. And let me just explain it. In the original, they calculated the internal dose assuming that the source was inhaled during operations. Again, as with the previous case, it was assumed Type-M solubility and used the 24 picocuries per day intake rate in IMBA. And

the dose was 2 millirems.

In the revised, they assumed again a chronic inhalation for operations and residual period. They used the Blockson Building 55 inhalation tool, and calculated a dose of 27 millirem, based on the fact that he was, assuming he was a production worker.

Now, the three findings that we had, you'll see on the next slide. And again, when we started these findings, this is Finding 4, because in the review of Subtasks 1 through 4 we had three findings. So the first finding under Subtask 4 is Finding 4.

And the guidance associated with the OCAS TBD Rev 2 indicates that all cancers of the gastrointestinal tract should be calculated based on the ingestion pathway, and not the inhalation pathway. So that became our first finding. Rather than calculating the stomach dose, they should

have used ingestion.

Second finding -- everyone there? Okay, I'm sorry. Second finding was that, Finding Number 5, even though we believe that they should have used the ingestion pathway, we decided to just go in and just verify that we could recalculate or match their inhalation values that were calculated for this stomach cancer.

And when we went into the tool, we realized that that 27 millirem was only based on three radionuclides, rather than the 12 radionuclides that are identified in Tables 4A and 12A of the revised TBD. And so that is what generated our Finding 5, that we weren't quite sure why the inhalation tool -- and we were questioning if there was a problem with the inhalation tool.

And so we took this a little bit further in Finding 6. And because we were concerned about perhaps some systemic

problems or some systemic issues in this inhalation tool, we started to look a little closer.

Now, we realized that there were no DCF values put into the tool for eight of the radionuclides that are listed in the TBD. And it did occur to us that perhaps those DCFs were omitted intentionally. So it would perhaps drive a dose reconstructor into using the ingestion tool, which would make sense.

But when we looked at all of the cancer types that could be affected, all of the GI, we realized that there were DCFs entered for the lower large intestine. So it didn't quite make sense, our logic, to try to justify why those DCFs were not there didn't make sense.

So again, this Finding 6 is just questioning, is there some systemic error in the inhalation tool. And again, these GI tract cancers should not be used in the

inhalation tool at all. It should be used for the ingestion tool.

The only final thing I will say is, because of this, I did go into NOCTS and pull, just randomly pull a few Blockson cases that had these GI tract cancers. And in most of the other cases that I saw they did use, there is a Blockson Building 55 ingestion tool that's been developed. And it was used in most of the other cases that I looked at.

So I don't know. I don't know that it's, you know, that there was a systemic problem that they didn't use that tool. But I wanted to also verify that there was an ingestion tool that's been developed. And there has been. That's it in a nutshell. I don't know if you have any questions.

CHAIR MUNN: Thank you, Kathy. There's just so much that could be said about that. But I think I probably will pass. Do

we have comments from NIOSH with respect to a couple of the questions that were posed here? Any comment about the tools?

MR. HINNEFELD: Yes, this is Stu. We have done some research on this. And these findings aren't in BRS yet so our responses aren't there either.

But we, in response to this finding, talking about Finding 4 now, which would be the one about not using the ingestion pathway. Based on this finding we looked back at all the cases that had GI tract cancers that, you know, that we reworked for Blockson and found that there were six of them that had not been done correctly, that had not used the ingestion.

Four of those, including the one that was evaluated for the PER review, were compensated via the SEC, because the SEC was added later. Two that were not, I guess they had too short an employment period during the

covered period. And both of their PoCs were less than one percent. So when we redid those it didn't change the outcome of those two cases.

So in this case we did go back and look at all the cases that might have had a similar error, and found that there's no consequence from those errors.

Let's see, yes, the other finding about looking at the Building 55 tool, and whether it correctly calculated doses to the stomach. The inhalation tool that was included in the dose reconstruction file, and it was used in this case, really wasn't supposed to be used for stomach cancers. It's part of the same mistake that occurred in the first one.

This was not the tool to use for the stomach cancer or GI tract cancer claim. So it was a kind of an interim version that was in place for a while to do inhalation.

And it's no longer in use when we do Blockson cases. And then, let's see --

CHAIR MUNN: It's sometimes easy to forget that this is all natural uranium, very small.

MR. HINNEFELD: Yes, these things were done like five years ago, these dose reconstructions.

CHAIR MUNN: And it was a wet process. It was, these are, we're talking about very, very small items here, extremely small.

MR. HINNEFELD: On the sixth one, you know, the one the tool is missing, one of the items on that is that the tool is missing thorium-231. We looked at the dose from thorium-231, and it was considered insignificant.

So that's why it's, you know, even though it may be listed in the TBD, it's not included in the tool, because the dose

for it isn't significant. Okay, yes, the tool that was reviewed by SC&A that was available in the claim file, like I said, was an interim version. And it essentially wasn't complete. Not all the organs had been built into it yet.

And so, we have a newer version now that has, you know, that we're using if we get any more claims now, that addresses all the issues. But anyway, we do have information for the findings that we can put in the BRS after these findings are there.

MS. K. BEHLING: Excuse me, Stu. I think you maybe just answered my question when you were talking about Finding 5. I wasn't sure if you were insinuating that you no longer use a tool, any inhalation tool. But you're saying there is an updated Building 55 Inhalation Tool? Because I could not find that. I did search for that.

MR. HINNEFELD: I probably can't

find it either, Kathy. But I'm sure somebody can.

MS. K. BEHLING: Okay.

MR. HINNEFELD: So I can, I'll have to see. If you would like I'll see where it is and let you know.

MS. K. BEHLING: Okay, that would be great. Thank you.

CHAIR MUNN: So it would be helpful if you could provide responses for that in the BRS.

MR. HINNEFELD: Yes, the findings aren't in the BRS yet.

CHAIR MUNN: Yes.

MR. HINNEFELD: When the findings are in, then we'll put our responses in.

CHAIR MUNN: Yes, that's good. That would be helpful. Any other comments with respect to PER-20?

DR. MAURO: This is John. I have a process question, which I'm sure I asked

before. But I forgot the answer. When we find, in this case, a case where there might have been an error made. And NIOSH follows up and looks at it and, you know, determines that yes, there was an error, redoes the calculation and says, okay, you know, we understand, and there is a change in the dose.

Now, does that eventually make it into the official record for this worker? Even though it doesn't change the compensation decision. But somehow is the record cleaned up? That is, the official dose reconstruction? Or is this something that, just by way of what we've just done, closes the loop on this?

MR. HINNEFELD: Well, I guess in my view, it would close the loop. And I recall the specific one that was reviewed here has been paid through the SEC. And so the whole dose reconstruction effort on it is

kind of moot at this point.

DR. MAURO: Okay. No, I only ask by way of process. So NIOSH's sense is that since everything has been concluded appropriately with respect to this claim, there is no need to go back and, let's say, fix up the administrative file, where there obviously is a DR report in there. It does contain an error. Maybe not significant, but there is no reason, or no sense that there's a need to clean that record up.

MR. HINNEFELD: Yes. We've typically not done that.

DR. MAURO: Okay. That's all I asked.

DR. H. BEHLING: John, this is Hans. I would question whether or not it is a moot issue. Because what happens if there were another PER that subsequently further erases that person's exposure?

And now you may not have any

recall as to the fact that a previous audit of that particular dose reconstruction has raised the issue. So that he may not benefit from multiple revisions to his dose reconstruction if this simply gets dropped.

Because at the moment it doesn't change his status with regard to compensation. But who's to say that a future revision, that may involve another PER, could potentially add an additional dose that could, in tandem with the original one, provide a conversion of income, of not compensated to compensated?

MR. HINNEFELD: Well, each time a case is reworked for a PER, it's done with all the current directions for how to do that dose reconstruction. So the changes that had given rise to the pervious PER rework would be in the current guidance, assuming, you know --

And then you have a new change to

that guidance and you do another PER. So the technical guidance for how to do the PER is up to date, would include both changes, the one that caused the first PER and the one that caused the second PER.

And every time we get a case for a PER, we do it in accordance with all the most recent guidance we have. So it would be caught that way.

DR. H. BEHLING: Well in this case --

MR. HINNEFELD: Not ever knowing whether he had a previous one or not. It wouldn't be important.

DR. H. BEHLING: But, Stu, in this case, this has already been subject to a PER which found an error. And that error will probably be dropped, according to what you just said, because it doesn't change anything. And so if there is a subsequent PER, I think this particular change in this

person's dose reconstruction will be lost.

MR. HINNEFELD: Well actually, the guidance that says that the way, that there was a mistake in this one, will still be the guidance the next time. So what we were saying is that we would have to make the same mistake in the face of the guidance, you know, counter to the existing guidance, twice.

MS. K. BEHLING: Well, maybe --

MR. HINNEFELD: The guidance is entirely up to date on the technical document that tells you how to do the dose reconstruction. So the fact that a mistake was made the first time, why should, you know --

MS. K. BEHLING: Well --

MR. HINNEFELD: That indicated a mistake should be made the second, would be made the second time as well.

MS. K. BEHLING: Okay. Maybe I

can make a comment here. Because, Stu, when you did make mention that you had looked at this report, and then you went back, and you did see six other cases.

One of the things that I did note when I was going through the guidance is, and in Table 4B, which is the ingestion rate for Building 55, this guidance is in a footnote, okay. And so, if there is also guidance in Section 3.2.2, but I know from a dose reconstructor's point of view, they'll likely go to a table.

And this is just a footnote in that table. So I can understand why you found other cases like this. I don't know. Maybe the guidance isn't as -- the information is there, but maybe it's not as clear as it could be.

The other thing that I might mention, because I know it's a lot of work to go through and make changes to these

Technical Basis Documents again. But we talked about this at the Dose Reconstruction Subcommittee.

A lot of times I believe it's important to go back to specific dose reconstructors and say, you realize that this mistake was made. And sometimes just a reminder to that dose reconstructor.

And then perhaps putting together, like we talked about at the Dose Reconstruction meeting, at the end of so many meetings you put together lessons learned. And sort of pass those around to all those reconstructors, to say, this, this, and this was caught at the Dose Reconstruction meetings, or through a PER review.

Just as a reminder, this is only a footnote. So be sure that you realize that the IG cancers need to be done with ingestion. I don't know, just to keep that clean.

MR. HINNEFELD: Well, I won't argue with the wisdom of the suggestion. I'm just weighing the -- in this specific case, you know, Blockson is, you know, from our view it's essentially none. It's an SEC. We get maybe a few cases, I don't know if we're getting any more cases from Blockson or not, to be honest.

MS. K. BEHLING: No. And I agree. I understand. That's why I wasn't really trying to suggest making a change to the TBD again.

MR. HINNEFELD: The other complicating factor is, this was reworked. I mean the reworked DR here was done like five years ago. And I think I looked and saw who did this. And he's not in the program anymore, the DR who did it. The DR just isn't on the program anymore.

I mean, when you're this far downstream you're kind of limited in terms of

not only the investigation, but sometimes even, you throw up your hands and say, well what do I do about this one?

MS. K. BEHLING: And I think it was appropriate, obviously, that you went back and looked at all the cases where this could have been impacted by this particular finding.

CHAIR MUNN: The primary concern in all of these cases, and the reason we go through most of these things, is a concern as to whether or not the claimant is going to be compensated. That's the bottom line for everybody, including the claimants.

And this, the claimant that we've seen here is, given the circumstances that existed at Blockson, which, as I pointed out earlier, these are all, these are not highly exposed individuals. This was all natural uranium. And it was a wet process. And it is far back in the history.

The probability of some individual failing to be compensated for any kind of injury seems to be small, if not impossible. This is certainly from an objective perspective I think, would seem to have been well covered. And the responsibilities toward the claimants certainly have been kept foremost in people's minds.

I think it's unlikely that expending a great deal of effort on these extremely low-probability exposures for these obscure portions of the total dose, may not be productive for any of us. And certainly would not be productive for the client.

I don't think anyone is making any effort to circumvent any fairness to them. Just a process question here. And if our process is going to be reasonable and fair, in terms of our approach for the claimant, then perhaps we can let this rest.

Unless there are --

MS. K. BEHLING: I agree with you. I agree with you, Wanda. This is Kathy.

CHAIR MUNN: Yes.

DR. MAURO: Yes. I'd like to add one thing. I think that the answer, the root cause for the problem in this particular case has been taken care of. And so I think that Hans' concern about it should -- even though in this context it's really not an issue, but in the broader sense, if we do find a problem with a case that needs to be fixed, and there's some level of assurance that the root cause for the problem may be a poor or dated workbook, has been, you know, eliminated. And now the correct workbook is in place. Then the problem that Hans raised goes away. That is, if --

CHAIR MUNN: Right.

DR. MAURO: So I think that

really is, in my opinion, the thing that caused the problem in the first place cannot recur. If they have to revisit a case for whatever reason, that problem workbook, it's not there no more. It won't be used.

And the correct workbook would be used if there was an occasion to revisit any case. So I think that is what really closes the loop on this thing.

CHAIR MUNN: Yes. It's an internal process question really, not a site-specific or case-specific issue here.

DR. MAURO: Yes.

CHAIR MUNN: Can we close this, folks?

MS. K. BEHLING: I think so. I would suggest closing this.

CHAIR MUNN: Let's make a statement that SC&A and NIOSH agree that these cases have been appropriately reviewed, and the Subcommittee is closing them.

MR. MARSCHKE: Which finding are you closing, Wanda?

CHAIR MUNN: We're closing, we've been talking about these last three.

MR. MARSCHKE: Closing all three of them?

CHAIR MUNN: Findings 4, 5 and 6. Well, I'm open to suggestions.

MS. K. BEHLING: Well, I think we were just talking specifically about Finding 4. Findings 5 and 6, I would really like to look at the most current inhalation tool.

CHAIR MUNN: Let's close Finding 4, based on what we just said, and leave 5 and 6 still under advisement. SC&A's going to take further look, is going to again, review the current tools.

MR. MARSCHKE: I can't close them in the BRS because they're not in the BRS.

CHAIR MUNN: Right.

MR. MARSCHKE: So I'll have to

enter them in the BRS and then close them.

CHAIR MUNN: We'll do that as time permits. We don't have to do it live, I don't think, Steve. You know what we're doing, right?

MR. MARSCHKE: Yes.

CHAIR MUNN: Okay, good.

MS. MARION-MOSS: This is Lori. Steve, once those findings are in, could you let me know?

MR. MARSCHKE: Yes.

CHAIR MUNN: Okay. He'll enter them. And we'll close 4. Very good. Thank you. We'll move on to PER-11. SC&A?

MS. GOGLIOTTI: Okay, that would be me.

CHAIR MUNN: Okay.

MS. GOGLIOTTI: PER-11 essentially deals with the K-25 TBD. And there were several revisions to the coworker model. And then OTIB-52 was issued. And

that prompted PER-11, which deals with updates to the coworker models that --

MR. KATZ: I'm sorry, but who's speaking?

MS. GOGLIOTTI: This is Rose Gogliotti, sorry.

MR. KATZ: Oh, Rose, okay. I was a little concerned. I thought it might be you. But I wasn't sure the court reporter would have you, even a guess. Thanks.

MS. GOGLIOTTI: Okay. On our first finding we were a little bit concerned. The criteria used to grab claims in the potentially affected cases specifically excluded cases that were done prior to the issuance of the initial coworker model in November of 2004.

And we were wondering what happened to unmonitored cases in that instance. And NIOSH responded, and they looked into it by doing a screening of the

cases prior to that.

And they pulled approximately ten percent of the claims. And they found that five had unmonitored doses assigned at that time. And all five of those essentially used very overestimating techniques to find coworker dose, when there was no coworker dose available, or model available at the time.

And we looked at what NIOSH did. And we agree that even though there was no formal coworker model, and inconsistent approaches were applied, they all resulted in unmonitored doses, a find that were much larger, or much larger overestimates than the current models would require. And so we suggest closing that finding.

CHAIR MUNN: I'm sorry, Rose. I was shopping around in the BRS to try to get at the screen that I wanted to see. And was that Finding 1?

MS. GOGLIOTTI: That's Finding 1.

CHAIR MUNN: Do we have, I guess we don't have -- I can't seem to expand it properly. Trying to cope here, and I'm not coping. All right. Thank you for getting it up, Steve. I wasn't having any luck on my other screen.

Does anyone have any comment with respect to the SC&A response? Can we agree the Subcommittee accepts the SC&A comment and closes the item?

MEMBER ZIEMER: Close.

CHAIR MUNN: Josie?

MEMBER BEACH: Yes, I agree with that also, Wanda.

CHAIR MUNN: Dr. Lemen.

MEMBER LEMEN: Yes, I agree.

CHAIR MUNN: Very good. Let's call it closed.

MS. GOGLIOTTI: Okay. And on to Finding 2 then.

CHAIR MUNN: Hold on just a second while Steve gets us closed properly. Richard, for your benefit this statement says, the Subcommittee agrees with NIOSH and SC&A, and has closed the finding. Now we're on to Item 2, I believe, Rose.

MS. GOGLIOTTI: Okay, Finding 2, we identified a problem with the end date of the first selection criteria. They chose May 21st, 2005, which is actually ten days before the issuance of the coworker model in question.

And we acknowledge it was probably an administrative oversight. But we wanted to make sure that no cases were missed in that ten-day window that should have been captured by the selection criteria.

And NIOSH looked into it. And there was a case right before, on the exact date of. And both of them had incorporated PER-11 findings. So it appears that no cases

were inadvertently missed.

But we would still like, or we would appreciate clarification regarding which date NIOSH considers the DR completion date. Because there's many dates associated with the end of each case.

CHAIR MUNN: Has NIOSH had an opportunity to see this response before now?

MR. HINNEFELD: I would just offer that we would consider the DR completion date probably the date that the dose reconstructor did it. So the first, there's the date of the dose reconstructor, and the later date of the peer reviewer, and a later date of the HP review. I would go with the earliest.

MS. GOGLIOTTI: The earliest date?

MR. HINNEFELD: Yes.

MS. GOGLIOTTI: Okay. Wonderful. And we're find with what they did here. And

we suggest closing the finding.

CHAIR MUNN: Any comment from Subcommittee Members?

MEMBER BEACH: Not from me, Wanda.

MEMBER ZIEMER: I have nothing.

MEMBER LEMEN: No.

CHAIR MUNN: All right. Let's make a notation that NIOSH responded to the final question. NIOSH's response to the final question was accepted by SC&A.

MEMBER LEMEN: Am I still connected?

CHAIR MUNN: Yes, you are. We're typing.

MEMBER LEMEN: All right.

CHAIR MUNN: We're typing, Richard. It's the joy of having instant closure for these things, makes it difficult for somebody who can't see the screen, since we're not face to face anymore.

MEMBER LEMEN: But I can see each of your smiling faces in my mind.

CHAIR MUNN: Yes. So that's good. Because otherwise you'll probably never see them again. NIOSH indicated that the completion date is the date the DR finishes the reconstruction. The Subcommittee agrees with NIOSH and SC&A, and has closed the finding. Now we have Finding 3.

MS. GOGLIOTTI: Okay. Finding 3, we asked for clarification on what criteria NIOSH used to identify a construction trade worker claim. And we speculated that they used the PER-14 model, which we have previously reviewed, to identify the claims. But there was no information given in the PER.

And NIOSH responded that their claims are evaluated by an HP, based on the attributes of the claim. And there is no

formal criteria used. And we believe that it's critical to process each claim correctly, to properly identify that a claim is a construction trade worker claim.

And CTW is a very subjective term. And we're concerned that without criteria established, identical claims could be processed differently, as a construction worker and as a non-construction worker that were done by different reviewers.

And we believe a criteria such as the one used in PER-14 is the only way to ensure that claims are identified and handled consistently. And we actually came across a case in Finding 5 that we believe was missed because construction trade workers, there is no criteria to define them.

CHAIR MUNN: Let's skip down to Finding 5 and deal with these together, at least for the moment. Improper application --

MS. GOGLIOTTI: So, our Finding 5 we did some screenings, essentially, to see what claims were -- when we looked at the cases, it didn't appear that enough construction trade worker claims were reworked based on how many claims we're used to seeing that were unmonitored.

So we did a screening of roughly ten percent. And four of our claims came up meeting one of the two criteria that would require a rework. And so we identified those. And NIOSH came back to us and said that essentially none of the four would result in a PoC of greater than 50 percent. So they were not revised, or not requested for a return.

CHAIR MUNN: Okay.

MS. GOGLIOTTI: But we feel that if there were other criteria used to identify a case, they should have been stipulated specifically in PER-11. And we went back and

looked. And we agreed that three of the four cases had very little chance of a significant impact based on the employment time period of the cases.

However, one of the cases had a high PoC, and the EE was employed as a welder for over 20 years. And we felt that this case could have significantly been impacted.

However, in the PER ICE letter there was an indication that the EE didn't qualify as a construction trade worker. And we believe that the presence of this case is an indication that criteria were needed, and cases could have been missed.

CHAIR MUNN: Okay. That's a tough request. Has NIOSH had an opportunity to see this statement previously?

MR. HINNEFELD: This is Stu. It's in BRS. And so I guess we had a chance to see it. I personally have not looked at it a lot.

MS. MARION-MOSS: No, we haven't looked at this one, really, any of our responses as of yet.

CHAIR MUNN: All right.

MR. HINNEFELD: Yes, we just, we haven't really looked at them yet. So I don't know. This is, seems to me the most effective way to find out if a person was a construction worker or not, was to look in the claim file and see who he listed as employer.

But I don't know what was done. When we say, well, we used judgment to do that, that always bothers me a little bit. So we'll have to find out more about it.

CHAIR MUNN: It sounds as though 3 and 5 need to be looked at, thought about, and responded to, right?

MR. HINNEFELD: Yes. We haven't really addressed these responses yet.

CHAIR MUNN: Okay. Let's keep 3

and 5 in process. Responses due from NIOSH.

MR. HINNEFELD: Well, no wonder they're not familiar, they're dated November 4th.

MS. GOGLIOTTI: Yes, it was just Monday.

CHAIR MUNN: Right.

MR. HINNEFELD: That's why I'm not familiar them. Okay.

CHAIR MUNN: Right. I can see that. And reasonably so. All right. Where are we on --

MS. MARION-MOSS: I'd like to have Rose, if possible, to provide claim numbers that you looked at.

MS. GOGLIOTTI: You were already provided them when you looked at them in the responses. But we can send that again, if you like.

MS. MARION-MOSS: Thanks.

MS. GOGLIOTTI: In the actual

response, the one that I'm talking about, it was identified as well.

MS. MARION-MOSS: Thank you.

CHAIR MUNN: Thank you, Steve.

MR. MARSCHKE: Is that okay, Wanda?

CHAIR MUNN: Yes, that will be fine.

MR. MARSCHKE: I'll do the same thing for 5?

CHAIR MUNN: Yes, ditto 5. And call them in progress. Thank you, Steve. In both cases, as we said, NIOSH will provide a reply to the latest SC&A Board Report Summary entry. And now we go to --

MS. GOGLIOTTI: Finding 4 is the last one.

CHAIR MUNN: -- Item 4.

MS. GOGLIOTTI: And Finding 4 is actually identical to PER-14, Finding 8, which I know was talked about at length

earlier in the day, which has to do with not all the cases that NIOSH requested were returned and reworked.

CHAIR MUNN: Ah, yes. So we were able --

MS. GOGLIOTTI: I think that --

CHAIR MUNN: -- to close that one out. We can close this one.

MS. GOGLIOTTI: I agree.

CHAIR MUNN: Very good. Does anyone on the Subcommittee not accept the recommendation to close? Hearing no --

MEMBER ZIEMER: Yes, I agree.

CHAIR MUNN: Agreed. Josie?

MEMBER LEMEN: I accept the recommendation to close.

MEMBER BEACH: I do too, Wanda.

CHAIR MUNN: Good.

MEMBER LEMEN: You have a foursome, Wanda.

CHAIR MUNN: That's delightful.

We like that.

MEMBER LEMEN: If we were playing golf, it would be good.

CHAIR MUNN: That is the way we like to see them happen. The screen says the Subcommittee agrees with SC&A's recommendation and has closed this finding. It's now closed. Did we have a Finding 6?

MS. GOGLIOTTI: No, that was all of them.

CHAIR MUNN: Very good. Anything else with respect to this PER? Thank you, Rose. We'll expect responses from NIOSH on Findings 3 and 5. Let's move on to RPRT-0053, the status. NIOSH, has that been discussed in the Work Group? Do we have any feedback from that?

MR. HINNEFELD: Yes. Jim, are you on?

DR. NETON: Yes, I am.

MR. HINNEFELD: Do you want to

give 53? I know there's, you know, we've talked about it. It's actually the SEC Issues Work Group, not the --

DR. NETON: Yes, right. That was transferred over to the SEC Issues Work Group. And I think we reported on that meeting at the Advisory Board. We are working on the practical significance issue. And we started that. We hope to have that finished by --

That's actually, for those who don't remember, that's adding an additional 100 millirem to the cases that were between 45 and 50 percent, in our NOCTS files, in determining, you know, what happens to those cases. We hope to have that done just before Thanksgiving.

And then the second part of that was for us to develop an Implementation Guide for how, or put some parameters on how to deal with coworker models in general, and

validation of the data, that sort of thing. And we're working on that. Probably sometime in December is when we're expecting that to be finished.

There was a third part of that, which I think SC&A was tasked with doing, which was to sort of re-look at their position on OPOS, given the discussions that we've had in the last meeting or so. And that's the status of where that is right now.

MR. STIVER: Yes, this is John Stiver. We are working on the compilation of all of our findings related to OPOS. And just some discussions of where we stand on it and, you know, what issues we think still may need to be addressed.

And we actually had a couple of pretty intensive internal discussions about this so far. So we should have something pulled together, probably by the end of the month, would be my guess.

CHAIR MUNN: So I believe I'm hearing that we'll have feedback from both NIOSH and SC&A at our next meeting? Is that correct?

MR. STIVER: That shouldn't be a problem.

CHAIR MUNN: Okay. That's good. And, Jim, yes, we're right?

DR. NETON: Yes, you'll have something. I don't know whether it will be -- yes, we'll have some report.

CHAIR MUNN: Okay. Very good. That's find. We're scheduled for a ten-minute break. Shall we take it?

MEMBER BEACH: Yes.

CHAIR MUNN: I would recommend that we do. Ten minutes, ten minutes only. Let's get back as quickly as we can. Appreciate it. I'll see you in ten minutes. Bye, bye.

(Whereupon, the meeting in the

above-entitled matter went off the record at 3:23 p.m., and resumed at 3:34 p.m.)

CHAIR MUNN: All right. Let's go ahead with the slides. Hopefully Paul will let us know when he's joined us.

DR. BUCHANAN: Okay, this is Ron Buchanan with SC&A.

CHAIR MUNN: Good, Ron, thank you.

DR. BUCHANAN: Okay. Now, I have the slides up. But I don't have a way to flip them. John, or somebody there, are you going to change them for me?

CHAIR MUNN: Yes, I think Steve will do it for us.

DR. BUCHANAN: Okay, Steve, okay. First one, we're starting off with PER-25 and -33. This is a Subtask 1 through 3 of the PERs for SC&A. Evaluation of the Huntington Pilot Plant TBD revisions.

We submitted a report on the 18th

of July of this year for this. And so we'll go to the next slide now. We got the PER summaries. PER-25 was issued in 2007 as a result of electron dose being added to the TBD in 2004.

This is one of those reserve sections where they added some information in that I had asked a question about earlier. PER-33 was issued in 2011 because of several revisions in the TBD that occurred in 2008.

Next slide is a summary of the TBD for Huntington Pilot Plant. And as you can see, there's been three versions out: '03, '04 and '08. And so we'll look at PER-25, and then we'll look at PER-33. PER-25, now, NIOSH's issue with that was that when the new one came out in '04 it included the electron dose, which could increase the dose for some claims.

So the next slide shows that they looked through the database, and they found

one claim that had a PoC less than 50 percent. And that would be impacted by this PER. So their corrective action program was to look at those claims, which in this case was one, and do a new dose estimate.

And so now we look at PER-33. The issue there was that they found that the 2008 revision changed some internal doses that might increase the dose. And that was that the estimated doses for the internal increased from '56 to '63. And also for the year '78 and for the year '79.

And another change was that the estimate went up by about a factor of ten, from 3.8 to 44 picocuries per day for inhalation for operators. And that the distribution went from a log-normal to a single bounding value, which could increase the dose. And so NIOSH's corrective action plan -- you want to go back one. Okay, next one. Okay. They found 32 cases with PoCs

less than 50 percent issued prior to the 2008 TBD revision. The corrective action plan was to re-evaluate those 32 claims with the current DR method, and calculate a new dose and a new PoC.

Okay. So we evaluated their issues and their correction action in these two, PER-25 and -33. And the way we did this, we performed a paragraph-by-paragraph comparison of the document of each revision compared to the last one -- Revision 1 to 0, and then 2 to 1 -- to see what changes might have changed, increased the assigned dose.

From this evaluation we identified several items that had that potential. And this was the electron skin dose, which we previously addressed. Occupational medical dose was changed in several instances. The shallow dose to the hands and forearm, and the period of internal intake and internal intake values.

Now we'll address each item. The electron skin dose, this was brought up in PER-25 and was the reason for that issue of that PER. And so we evaluated PER-25 and found that it sufficiently addressed the issue. And we had no findings for this PER.

Now, the PER-33, when we did these revisions, TBD revisions, reviewed them, we found that there was cases where there might be an increase in dose because they went to using OTIB-6, as opposed to the table listed in the TBD. And they were very similar for most years, most organs, except a few years for the skin, stomach and thymus.

And so, now, if the new DR was performed as recommended in PER-33, these items would be addressed. Same with shallow dose, there was an addition of one rem to the hands and forearms for certain operators and maintenance personnel. And where before the maximum was .85, again, if this was, in these

cases, reworked using the new TBD, then this would be addressed.

Period of intakes, this is one reason the PER was issued. And the period of intakes expanded. And, again, a new expanded period was used. According to the PER and the revised TBD these would be addressed. Same way with the intake values that would be used during this period. The increase would be incorporated in the new DR. So these would be addressed.

So, our Subtasks 1 and 2, we evaluated TBD changes and concur with NIOSH's action plan. We found that PER-25 and -33 sufficiently addressed the changes and the recommended corrective action.

So, Subtask 3 was the number of claims. We used the NOCTS database to verify that only one claim was impacted by PER-25, and a new DR had been performed for this claim. We have not done Task 4 yet to

evaluate that.

Now, next slide. All right. No, go back two slides. Okay. Yes, okay. So that was a new DR had been performed, and we would have to evaluate that. Now, next slide. Okay. For PER-33, Subtask 3, we used the NOCTS database and determined that indeed there were 32 claims impacted by PER-33. And our recommendations I'll give in a minute.

And so for Subtask 4, which we haven't performed yet, the selection of the Drs to audit for PER-25, there was only one case that we recommend that we evaluate that to see that that was correctly reworked. Okay.

Now, Subtask 4, a selection of DR for PER-33. This slide is outdated. We had some discussion on how to select this, cases for this PER-33. And I have sent out to the Committee, yesterday late, a revised list. And looking over there, there's four items.

But they could all be covered by looking at two cases. And I'll read that from the proper slide. Disregard this slide that you see on the screen now. And you have that in an email, I think.

Selection for PER-33 would be a case that includes internal dose assignment near 1956 through '63, and/or 1978 and/or 1979. These are during the periods of increase.

And then a case that -- secondly, a case that would include shallow dose assignment to the hands and forearms during those same periods. That=s when the additional dose was recommended. Those two cases would include all of the changes that we thought that could have a potential for an increase in assigned dose.

So that is my evaluation. Any discussion?

CHAIR MUNN: Any comments? Any

questions? I trust NIOSH has had an opportunity to review these recommendations, we have had those quite a while, and had an opportunity to sort of evaluate whether or not they're going to be feasible for your use.

MR. HINNEFELD: Well, I mean, so far there's nothing for us to respond to, right? So far the idea is to select a couple of cases for --

CHAIR MUNN: Exactly.

MR. HINNEFELD: Now, I was just curious. Ron, did you feel like you have enough access to the cases to do the searches to select these things? Or did you want us to -- or did you say you found a couple of cases that you thought would cover all four criteria for PER-30?

DR. BUCHANAN: I've narrowed it down to about five cases. But I understood that I was only to give you the criteria, and

you'd do the selection of the cases. Now, I have not pinpointed it to two. I've narrowed the list down, you know, and --

MR. HINNEFELD: And you said you've narrowed it down to about five?

DR. BUCHANAN: Yeah.

MR. HINNEFELD: Okay. Yeah, we can make the selections if that's what you want.

MR. KATZ: Yes, Stu, I mean, that's the way we've done them most recently. We originally, as you might recall, sent this down to the Dose Reconstruction Subcommittee to do the selections. But there really is no point in that, as long as the criteria are clear. If you would just pull them, then that would be great.

MR. HINNEFELD: Okay. We'll pull -- we just need to cover the four criteria in 30. So that could be four cases, or it could be one or two cases.

MR. KATZ: Exactly.

MR. HINNEFELD: That would cover all four criteria.

MR. KATZ: Exactly.

MR. HINNEFELD: There's only one case for PER-25. So that will be easy to select.

MR. KATZ: Yes.

CHAIR MUNN: So we'll have at least two of the five, right?

MR. KATZ: Right. Or not of those five, whatever. Oh, yeah, there is only five. Then, yes. But I thought five was a sample.

But, anyway, and if you could just, when you make those selections, notify SC&A, and just copy the Work Group so it knows that that's gone forward, that would be great.

CHAIR MUNN: Okay.

MR. MARSCHKE: Wanda, this is

Steve.

CHAIR MUNN: Yes.

MR. MARSCHKE: Listening to Ron's presentation, it appears that SC&A has no findings on at least this first part of either PER-25 or PER-33. Do we want to enter into the BRS, like we sometimes do, a finding of no findings?

CHAIR MUNN: Yes, we do. We want to identify that this has occurred, yes, in both cases.

MR. MARSCHKE: I will do that -- I can do that offline.

CHAIR MUNN: Okay, that's fine.

MR. MARSCHKE: If that's okay.

CHAIR MUNN: It will be okay. Steve will enter no findings for both 25 and 33. All right. Good job. Thank you, Ron.

DR. BUCHANAN: Okay. Thank you.

CHAIR MUNN: If there are no further comments with respect to those items,

we will go on to PER-37, to request whether - what's the status of the resolution with that PER. We sent it to the Work Group. And there was a question about the Ames Work Group, as I recall. SC&A, who's reporting?

DR. MAURO: This is John. Are we talking about PER-38?

CHAIR MUNN: No, 37.

MEMBER ZIEMER: Is 37 on the agenda?

MR. KATZ: No. This is Ted. So, PER-37, as you might recall, and I thought I wrote you, Wanda, about this. It is not going forward until the Ames Work Group, which hasn't been constituted, reviews the Site Profile Review.

CHAIR MUNN: Yeah. The only thing I wanted to get on the record is that an Ames Work Group is what's holding this up. We don't have an Ames Work Group.

MR. KATZ: Right.

CHAIR MUNN: Right?

MR. KATZ: Yes.

CHAIR MUNN: Just wanted to get that on the record this time.

MR. KATZ: Okay.

CHAIR MUNN: And we will keep that in abeyance, pending the constitution of an Ames Work Group. That's what I wanted to have happen. Okay. And now PER-38.

DR. MAURO: Okay. This is John Mauro. I'm filling in for Bill Thurber, who is not available. But I think I should be able to cover some of this, because I did work quite a bit with Bill on Hooker Electrochemical.

PER-38 deals with Hooker Electrochemical Facility. You should have a set of slides I'm looking at right now. Steve, did you load up those slides?

CHAIR MUNN: He has them up.

DR. MAURO: Okay, great. So

let's go to Slide Number 2. I'm going to quickly go through the chronology of this particular project. Originally, this Site Profile, or TBD, was one of those subsets of TBD-6001. It was called Appendix AA. It goes back to 2007.

As we probably all remember, TBD-6001 was withdrawn, and the various appendices were converted into full-blown Technical Basis Documents. So our actual Technical Basis Document for Hooker was issued on April 4th, 2011, which sort of broke itself free from TBD-6001. It was a standalone.

What happened subsequently, another version, a revision to that TBD was issued, a Rev 1, in 2011. And as a result of those two revisions, let's call them the original and this Rev 1, a PER was issued on July 24th, 2012. And then a review of the Technical Basis Document -- SC&A was asked to

actually review that document. And we issued a report in March 2013.

So what happens is, what we have is a little bit of an overlap situation. Where we actually are right now in the review process, from a Site Profile review, is that we do have before NIOSH a review of their DCAS-TKBS-0009, which is their latest version of the Site Profile.

Now, that being said, the PER was issued by NIOSH to revisit the dose reconstructions, as a result of Rev 1. And we were asked to review, do a PER review. And that's what I'm reporting on now. I'm reporting on the review that SC&A performed of Rev 1 of the Site Profile.

And the next slide, Slide Number 4, basically says that they have 53 claims that meet the screening criteria for review. It turns out that 33 of these claims were eliminated from consideration, Probability of

Causation recalculated. And as a result, 20 of those were recalculated. So that constitutes the set of cases that were revisited because of the issuance of Revision 1. The outcome of all of that was all the PoCs that were recalculated were below 50 percent.

So, notwithstanding the revisions to the Site Profile or the TBD or the Exposure Matrix, various names given to these types of documents, there was none that were found by NIOSH to be compensable. So we'll move on to Number 5. We're going to go through this very quickly.

SC&A agrees with the screening criteria. And it also agrees that all of the revisits, the re-dos, were done in accordance with Revision 1 of the Site Profile. So, from a PER perspective, everything is fine. We have no findings.

But we do have an unusual

circumstance. As I mentioned earlier, we did review Revision 1 on its own merits. And we issued on Revision 1 a report on our review of that document dated March 2013. So what we have here is a favorable finding, from a PER perspective, regarding Revision 1. But we also have, at the same time, comments on Revision 1. In fact, we have six findings. And they were issued for the Board's consideration on March 2013. And that's before the Board.

Now, what our situation, then, we believe, is we're at a point in the process where we've completed our PER process review in a favorable way for Revision 1. But we also believe that Revision 1 does have some issues, six of them, that need to be put in the queue for review by, I guess, the AWE Work Group.

And the process needs to begin to resolve the issues that we have raised in our

review of that Revision 1. And so after we've finished that review, it may turn out that all issues will be resolved in NIOSH's favor, and that will be the end of the story.

If it turns out there are issues whereby the Site Profile needs to be revised, well, in theory, that might trigger another PER. So, I guess, in a nutshell, that's really the story we have. Favorable regarding the PER. But it does open a new door that would cross us over to, I believe, the AWE, Henry Anderson's Work Group, whereby this latest version of the Site Profile and our findings need to be discussed.

MR. KATZ: That's correct, John. It does belong with the Uranium Refining AWE Work Group. And we put that on their plate. And it just takes a meeting for them to begin the discussion with NIOSH.

DR. MAURO: Okay. Well, that was easy enough.

CHAIR MUNN: Yeah, that's good. My only question is, I haven't checked our database to make sure that we show that transference to the Work Group, and that we're in abeyance. Do we have even the findings listed yet?

MR. MARSCHKE: There are no findings, Wanda.

DR. MAURO: Yeah, let me help out here. No findings from the PER perspective. So, really, I guess it's off your table. The findings that we do have are from the Site Profile perspective, which should be -- you know, goes over to the AWE Work Group.

CHAIR MUNN: Well that is --

(Simultaneous speaking.)

CHAIR MUNN: I'm sorry, Paul, you were very broken. I didn't hear what you said.

MEMBER ZIEMER: Well, I said I don't think we're transferring anything.

CHAIR MUNN: No, we're not transferring anything. The responsibility is going to Hooker. My question is how we need to -- I mean, is going to the Work Group. My question is how we address our BRS entry, what we need to say.

MR. MARSCHKE: For 38, Wanda, I would say, basically, as I understand what John said, there's no findings on 38.

DR. MAURO: Right.

MR. MARSCHKE: So that would be a finding of no findings. And then there may be a potential for a PER in the future. But that would be another number. And in --

CHAIR MUNN: No, that won't, that's not the --

MR. MARSCHKE: That's not going to effect our finding of no finding on 38?

CHAIR MUNN: No.

DR. MAURO: Exactly. I agree with that.

CHAIR MUNN: We just want to get 38 clean for our purposes here on the BRS.

DR. MAURO: Finding of no findings. And I think that concludes it.

CHAIR MUNN: Yes, exactly. And I guess we, where is PER -- I'm trying to search on my other screen for them, for what we have. And I'm not coming up with what I wanted to see. Okay. Can we enter a finding of no findings? We can do that offline too, if you don't mind doing that, Steve?

MR. MARSCHKE: No, I'll get that right on there after --

CHAIR MUNN: All right. Okay. Let me know when that happens.

MR. MARSCHKE: Yes.

CHAIR MUNN: Any other comments with respect to PER-38? Thank you for presenting, John, we appreciate it. Let's go on to OTIB-54.

DR. OSTROW: Hi, this is Steve

Ostrow. I'll be presenting for SC&A.

CHAIR MUNN: Good.

DR. OSTROW: Okay. Good afternoon, everyone.

CHAIR MUNN: Good afternoon, Steve.

DR. OSTROW: Okay. A little background. OTIB-54 presents a methodology to assign doses to workers exposed to fission and activation products where only gross beta or gamma measurements are available. So, in order to assign a dose, you need to know the radioactive inventory, the ratio of the different isotopes. And this OTIB provides a methodology to do that.

A little bit of history. Rev 0, first issue of the OTIB, came out in 2007. SC&A reviewed it in 2008. Subsequently, in June 2013, NIOSH came out with a revised Rev 1 of the OTIB. And that was -- we talked about that at the last Subcommittee meeting

on July 18th, 2013.

And we decided that since it was such a major revision of the OTIB, that the original comments that we had made on Rev 0 were moot now. So we decided to go ahead and we were authorize to perform a full review of Rev 1.

We just have up on the screen now, this is the draft report that we issued on Monday. I apologize to everyone concerned that it took us a long time to get this out of our internal review. We would have liked to have gotten this out at least a few days earlier so people would get a chance to digest it. But it didn't happen.

CHAIR MUNN: Hope you're okay there, Steve. Is that your sirens in the background?

DR. OSTROW: Yeah, there's a firetruck going up Park Avenue in Manhattan.

CHAIR MUNN: That's always a

concern.

DR. OSTROW: As long as it doesn't stop in front of my building, it's okay.

CHAIR MUNN: Yes. That's good.

DR. OSTROW: Right. Anyway, the OTIB is quite complicated. It's one of the more complicated ones we've ever looked at. A lot of analysis here. And we divided it -- or it's divided into three parts for convenience.

The first part deals with reactor modeling, where NIOSH looked at different reactor types and did runs with the ORIGEN code to calculate radioactive, radionuclide inventories for a bunch of different reactor types.

The second part of the OTIB is concerned with internal dosimetry. So, given the radioactive radionuclide distributions for different reactors types, and a few

different situations, how do you calculate the internal doses?

And the third part of the OTIB gives actual practical guidance, which is only a couple of pages long, for the dose reconstructor to how to use the OTIB tables to reconstruct the dose. And very helpfully, NIOSH provided three sample problems that people can work through just to try out the OTIB and make sure they know how to use it. That was a good thing.

Our overall assessment of the OTIB, which appears on Page 22 -- whoever is working the slides, please go to Page 22. Okay, one back. Okay.

CHAIR MUNN: There it is.

DR. OSTROW: Okay, there we go. Just above Section 1.4, that's our conclusion. We think the guidance that is given by the OTIB is claimant-favorable all together, overall. And except for a few

possible issues, we think the protocol given is reasonable and claimant-favorable.

All in all, we came out with ten findings. Now, whoever is controlling it, go back up to Page 8. And keep going to Page 8. And I'm sorry we didn't -- we should have prepared slides based on this. But we sort of ran out of time. Okay, there we go.

This summarizes Table 2, the review findings. And we referenced where in the report that they come from. The findings -- like I said, we have ten findings. The first four have to do with reactor modeling. The next four have to do with the intake fractions. And then there's two other miscellaneous ones at the end.

Unfortunately, I don't suppose NIOSH had a chance to really address any of these things, since I just gave it to them. But if people want, I can run down them quickly and just summarize what our findings

are.

CHAIR MUNN: I think that would be wise, Steve.

DR. OSTROW: Okay.

CHAIR MUNN: Because I don't think anyone has had an opportunity to really absorb what's in these findings.

DR. OSTROW: No, I wouldn't expect that.

CHAIR MUNN: We're going to have to incorporate them, of course, into the database as well. And so, yes, if you would just very quickly review what those findings are.

DR. OSTROW: I'll give a quick review. And I think the next step after this is, NIOSH has to take a look at our comments and get back on it.

CHAIR MUNN: Yes.

DR. OSTROW: I just want to say, most of the comments -- we didn't find

anything incorrect in it whatsoever. Most of our comments had to do with a lack of explanation. So we couldn't always understand or sign off or see the reason certain things were done. So it's mainly in the way of amplification. Okay. That's that.

As I mentioned, NIOSH or ORAU began by doing ORIGEN2 runs on the reactors. They picked five reactor categories to represent different types of reactors, and seven representative real reactors to look at. And there's a list of those.

They used the ORIGEN code, which is an isotope generation and depletion code that calculates isotopic inventory. And they ran it for all seven reactor cases, and eleven different runs total. And they did it for different decay times afterwards.

So our finding was -- Finding 1 is that we don't have any quarrel with

anything, but we're not able to evaluate the appropriateness of the input parameters that NIOSH used for the ORIGEN runs, since they don't specify or reference it in the OTIB.

CHAIR MUNN: Yeah, right. We see that whole first group there is essentially --

DR. OSTROW: That's right.

CHAIR MUNN: Need more information. And NIOSH will be able to evaluate those and respond to each of the --

DR. OSTROW: That's 1, 2 and 3 Findings are basically on that. Interesting, Rev 0 of the OTIB went on and on and on, in great length and great detail about all the modeling that was done, which may have been a little bit overkill.

I'm an actual nuclear engineer. So to me it was actually interesting. But Rev 0 eliminated most of that. Rev 1 eliminated most of that material. And it

might be helpful if NIOSH, you know, responded with a little bit of information about how they picked the input values for the ORIGEN runs.

CHAIR MUNN: Well, I'm sure they'll be able to do that without too much trouble, once they --

DR. OSTROW: If they ran it they would know how, you know, where they got the values from. Number 4, Finding 4, is also related for the trigger reactor cases. There's actually two trigger cases, one with stainless steel-clad, and one with aluminum-clad fuel.

And when NIOSH did its down-select from the original number of cases, down to the final four, they didn't say whether they used the stainless steel or the aluminum trigger.

CHAIR MUNN: Yes.

DR. OSTROW: That's a minor

thing.

CHAIR MUNN: Yeah, easy. Okay.

DR. OSTROW: Beginning with Number 5 through 8, those are the internal dosimetry ones. And this had a large contribution by Joyce Lipsztein. She's the expert on internal dosimetry. I did the reactor part. And she had a bunch of findings on this.

Well, one finding, Number 5, I think John Mauro also provided this one. I don't know if it's a nitpick or not a nitpick. But the OTIB starts out with the isotopic inventory in spent fuel, reactor fuel.

However, depending on what a worker is doing, very often he's not exposed to the reactor fuel inventory. But he's exposed instead to the gas gap activity. That means what's actually escaped from the fuel and gets into the air.

And we're not sure, in some cases, that using the reactor fuel inventory may not be the appropriate thing to do. Maybe you have to use the gas gap. And this should be discussed a little bit.

John, do you have anything to say about this? I think this was your finding.

DR. MAURO: Yes, I found this to be something that needs to be explored. Visualize a person working, you have a guy that's working in a facility that's either working with a reactor, or working with fuel from a reactor.

And you have bioassay data that says, here's his gross beta or gross gamma activity in urine. And you want to say, okay, what percent of the activity is cesium, strontium, and all the other fission and activation products that might be of interest?

It's important to point out, by

the way, the scope of this OTIB is limited to reactors and places that might be handling fuel, and not places where you're dealing with separated material, you know, where a person has chemically separated out strontium or cesium, and doing that special work.

This is really basically a reactor situation. Or, I believe, a place where you're handling fuel. So your real starting point is, okay, well, what's the mix of radionuclides that's in fuel? And the rock that they built their house on here is, what is the inventory, the relative, the isotopic inventory in fuel?

And, as Steve pointed out, there's, you know, there's a lot of difference. The inventory can change quite a bit depending on the type of fuel, depending on the age of the fuel. These are the two big drivers that determine the mix of radioisotopes.

Now, I've done a lot of work in deriving the doses to workers who work at reactors. Some people work in the rad waste building, some people work in various maintenance activities. Some people handle the spent resins. There's a lot of different things in a reactor operation.

And I say, well, you know, my experience is that it's the mix of radionuclides that's in the gas gap. This is a gas base inside the fuel. Not the fuel itself, but in the gas gap. And that makes it very different in the gas gap. And, also, in the primary coolant, which leaks, and it contributes to the airborne activity.

There's also work where you're working with spent resin from various waste water treatment systems that have their own mix. So my question is really, you sort of step back and say, given that the context within which a worker at a reactor might be

involved in, the kinds of things he's doing, and the kind of -- you know, could very well affect the mix that he's dealing with.

Now, what NIOSH did in order to try to deal with that, is to say, well listen, we're going to start with the fuel. And then we're going to assume that the mix that could become airborne -- so like the first step. Say, okay, we got to go from what's in the fuel to what's airborne, because that's the stuff that is going to be inhaled and find its way into urine.

And they used a very conventional standard that goes way back in time, which assumes 100 percent of the noble gasses, 50 percent of the iodines, and one percent of the particulates is the release fraction.

This is the fraction of the inventory that's in the fuel, that becomes airborne. It's a very crude way of trying to say, what's going to end up airborne? And

that's your starting point for the mix of radionuclides that might be airborne to which a worker might be exposed.

CHAIR MUNN: Well, that's pretty broad.

DR. MAURO: It's pretty broad. It's very crude and very broad. And it might work. It might work. But it may turn out, it may not work -- I'm not sure.

CHAIR MUNN: Well, I'm sure NIOSH will be able to take a look at the finding.

DR. MAURO: There it is, and that's --

CHAIR MUNN: And give you a good feeling for --

DR. MAURO: Exactly. And that's really the only thing I had to offer, whether or not it was too much of a leap of faith to make that jump. Or whether there should be a little bit more granularity in thinking about what might be airborne in a reactor.

DR. H. BEHLING: John, I want to really comment on this. I think your step was a step in the right direction. But it's not even a complete one. What you find in the air gap in a fuel pellet, it's only the beginning. You have multiple barriers to breach beyond that: the cladding, the water, the reactor vessel, and then numerous others.

And the bottom line really here is it seems like what you just explained about the release fractions, that's really a crude, crude model. And it was never intended to be used for anything other than accident scenarios.

DR. MAURO: Yeah, that's how I used it.

DR. H. BEHLING: And what really needs to be looked at, and this is really where the rubber meets the road, is the air. In the end, a person who is a reactor operator, who goes into containment, he is

subject to an air concentration of radionuclides that have weathered the screening process of escaping from the fuel matrix, of escaping into the headspace of the fuel pellet, of being released from microfissures in the fuel cladding.

Then it has to get through the water, the primary coolant. And from there it may even have to enter the secondary side of a PWR. And then it has to release in the air. So, in the end, the true value of doing all this really rests with the ability to monitor the air.

If you have an air sample that is monitored for a gross alpha/gross beta, and then identifies the radionuclides, you have all the answers without going through a lot of these modeling parameters that are, at best, guesses. And crude guesses at that.

DR. MAURO: Oh, I agree. If you have air sampling data for a given reactor,

you go straight to that. I didn't even NIOSH --

DR. H. BEHLING: And I can't see why you wouldn't have that. I mean, that is the most common practice in a power reactor or a research reactor is to constantly monitor the air.

CHAIR MUNN: Of course, of course.

DR. H. BEHLING: In which case, you have that data available.

CHAIR MUNN: You're talking about CAMs everywhere when you're talking about reactor facilities.

DR. H. BEHLING: Yes.

CHAIR MUNN: And NIOSH will be able to, I'm sure, respond to the issue. It's just that we need to give them a chance to respond to it. And it's pretty clear, I think, from the finding itself, what we're asking of them.

Let's just go on and try to get a feel for what these ten findings cover, so that we can do a few more things before we have to -- before everybody gives up and leaves. Thank you.

Steve Ostrow, you were going to give us a quick -- that you said that you viewed these as three different categories. And we've covered the first two, I think.

DR. OSTROW: Right. Well, Finding 6 is also an internal dosimetry one. This has to do -- and I'll just summarize it quickly. People can read it. But this has to do with effective dose conversion factors.

The OTIB starts out with hundreds of radionuclides, many hundreds. I don't know the number, but close to 1,000. They do a first cut and reduce that to 36 radionuclides, by various methods. And then they do a second cut and reduce that to a final set of 17 radionuclides. That's the

basic thing.

Finding 6 has to do with effective dose conversion factors. And the comment is -- these are based on whole body doses, since the DCFs relate to effective whole body dose. And that's good for screening purposes. But it may not, if you're going to reconstruct whole body doses. But it's not necessarily claimant-favorable if you're just looking at organ doses.

And to just give an example, a radionuclide that doesn't contribute significantly to the whole body dose could still be an important contributor to an organ dose that might be eliminated.

This whole purpose of reducing the number of radionuclides may inadvertently throw out some radionuclide that happens to be particularly important for a particular organ, but may not contribute much to a whole body dose.

CHAIR MUNN: Okay. So we have at least two with respect to organ doses of concern. And then isotropic assignments in Number 8.

DR. OSTROW: Okay, 7 is also with intakes and organ doses. Number 8, the OTIB did recognize that some of the methods that it uses would miss certain radionuclides, such as radioiodines, to give an example.

And they claim it's not a problem because the seventeen radionuclides that they finally end up with are representative, and they're the biggest contributors. And this sort of goes back to what we were discussing a few minutes ago.

This is reasonable, except if a large fraction of the activity is lost during the analysis of the urine samples, that, you know, some of it disappears, volatilizes, whatever. And which may end up with an underestimation.

The OTIB mentioned that this was important at the Savannah River Site. I'm not familiar with the SRS particularly. And the OTIB notices that a separate protocol was used in the SRS Site Profile.

And we're saying that we'd like some more discussion of this. How the dose reconstructor deals with situations where the airborne mix of radionuclides doesn't relate really to the mix of radionuclides in the fuel.

CHAIR MUNN: Right.

DR. OSTROW: So, we want elaboration on that.

CHAIR MUNN: Okay.

DR. OSTROW: Okay. Getting near the end here. Finding 9. Oh, this is a little one. We actually went ahead. There's a workbook on the computer system that ORAU and NIOSH used to actually work out this OTIB. And we worked through one of the

problems. And given the input, correct input, we could get the same output. So we sort of verified, for one case at least, that the workbook works. Except the workbook is really -- is obsolete.

Because the current workbook was for Rev 0, and the methodology now is Rev 1. So that's just a note sort of in our finding, that NIOSH/ORAU has to revise their workbook before any dose reconstructors actually use it.

CHAIR MUNN: Right.

DR. OSTROW: And that's a simple one. Number 10 is long. But it's fairly simple. It's really in two parts. And this is sort of reiterating, and I have it in bold there.

In the process of developing the protocol, indicator radionuclides used to derive intake values of dosimetrically significant radionuclides. But they don't

necessarily relate to the real intake and excretion rate for the worker. We don't know how much conservatism is built into this.

This is a little bit of a philosophical problem that we believe that the doses calculated to the workers are probably conservative. But how real are they? You know, did they bear any relation to actual doses that people are getting? And this requires some discussion.

CHAIR MUNN: Yes. And as I said, when we have a NIOSH response to it, that's the appropriate time for us, I think, to give it considerable attention and discussion time.

DR. OSTROW: I think this issue has come up in relation to other things that we reviewed over the years also. That the whole thing about, is it good, is it sufficient that something is really conservative? Does it have to actually

reflect reality, though? I'm not sure where this falls into.

CHAIR MUNN: Yes. We will see what NIOSH has to say when they respond to each of these findings. We'll get them posted as they need to be posted. And we'll expect responses as they come. Hopefully, some at our next meeting.

Anything else we need to cover? Other than I was anxious to see that the findings were mentioned, and that we get them appropriately recorded in our database. Other than that, we'll just keep them in progress for NIOSH. Any other comments with respect to OTIB-54 before we move on?

MR. MARSCHKE: This is Steve. Again, I'm just scrolling through the BRS here. And I noticed that there were a number of comments on the old Rev 0 of 54 and that are still identified as being in progress.

Now, Steve Ostrow mentioned early

in his talk that, you know, they were moot. And so I guess the question is, should the findings that are still in progress, the findings on Rev 0 that are still identified as being in progress, should they all be closed systematically?

CHAIR MUNN: I think what we need to have, if so, we need to have a recommendation from SC&A, a specific recommendation for each of those saying as much.

And so if we do in fact have those recommendations in writing for each of the current in-progress notations that we have on OTIB-54, Rev 0, then we can, at that time, take action on them. We have that actually in front of us.

I don't believe we should, at this time, try to go through and identify them. I don't know whether Steve Ostrow's ready to do that on each of these.

DR. OSTROW: Well, I am, but I didn't do it in writing. But I thought that at our July 18th Subcommittee Meeting, that we had decided that we were going to close all of the Rev 0 comments and start over again. Maybe we never wrote it down formally. But I thought that was part of the discussion we had in July.

CHAIR MUNN: Okay. I'll check the minutes.

DR. OSTROW: I mean, if not, we could easily enough just, you know, send a memo.

CHAIR MUNN: Okay.

MR. MARSCHKE: Well, no. What we do, Steve -- I think what I would suggest doing is that we just basically make an annotation in the BRS saying that, with the issuance of Rev 1, this comment is moot and we recommend it be closed.

And then the Subcommittee, you

know, the next time we meet we can go through them and we can close them out rather quickly.

DR. OSTROW: Okay. But how would you then input the ten new ones we have?

MR. MARSCHKE: Put them right on. They would start with -- it would start with -- actually the finding, you should have re-numbered them. Your Finding 1 is really Finding 27.

DR. OSTROW: Oh, lord.

CHAIR MUNN: Oh, that's all right. We can do that. That's not a problem. We'll just make a notation of what we're doing, and do it. But for the time being, what I would like to have is a written note from SC&A identifying each of the findings that we are closing, okay?

DR. OSTROW: Okay. No problem.

CHAIR MUNN: And if we do that, then I think we can move forward. When we

get that, then we can incorporate it into the BRS. And we will look forward to NIOSH responses to these ten new ones in the future. Okay?

DR. OSTROW: All right. We'll do that.

CHAIR MUNN: For the moment, we're expecting specific documents from SC&A closing each of these items that we have currently on our system.

Okay? Very good. Do we need anything else addressing OTIB-54 before we go to Joyce, whom I'm assuming is on right now.

DR. LIPSZTEIN: Hi. May I --

MS. K. BEHLING: Wanda? I'm sorry, Joyce --

CHAIR MUNN: Yes.

MS. K. BEHLING: This is Kathy Behling. Can I very quickly ask a question about going back to PER-38? Unless Joyce is pressed for time here.

It sounded like there were no findings. Are we going to select cases associated with PER-38? I mean, we can do that later. It's just something I didn't want to fall through the cracks under Subtask 4 for the Hooker PER.

CHAIR MUNN: The only notation that I made was that NIOSH was going to select the SRS items. I didn't make any notation about the cases from Hooker.

MS. K. BEHLING: Right. Because I know there were no findings associated with Hooker. And I just wanted to be sure we just completed the Subtask 4 portion of that.

CHAIR MUNN: Yes. As well you should. Yes. Now, what do we need to do, Kathy?

MS. K. BEHLING: I think there were -- John Mauro, correct me if I'm wrong. But were there 30-some cases that were still reevaluated? And we need --

DR. MAURO: Yes, the number? Yeah, it's in one of the slides. I'd have to open it up again.

MS. K. BEHLING: I think what we need to do is present some criteria to the Subcommittee and to NIOSH, as to, you know, what criteria we want them to use to maybe select a few cases for that PER.

CHAIR MUNN: Yes.

DR. MAURO: But, remember, our finding was -- let me -- hold on, hold on. I think Bill looked at all of the fifty, or whatever there were. In other words, I wish I had better information for you.

But I think Bill concluded that everything was done correctly. And almost like -- perhaps he jumped ship on this one and quickly looked at them. It may have been of such a nature, the nature of the work was such that it didn't take much -- I can't speak to that.

Maybe the right thing to do would be to check with Bill. In other words, does Bill feel that, in order to close out Rev 1 PER, is it necessary for us to go ahead and pick some cases?

Or is he comfortable that he's looked at enough of them in the process of doing what he did, that he feels that, you know, there's no need to go through that step? This is a bit unusual, I have to say.

MS. K. BEHLING: Oh, okay. And I apologize.

DR. MAURO: No. And you might be right. I'm glad you brought it up, because I'm not sure.

MR. STIVER: John, this is something that kind of fell through the crack in getting these presentations together. But, yes, we'll definitely need to get with Bill.

DR. MAURO: Yes.

MR. STIVER: And see whether or not that he feels that this is really necessary.

CHAIR MUNN: The indication was we only had one claim that would be applicable to PER-25.

MS. K. BEHLING: But I thought for 38 there might be some --

DR. MAURO: There might be. But I'd like to talk to Bill about it first.

CHAIR MUNN: Yes.

DR. MAURO: In other words, does he feel that, yes, we should go through and pick a few, and check them? Or has he already done that? You know, sometimes these exposures, these aren't like complex sites. We're talking about fairly simple exposure matrices for inhalation of uranium, for example, or external exposure to uranium.

He may very well have checked it. I'm not sure. But it's probably best. Very

quickly. I think Bill will be available tomorrow and we could get clarification from him, and get back to you quickly.

CHAIR MUNN: Okay. So what we're going to hear from you is whether or not we actually need to select cases, or whether -- in which case we'll need the criteria.

DR. MAURO: Right.

CHAIR MUNN: Or whether the current review has been detailed enough to assure that it isn't necessary, right?

DR. MAURO: Yes.

CHAIR MUNN: Very good. Then I'll expect to hear back from you after you've had a chance to check. All right.

DR. MAURO: Okay.

CHAIR MUNN: Now, we were going to hear Joyce, right?

DR. LIPSZTEIN: Okay. I was going to talk about 54 again. I did the part of the internal dosimetry that=s the part

after you have the list of radionuclides. Then you have the beta and gamma, gross beta and gross gamma in urine excretion rate.

And I think we agree with SC&A. We agree with everything that NIOSH did. We just need some minor explanations why, when they calculated the intake, they reduced the list further from 36 to 17 radionuclides that Steve already talked about here.

But otherwise, all the complaints that we have is Revision 0, on this part of internal dosimetry, they were covered by NIOSH. So we're happy with it.

CHAIR MUNN: Good. Thank you.

DR. LIPSZTEIN: Thank you.

CHAIR MUNN: Then, Joyce, were you also going to talk to us a little bit about OTIB-34?

DR. LIPSZTEIN: No, 83. I think 34 is Kathy.

CHAIR MUNN: Oh, okay. I had had

a note that you were going to say something about -- was it 83 or 34? I mean 83 or 38?

DR. LIPSZTEIN: Eighty-three.

MR. HINNEFELD: I made a mistake in that note to you, Wanda. It should be Hans who would talk about 34. And Joyce will talk about 83.

CHAIR MUNN: Okay, very good. Then, Joyce, as long as you're on, we're expecting a report from you right now after 54. So, this is a good time.

DR. LIPSZTEIN: Okay. I'm almost finished with the review of OTIB-83. In reality, OTIB-83 is the same document that was given before as a White Paper from NIOSH but was directed to Special Exposures at bound. And now this is a generic document.

So I'm reviewing it. I'm at the end of reviewing it. And I think NIOSH should expect in about one week the complete review of the document. Most of the

technical part that related to Mound we already have discussed a lot.

And then there is the applications for, you know, general application, which I -- I'm advancing it, but I really didn't understand well how this is going to be applied to other installations. But, anyway, the review is almost at the end and you should expect in about one week, ten days, the complete review.

CHAIR MUNN: Good. Excellent. We'll look forward to that. And you said -- did I understand correctly, now, that Hans is going to cover 34?

DR. H. BEHLING: Yes, I am.

CHAIR MUNN: Okay.

DR. H. BEHLING: Okay, just a couple of pieces of information as background. The ORAU OTIB-34 is defined by the title, "Internal Dosimetry Coworker Data for X-10." Now, the original OTIB-34 was

issued back in December of 2005. And SC&A reviewed that particular original Rev 0, OTIB-34, back in -- let's see here, that was in October of 2007.

Since that time the OTIB-34 was revised. And as a result of that revision we were asked to once again review it. And the changes from between Rev 0 and Rev 1 involved a limited number of changes that, by and large, involve three things.

There was an expansion of Table 55, which is plutonium-239 Type-S, that in Rev 0 only incorporated a single time span for the entire years of '51 through 1988.

As a result, I believe, of our review of that particular Rev 0, we were critical of the fact that the entire period of '51 through '88 was lumped into a single time period. And as a result of one of the three changes that occurred in Rev 1 was the expansion of the time span into six different

segments.

The second one was the addition of the 95th percentile intakes for all of the radionuclides, which involves strontium, uranium, plutonium and americium.

And then the third one was the amending of the tables in Attachment A to include information with regard to the number of samples that were assessed for each of the years between '51 and '88, as well as the number of employees that represents those particular samples. And so those were the three major changes that were incorporated in Rev 1.

And as a result, since this was really a review of a revision, the Board asked us to make this a focused review. So, what you are about to receive, as soon as I'm done with my review, is essentially a focus review that addresses only those three amended changes between Rev 0 and Rev 1.

And right now I'm pretty much done. I still have to clean up a few things, and also then forward it to Stiver, John Stiver, and John Mauro, and a couple of their internal reviews. And I suspect the time frame for getting it out to you is probably somewhere around ten days to two weeks.

CHAIR MUNN: Excellent. So we can look forward to your review of Rev 1?

DR. H. BEHLING: Yes.

CHAIR MUNN: Okay. I'm just going to say for my own notes, coming soon. We'll look forward to that and we'll have that added to our agenda next time, so that we can cover both 34 and Joyce's work on 83. That will be good.

Any other comments with regard to those two before we go to our administrative details? If not, then, before Josie gets away -- are you still with us Josie?

MEMBER BEACH: Yes, I am, for

just about another ten minutes, Wanda.

CHAIR MUNN: Okay, that's why I wanted to make sure before you went somewhere. Do we have Richard on still? Are you there Dr. Lemen?

(No response.)

I had hoped to be able to catch us all. And before we do any --

MEMBER LEMEN: I am here.

CHAIR MUNN: Good.

MEMBER LEMEN: I am here. My mute was on, so --

CHAIR MUNN: Good. Before we do any of our other administrative things, let's see if we can find a January date that is toward the end of January that we can, that won't -- no, it's better do it early February, after the Kansas meeting. Early February meeting, where we can pick up where left off here. Is the first full week in February a good time for us to be looking at

a potential call?

MR. HINNEFELD: Wanda, this is Stu. I don't know if I matter or not, but I'm on vacation that week.

CHAIR MUNN: Okay, how about -- yes, I think you matter, Stu. How about the following week? What about Thursday the 13th of February?

MR. HINNEFELD: I have -- February is a little difficult for me right now because I am on notice that there will be an agency and advocates meeting in Denver in mid to late February, but I don't have a date yet.

CHAIR MUNN: Okay. I hate to do that too early in the week that you just get back from vacation, in any case.

MR. HINNEFELD: I don't know when I'm going to Denver either.

CHAIR MUNN: Yeah. As of right now, 13th of --

DR. BUCHANAN: Early part of February is best for me, because I'm going to be in Germany the last part.

CHAIR MUNN: Okay, then let's -- does anyone have objection to the 13th?

MEMBER BEACH: No.

MR. HINNEFELD: I don't have one today.

CHAIR MUNN: For the time being, let's identify the 13th as being our good time for our next meeting.

MEMBER LEMEN: February 13th, right?

CHAIR MUNN: February 13, a Thursday.

MEMBER LEMEN: Okay.

CHAIR MUNN: And can we start at this same time, 11 o'clock your time? Okay?

MR. KATZ: Yes, that's fine.

CHAIR MUNN: I don't hear any objections, so let's say that's when we're

going to have our next Procedures Review. Okay.

Now, that done, before everyone leaves, there are a couple of things. Thanks to John Stiver and others for getting a cleaned up PER lists to us so that we can have a better feel for where we are and what needs to be done.

It's not clear to me exactly how we need to proceed with respect to not just the presentations of the PERs to the full Board, but the general presentation of material to the full Board. But Ted has told us that it would be wise for us to broaden our scope of what we were looking at in terms of presentations to the Board.

And I guess what we've been presenting to them is adequate, but not fully covering what, apparently, they'd like to see and hear from us. I'm not sure exactly which of our original potentials are even still

viable, in view of the fact that most of them have been closed for quite a while now.

And we did not have, when we took a look at what the Subcommittee Members thought were our best choices for presentation, we had only one vote in each case for most of the others that we have not yet covered. So, we have not added anything to that list, including the PERs that we've been working with and others that we may have closed in the interim. It's been more than a year since we did that.

So, I guess one of the things I'd like to hear, Ted, do you have any specifics as to the type of presentation that we can look to help meet the desires of the full Board?

MR. KATZ: Yes. Thanks, Wanda. I mean, really what I'd talked about is not broadening the scope, but not what we decided after the last Board Meeting. And we got a

good bit of feedback about those presentations from several Board Members, was just not presenting -- and I've discussed this with SC&A in a sidebar during that meeting with John Mauro. But not presenting Procedure Reviews where the Procedure Review has no findings, or essentially no findings, no real great substantive matters that had to be resolved. Not presenting those in any detail to the Board, but rather just summarizing, you know, the group of procedures for which there were essentially no findings to be resolved. Summarizing that have been resolved by the Subcommittee with no findings.

So more selectively picking procedures for presentation that had real substance to resolve. That was the only sort of new guidance related to how we select those procedures that are already, you know, completed by the Subcommittee and ready for

presentation to the full Board.

CHAIR MUNN: And it seems to me the first step in doing that is to get a new updated list of exactly what those procedures are, since they've changed radically since we were looking at them last. Is that going to be possible for us to do, SC&A?

MR. STIVER: Yes, I think we can do that. You know, I think some of those we picked because they were -- I know one of them was a PER. And mainly we picked that one because it was the first one that actually had been seen through to Subtask 4 completion.

CHAIR MUNN: Right.

MR. STIVER: Turns out there were no findings.

CHAIR MUNN: Yes.

MR. STIVER: But, you know, I certainly, for in the future, we can try to find some that had more substantive

discussions, and give that some --

CHAIR MUNN: Let's see if we can generate a list that gives us all of the potentials, and includes the notation those that had no findings.

MR. STIVER: Yes, we could rate them by level of complexity or, you know, we can come up with some kind of an index to that.

CHAIR MUNN: Yes, well, I don't know. From my perspective, it isn't complexity so much. It's just that if we have a list of those that we've closed with no findings, then, as Ted had mentioned, we can lump those together in one presentation.

And in the meantime, though, we need the broader scope of all that are potential, so that we can rate them again in the Subcommittee and see if we can go from there.

So first up, I think, is the

list. If we can get that, then we'll work offline in the Subcommittee to make some selections.

MR. STIVER: Okay. Steve and I can work on that list and get back with you.

CHAIR MUNN: Good. I'd appreciate that. Thanks much.

The upcoming PER status. You sent us a list of what you're working on. Do you want to --

MR. STIVER: I'm trying to get control of the meeting here.

CHAIR MUNN: Yes, if you can.

MR. STIVER: I can't seem to do it.

CHAIR MUNN: Then let's see what we can do with the PERs.

MR. STIVER: Well, I can just kind of give the talk here. Wait, that's right, I've been given control, great.

CHAIR MUNN: Good. It's all

yours.

MR. STIVER: If I can figure out how to share this thing.

CHAIR MUNN: Well, I'm seeing the Board list right now.

MR. STIVER: I have to realign this every time I do it. I'm trying to find the sharing button here.

CHAIR MUNN: Is it under content up there?

MR. STIVER: Well, I'm not even seeing the option for content.

CHAIR MUNN: In the very far left upper corner.

MR. STIVER: Yeah, all I've got is attendees and voice and video.

CHAIR MUNN: Oh, you don't have a content? You must not be logged in as a real person.

MR. STIVER: Yeah, I guess I must not be. But in any case, I could talk to

this. I sent around a short document. Basically there were two tables.

The first table was two PERs that had not been assigned to SC&A. And the second was related to the PERs had been assigned, but for which Subtask 4 dose reconstructions had not been performed yet.

And I believe there were six or seven of the new PERs. And we went through and did kind of a preliminary evaluation -- not really an evaluation, just kind of a summary of what each of them are -- and recommended possible prioritization for review.

On my way into work today I was just was thinking, you know, we had tried to run these to ground in the Subcommittee meetings before. And because none of us had really looked at them in enough detail to make judgments as to whether they warranted for reviews, we spent a lot of time going

through some that maybe weren't really even worth looking at. So I think that maybe the best approach would be --

CHAIR MUNN: This is a great list.

MR. STIVER: Yeah. Thinking the same type of approach we did with the OTIBs. And just look at them all, and do kind of a pre-review.

CHAIR MUNN: Yes, I think that's great, John, thanks.

MR. STIVER: And then just go ahead and decide, you know, is there a one or two here that really weren't full reviews? And if not, then the others may just be not worth reviewing, or just a really short summary. So I thought we might to progress that way.

CHAIR MUNN: I think that would be wise. Good suggestion. And great list. Much appreciated.

MR. STIVER: Yes, thank you. Yeah, before everybody leaves, I'd like to take a look at the Table 2. There were basically two of the PERs that we thought we'd like to prioritize for Subtask 4 review. And that's PER-9, which is the target organs for lymphoma, and then -18, which is Los Alamos TBD revisions.

And we felt that those might be a higher priority because of the complexity of selecting a rework in the claims that were associated with PER-9. And also the number of affected claims associate with PER-18.

And since we have Hans online, he could probably provide the selection criteria now. So we might be able to get Stu and his crew working on picking some cases.

DR. H. BEHLING: You're catching me off-guard here, John.

MR. STIVER: Oh, did I catch you off-guard? I'm sorry.

DR. H. BEHLING: You know, actually the person who is looking at them more closely is Kathy. And I'm not sure, Kathy, do you have any comments regarding which PERs you might want to suggest?

MS. K. BEHLING: I don't at the moment. But we can provide a memo within a day. I did not go to that level. I apologize. But, yeah, I did look at that.

DR. H. BEHLING: We have a good situation here where we can blame each other here.

(Laughter.)

CHAIR MUNN: That's the best of all possible worlds. I don't think we need it right now. But I do think we need it before our next meeting.

MS. K. BEHLING: Yeah, I thought that that was one of the two PERs that we've already done. And maybe complete the Subtask 4 portion of that. And that is a more

complex one. And that's why I'm not willing to just off-the-cuff give you some criteria. But we'll have to sit down and revisit that.

CHAIR MUNN: If you do that in the foreseeable future, it would be most helpful to us, and we could go forward from there. I think if we get a good feel for what we have coming down the pike with respect to the PERs, and if we have the list that John said he could get us of all the potential presentations that we need to be making, then we can kind of kill two birds with one stone.

We can get a full view of everything we have on our plate and kind of address it more appropriately. I think right now it's hard to do because nobody has looked at it close enough to make those findings.

Fine. We'll look forward to hearing something from you with respect to that. And, John --

MR. KATZ: Can I, Wanda, before you close --

CHAIR MUNN: Yes.

MR. KATZ: Can I just raise another issue that I've been wondering about, which is, you know, we used to sort of circle back around at the end of meetings and see how we're doing on the overall list of procedures. Let's put aside PERs for a moment, but everything else, OTIBs and so on, in terms of closing them out. And we haven't done that in a while.

And I'm just wondering whether we have some OTIBs, what have you, where there are findings in progress, and yet we may not even be addressing them because they are not showing up on our agenda?

CHAIR MUNN: We have not done an in progress search. We have not done an open items search.

MR. KATZ: Right.

CHAIR MUNN: And I'm quite aware of those. I have not made a list of them. But Steve has just pulled up the summary report. And if we get down to the bottom of it, we can see where we stand in terms of overall.

MR. KATZ: Yeah, well, I mean, what I was just going to suggest is that we have SC&A sort of call that, than rather than just the PERs, what hasn't been assigned.

But I'm more interested in what's already in progress that may be just sitting on the sidelines because we haven't included them in our agendas. So we can get a handle on that, and maybe get things moving forward if there are some items on the shelf like that, which I suspect there are.

CHAIR MUNN: Well, there are some. And, especially, I am concerned about open items from any entries that we have that are really quite old, that we haven't

identified yet, that we haven't released.

MR. KATZ: Right. Either open or in progress, either way.

CHAIR MUNN: Then there's -- as you can see from the screen that Steve has up, of the first set that we had, there's only one open item that has not started. But we need to be addressing that. And then the second one, we have three in progress items that are still open.

So those were both, in both cases, very early procedures that we were looking at, that we clearly have not done what we would like to do in terms of calendar events yet.

And in the third set, notice we have 19 in progress and 19 open, which is pretty big, but not nearly as old as the other ones. It's easy to take a look at those.

And I have not, deliberately, not

put them on our agenda to look at in the Subcommittee, simply because we've been having these other things to the full extent of the time that we have available.

MR. KATZ: Right. But, I mean, we keep -- we were adding PERs for review. But I think that these fundamental documents are, in a way, more important to get behind us.

CHAIR MUNN: I think that's true.

MR. KATZ: So, I think it would be good to start focusing on these and see how we can knock some of them out.

CHAIR MUNN: Yes. You're not going to get any argument from me. And if it's a preference of other Members of the Subcommittee as well that we clearly take a look at those, then I'll just set aside agenda time for our February meeting when we will in fact just spend some time looking at open items.

MR. KATZ: Right. So what I would suggest, just knowing what is required to actually move forward with these, is if we can get sort of a listing of what's out there that needs addressing, and get that out, not just for SC&A's consideration, but also for NIOSH's consideration. Because, you know, they have to prioritize what they can address at any given time, given their resources.

And if they have a time to think about that before the meeting and speak with ORAU about that, then they can actually come to the meeting able to say, you know, these are the procedures in progress, what have you, that we can do some work on, or get some work on by X date, whatever it is.

CHAIR MUNN: Yeah, that's true. I really don't have as much concern about the in abeyance items as I do about the open and in progress items. I think they're the ones that are easiest to slip in the crack.

MR. KATZ: Right, right. In abeyance is not an issue. It's these others that we would like to put behind us.

CHAIR MUNN: Well, let's agree that we will look at -- we'll get a list of the open and in progress items, and see if we can't address those next time. All right.

MR. KATZ: Thank you.

CHAIR MUNN: Any other concerns or actions that we need to be looking at that we're not currently addressing?

If not, then I thank you all for a very good meeting. Unless you hear from me to the contrary, or unless Stu decides that he's going to another meeting instead, we will anticipate the middle of February for our next meeting. And you'll be hearing from us on these other items that we've discussed today. Thank you. And we're adjourned.

MR. KATZ: Thanks, everyone.

(Whereupon, the meeting in the above-entitled matter was adjourned at 4:57 p.m.)