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 1, 2012

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The Subcommittee convened in the Zurich Room of the Cincinnati Airport Marriott, 2395 Progress Drive, Hebron, Kentucky, at 9:00 a.m., 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
ROBERT ANIGSTEIN, SC&A*
BOB BARTON, SC&A*
HANS BEHLING, SC&A*
STU HINNEFELD, DCAS
JENNY LIN, HHS
GREG MACIEVIC, DCAS*
LORI MARION-MOSS, DCAS
STEPHEN MARSCHKE, SC&A
JOHN MAURO, SC&A*
JIM NETON, DCAS
STEVE OSTROW, SC&A*
MATTHEW SMITH, ORAU*
JOHN STIVER, SC&A*
ELYSE THOMAS, ORAU*

*Participating via telephone

A-G-E-N-D-A

P-R-O-C-E-E-D-I-N-G-S

9:01 a.m.

MR. KATZ: We can get started with roll call. Why don't we do that? I don't believe we're focusing on any work sites, so we don't need to address conflict of interest in roll call with the Board Members. Let's get going and do roll call beginning with the Board Members, with the Chair.

(Roll call.)

MR. KATZ: All right then. The agenda for the Subcommittee meeting is posted on the NIOSH website under the Board section, under meetings. It looks like we have a pretty full agenda, and let's go ahead. So Wanda, it's your agenda.

CHAIR MUNN: Thank you. Let's start by taking a look at, a quick review of

what's going on with our database, the BRS. Lori, do you want to take the lead on this or Stu?

MR. HINNEFELD: I think Lori better.

CHAIR MUNN: All right. Where are we? I'm particularly interested in knowing how we're dealing with the overarching issues. Where are we with that?

MS. MARION-MOSS: Well, this is Lori Moss. If you will, I'll kind of guide you through it. What we've done thus far is for a couple of the findings that's in the BRS. We've actually transferred them over under a particular overarching category if you will.

CHAIR MUNN: Okay. How do we pull it out?

MS. MARION-MOSS: Okay. Once you're in the BRS, if you were to click on "Document Type Filter" and choose

"Overarching" on the dropdown menu.

CHAIR MUNN: Hold on a minute, I'm stuck in an OTIB. Overarching. Where is overarching?

MS. MARION-MOSS: It's in the middle, "Document Type Filter." The middle option of the dropdown menu.

CHAIR MUNN: I don't see it.

MEMBER BEACH: She doesn't have that section that has the Work Group filter.

CHAIR MUNN: Okay, thank you.

MS. MARION-MOSS: What appears on that screen is actually eight categories, if you will, of overarching issues.

CHAIR MUNN: The first two are populated and the others are not, is that correct?

MS. MARION-MOSS: Correct.

CHAIR MUNN: All right. So we're getting there.

MS. MARION-MOSS: Yes. If you

will, if you click on "Workplace Ingestion," you'll see that the TIB-9, one finding has been populated to overarching.

CHAIR MUNN: Okay.

MS. MARION-MOSS: And if you click on the plus sign icon you will find the findings -- I mean, the findings and the responses, excuse me.

CHAIR MUNN: All right.

MS. MARION-MOSS: The last entry made for this particular finding was where I attached Jim Neton's White Paper.

MR. HINNEFELD: And I think we sent that also, right?

MS. MARION-MOSS: Yes, we did. Yes. Sorry about the confusion. It was sent separately.

CHAIR MUNN: Very good. Very good. And it all works. It's so nice to have those PDF files.

MR. HINNEFELD: We never, ever see

a computer system work.

MS. MARION-MOSS: I would like to show you another feature associated with the overarching. If you go back to the top on that page and click on "Board Review," "Document" under "Board Review" it should take you back to the original screen. And if we were to choose the document type filter for TIB, Technical Information Bulletin, scroll down on that screen to page 3, click on the "3" at the bottom of that screen, scroll down on the TIB screen and the second from the last entry should be "Estimation of Ingestion."

CHAIR MUNN: Yes.

MS. MARION-MOSS: Click on that. So, in the event you were to go to the actual TIB itself, it will tell you that your finding has been transferred and you click on the word "here" and it will take you, actually, to the overarching so you won't have to run through.

MR. MARSCHKE: How is that done,

Lori, is that done manually or somehow?

MS. MARION-MOSS: By IT people.

(Laughter.)

MR. MARSCHKE: Magic. Basically we tell you that something's been changed and you tell the IT people and then they go in and manually make it. It's not something that I can enter here --

MS. MARION-MOSS: I'm working toward that point, Steve.

MR. MARSCHKE: No, I just --

MS. MARION-MOSS: Because once we identify what findings are essentially overarching findings and they need to be transferred, I want you to have any one of us -- or whoever we authorize --

MR. MARSCHKE: Whoever writes to the application.

MS. MARION-MOSS: Should have that capability.

MR. MARSCHKE: But it may be also -

- not everything gets transferred to the overarching issues. Sometimes things get transferred to other Work Groups, mainly, I think it is, yes.

CHAIR MUNN: So when you click on here it should take you to wherever that's being transferred, not always the overarching issues.

MS. MARION-MOSS: Exactly. But for this particular finding, I just wanted to illustrate.

MR. HINNEFELD: Well, there's also -- the additional complication to that is that no one else besides this Subcommittee is using this.

CHAIR MUNN: Yes, that's true.

MR. HINNEFELD: So transferring electronically anywhere else is sort of meaningless at this point.

CHAIR MUNN: Yes, it is, it is. But we know where it's going inside the BRS

and that's --

MR. MARSCHKE: Well, I guess the thing I was thinking was sometimes we do have findings which are covered by another finding. Or this is a finding that's addressed in -- finding 1 is addressed in finding A.

CHAIR MUNN: Exactly.

MR. MARSCHKE: And it would be maybe nice to have something like this for that. I mean, but again this is putting -- this is gilding a lily a little bit here and I don't know if we want to.

CHAIR MUNN: Sometimes we have lilies that need to be gilded though, holy writ to the contrary. But someone had a question?

MEMBER BEACH: So I have a question. Once an item is transferred to a Work Group, will you continue to try to track what happens here?

MR. HINNEFELD: Lori won't be in a

position to do that.

CHAIR MUNN: No, we're not in a position to do that. Only when the Work Group reports back to us.

MR. HINNEFELD: My long-term scheme was that -- I think Wanda's as well, is that this is a tool other Work Groups can use.

MEMBER BEACH: Right, right. That was mentioned at the last Board meeting.

MR. HINNEFELD: Yes. And that, in that instance, if we asked, for instance, the Rocky Flats Work Group, you know, since it's getting going again, to develop another set of findings and use this and we had something to transfer to Rocky Flats, then it would appear to and be available for that Work Group. That was the intention of how we designed this originally.

MEMBER BEACH: It's going to take some training.

MR. HINNEFELD: It's going to take,

yes. And --

DR. NETON: It seems like it's all hard-wired to do that.

MR. HINNEFELD: It's set up to do it. It was built to do that.

CHAIR MUNN: Yes. And we have -- one of the reasons it's taken us so long to get to this point is we kept aiming for that particular thing. But whether that's actually going to be implemented by each of the Work Groups is up to individual chairs.

MR. HINNEFELD: There's a lot of advantage to doing this, in terms of maintaining the record of what was done. Because if you work on -- sit on Work Groups you know that things are maintained in essentially Word document matrixes. And keeping up with the last one and getting everybody to agree what is the last one and what should go in this matrix is harder than sometimes the discussions.

CHAIR MUNN: It's very difficult.

MR. HINNEFELD: And so if this sort of application -- and that's why we try to do our stuff on things like this, applications like this is that we create the record of what we have done automatically. And you don't have to build a filing system other than this to do it.

MR. KATZ: Wanda and Paul, I don't know what your thoughts are. My thought is that -- I mean, I totally agree I think it would be great from an organizational perspective to have this implemented across the board not to -- the Board, but I think in reality a lot of Board Members aren't going to do what it takes to get fluent with this system. And I think then it's going to require that there be someone at a Work Group meeting who can handle that other than -- because the Board Chair won't. The Work Group Chair won't.

MEMBER BEACH: Well, just like Steve inputs for this Work Group you would need someone inputting for your Work Group.

MR. KATZ: Right. I think that's the only way that we're going to implement it that way.

MR. HINNEFELD: And it's designed that way. It's designed to have a DCAS person and an SC&A person who essentially fulfill Lori's and Steve's roles for each of them.

MR. KATZ: So I think if DCAS is willing to have their lead for Work Group be able to work in this system then we can work on having the SC&A lead also. It may be tricky, I don't know. I guess Joe, like Joe is a lead on a number of them. I think he'd be willing to do that. I think it'll work out if we do it that way as opposed to putting it on a Board Member, because I just don't think that's going to happen. There are many Board Members.

MEMBER BEACH: I wonder if you should start with newly formed Work Groups. Trying to go back and reinvent from --

MR. KATZ: I think that's a place to start. And then someone would have to -- I mean, it would be a lot of work, actually, for a Work Group that's been around a long time to transfer all their matrix information.

MR. HINNEFELD: That's almost not doable.

DR. NETON: Well, they could get the most current version.

MR. HINNEFELD: They could start using it from where they are today. But reconstructing the history is almost undoable.

DR. NETON: That would be impossible.

MR. HINNEFELD: That is pretty much undoable.

CHAIR MUNN: But some of the matrices really are so unwieldy that dealing

with them would be almost impossible, which is reason why reality raising its ugly head.

My thought has been from the outset that what would be required of the Work Group Chair is a final report as to what solution was reached to each of the findings. Anything other than that I think is hoping that you will get some specific action from the Work Group, which you may or may not get. If you're relying on getting reports from each of the Work Groups on a timely basis, that is, realtime reports, then I think you're going to be mightily disappointed.

But certainly Josie's suggestion that we start with newly formed Work Groups and move backwards is well taken. I just don't see, sitting here this morning, how we can anticipate that, for example, the other Subcommittee is going to be able to put together what we anticipate from them for this particular set of findings that will follow.

It seems very cumbersome if you consider what that matrix looks like.

MR. HINNEFELD: That one is just kind of a special problem because we have to come up with some business rules for what is the document that's reviewed.

I mean, theoretically there are two ways to do that. One is to each time SC&A delivers a report or DR reviews that is the document that goes in there. Or conversely, each case they review could be a document, a separate document, because there could be multiple findings on a case.

So, that will be I think the hardest fit, the hardest business rules to fit of any. I think the site-specific Work Groups, I think the business rules as they are fit there better. Because you have the Site Profile, you have the Evaluation Report, you have certain Technical Basis Documents. Those are the things that are reviewed by site-

specific Work Groups. And so to me, the logic fit for DR is going to be hard to work out.

CHAIR MUNN: I think so too. And it's just simply trying to be realistic, I think, trying to impose a requirement on the Work Groups to do this may not really and truly work.

MR. KATZ: Well, it may not be a great imposition if we have staff that are handling it.

MR. HINNEFELD: Yes, our staff does the work.

MR. KATZ: Let's just take this as an action item, Stu. If you'll work your side and I'll work with SC&A and see if we can't start erecting it, not just for the new Work Groups but I guess, like you said, we could go with matrices as they stand now, current matrices, and maybe do it in the order as Work Group meetings are coming up and try to get this going.

MR. HINNEFELD: I'm going to miss the next Work Group meeting.

MR. KATZ: That's okay. That's probably not the most urgent one in terms of putting it in place, given where we are with that Work Group.

So Steve, if you would just give a heads up. Or John, you're on the line, right? Stiver? John Stiver, are you still with us? Are you on mute, maybe? Is anyone on the line?

MR. STIVER: I was just on the phone with Mauro, and he's having difficulty dialing in. So I was trying to cover two phones at once.

MR. KATZ: I'm sorry, John. I don't know if you heard that discussion but let's you and I, let's talk with Steve who's most fluent in these matters but about trying to get Work Group leads up to snuff on the system so that we can implement it in some

Work Groups. Okay? And that's the Board review system that we've been talking about. Okay, John?

MR. STIVER: That's fine, yes.

MR. KATZ: Okay.

CHAIR MUNN: Lori, are you finished telling us what you were prepared to tell us?

MS. MARION-MOSS: Well, I would like to also talk about -- kind of discuss some of the limitations right now.

CHAIR MUNN: Good.

MS. MARION-MOSS: Let's go to -- Steve, do you remember procedure -- I mean, PER-12. Could you go to that?

DR. NETON: Before we move onto the PERs, can we talk about these overarching issues just a little bit?

CHAIR MUNN: Yes.

DR. NETON: I don't attend these meetings very often and these issues are typically under my purview. And I'm wondering

where the Subcommittee is going with this because some of these that I see that are in here are either in my opinion closed or really were never findings to begin with. They were sort of opinions expressed by folks and NIOSH agreed to behave a certain way based on opinions that were expressed at, say, Board meetings.

And a couple of these I can point out. The internal dose from Super S plutonium has been closed a long time ago with TIB-49. So I don't know why that would even be on here. You almost have to like create a paper trail to close it out in the system because it really has been closed prior to the Work Group, prior to the Subcommittee taking up this issue I guess.

MEMBER BEACH: And if you click on that one there's --

DR. NETON: Yes, I think there's probably no history associated with almost any

of these.

MEMBER ZIEMER: No findings and no active file.

DR. NETON: Well, exactly. So that's my point. I don't know what the intent is of these being on here, all of these. The ingestion certainly needs to be on there. The material tracking finding was really something that was raised at a Board meeting where a concern was expressed like if you find something unusual at one site how do you know -- are you going to run it to ground and make sure it didn't exist somewhere else? And that's a nice thing to do but that's not really a finding, that's just sort of a concept. So both of these, almost three or four of these fall into that category.

CHAIR MUNN: It's really good to have you here today, Jim, because you're right, we don't often get the benefit of having you to tell us where we are and where

we need to go.

I think the concept from the outset for overarching issues have been a concern that we didn't have any actual effort. We had said for 5 or 6 years that's an overarching issue. You know, Jim is going to take care of that. So what we're trying to do here in my view -- other Board Members please stop me if I'm incorrect -- what we're trying to do is first of all identify what those overarching issues are and second, at this stage what we need to do is identify any active findings that are still there and not only address the active findings but also have the benefit of something like what you just gave us verbally.

We need to know from some source that this has -- what precipitated this overarching issue and what the current status of it is. If it's a simple matter of getting a one-paragraph report from you and closing it

out, then that, from my perspective, serves the purpose. Am I incorrect?

DR. NETON: And you know, you don't have to necessarily take my word for it. I can tell you the history as I remember it and SC&A, I'm sure, can also have their input. But I'm happy to do that. I'm just concerned these things could stay out here forever.

And frankly, I've actually discussed each of these at various Board meetings and didn't get much feedback on when I pointed out that I thought they were closed. There is no paper trail that documents their closure.

MEMBER ZIEMER: Well, let's take Super S for example. What do we have that's sort of the official NIOSH position on Super S?

DR. NETON: TIB-49, which is the TIB that --

MEMBER ZIEMER: So that would be

the document.

DR. NETON: Sure. Yes. Right. In fact, the TIB-49 issue originally arose in the Rocky Flats SEC evaluation, if you remember. But then once we recognized that what was recognized by the Board and others, that Super S was not just confined to Rocky Flats, it could be elsewhere, we made this TIB more generic and it applied to anywhere where Super S could have been handled.

MEMBER ZIEMER: Right. Now, do we have a separate -- we have TIB-49 in here, don't we?

CHAIR MUNN: Yes, we do. We do.

MEMBER ZIEMER: Right. So maybe that can simply refer somehow to TIB-49 because somebody could track it through that then, right? Or can they?

CHAIR MUNN: To a large extent I think that's true. Go ahead.

DR. NETON: I don't know how much

you want to recreate the history behind this.

MR. KATZ: I don't think you need to. Suffice to say that the issue has been addressed and one sentence. And that's it. I don't think you need to spend any time recreating the history.

MR. HINNEFELD: I don't think you'd go get very far into this at all. If you want to close it -- well, you can do two things. You can take off, you can take it out of the overarching issues -- or we can leave it there and we can say "brought up during the discussion of the first Rocky Flats SEC and it was closed by the issuance of TIB-49."

CHAIR MUNN: Exactly.

MR. HINNEFELD: And then that leaves a record.

MR. KATZ: I think that's a good solution.

MR. HINNEFELD: Yes. Doesn't take much to write that.

CHAIR MUNN: It really doesn't. Then that's why I said I do believe in most instances, when it has been resolved, all we really need is just a brief one paragraph identifying where and how the issue was closed.

MEMBER BEACH: And that should be true for all of these.

CHAIR MUNN: It should be true for all of these, yes.

MR. HINNEFELD: Some of them, though.

DR. NETON: Super S is pretty obvious. Material tracking was never a finding anywhere, it was just a suggestion. I mean, I could close that out in that way I suppose.

CHAIR MUNN: But you see, that's what we need to have in the record.

DR. NETON: But if you look at the interpretations of unworn badges started out

at -- I think it was a Los Alamos case where - was it Los Alamos? No.

CHAIR MUNN: Nevada Test Site.

DR. NETON: Nevada Test Site, there were some allegations that people didn't wear their badges. There was a very extensive -- John Mauro knows this as well -- investigation to that. And at the bottom line, we couldn't definitively say that it really made any difference.

But then it became an overarching, and we said, "What about other sites?" And we soon realized that that's a sort of slippery slope. You almost have to evaluate that on a case-by-case basis. And that's the bottom line answer to that one.

Very much like non-standard exposures. I mean we have some non-standard exposure geometries in TIB-10, TIB-13. We're happy to create new exposure geometries as they arise but there's nothing else we can do

other than say that. So, that's going to be sort of the resolution of many of these findings.

CHAIR MUNN: And that's perfectly acceptable from this Chair's point of view, anyway. Our whole concept was to just make sure that we had a record. And this seems to be the logical place to have a record of what we considered to be overarching issues and how we resolve them.

MEMBER BEACH: So how did you decide what went on this list? Was it just random?

DR. NETON: I think I provided it to them. These were issues that I have been following for, well, six years or more in some cases.

CHAIR MUNN: Six or seven years.

DR. NETON: And in my opinion, most of them had been closed. Again, as I said, I addressed the Board on these and didn't get

much feedback saying that we disagree with you, but they were never required, I guess, to be formally closed as now would be the case.

CHAIR MUNN: No.

MEMBER ZIEMER: You know, I think what happens is time passes and we forget, wait a minute, we already addressed this and we agreed that we would take it site by site or something.

DR. NETON: Right, exactly.

MEMBER ZIEMER: This way you could go to that and say, oh yeah.

DR. NETON: I'm happy to put together a paragraph or two for each of these. As I say, you know, feel free to look at them and vet it and make sure that I don't have convenient memory.

MEMBER ZIEMER: Then we can have SC&A review it and get findings.

DR. NETON: We'll have a finding on my memory.

(Laughter.)

DR. NETON: Okay, well, that helps me out here. And I think we'll find that at least in my opinion five out of these eight probably, I think, are resolved or else agreed that we would pursue them on a case-by-case basis, that sort of thing.

Ingestion is one that we're going to talk about today.

CHAIR MUNN: Yes. If you'll provide us with a brief overview of --

DR. NETON: Yes. It might not be in a week, but--

CHAIR MUNN: That's okay. For our next meeting we will probably be able to, as you said, close out a half dozen of these.

DR. NETON: Yes, I'll work with Lori.

MEMBER BEACH: Action item for June.

CHAIR MUNN: Yes, exactly.

DR. NETON: I'll work with Lori.

MR. MARSCHKE: Wanda, I think there are additional. I mean, right now for the overarching issues it's showing three of the findings, only three findings that were transferred to overarching issues. I think there are more than that.

CHAIR MUNN: I suspect there are.

MR. MARSCHKE: And I think -- I can go back through and tell Lori, you know, try and look and find ones that have been identified as being I think we used the term "global," "global issues" as opposed to "overarching."

CHAIR MUNN: Yes, we did.

MR. MARSCHKE: And so we can search for that. And maybe we have to populate this, these eight a little bit more before Jim closes them out. And then we can go back, when Jim closes them out we can go back and close out any of the findings that are

associated with that particular overarching issue.

DR. NETON: Yes, I agree. Because there are findings that, for instance, on the doses from hot particles, I can remember that came up at Hanford or someplace like that. And you know. But I thought that the resolution of those were that we would address it on a case-by-case basis. I don't know where that's written down. Maybe I'm just remembering. But you're right, there are findings. Non-standard exposures came up at Mallinckrodt.

MR. MARSCHKE: I think this has to be -- what we have to do is, and I can work with Lori on this, is we have to populate these eight overarching issue findings with the findings from the main body of the reviews as the first step.

And the second step, and then concurrently Jim can -- or even concurrently

Jim can go through and say well, we thought this was the resolution that we had agreed upon to these particular eight. And then we can go back and implement those resolutions on those findings.

DR. NETON: Well, I think what you're going to find, the resolution was they got transferred to overarching issues. And then, you know, I was working closure of these through addressing the Board because they had not been taken up with the Subcommittee yet.

MR. KATZ: I think, Jim, if you go ahead with your piece I think that'll work. In the mean -- and concurrently like you're saying, Steve and others can look to find where the findings were just as a check on the resolution for each of these. And that's fine. You can do them independently.

MR. MARSCHKE: And then if they're closed, then we can go back and close those particular findings.

MS. MARION-MOSS: I'd like to add one thing, just so you know what you're looking at here. I went in and did a search for "transferred," okay? All findings that were transferred. And most of the findings -- I got a result of about 44 findings. Most of the findings were transferred in the body of a finding. It was transferred to the Working Group. It says transferred.

MR. HINNEFELD: The site-specific Work Group.

MS. MARION-MOSS: Right, site-specific Working Group. I believe there's about maybe five max, four -- three or four -- yes, three that was actually specified as being transferred to overarching issue, okay? The rest of them was either, you know, transferred to a Working Group or transferred to another finding or something of that nature. So I say that to say that effort has been made.

Global issue, I guess you're saying, Steve, that that at one time was a status?

MR. MARSCHKE: No, not a status, but it was -- I don't know what term we used, whether we said it was transferred to a global issue or if we just said it was a global issue. But I know that that global is a keyword that we can look at and perhaps even going back to the -- it might be easier to do it on the old database to identify those issues that are identified as global.

MS. MARION-MOSS: Okay.

DR. NETON: I think what you're going to find though Steve is that most of the findings that are listed as overarching or global are not going to be in this system. I mean, the findings that got transferred because they originated in procedures -- I mean TIB reviews and Site Profile reviews or dose reconstructions and those aren't

trackable through this system at all. So you would have to go through every matrix.

MR. MARSCHKE: I'm not saying that we go through and -- I'm just saying that as I recall there were maybe half a dozen. I'm not saying there was a whole lot, maybe a half a dozen or so, or maybe even less, that we said were global issues. And I don't know that they were -- I would just want to check that.

MR. KATZ: Steve, and that's fine, that's fine. Really, we don't need to belabor this. Steve, absolutely. And same for anyone that's listening on the line too. John Mauro may remember items, whatever. That's fine. We get that input and deal with it once we have it.

DR. MAURO: Ted, everyone, this is John. I was able to get through, so I'm on the line.

MR. KATZ: Glad to have you, John, and I'm sorry for your troubles.

DR. MAURO: Yes, a little bit rough these days but we're making it.

CHAIR MUNN: That's good. You have food, water and shelter, right?

DR. MAURO: Right. Just no power and no gasoline.

CHAIR MUNN: Oh, my goodness gracious. That sounds like Bellevue.

(Laughter.)

CHAIR MUNN: All right, that's good. Thank you. Glad you're here, John. Thanks.

DR. MAURO: Thank you.

CHAIR MUNN: We understand what our action items are with respect to the global or overarching issues, correct? All right. We'll have that on our agenda for our next meeting.

MR. HINNEFELD: And Lori was about to talk about some limitations.

CHAIR MUNN: Yes.

MR. HINNEFELD: When we went back to this.

CHAIR MUNN: Good.

MR. HINNEFELD: Remember that? What you wanted to say about the limitations?

MS. MARION-MOSS: Yes, I do. Steve, if you can help me out with the one attachment that you added to the BRS.

MR. MARSCHKE: Actually, PER-12, that's coming up at 10:15 but we can go to that.

MS. MARION-MOSS: Do you remember the finding number on this?

MR. MARSCHKE: I think, well, it was basically the second finding, the case audits. Actually, I took it out so it's no longer there.

MS. MARION-MOSS: Okay. Well, what happened, what Steve and I found out about the BRS, was that Steve attempted to attach a document to the actual finding itself. And

once he did it, you were able to attach it but it did not show up as an attachment in the finding.

MR. MARSCHKE: The BRS has a quirk in that when you attach -- make an attachment to the finding -- if you make an attachment to a response, it shows up on the summary page here saying that you have an attachment as it's showing here on the screen.

CHAIR MUNN: As we want it to do.

MR. MARSCHKE: As you want it to do. However, if you make an attachment to the finding itself it does not -- the fact that there is an attachment does not show up on the screen, and the only way to know about it is if somebody were to put in here, "there is an attachment, click on `Edit Messages' and you go to the edit messages and it comes down. If there was an attachment it would show up down here."

CHAIR MUNN: You have to actually

physically say "See attachment" in the text of the finding.

MR. MARSCHKE: Yes. But there was a logic behind that, Wanda. The logic was, you know, basically the findings themselves don't usually have attachments. Usually, when you get into the long detailed attachment, the finding itself --

CHAIR MUNN: It's a response.

MR. MARSCHKE: -- it's usually a response of some kind. And so, you know, the system is operating kind of the way it was designed to operate, it's just that there's a little quirk here that when there is an attachment to a finding, it's a little bit difficult to know about. But given that understanding, you can work with it.

CHAIR MUNN: As long as we understand it I think it's okay, especially if those of you who actually input the original finding remember that you have to say "See

attachment" if there's attachments there that refers directly to the original finding.

MS. MARION-MOSS: But actually, Wanda, we're working to make that correction. And once it's done I'll inform the Committee.

CHAIR MUNN: Okay, good. Good to know. Have we encountered before? Is this the first?

MR. MARSCHKE: It's the first time I've encountered it.

MR. HINNEFELD: I think that's the first time we tried to attach a document to a finding itself.

MR. MARSCHKE: This is a strange case because this is that case, remember at the last meeting when Hans did the review of PER-12 he looked at the cases and he had no issues with any of the cases that he audited. And so we were going to enter a dummy finding saying that there is no problem with any of these, and I was going to attach Hans's report

to that finding. So this is a little bit so this really isn't even a finding that we're talking about. It's really just a finding of no findings.

CHAIR MUNN: Yes, that is unusual for Hans. But yes, I can see that would create a problem. But it's good that you worked out a way to be able to do it. That's good. And you'll let us know then --

MS. MARION-MOSS: Yes.

CHAIR MUNN: -- when you've resolved that and how you've resolved that.

MS. MARION-MOSS: Yes.

CHAIR MUNN: Good. All right. Anything else? Yes, Steve.

MR. MARSCHKE: The only thing I noticed when we tried to generate the Wanda table, preparing for this meeting I entered the 10 findings that we made on PROC-44 review. And I entered that into the system. When I tried to generate the Wanda table it

came out -- the numbers are right, it just came out very strange. It brings out the fact that -- it repeats PROC-44 nine times. And all ten findings are there, but it shows up on the table nine times. And so I don't know if it's a problem with the way I entered the stuff, I don't know if it's a problem with the way the table is being formed or what, but there, you know, this came I think Tuesday when I was generating this.

And I let Lori -- when I sent the summary table out I gave a note to Lori. And so obviously there's been no time to think about this yet. But it's something that's, again, it's just strange. I mean, the numbers are correct and everything is correct but it's just not right.

CHAIR MUNN: Well, it's interesting that you have two that were lumped together but the rest came out singly.

MR. MARSCHKE: Yes.

MS. MARION-MOSS: I'm not quite sure what occurred. It could have been that when they were working on transferring to overarching you were putting your information in. I'm not sure. But I have them working on it as we speak.

MR. MARSCHKE: Well, the thing that hit my mind, the thing that I thought of is maybe they're looking at times, and looking at times out to minutes or something like that, and I was fast enough to enter two of them in the same minute or something like that, and the other ones I was slower on. And so if you're doing a sort by just looking at, really, times, the times may be different. So I don't know how they're generating this table. So there's something strange going on there but it's not real critical.

CHAIR MUNN: It's an interesting glitch.

MR. MARSCHKE: Yes, it's a glitch.

CHAIR MUNN: I'm quite sure that there is an easy software solution somewhere.

MR. HINNEFELD: Easy for us because we don't have to do it.

MR. MARSCHKE: Easy for you and I, Wanda.

CHAIR MUNN: Yes. True.

MS. MARION-MOSS: Well, they're working on it now, Steve.

CHAIR MUNN: But it's interesting. And thank you for that marvelous little "I love a mystery." That's good. Anything else?

As long as we're looking at the table, let's take a look at your Wanda table again because it's always informative I think to see where we are and what we're doing. Remember that when we look at those percentages we're only -- the ones that are actually close as far as we are concerned are more extensive than just the ones that we have listed as closed.

So if you look at the actual numbers there and you see where we are we as a Subcommittee have dealt with and disposed of for our purposes 75 percent of what we've been charged with doing. So we have one quarter of our original load that we still need to deal with in an effective manner so we can get it off our slate. That's pretty good. It's taken us a long time but it's been productive in the long haul. So, courage. Don't give up. We're getting there, with much help from Steve and Lori getting this database so that we can actually work with it well. Thank you both.

All right, anything else for the good of that part of the order? If not then let's move on to OTIB-9. We have reports from both NIOSH and SC&A. Who's leading off?

DR. NETON: I think I'll probably lead off. I don't know that we have a report from SC&A, at least written. It sounds like

John Mauro may have some input.

DR. MAURO: Yes, Jim, this is John. I did read through your report. I do have a couple of comments. I've looked into it. But, certainly you may want to start off.

DR. NETON: Yes, let me just summarize for the benefit of folks who might have read this a while ago, what's going on here. This is TIB-9 which is related to the overarching issue of ingestion. In fact, this issue is probably one of the most pervasive overarching issues we have. It covers virtually every site that has a reconstruction either done using air sampling data or residual contamination period. It doesn't necessarily affect any sites where we use bioassay data to do reconstructions.

But back in 2006, SC&A reviewed TIB-9 and published their findings. And I've summarized them in the write-up -- the White Paper that was provided.

But, essentially, there were two main issues in my opinion. One was the lack of a possible association between measured air concentrations in the workplace and the surface contamination that might exist. That's a key factor for TIB-9 to work. And they are correct that we sort of assume that relationship. It seems somewhat intuitive but we went back since then and took a look at that.

And the second issue was the model transfer rate of surface contamination to the GI tract through inadvertent ingestion. Essentially, how much of the surface area does a person ingest per unit time in the workplace? So we also looked at that. That's what this White Paper intends to address.

I would say that the ingestion discussion predates the 2006 review by SC&A because at first, that was the first time they actually were tasked with reviewing TIB-9.

But the initial place where the surface was in the review was the Bethlehem Steel Site Profile where we used TIB-9. And that spawned another level of debate that surrounds this issue.

At any rate, to address the two issues that SC&A raised, that is, the relationship between air concentrations and surface contamination, we went and pulled out -- there aren't many data points out there that give us simultaneous surface concentrations and air concentrations, especially in the AWE period where this is typically applied.

We went through and pulled out a number that we could find and assembled them into Table 1 of the document and determined to see if there was a relationship that existed. Like I say, intuitively you would think that the higher the air concentration, the higher the surface contamination but then the lower

the air, the lower the surface. And obviously, when there's zero air concentration there's zero surface concentration.

Well, we put together -- I think there's about 10 or 12 different sites. Now, that's not individual air measurements but 10 or 12 individual sites. Graphed them and ran a linear regression through them and obtained a relationship that demonstrates, at least in our mind, that there is a linear-type relationship, albeit not perfect, between surface contamination and air concentration. You can see that on the graph in front of you.

So, we feel that it's important that this relationship be established because, like I say, we rarely, in many cases do not have surface contamination measurements at AWEs.

So if one will take that at face value that there is some sort of relationship between air concentration and surface, then

the remaining issue is, well how much of the surface contamination is predicted by the air concentration that a person ingests per unit time, whether it's per hour or per day?

Then the model in TIB-9 that Dave Allen put together was -- I wouldn't say it was arbitrary, but it certainly was based on some common sense beliefs of what happened in the workplace. It was modeled based on our observations of what we perceived to be the case of how often does a person go to their mouth with their hand. There were some issues about surface contamination and ingestion, open containers and that sort of thing.

Well, we looked around the literature and it turns out that this RESRAD-BUILD program the NRC has put together has a fairly decent treatment, pretty extensive treatment of how much a person actually ingests per unit time. And those values were reported to be anywhere from between 2.8×10^{-5}

and 2.9 x 10^{-4} meters squared per hour with a mean value of 1.1 x 10^{-4}.

In this RESRAD program, especially in Volume 3 of the compendium on NUREG-5512 that was there to evaluate the parameters, they tried to use known ingestion rates -- studies of published known ingestion rates using fecal sampling. In other words, they would go out and take a fecal sample and try to estimate how much in the fecal sample is related to what was in the person's environment during that day.

Primarily these were residential studies. I think they were all residential studies. So there's some issues with those studies and they came out with some very high values. I mean, they would estimate in some cases 50 to 100 milligrams per day ingestion of contaminants.

One notable, I think, deficiency in those studies is that they ignored the fact

that when a person inhales material, they also tend to ingest it. So the inhalation pathway was sort of inherently included in those studies.

At any rate, they tried to use those studies and if they used the upper limit of 50 milligrams per day ingestion they came out with what they believed to be an implausibly high ingestion rate. A person would have to ingest about 100 square centimeters per hour of their workplace.

And so they kind of rejected those studies out of hand and said, well, let's look at this a little closer, and in fact what they did was they reduced it by a couple of orders of magnitude and said it's probably more like a half a milligram per day, is where they ended up at the end of the day. And so that upper limit that they had was with some question.

We chose to use the middle value,

the mean value, 1.1×10^{-4}, because it had been relied on in previous studies that did not rely on ingestion and in fact was the recommended value in Volume 1 of the NUREG itself.

So if one takes that surface contamination ingestion rate of 1.1×10^{-4} meters squared per day and uses the relationship that we established between air concentration and surface concentration, you end up with an equation that says that the daily ingestion rate is about 10 percent of the air concentration.

You multiply the air concentration by 0.1, you'll end up with a daily ingestion rate in milligrams per day. And you compare that to TIB-9 which says at 0.2 times ingestion rate we feel that that favorably matches with what TIB-9 is predicting. And in fact, I think, in my opinion, it's almost an empirical validation of the TIB-9 model. One

can argue about those specifics behind what went in the TIB-9 but nonetheless we believe that at least it provides -- TIB-9 provides, based on this analysis, a reasonable estimate of daily ingestion.

The last thing I want to talk about, though, is the application of TIB-9 during residual contamination periods. It turns out that, and this came up because, I think, the DuPont Deepwater Works is under review and it's being studied.

And what we have done, which is in error, in my opinion, is: yes, there is a relationship between air concentration and surface contamination, but only if you have an active source generating that air concentration.

What we've done in the residual contamination period at DuPont Deepwater Works, as well as a lot of other sites, is taken a resuspension factor of 1×10^{-6}, put

that in the air and said that the ingestion will be 10 percent of that value. That's not appropriate. You end up with some extremely small ingestion rates. I mean, you could have contamination levels that are pretty high. If you take a 1×10^{-6} resuspension factor you end up with -- I forget what Dupont Deepwater Works came up with, but very, very small ingestions that are unreasonable.

So, we believe TIB-9 is appropriate to be used but you have to be careful when you're using it in a residual contamination period. There are errors and there are probably going to be a number of sites. We're going to have to go back and do a PER and review those to see what effect they may have on the doses.

I will say that we don't expect much change because I think at the very end of this White Paper I did a little analysis that demonstrates that for most soft tissues, the

increment in dose for ingestion if using the TIB-9 approach is about 0.6 percent above. For soft tissues. It would be an increase of about 0.6 percent. The TIB-9 approach adds about 0.6 percent to the soft tissue dose, so it's not much.

You do end up with slightly higher values for the GI tract which you would imagine because you're ingesting it, it's directly affecting GI tract, comes out around a couple percent. But the fact is that the GI tract doesn't have much -- doesn't get much dose anyway. So I don't think there's going to be much effect on the doses for the residual period when we do the PER.

That's the bottom line. I'd be happy to discuss any of these points if people want to.

CHAIR MUNN: Thank you, Jim. This has been an interesting study and a long time in getting to this 10^{-6} figure. I'm interested

in hearing what SC&A has to say about that, John?

DR. MAURO: Yes. Can everyone hear me okay? I'm on my cell phone because our regular phones are out too. Is it coming across clearly?

MR. KATZ: Yes, you're clear, John. Thanks.

DR. MAURO: Thank you, thank you. Yes, Jim, I agree with everything that you just described. I would like to put in a couple of qualifiers. And first of all, I read your White Paper and it's exactly consistent with everything that we discussed in the past except for one item which we'll get to very quickly. We agreed that that was the relationship you established between air and on surface. That was very well done and we agree completely. So you're correct, I think any issue that might be associated with that in the record I would recommend be

closed. We agree with that part of it.

And you very correctly characterized the hand to mouth behavior. I did look very carefully at 5512 and there's an excellent summary. And I also went back and I pulled two of the key papers that are referenced in 5512. I have them actually here, one by a fellow named Stanek which was excellent, and the other one by a fellow named Sheppard.

I read both this week and did some calculations and checked some numbers. And we are in a place where I think I was going to write a response but I think -- I don't know if a written response would have been possible because all power's out. My computers are not working and I couldn't write it. But I think I could explain it and boil it down to a simple concept.

Let's say we all agree that we could predict what's on the surface. Given

the airborne concentration, we could reliably estimate what's on the surface. So we're at a point now where a person is working in an environment where we know what the becquerels per meter squared is on surfaces. Let's give that as a stipulation. Let's agree to that, we know that, we can predict that.

And the next step in the process is to say: okay, how much of that, those becquerels per meter squared that's on the surface might be inadvertently ingested from hand to mouth behavior, that sort of thing? And there's a long story behind it and Jim correctly characterized it's a difficult story. The data that's out there is mainly associated with residential properties and people working there, people working in dusty attics, people working in the garden. So it's mainly a residential situation, and there are problems, as Jim pointed out.

But it turns out ultimately the

most -- the key factor, given a meter squared, let's say you have a certain number of becquerels per meter squared on the surface. I'm hearing a beep. I don't know if you're hearing that also.

MR. KATZ: You're still clear, John.

DR. MAURO: I'm still clear, good. Now, Jim basically was saying that in the working environment a person is going to ingest every hour on 1 centimeter squared -- so picture every hour a person is going to behave in a way that whatever the activity is on 1 centimeter squared of a surface he's going to inadvertently ingest. That is one estimate. It's basically what's considered to be a low end but perhaps realistic assessment.

And the other one, which is more of a high-end estimate, is a person would be ingesting 100 centimeters squared every hour. Not every day, every hour. So where we are

right now is almost after you read all the letters and you walk away and say, you know, I'm not really sure what to do here. What seems to make more sense? Does it make sense that a person who's working in a contaminated environment is going to ingest -- figure he's licking the floor, okay? Let's say it that way. In a way that every hour he licks 1 centimeter squared of the floor and ingests whatever's there. Or every hour he's going to ingest 100 centimeters squared of what's on the floor, whatever is there. And that's what we're left with. We're left with these two extremes.

And I have to say that almost -- the literature on the subject really is not that helpful even though it's vast and a lot of work was done. And if you look at the literature on first impressions you would say well, that 0.5 -- the 1 centimeter squared number seems to be at the low end.

But I guess where I walk away is that there are two things. It doesn't seem intuitively too bad to assume whatever's on 1 centimeter squared is being ingested per hour in the working environment. It does seem to be somewhat extreme to assume that every hour a person's going to ingest what's on 100 centimeters squared. And it doesn't sound very sophisticated but after you go through all this literature you're left with that sense. Because the studies themselves are very ambiguous and they are admittedly so, especially as it applies to the industrial setting.

I would say the studies are much better for doing a residential setting. And the number that Jim picked is probably not good for that. But for industrial settings I guess I walk away and I was the one that brought this up initially starting to lean -- to agree with Jim that assuming that 1

centimeter squared per hour is being ingested and that is probably a lot more realistic than assuming the person is effectively licking everything that's on 100 centimeters squared every hour while he's working.

So, I guess I'd recommend we finally close this, and especially when one considers that the contribution of ingestion to the internal dose compared to inhalation is minuscule even if you -- you know, it's an extremely small contribution. And I would have to say that the idea of assuming that a person is every hour ingesting whatever is on 100 centimeters squared of a surface seems to be absurdly large. So I guess I'm recommending that we finally close this issue.

CHAIR MUNN: Thank you, John. Steve?

MR. MARSCHKE: Can I say something? John asked me to look into this a little bit on Monday. And there's one -- I was looking

into many of the same documents that I think Jim and John were both looking at, NUREG-5512, RESRAD. They were all kind of based out of -- came out of PNL and so they're really all kind of interrelated.

But there was one document that I found which was independent and I think maybe there would be a benefit from taking a look at that one document. It was a study done on World Trade Center workers after 9/11. And it was done by the -- and the EPA has a model that they use for pesticides, transferring pesticides hand to mouth. And they applied this -- they had a working group that applied this EPA model to these World Trade Center cleanup workers.

And when I looked at this they also -- they looked at hard surfaces and soft surfaces. And again, when they're talking about these centimeter squared per hour, how much is transferred on 1 centimeter squared

per hour, if you go through some of the numbers that they show in here for soft surfaces they're talking about 2 centimeters squared per hour which is right in the number that Jim came up with for TIB-9. For hard surfaces they're talking more in the neighborhood of 10 centimeters squared per hour which is basically, you know, it's an order of magnitude less than the high end but it's something that, again, I sent this to John but I think his power went out probably before he had a chance to look at it.

So, but again it's down into, you're talking about a few percentages of the total dose. And so I don't know if this will change the whole bottom line of the decision here, but it's another data point which really has not been in the radiological protection world; it's coming out of the pesticides environment.

DR. NETON: I'm not familiar with

that study and I probably need to look at it and see if it really ports over nicely, you know, based on the work conditions and what they're doing and the contamination levels and such.

But I want to say a couple of things about that. You did point out that John said 1 centimeter squared per hour and that's the mean value using 1×10^{-4} meters squared per hour. TIB-9 does use 0.2 so it's effectively two per hour. So you end up with about 20 square centimeters of ingestion of surfaces per day.

The other thing you want to fold in there is that most of the contamination -- this applies to loose contamination only. Most of the contamination levels we have are surface contamination levels using field sampling, field survey instruments. They're measuring total contamination. So when we apply that we're assuming that all the

material that is being measured by that survey meter is actually loose. It's probably not. So that's conservative in itself.

So what I think we're doing is we're using the upper end of the range recommended in the NUREG-5512 because I think their upper value is 2.4×10^{-4} or something like that. Maybe it's 2.8. But it's well above the mean value, what we're using. And we're also using, in many cases, the total contamination to represent loose contamination.

And finally, there is a GSD, a geometric standard deviation associated with each ingestion intake that has a minimum value of 3. In many cases it's higher than that. If you look at TBD-6000 the GSD is 5. So there's a lot of uncertainty built into those calculations as well. So I think, given all those parameters, we're on very solid ground with what we're doing using the 0.2 value.

DR. MAURO: This is John. You're correct. I did not see the paper you had mentioned. It's interesting that in effect what you're saying is that paper is saying on hard surfaces we're talking about 10 centimeters squared per hour that's being ingested as compared to Jim's number which is about 2 centimeters squared per hour.

In the paper that you cited, did they speak at all that they factored in that some of the material that might have been taken in was inhaled and then swallowed? That would be one area that would be interesting. But nonetheless, whether they did or didn't what I'm hearing is we're sort of converging. And correct me if I'm wrong, what I just heard was what we're really talking about is the difference between 2 versus 10 centimeters squared per hour as being a number that we're sort of trying to deal with.

And you know, again, I guess, Jim,

it would probably be a good idea to take a look at this paper that I haven't seen either. It sounds interesting. But I don't think, if it comes out as the hard surface being at 10 in that particular study, I would argue that that's not incompatible with your 2, given the fact of the kind of uncertainties we're dealing with. So I think it's an important paper, we should probably look at it, but even if it turns out that yes, there's this difference -- I don't see a difference between 2 and 10 from this study as being what I consider to be inconsistent. In fact, if anything I say I'm surprised how consistent it is, given this kind of variabilities and uncertainties. And that paper, Steve, I think it was an important paper. I haven't seen anything where they actually did a good job on looking at the industrial environment. Sounds like this is one of the places where we have a real paper that we can hang our hat on.

MR. MARSCHKE: Yes, this was done by a group of experts that went together, I guess, because of the concern of the workers after 9/11, the cleanup workers. And so this was, you know, they looked at it. And the EPA model is really tailored towards children, but this group of experts took the EPA model and adjusted it for workers.

And you can see in their write-up how they did their adjustments. They give a description on how they do the adjustments and so on and so forth.

DR. NETON: Is this based on a -- is this an empirically, behaviorally based study as opposed to --

MR. MARSCHKE: There's an equation which basically talks about the transferable residue and the frequency of hand-to-mouth events.

DR. NETON: So it's a behavioral thing.

MR. MARSCHKE: But the data that goes into it, you know, they go in and they look at well, how do you figure out that data, or what is the right data for that and then they look at --

DR. NETON: But the key value is the hand to mouth number of times per hour.

MEMBER ZIEMER: They have observations apparently from children at least. Do they have them from adults?

MR. MARSCHKE: Well, that's why you look at this model, which is for the World Trade Center, because it's been tailored for workers. The model started out -- the EPA basic model is for children and it says that in here. But then for this particular study they talk about tailoring it for adults. And so, the hand to mouth available for other ages and so on and so forth.

So I mean it's just, it's a data point which is really independent because all

the other data points we have are kind of all related.

DR. NETON: Well, they aren't necessarily. The EPA -- I mean the NRC when they developed RESRAD tried to rely heavily on those ingestion studies and to be honest, they failed miserably. I mean, they looked at them and looked at them and then they said they're off by a factor of 100.

MR. MARSCHKE: Right.

DR. NETON: And they reduced it down to 0.5. The reality is, before they ever embarked on those studies there were some behavioral type studies, just of the nature you're pointing out, in nuclear facilities that were published around 1985 that sort of confirmed the 1.1×10^{-4} number. In fact, that's where that value came from in Volume 1 of NUREG-5512. So I'm more inclined to go with the nuclear facility studies than the World Trade Center studies and their

behavioral stuff. But we'll take a look at it.

DR. MAURO: This is John. I think that the fact that this effort was made relatively recently and it does deal with an industrial setting. And it does deal with clearly what would be a heavily contaminated it sounds like circumstance. I'm not sure.

And the fact that, if I've got it right, it sounds like you're coming in at 10 centimeters squared per hour, that is supportive of Jim's number in my opinion, 2 versus 10, as opposed to, let's say, the 100 number or the 50 number that has been historically used by EPA and CRP. But I think it's -- you know, we put so much time into it, the fact that you have this paper, not a bad idea to take a look at it.

I guess I'm still inclined to think that it seems inconceivable to me that a person would be ingesting 100 centimeters --

basically licking the floor, 100 centimeters squared every hour. And that's what you would need to have to get up to these higher numbers. It just seems to be inconceivable.

And by the way, it's important to keep in mind that they are two different strategies that are used to come up with these ingestions. One is this modeling the hand-to-mouth behavior and the other is to actually measure fecal samples to see how much silicon is in there, how much arsenic is in there, and knowing that how much is on a surface and then you measure how much is in the fecal sample. You could estimate, well, how many square centimeters effectively has been ingested? It sounds like the one that you're referring to, Steve, is the one that's based more on hand-to-mouth behavior rather than taking advantage of any fecal samples. Is that correct?

MR. MARSCHKE: That's correct.

DR. MAURO: Okay. Quite frankly I

sort of like the fecal sample approach because it's direct, if you take into consideration backing out what might be in food and what might have been ingested inadvertently from inhalation, it's a direct method. But I think that it is limited because I don't think anyone has actually went back to back out what might have been inadvertently -- that might have been inhaled and swallowed. There's no way to tease that out.

I guess in light of Steve's paper it probably would be a good idea for NIOSH to take a look at it and see if fits well with their concept of this strategy.

DR. NETON: Yes, I mean, if you provide us a reference we'd be happy to look at it.

MR. MARSCHKE: At this break I can, you know, it's on my disk here. At the break I can give it to you.

DR. NETON: I can't copy it on this

computer.

MR. MARSCHKE: Oh, you can't? Okay. I'll email it to you when I get home tomorrow.

DR. NETON: Okay. We'll take a look at it. It's another piece of data.

CHAIR MUNN: Yes, an interesting piece of data. It's hard to see how it would really be very applicable to the nuclear facilities that we're dealing with.

DR. MAURO: Well, Wanda, keep in mind that my initial concern with the 0.5 -- I call it the 0.5 milligram because that's what everything reduces to. What we're really talking about is the difference between assuming a person inadvertently ingested about 0.5 milligrams per day as opposed to let's say 50 or 100 milligrams per day. It reduces down to that.

And I would agree it would be inconceivable if it's a relatively clean

environment. You know, you're not going to ingest 50 milligrams a day. But we originally, this really emerged, as Jim pointed out, with Bethlehem Steel where the amount of uranium oxide dust covered everything. It was a filthy environment. And these environments, these early AWE facilities, were not clean environments. These were dirty environments, where it seemed to me at the time that assuming 0.5 milligrams per day is just a little too small a number.

We went over this. And so I would agree completely in a site that's being maintained in a clean fashion where there, you know, you're not going to get that kind of ingestion. But at these really dirty facilities it was my concern at the time that this number of 0.5 milligrams per day is too low.

But Jim's work here showing this -- expressed in terms of meters squared, you

know, how many centimeters squared per hour a person may inadvertently ingest is another good way to look at it. And it would be good to see if the numbers that come out of the World Trade Center work, which I would liken to maybe a fairly dirty AWE facility, and how they fit into the scheme.

CHAIR MUNN: I would liken them to something even worse than that, by a long shot, because of the enormous variety of material that's involved here and the kind of thing that is entirely unreasonable in terms of measurement which is not true in a nuclear facility. At least you have good -- the capability of measuring good radionuclide burdens anyway. But that's neither here nor there. Paul?

MEMBER ZIEMER: I wanted to ask a question, Jim, on the residual periods. As you went through this it looks like you came across an incorrect application here or

multiple incorrect applications. I was trying to understand what was actually being done.

We had agreed early on, I think, that for a cleaned up facility 1.1 x 10^{-6} was the number to use for resuspension. So what was actually happening? You weren't using the end surface or the end -- what were they doing?

DR. NETON: Let me just pull out where we noticed this.

MEMBER ZIEMER: It gets a little circular here.

DR. NETON: Yes.

MEMBER ZIEMER: Do you use that to get a surface contamination?

DR. NETON: Yes, don't confuse the use of 10^{-6} versus 10^{-5}. That's not the point I was trying to make.

MEMBER ZIEMER: Right.

DR. NETON: If I can find. Well, what happens is -- if TIB-9 is going to work

the relationship between the amount of contamination that's on the surface is directly related to the amount in the air only if there's an external generator of that material that deposits.

MEMBER ZIEMER: Right, otherwise --

DR. NETON: Otherwise it's not. So you get in the residual contamination period and there is no external generator of contamination. It's gone. They're no longer working with the materials. So now you have material deposit on the ground.

And let's say you've estimated how much is on the ground. Now what they've done in the residual period is said well, the amount in the air is based on some residual resuspension factor, let's say it's 1×10^{-6} times the surface contamination. You end up with a very low air concentration. It's not true that your ingestion intake is 0.2 times that very low air concentration. It's 0.2

times whatever the original air concentration was that generated that material on the ground.

So the appropriate way to use TIB-9 in residual periods is to say: my ingestion on day one after the cessation of AEC activities is equal to 0.2 times the amount of air concentration there was --

MEMBER ZIEMER: Whenever that was.

DR. NETON: -- on the last day. And then you decrement it down from there.

MEMBER ZIEMER: They just weren't doing that.

DR. NETON: Because it bothered me. I was looking at DuPont and we were predicting like 10^{-3} milligrams intake per day or something like that even though the contamination levels were fairly large. And if you use the 1.1×10^{-4} meters squared per hour out of the RESRAD document you end up with a factor of 10 higher intakes.

MEMBER ZIEMER: Right.

DR. NETON: And in fact they're probably in that ballpark. So we have done this at a number of sites with residual contamination. It's sort of a trap we fell into because it's easy to say well, I still believe that for cleaned up facilities the air concentration in the residual period is 1 x 10^{-6} of the surface contamination. That's true. But that in no way is related to how much a person is ingesting. That's the problem. So we have to go back. And I think there's going to be a number of sites, not all, but many sites where we've done this.

MEMBER BEACH: So will you just have to go back and rewrite that?

DR. NETON: Well, we're going to go back in the PER and TIB-9. We're going to have to make sure that people understand that. But we're going to go back and redo the dose reconstructions, reevaluate the dose

reconstructions that were done.

MEMBER ZIEMER: But it's the ingestion component, which is likely still to be pretty small numerically.

DR. NETON: Even under its maximum impact, TIB-9 adds 0.6 percent to the dose for soft tissue. So it's very small.

CHAIR MUNN: Very small indeed.

DR. NETON: It's unlikely to change anything, but when you have N equals 30,000, who knows?

DR. MAURO: Jim, this is John. Given that we eventually do soon close out this matter of inadvertent ingestion during operations and what you just described as the way to deal with the residual period is what I would call similar to the -- essentially the old TIB-70 approach. Let's find out what it is on the last day of operation using your approach for ingestion and then let it decline, that's your starting point, and let

it decline using I guess the -- what you did before where you get a slope. Not the 1 percent a day slope.

DR. NETON: The TIB-70, the new TIB-70, right?

DR. MAURO: Yes, the 0.0067 percent. I think that's the number you have now. You reduce it about fiftyfold, if I recall.

DR. NETON: Yes.

DR. MAURO: The slope of the decline. I hate to just jump at these things but I've been so close to this for so long. Once we settle on the ingestion rate during operations, and I think we're close to that, I would say my impression is that the strategy that you just described for revising and dealing with the residual period sounds like the appropriate approach.

DR. NETON: Well, the residual period was always done properly, it's just

that we inappropriately applied it. I mean, that's the key. TIB-9 never said take 1 x 10^{-6} as your air concentration, multiply it times 0.2. We did that. We shouldn't have done that because that's not the representative of the ingestion in the residual period. But I think we need to make sure we strengthen that language in TIB-9 to point that out and make sure people don't do that.

But yes, I agree with you, I hope we're close here because this has been going on for 6 years for something that's a fairly small dose.

CHAIR MUNN: So, let's be clear about where we are here. If I understand correctly NIOSH is going to clarify the language in 09.

DR. NETON: Well, I think that'll come once we agree that the approach we're using is appropriate. Right now I don't think we have agreement with SC&A that our value

that we've selected for meters squared per day is correct.

CHAIR MUNN: Now I thought I heard that that was going to be acceptable following your review of the new paper which Steve just brought to our attention.

DR. NETON: Right. Well, I think we will review the EPA document, comment on it, and if we believe that our value is still appropriate we'll say so and then SC&A of course will have to evaluate our review of the EPA document in light of our number.

MEMBER ZIEMER: Could I ask one other question? Did the EPA document discuss the error sizes or the uncertainties? Your distribution may not really be different than theirs if we knew that.

MR. MARSCHKE: No and I think that's one -- Jim points out that there's a rather large standard deviation on that he's going to be utilizing.

MEMBER ZIEMER: Right.

MR. MARSCHKE: He's going to encompass any numbers that come out. Two is going to be equivalent --

MEMBER ZIEMER: Your standard deviation is 4, right?

DR. NETON: Minimum of 3 GSD.

MEMBER ZIEMER: Minimum of 3.

MR. MARSCHKE: So, yes. So I mean, and like I said, the EPA -- adding up, you know, confirming and just basically supporting the White Paper.

MEMBER ZIEMER: I mean, we can already say it's certainly well within that distribution.

DR. NETON: Within the envelope.

MR. MARSCHKE: Yes.

DR. NETON: So I guess I will take a look at this document.

CHAIR MUNN: Very good. So we'll expect the report back from you at our next

meeting, right?

DR. NETON: Sure.

MR. KATZ: Or you can send something in advance because SC&A, if you get to it.

DR. NETON: Yes.

MR. KATZ: Just looking at this last paper. That's all you're doing, right?

DR. NETON: Yes.

MR. KATZ: Just confirming whether it falls within the envelope. SC&A can respond to that.

DR. NETON: Well, it takes a little more work than that, Ted. You have to review the document. Then I think I'd want to look at the other behavioral analyses that have been previously done at nuclear facilities.

See, that's another piece of this puzzle. They base their values on what happened in nuclear facilities. This is based on some -- I don't know what the behavior was

for people working in the World Trade Center, but I'll have to look at it.

MEMBER ZIEMER: No, they didn't use them. They took the kids and they said, they just made a linear drop-off to what they see for adult studies. He described it. I don't think they looked at World Trade Center people, from what that paragraph said.

They did -- yes. There it is. You see, 1 to 6 years, 7 to 12 years, 8 to 18 and then 19 to 31. They just assumed some declining frequencies that made sense to get to an endpoint from what they know studies have shown for adults. I don't think it's World Trade Center data at all.

MR. MARSCHKE: Yes, I agree with Paul. I don't think a lot of it has been applied to the World Trade Center case. But again, it's independent people looking at it, coming up with an answer which is in the same ballpark. And so it really kind of confirms

what we're talking about.

DR. NETON: We'll look at it but I want to make sure I put together a nice package because, frankly, I don't want to have another go-around on this.

(Laughter.)

CHAIR MUNN: I don't think anyone does, Jim.

MR. KATZ: So my only point was that if you send out a report we'll task SC&A with having a look at that to button up this issue, whether it gets done in advance of the next Subcommittee meeting or whatever.

And then my only concern is that this will then regulate when we have the next Uranium Refining Work Group meeting because they need that to button up their work on Deepwater.

DR. NETON: Do they? I think in principle we've reached some sort of approach here. It's a global issue, so they can close

out their review saying it's a global issue and they'll abide by whatever decision.

MR. KATZ: Okay. Well, the thinking at the time of that Work Group was that it would be case-specific in how you exactly handle it per site.

DR. NETON: Oh no, it's not. It's not at all. There's a generic air concentration relationship. Now, that being said the DuPont Deepwater Works has an error in it. I mean, we identified that an inappropriate application of the TIB. But that's independent of this discussion.

MR. KATZ: Okay, so you're saying they can go forward.

DR. NETON: I think so, yes. Because I've agreed in principle that there is a relationship between air concentration and surface, and that if one can agree on the amount of ingestion meters squared per hour we're good to go.

MR. KATZ: Okay. So John, you can carry your part of that water for the next meeting of that Work Group, right?

DR. MAURO: I don't know if you're speaking to me or John Stiver.

MR. KATZ: No, I'm talking to John Mauro, actually.

DR. MAURO: Oh yes, this is John. Yes, I guess we'll wait. Jim, you're going to just write something up on this -- I'll take a look at Steve's paper, I haven't looked at it. But I won't take any action. I'll just wait and see your perspective on the degree to which -- we'll call it Steve's paper is compatible with given uncertainties and the envelope. And then we'll just take a look at that. And if you'd like us to write something up or just report back, whatever you'd prefer, Ted.

MR. KATZ: No, it's fine to report back in whatever form once you have that from

Jim. I was just saying, John, with respect to the Uranium Refining Work Group, Jim was saying that since everything is in principle agreed upon, that Work Group can go forward and finish up its work on Deepwater.

DR. MAURO: Oh, yes. Yes, I reviewed Deepwater. I have to say I forget the details of it but we'll certainly factor this in. I understand where we are on this matter and certainly we can come to -- deal with the issue once we understand that that part of it has been taken care of.

MR. KATZ: Right, okay. Good.

DR. MAURO: I agree with Jim's conceptual approach to dealing with the residual period.

MR. KATZ: Okay, good. Thank you.

CHAIR MUNN: Thank you. For our purposes the action is with NIOSH for our next meeting.

And it's -- we have one other item

on our agenda but I think we should take a break right now. Let's take a 15-minute break. When we come back we'll start with PER-12.

(Whereupon, the above-entitled matter went off the record at 10:31 a.m. and resumed at 10:49 a.m.)

CHAIR MUNN: My next agenda item on our list is Steve Marschke for SC&A on PER-12 closure note.

MR. KATZ: Let me just check. Dick, do we have you on the line?

MEMBER LEMEN: Dick is here.

MR. KATZ: Great. Okay, Steve.

MR. MARSCHKE: Well, the only thing we had on 12 was, I think we talked about this last time, and Hans actually sent us the report and talked about it at the last meeting. But what we've done, we took an action item or I took an action item was to add a finding of no findings, if you will, to

the BRS. And that has been done.

And it's, you can see it, it's up here on the screen if you go to the PER-12 page in the BRS, you'll see that there's two findings and they're both findings of no findings if you will. The first one says there was no findings in our review of the PER itself and the second one says that there was no findings in the case audits.

And you also look, if you click on the plus arrow for the second finding you will see that it says this finding is simply a placeholder to indicate SC&A made no findings there during its audit of nine cases. And we attached the SC&A report that states that has been attached to the BRS.

CHAIR MUNN: Just a moment. Let's see if the attachment comes up. Yes, it does for me, it should for anyone. All right.

MEMBER ZIEMER: Question.

CHAIR MUNN: Yes.

MEMBER ZIEMER: If I put in the PER filter shouldn't I get all the PERs? What am I doing wrong? I've got 3, 4, 5, 6, 7 and 9 when I put in the PER filter.

MEMBER BEACH: There's different pages.

MEMBER ZIEMER: It says there are just five documents.

MEMBER BEACH: There's way more than five.

CHAIR MUNN: There's a lot more than five.

MEMBER BEACH: Are you minimized on your screen? Your screen's minimized, it looks like.

MEMBER ZIEMER: It says there's five documents. I'm looking at all five.

MEMBER BEACH: It says there's 19.

MEMBER ZIEMER: Okay, thanks.

MR. MARSCHKE: Did you get it?

MEMBER ZIEMER: Yes.

MR. MARSCHKE: The other thing, kind of on a similar thing -- is there any further on this? I mean, that's all I think I had on that.

CHAIR MUNN: Was your only action to just identify that it was closed?

MR. MARSCHKE: I had a similar action on PER-17, but this time it was to identify that there was no findings on the review of the PER itself, not of the case audits.

CHAIR MUNN: Right.

MR. MARSCHKE: And I have done something similar that we did for PER-12 if you see. We've entered a finding of no findings and have attached the SC&A report.

CHAIR MUNN: Okay. Any questions? Any comments for Steve?

MR. KATZ: Well, on 17 you have the question of status of the DR cases for audit.

MR. MARSCHKE: Well, yes, that's

not a question for me, that's a question for John Stiver and Hans. And that's actually, I think, coming up next on the agenda.

CHAIR MUNN: We have PER-14 and then 17. Yes. And sorry, there will be a brief pause here while I try to get back on where I'm supposed to be. I inadvertently took myself off, or I guess I was taken off. All right. I'm almost back to where I need to be.

All right, if we're fine on 17 -- I mean on 12, we'll go onto PER-14, status of the DR approval for audit. NIOSH was going to do that for us, right? They were going to put together what we needed.

MR. HINNEFELD: Yes, we I think went ahead and made the selections, the recommended selections because I think that's what we were told to do.

CHAIR MUNN: Yes, you were.

MR. HINNEFELD: We identified the

case numbers and put them on the K drive where Steve should be able to see them.

CHAIR MUNN: Okay.

MR. STIVER: This is Stiver. There are two spreadsheets, one for PER-14 and one for 17 which do have the -- a listing of the cases by the criteria that we had specified. So the only thing left to do now is to actually put the cases together.

MR. KATZ: So John, what's your schedule for that?

MR. STIVER: At this point we're just waiting for the actual case files to be posted.

MR. HINNEFELD: Okay, you would like the case files to be posted? Okay.

MR. STIVER: Yes.

MR. HINNEFELD: All right.

MR. KATZ: And then just, John, just in terms of presuming that that gets done more or less immediately what -- is this

something that would be ready within 3 months?

MR. STIVER: In the next 3 months or 2 months?

MR. KATZ: Yes.

MR. STIVER: We could certainly get one of them done and maybe possibly two, possibly both.

MR. KATZ: So you mean PER-14?

MR. STIVER: Yes, PER-14, I think we could definitely have that.

MR. KATZ: Okay.

MR. STIVER: And possibly be well on our way on 17.

MR. KATZ: Okay, great. Thanks.

CHAIR MUNN: We'll have you on the agenda for 14 for sure.

MR. STIVER: Okay.

CHAIR MUNN: And now, is there anything in addition for PER-17 that we haven't already mentioned?

MR. STIVER: I think we're in the

same position for 14 and 17. We just needed to get the cases posted.

MR. KATZ: Right.

CHAIR MUNN: All right, so it's NIOSH's action in both cases to post the files. And we will expect PER-14's report from SC&A next time. Questionable on 17, correct?

MR. KATZ: Right. And I'll check with SC&A closer to time to see whether that needs to be on the agenda or not.

CHAIR MUNN: Okay. Good, thank you. Next on our list is PER-20. SC&A was going to clarify the number of cases that were needed.

MR. STIVER: This is Stiver. I'm going to take that one too. Remember the last time we were looking at the matrix that we had put together in May that listed the status of the PERs from the first set of 14. And on PER-20 we had -- evidently there were 59 --

this is Blockson, and again there were 59 denied claims.

And we had put in what was actually a placeholder, kind of a generic placeholder recommending three to five cases. And then Ted rightfully asked what was the technical basis for that.

And so we went to do a little backtracking. In this case, this PER was produced by Hans over 3 years ago. And I talked to Hans and to John Mauro. I said, well, what is the basis of this three to five? And it turns out it's kind of a generic placeholder for a situation where you had the simplest of case selections.

I talked to Hans some more about that and actually, I believe he's on the line now.

DR. BEHLING: Yes, I am.

MR. STIVER: You could maybe explain. There's a little more to this

particular PER-20 than we initially thought. And there may actually be a requirement for more cases due to the number of permutations for dose reconstruction pathways.

So, Hans, if you could just explain where we stand on that particular issue.

DR. BEHLING: Yes. Let me go back to the time that I actually submitted my review of PER-20. And that, again, as you mentioned was back in March of 2009. And at the time in my final sub-task 5 that's discussed in Section 6.0 of my report, I by and large stated the following.

The universe of dose reconstruction from which the Advisory Board may select the subject for audit under task 5 is currently defined by the 59 Blockson claims that turned out to be with PoCs less than 50 percent.

However, given these three unresolved issues under sub-task 3 in this review and again I will just briefly identify

those. That is the solubility class type S for uranium-3 oxidate and the S sub-1 value for the uranium were two issues that I'm not sure have been resolved. I believe the radon issue has been resolved, so there were still two outstanding issues that prevented us from making a recommendation about any kind of cases that we should be auditing in behalf of PER-20 until those two issues were resolved. That's number one.

The other thing is the 59 cases that turned out to be after dose reconstruction still with PoCs less than 50 percent. To what extent they were affected by the SEC petition that was granted to Blockson is another question. And again I'm going to ask NIOSH to comment. Since the SEC was granted back in September of 2010, the 59 cases that we're talking about here which represent the universe of DRs that we might want to look at for auditing, how many of

those 59 cases were affected by the SEC petition which makes this a moot number of cases that we should even be looking at.

MR. HINNEFELD: Well, I can tell you that I don't have a count. The effect of the SEC would be to remove the radon dose from any of those cases. Now, that would only be relevant to respiratory tract cancer.

So, if you felt like that change to those cases would obviate their review under this PER, then if you would just avoid choosing respiratory tract cancers, that effect will go away. Because that's the only thing to change.

DR. BEHLING: Okay. Again, to reiterate what John Stiver already said, our recommendation, subsequent recommendation is that initially I said until these two issues are resolved regarding the solubility class and the S sub-1 value for the ingestion pathway are resolved we may want to postpone

any decision about identifying the number of audits that might be needed.

We did in fact put in a placeholder for three to five, which really had no scientific basis other than to say this is perhaps a reasonable number that we might want to look at. But in looking at the actual PER-20 there were a host of issues that were revised in the final revision which were the Site Profile for Blockson.

And they include obviously inclusion of non-uranium activities in Building 40 for non-uranium workers. Number 2, revision intakes for uranium extraction, Building 55, that affected the inhalation/ingestion estimates. Number 3, the revision to radon exposure estimates for Building 40 and 1255 and also changes associated with external exposures. And lastly, revisions to doses from residual contamination.

Now, on this we have some understanding of which of the 59 cases were affected by these variables. We really have a tough time. We would like to obviously audit every one of these potential variables that were introduced in the revised TBD for Blockson. And unless we have some understanding of how these 59 cases were affected by these variables it would be difficult for us to make a decision.

For instance, if an exposure to a worker was confined to the residual contamination we would obviously have only one variable here. On the other hand, if a person was assigned also to Building 40 that may have not been incorporated among the initial dose reconstruction. Again, we would have a problem with identifying which of the 59 cases would really cover all of the variables that were affected by the revised Site Profile for Blockson.

And I guess we would have to ask NIOSH for help in identifying certain cases that would at least cover -- among the cases that we will be auditing, we would like to cover all of the variables that were subject to change in the Site Profile.

There may be individuals that were there from day one and were exposed at Building 40, at Building 55 and even in the post-operational period so that one particular case could cover all of the variables. But we don't know that up front without knowing how those 59 cases really fall into place with regard to the changes that we introduced in the Site Profile.

MR. HINNEFELD: Okay, this is Stu. There was not an ability to place people in 40 or 55 and so the dose reconstruction technique either, I think it does both and uses whichever is more favorable to the particular case because the radionuclides in

40 were different from just uranium.

So, it would seem to me that if you would select cases just based on their period of employment during the covered period and in addition include some that had employment during the residual period. And you could have some that span both. It could be the same case that cover all those. But I think you would cover all the variables by doing that.

I can refresh my memory. If you would like us we can select these. And so I think the only possible situations you're going to have are if you would want to basically -- if I can recall the things you mentioned. There was the non-uranium intakes in Building 40, the change to the uranium intakes in Building 55, there's an external dose change apparently.

DR. BEHLING: Yes.

MR. HINNEFELD: And a change in how

the residual is done. And then there was the radon issue which would go away. And the radon issue would be a complication because those radon doses are going to go away in the final dose reconstruction because of the SEC. And so we can just avoid respiratory tract cancers. And so we can eliminate the complication of the radon question.

So, if we avoid respiratory tract cancers I can go and check and see how that actual selection was made between Building 40 and Building 55. Because it's probably going to be by cancer type. And then pick some, how many do you want from each Class.

MR. KATZ: As long as you cover all the factors, I think you're good with however many cases you select.

MR. HINNEFELD: We could conceivably cover it with one or maybe two.

MR. KATZ: Or two, whatever.

DR. BEHLING: And that's exactly

right. If we could cover with a fewer number of DRs all of the issues that were changed I think we would probably, from an experience point of view, settle for a lower number.

MR. KATZ: That sounds good.

CHAIR MUNN: What's the specific action and who has it?

MR. HINNEFELD: Okay, it's our action. We will go check out the actual -- how the choice was made between the non-uranium intakes in Building 40 and the uranium intake in Building 55. Once we've decided on how to apportion those, make sure we get those two effects, we'll include a case that has residual employment, maybe one of those anyway. And they'll all be affected by the external dose number so that won't matter. So it sounds to me like it might only be two cases.

And we will identify, and if you would like we will pick a couple of cases and

say here are two cases. This one fits these criteria, this one fits these criteria. Just to make sure. And we will say which of the four relevant items are covered by each one.

CHAIR MUNN: That would seem to be expeditious.

MR. HINNEFELD: And we'll provide those. And we can put them up here. And this time we'll remember to put the case files up at the same time.

MR. KATZ: Right, that's great.

CHAIR MUNN: If you would do so.

MR. KATZ: That's great. Just copy the Work Group so they know.

MR. HINNEFELD: The reason we don't think about it all the time is the entire case file is available to everybody on NOCTS. But it is more convenient apparently to work with the case file by itself on the disk so we'll do that.

MEMBER BEACH: And then SC&A can

just start work on their own.

MR. KATZ: Absolutely. They can get going as soon as you have it.

MR. STIVER: Okay, great. As soon as they're posted, we can get started then.

MR. KATZ: Super.

CHAIR MUNN: That's good. And then we'll have it on our list of outstanding items. If you're ready to report on it you'll let us know, right?

MR. KATZ: Right.

MR. STIVER: We will.

CHAIR MUNN: Good.

MEMBER BEACH: So that's true for 14, 17 and 20 now.

MR. HINNEFELD: That's only 20.

CHAIR MUNN: No, that's just 20.

MEMBER BEACH: You're not picking them, you're just going to --

MR. HINNEFELD: We're going to put the case files on for 14 and 17.

MR. STIVER: Sort of just the next in queue.

CHAIR MUNN: Very good. Our next item is the status report on the seven newly authorized reviews. SC&A. Have we gotten anywhere with those?

MR. MARSCHKE: Yes, we have made some progress on those.

CHAIR MUNN: Good.

MR. MARSCHKE: The first thing is we had -- I think there was eight that were authorized. I initially thought there were seven but I think when I went back and looked at the transcript I think there were eight.

But we had four of them which were actually pre-reviews. TIB-5, 531, 561 and OTIB-20. At first we sent back to the original authors OTIB-20. It was slipping through the cracks until the end, and so I looked at that myself.

But they did a -- because these

were previously reviewed, we asked to do a pre-review to see whether or not there was any substantial technical changes. That was the request for the Subcommittee at the last meeting. So we just don't go off and just start re-reviewing, a full-blown re-review on something that really doesn't need it.

And the end result is that these revisions, these are documents that had been revised two or more times since SC&A had done the original review. And the current version of these documents did not warrant a full-blown re-review. And so what we've done is we've put together a report documenting that fact. And it's going through the SC&A review process at this time. And we will get that to the Committee or to the Board shortly.

John Stiver, do you have any schedule for that?

MR. STIVER: Excuse me, Hans. I didn't quite catch that one.

MR. MARSCHKE: John, the re-review report that I put together, do you have a schedule for when that can be provided to the Board?

MR. STIVER: I wouldn't see any reason why we couldn't provide that at the next meeting.

MR. KATZ: And then just to be clear, that is a review of --

MR. MARSCHKE: That is a pre-review. That's the end. For these four documents, that's the end of SC&A's review of these.

MR. KATZ: Okay. So that's updating the review that you already have done on this.

MR. MARSCHKE: It's updating the review and taking a fresh look at these documents to see what changes have been made since the --

MR. KATZ: And comment on it.

MR. MARSCHKE: Yes. And what we've done is we've looked at the comments that were made on the previous versions for -- in most cases, they already had been closed by the Board or the Subcommittee.

In one case, I think it was PROC-61 there was one that was still outstanding and we are making a recommendation in this report that that one outstanding one be closed.

MR. KATZ: Okay. Can you just name them again?

MEMBER ZIEMER: Is this the draft report?

MR. MARSCHKE: Yes, this is a draft table of contents which I put up.

MEMBER ZIEMER: 0005.

MR. MARSCHKE: PROC-31, PROC-61 and OTIB-20.

MR. KATZ: Hold on one second. Leave that up there if you could, 31, 61, TIB-20.

CHAIR MUNN: Now John, when you say that those are going to be ready for the next meeting, do you mean for the next Board meeting or for the next Subcommittee meeting?

MR. STIVER: Certainly by the next Subcommittee meeting.

CHAIR MUNN: Okay, good.

MR. STIVER: I'm not sure that when that would be ready. The Board meeting is, what, the first week in December?

CHAIR MUNN: Yes, second week I guess.

MR. STIVER: That might be pushing it.

CHAIR MUNN: Yes.

MR. STIVER: We could make arrangements to discuss it at the Board meeting.

MR. KATZ: No, no, I mean these are for the Subcommittee anyway.

MR. STIVER: Yes, the Subcommittee,

by the next Subcommittee meeting.

CHAIR MUNN: Yes, I would prefer the Subcommittee. I just wanted to make sure. When you said the next meeting, I didn't know whose next meeting.

MR. STIVER: That's what was implied, the next Subcommittee meeting.

CHAIR MUNN: Thank you.

MR. MARSCHKE: The other activity that was authorized was to review four previously unreviewed documents starting with PROC-44 which is for SECs. We have that scheduled for 4 o'clock this afternoon so I guess we can basically postpone any discussion on that until then.

The thing is it's been -- that review has been completed, a report has been issued and findings have been made and entered into the BRS. And I guess we'll talk about that at 4 o'clock this afternoon.

CHAIR MUNN: Yes.

MR. MARSCHKE: We also are looking at Report 53. And Report 53 has to do with dividing the sample into multiple strata, two strata actually. And we've started looking at.

Harry Chmelynski. Sorry, Harry, I probably butchered your name. But he did the review on it and he has made a draft report. And again it's in the process. I looked at it, made some comments on it. Arjun has looked at it, he made some comments on it.

This report, by the way, is also of interest to the Savannah River Working Group.

And we've asked Kathy -- actually one of the things that they were looking at in this report is to use what they call the one person, one sample approach where they take all the samples that occurred to one individual over a time period and collapse them down into one equivalent sample.

And so what we wanted to do is we

wanted to make some IMBA, I-M-B-A, IMBA runs to see, you know, compare the two approaches and see what the differences were. And so Kathy Behling is working on that for us. And so that's one of the things that we still have outstanding on this.

We're also working on finalizing the list of findings and things like that. But again this is something which, you know, the report for the most part, the review for the most part has been done and the report is in the preparation stage. There's a little bit more analysis which we're working on but we're making good progress.

MR. KATZ: So that should be ready for the next Subcommittee, probably.

MR. MARSCHKE: Probably, depending. In 4 months hopefully or 3 months that'll be ready, yes.

MR. KATZ: Okay, good.

CHAIR MUNN: Steve?

MR. MARSCHKE: Yes.

CHAIR MUNN: I don't have that up but the one person, one sample concept is a new one to me. This is -- what's the background on that?

MR. HINNEFELD: This is Stu. I can speak to that a little bit.

CHAIR MUNN: Oh, thank you, Stu.

MR. HINNEFELD: I think I can. And I think it's actually a person year, I mean a person's samples for a year represent that year.

CHAIR MUNN: One year.

MR. HINNEFELD: And that's a one data point in a coworker. I think we've done coworker models both ways, to be honest, some of this way, some of them without this one person, one sample, treating each sample.

The reason that I think and there are probably -- there's some people on the phone listening from ORAU probably who are

smarter than I who might be able to explain this better. So if I get it wrong, guys, you can go ahead and correct me. I won't be hurt. My feelings won't be hurt.

I think the issue here is that the purpose of the coworker is to describe the range of exposure experiences of the population, of the monitored population. And so when you have a highly exposed person, a particularly highly exposed person, chances are that person is over-sampled compared to the rest of the population because there will be follow-up samples, et cetera, et cetera. And so you are over-weighting that person's experience in terms of characterizing the exposure to the exposed population.

And so that's why this -- and I don't do this. People explain these things to me. I don't do these things. That's why this one person, one sample phraseology was used in order to better characterize person's exposure

experiences and people's exposure experiences rather than weighting it toward the more heavily sampled and probably more heavily exposed people. I believe that's how it was done.

CHAIR MUNN: Okay.

MEMBER ZIEMER: It would change the distribution.

MR. HINNEFELD: Nominally probably.

CHAIR MUNN: Yes.

MR. HINNEFELD: Yes, it would change the distribution of doses because you drop out some of the high-end stuff. So no one has yet jumped in to correct me, so maybe I got it right.

MEMBER ZIEMER: And you guys are going to do some runs to see how that distribution actually changes if you use the full set versus the one?

MR. MARSCHKE: Not that actually -- not that distribution. Really on a -- well,

person-by-person approach. If you take a claimant, for example, and you analyzed his intake over a year using all the sample data, IMBA's going to give you a distribution that fluctuates up and down over time. And we have IMBA runs for actual claimants that are done that way. So we know what they look like.

Now, if we take those actual sample data and class it into one sample for that person over that exposure period, what would be the difference in that person's exposure?

MEMBER ZIEMER: So you're not comparing the committed doses.

MR. MARSCHKE: Or the intake, which is a surrogate for the committed doses, yes. What we're trying to do is integrate under the curve.

MR. HINNEFELD: It sounds like recognizing that this person's exposure experience is what we're trying to characterize as opposed to the various

sampling distributions.

MR. MARSCHKE: Yes.

MR. HINNEFELD: Is using the approach we use, does that appropriately characterize the exposure experience based on the actual sampling data?

MR. MARSCHKE: The way I found to look at this one person, one sample approach it's really, instead of creating the distribution of samples what you're really doing is creating a distribution of exposures. And you're sampling from that distribution of exposures and you're using the one person, one sample as a surrogate for those exposures.

MEMBER ZIEMER: It seems logical.

CHAIR MUNN: Yes.

MR. MARSCHKE: It seems reasonable, we're just doing a little final check on it and you know, poking around, poking it with a stick a little bit.

MR. KATZ: Good.

MEMBER ZIEMER: Now, is Report No. 0053, you have already reviewed that? Or is that?

MR. MARSCHKE: This is the one we're in the process of reviewing.

MEMBER ZIEMER: You're reviewing it now.

MR. MARSCHKE: This is the one that has the one person, one sample.

MEMBER ZIEMER: So we don't have it in our system.

MR. MARSCHKE: No.

MR. KATZ: It's not delivered yet.

MR. HINNEFELD: If you want our Report No. 53 we can --

MR. KATZ: That's available.

MEMBER ZIEMER: No, no, I'm talking about their review.

MR. MARSCHKE: Our review, we're still working on the review. We're finalizing, doing some additional analysis and

finalizing the list of findings and things like that.

CHAIR MUNN: This is the second of the four new ones.

MR. MARSCHKE: Right. We're taking these more or less in order of where they are. And the next one is OTIB-55. If I can pull it up here. It has to do with the neutron weighting factors, a methodology for adjusting from the NCRP 38 factors to the ICRP 60 factors.

And I've been, again, this is something that I've been involved in doing this review myself. And I'm still in the process of doing the review. We do not have a draft report at this time.

One of the things I did notice is that ICRP 60 is no longer the latest recommendation on weighting factors. ICRP 103 has come out with different weighting factors. So that will be one finding. I don't know

what NIOSH -- the use of ICRP 60 I did happen to notice is in, I think it's specified in 42 CFR 82 in a footnote. So I don't know if that would have any effect on what they want to do with it but it's no longer -- 60 is no longer the ICRP-recommended weighting factors. So that's a little preview of what one of the findings would be.

MR. HINNEFELD: It was when we wrote that.

MR. MARSCHKE: It was when you wrote that.

(Laughter.)

CHAIR MUNN: Is there an appreciable difference in the weighting factor?

MR. MARSCHKE: They went down. Actually they went down so that would be another argument for not making any changes. For the most part they're either the same or they're lower so 60 would be claimant-

favorable.

MR. KATZ: Well, that's not an argument for not making the change at all because they're supposed to try to stay as they can, current with science. If science sends you down, you go down.

MR. HINNEFELD: Jim and I have talked about ICRP-103 very briefly and we looked at each other and said well, let's think about that later. That's how far we've gone. So we've not started any real serious discussion of incorporating 103.

MR. KATZ: Yes. But just to answer your question, Steve, even if it's in a footnote the regulation very clearly specifies that they have the latitude to update as ICRP updates its science.

MS. LIN: It also depends on where the footnote is, whether it's in the preamble or actually in the regulatory provisions.

CHAIR MUNN: But it's the best

possible science which theoretically is the most recent.

MR. HINNEFELD: The most recent recommendations of the ICRP and I forget how we used that term or where we used that term.

CHAIR MUNN: I say theoretically.

MR. HINNEFELD: Jim's ready to jump off a bridge because we used that term.

CHAIR MUNN: I can understand that too. So that's OTIB-55. Anything else on OTIB-55 or is the ICRP change the biggie?

MR. MARSCHKE: That's the big one. There's a -- the document gives some guidance as to when to -- what neutron energy to select when no neutron energy is specified. You have a neutron dose specified but you don't have any energy associated with it in the records.

The OTIB-55 gives some guidance on how to select the -- I think it says use a factor of 2, use the maximum weighting factor difference. And if you look in IG-1, there's

a slightly different approach on how to select neutron and how to apply neutron energies.

And so again, we'll probably make that finding if it works this way through SC&A. That's one thing that I've picked up on. I haven't, you know, we haven't worked it through SC&A but that's you know, again, a preview.

MR. KATZ: So it sounds like timing-wise that too may be ready for the next Subcommittee meeting.

MR. MARSCHKE: I would hope so.

MR. KATZ: Yes, okay.

CHAIR MUNN: So probably at least there'll be the three in a lump depending on what we get in the next one. Anything else on 55?

MR. MARSCHKE: I think it's not in the -- what they say is the equivalent dose will be calculated using current and then it goes down the current weighting factors in the

footnote. So that fact happens to catch my eye. What its meaning is I don't know. It's not my --

MR. KATZ: Yes, but that's my point anyway. That's how we set up the rule so that they could make their discussion but they can update as ICRP gets updated. I read the report, it makes sense. It's repeated there in that footnote.

MR. MARSCHKE: The last one that we were asked to look at, and this one is the least developed at this point from the point of view of SC&A's review, is OTIB-79, which is the guidance for assigning occupational X-ray doses for offsite-administered X-rays.

And so again, Harry Pettengill has looked at this and I don't think he has any major findings with it. We haven't started pulling together the report at this point in time so I'm not sure exactly where we're going to go with this. But this is the least

developed of the four new ones for review.

CHAIR MUNN: So we don't know what we're going to have on that next time. It may be just another status report.

MR. MARSCHKE: Right.

CHAIR MUNN: Or it may be the final comment. So those are the eight. You're right, there are eight. I don't think we were counting --

MR. MARSCHKE: The one I missed, Wanda, was OTIB-20. That was the one that I kind of missed. And then I went back and looked at the transcript and I thought it was indicated in the transcript. And so that's also kind of the reason why I did not -- Hans I think was the original reviewer on that and that one did not get back to Hans for review. I did look at his original comments. I did look at -- they were all closed originally and that the changes on OTIB-20 were basically in response to comments made in OTIB-52. So

again, that's why I felt comfortable saying that there was no re-review required on that.

CHAIR MUNN: Good. Anything else on those eight? If not, then we can do one of two things. Either we can move onto our after-lunch agenda or we can continue in this general pattern and address PROC-44. That would be my choice right now, since we're thinking in these terms. Does anyone have any objection to that? If not then Steve, why don't you continue with PROC-44.

MR. MARSCHKE: I need Stu's smart card. Is John Mauro on the phone?

MR. KATZ: People were trying to call in maybe. Or maybe he was running out of battery.

MR. HINNEFELD: Maybe he's running out of battery.

MR. KATZ: I didn't think about that. He has no juice.

MR. HINNEFELD: He has no way to

charge it.

MR. KATZ: John Mauro, are you still on the line?

MS. LIN: You can charge it in your car.

MR. KATZ: He may have been planning to call in this afternoon. That's likely.

MR. MARSCHKE: I don't know. John Stiver? Do you have any idea what's going on?

MR. KATZ: I think John is trying to get ahold of him.

MR. MARSCHKE: Because John Mauro did the review on PROC-44. That's why.

I can give you a summary. SC&A has done the review on it. We have prepared a report and that report was issued. Nancy sent it over to the Board. So it's been issued. There were 10 findings that have been identified in there. I just yesterday or, yes, yesterday morning, I guess, I entered

these in before I left the house. And so there are 10 findings that have been entered in here. And then there --

MR. STIVER: This is John. I tried to get ahold of Mauro. He may have run out of batteries at this point. I don't know. I left a message and hopefully he'll be able to call in.

MR. KATZ: Do you think he was planning to call in this afternoon when it's on the agenda?

MR. STIVER: I would assume that he was, because we had talked about this earlier.

MR. KATZ: Since this is ready for Subcommittee discussion, Wanda, why don't we just shelve this until the appointed time?

CHAIR MUNN: We'll be glad to do that. Since we can't get ahold of John and I sense that Steve would just as soon John covered it.

MR. MARSCHKE: I'm unprepared. I

have not reviewed the report. I'm unprepared to really lead a discussion on this.

CHAIR MUNN: Understand. All right. We'll postpone and try to pick this up at 4 o'clock when hopefully John will have a battery somewhere around the house. We'll keep our fingers crossed.

MR. MARSCHKE: The alternative, John Stiver, is Steve Ostrow was also involved in preparation of this report. I don't know how -- I think John Mauro had to leave, but I know that Steve Ostrow worked with him.

MR. KATZ: Steve has power.

MR. MARSCHKE: And Steve has power.

CHAIR MUNN: He's far enough from New York to have power.

MR. KATZ: I traded emails with him yesterday. He's got power.

MR. STIVER: I talked to him yesterday to see if he did have power. Yes, they were okay.

MR. MARSCHKE: So he may be a backup for John Mauro.

MR. STIVER: I'll ask him. I'll get ahold of him and see if he can stand in. Because I have a suspicion that Mauro ran out of batteries.

MR. KATZ: That makes sense.

MR. STIVER: They don't have any little charging stations set up in his neck of the woods, I don't think.

CHAIR MUNN: Well, since that's the case, let's go ahead and discontinue our discussion of PROC-44 and take it up -- why don't you take it up at about 4 o'clock this afternoon with one person or the other?

MEMBER ZIEMER: Well, question on that. Has NIOSH had a chance to look at this?

MR. HINNEFELD: We haven't seen the report yet.

MEMBER ZIEMER: So what would we do, just look at the findings?

CHAIR MUNN: Yes.

MR. KATZ: They have the report, they just haven't reviewed it yet.

CHAIR MUNN: Yes. We'll just go through the findings. So we'll know what NIOSH is looking at. All right, very good. Any clarification that's necessary from the findings that Steve has posted for our benefit so that NIOSH won't have to do that when they give their report. Okay.

That being the case, let's go ahead and break for lunch now, and be back in an hour which by my watch would put us at about 12:40, right? We'll reconvene at 12:40.

(Whereupon, the above-entitled matter went off the record at 11:35 a.m. and resumed at 12:40 p.m.)

CHAIR MUNN: Let's make sure John Stiver is on.

MR. KATZ: Hi, this is Ted Katz with the Advisory Board, Subcommittee on

Procedures Review. Let me just check on the line. John Stiver, do we have you on?

MR. STIVER: I'm here.

MR. KATZ: And Dick Lemen? He wasn't expecting to be ready quite when we started I think. Okay, do we need to check on anyone else before we go on?

CHAIR MUNN: I believe that's the key person.

MR. KATZ: Okay.

CHAIR MUNN: Okay.

MR. KATZ: Wanda.

CHAIR MUNN: Let's take up where we left off. Our post-lunch agenda begins with continuing selection of the PER reviews. We were going to begin with PER-26 I think. We had to break that off in our last meeting. We ran out of time. And I'm not sure who's leading off on this. Is that you, John?

MR. STIVER: This is Stiver. I'll take this one. I had sent out -- actually Ted

had sent you guys a new table. It starts with PER-26 instead of following onto the old one. It added some new information clarifying for some of them when SECs might impact the previously determined number of affected cases.

So that particular file I assume everybody has. It's called prospective SC&A PER reviews, 12/11/01 PER SC meeting, 121029B. Everybody can open that up and go ahead and get started.

MR. KATZ: Yes, I think folks are working on opening it up as we speak. And it's up on the screen too for people in the room.

MR. STIVER: Okay, just let me know when everybody's ready, I can get started.

CHAIR MUNN: I think we're ready, John.

MR. STIVER: Okay. Okay, PER-26, this is a Pantex TBD revision. This is an

occupational medical dose TBD. This was modified in February 2007. And this -- increases doses associated with certain chest X-rays.

This is one that has been impacted by an SEC, the PER that was issued in October 2007. An SEC Class was added in January of 2012 which covers the period of 1958 through 1983. And it so happens that the revision to the TBD affects assigned X-ray doses during the period 1967 to 1971, and then also another Class of organs between 1995 and 2004.

There were initially 50 cases that were reevaluated. And we had in our last meeting had deferred some of these pending a reevaluation of the number of cases that might be affected given the SEC determination.

Prior to looking at the SEC's impact we had recommended that this would possibly benefit from a review but after comparing it to the SEC this may be one that

the Subcommittee might want to defer until after that determination.

CHAIR MUNN: Do we have any reactions one way or the other? Any strong feelings?

MR. KATZ: Well, I have just one comment to make related to not so much related to SEC, but I think this is listed as medium in terms of complexity. But that was sort of the key issue when we did these, this taxonomy of complexity and so on, one of the thoughts for doing that is that some PERs aren't really worth going and looking at the implementation because it's really -- it's not like there's great doings in implementing it.

And so my question just maybe for John's thoughts is whether there's really enough -- is this a case where there's enough complexity in the implementation that you really need to go and check the cases.

MR. STIVER: Well, this particular

case it is somewhat complex in that you have - within the period of `67 to `71 there are increases in some organs, thyroid, testes, and uterus for chest examinations. And then also ovaries, another set of organs occurred in the time frame. And also in the later time frame. So you know, implementing it might involve having to look at a few cases to see whether those subsets of doses were correctly adjusted.

I think in this case there would be some merit. My only concern was in whether, you know, given the SEC whether we need to go back and reevaluate the number of cases. I mean that's something that there was only 50 of them. It might not be that difficult to determine which ones were impacted. It may turn out that given that both of these changes take place during the SEC period you may be just looking at just a handful of cases at this point. Given that I would recommending

deferring it.

CHAIR MUNN: I think that would be my recommendation as well, especially based on the source of the exposure itself.

MR. STIVER: We're not looking at very large doses. Especially over a period of just a few years.

CHAIR MUNN: Let's defer that one. Unless someone has very strong feelings about it let's defer. It can always be taken up at some other time if we feel that's necessary. Go ahead, John. PER-36.

MR. STIVER: Okay, the next one is kind of a follow-on to our discussion about Blockson this morning. This is a situation where there was a change that resulted in the PER and then a few years later in response to the SEC and another revision of the TBD there was another PER issued.

This one, let's see, this PER was fairly recent, in April 2012. Rev 3 of the

Blockson TBD was issued in December of 2010, and the previous version, as we know, was issued back in February of 2007.

Now this PER is kind of interesting because it considers changes that resulted in an increase of dose between Rev 2 and Rev 3, and that is an increase in the radon exposure from `63 to the end of the residual contamination period and also particulate intakes during the residual period after 1977.

The SEC was based on the inability to reconstruct radon for the period 1951 to 1960. So what we're looking at is the post-SEC period and a change in the TBD that has resulted in the change of the radon exposure during that period. So it's kind of a crazy system here in some ways in that radon is reconstructable evidently in this post-SEC environment in the residual period.

There were very few cases affected by this as you can see. Four were initially

identified for radon exposure after 1963 and only one required reevaluation. Thirty-two are identified in that post-1977 environment. None of those required reevaluation.

Nonetheless, given this kind of complex juxtaposition in the two PERs relative to the SEC, the implications for dose reconstruction, we felt that it might benefit from a review.

CHAIR MUNN: Thoughts, comment?

MR. STIVER: Any comments on that?

CHAIR MUNN: I have only one thought, and it's not very complex. And that is since we're -- even though it's of low selection criteria since we seem determined to make a Caesar's wife case out of Blockson. It might as well be considered for review. Anyone else?

MEMBER ZIEMER: When did the residual period start on this one?

MR. STIVER: The SEC -- June 30 of

1960.

MEMBER ZIEMER: So we're talking about radon only in the residual period?

MR. STIVER: Yes. During the operational period basis for the SEC.

CHAIR MUNN: Low to negligible doses, low to negligible exposures. Low numbers of people.

MR. KATZ: You don't need to assign one if there's no value there to doing so. That's what the Subcommittee needs to decide.

CHAIR MUNN: My real preference would be to go to some of the more highly rated.

MEMBER BEACH: I would agree with that as well.

CHAIR MUNN: Larger groups.

MEMBER BEACH: Leave this one open in case we decide to do it at the later date.

CHAIR MUNN: Thank you. Deferred.

MR. STIVER: Go ahead and defer

that one then?

CHAIR MUNN: Let's do. Go on to PER-33.

MR. STIVER: Next on our list is PER-33. This is the Reduction Pilot Plant in Huntington, West Virginia. This was a plant that processed contaminated nickel scrap. Where have we seen that before?

And revision to the TBD with Technical Basis Document 4. Let's see. Only one change reflected an increase in internal dose during the years `66 to `73, `78 and `79.

Now, this was an estimate of the internal dose increased -- the intake basically went up by a factor of 10 from about 4 picocuries today to 44 picocuries today. Basically it went from a geometric mean of a log normal distribution to an upper bound single bounding value.

Again, there's a small number of cases but they would need to be evaluated on a

case-by-case basis to assess the impact of this increase. And we felt that this one is in the category that we thought would benefit from a review.

CHAIR MUNN: We're talking statistical variation here primarily, right?

MR. STIVER: Depending on how they're implemented, yes. A geometric mean versus a bounding value. But yes, based off of presumably the same distribution.

CHAIR MUNN: Comments? Thoughts?

MR. HINNEFELD: Well, the Huntington Pilot Plant revision I think was prompted by a review in the DR Subcommittee.

CHAIR MUNN: I think so.

MR. HINNEFELD: It was the DR Subcommittee that was an Appendix to one of the groups of their review.

CHAIR MUNN: Yes. I'm not certain of that, but I think you're right.

MEMBER ZIEMER: Was this a coworker

model that used these numbers? These were numbers for the operators. In other words, if someone was an operator they were assigned the 3.83 and now it would be 44. Was that it was?

CHAIR MUNN: Inhalation dose.

MR. HINNEFELD: I believe there's a bifurcation in there depending upon job title of what the dose reconstruction is. I think.

MR. STIVER: That might explain the small number of cases in --

MR. HINNEFELD: Well, I don't think we have a lot of claims from this site anyway. I'm not sure but I don't think there were a lot of claims from it.

MR. STIVER: So again, maybe most of them were considered to be operators to begin with.

MR. HINNEFELD: Yes, I don't know how that was done. I could even be wrong on that. I'm trying to remember the data that

was used for this, and I just don't. So I don't know whether we had --

MEMBER ZIEMER: Well, it looks like a coworker model because they're giving numbers for operators.

MR. HINNEFELD: Yes, I mean it's not a site where we have individual-specific exposure responses. We may have --

MR. STIVER: It was definitely based on a coworker model.

MR. HINNEFELD: Yes. So it is --

MEMBER ZIEMER: But it says that you need to review it on a case-by-case basis.

MR. HINNEFELD: Well, there was an error in the original -- I think it was in the Pilot Plant dose Site Profile that went the other way. I mean, there was a misinterpretation of a piece of data that really very much overestimated the intake for some period of time.

And so I can't remember the

specifics of the change, you know, what was changed in the Site Profile and how it works, but the complicating factor is there was -- in addition to the change from geometric median to confidence level, 95% confidence level, on intake rate for certain people there was a counterbalancing change in the other direction.

MEMBER ZIEMER: Right and it would also be different for different cancers. It looks to me like it might be worth looking at this.

MEMBER BEACH: I agree with you.

CHAIR MUNN: Because there were several changes it's an interesting thing. Okay. You have PER-33 unless anyone objects. Any objection? You have it, John.

MR. STIVER: Okay, good. The next one is PER-28. This is the Pinellas TBD revisions circa 2006. As some of you know the TBD was completely rewritten in 2011 and there

are still issues that are currently being discussed in the Work Group forum. Because of that we would recommend deferring review on this until after those issues are resolved in the Work Group.

CHAIR MUNN: Makes sense to me. Any objection to the defer?

MEMBER BEACH: No.

MEMBER ZIEMER: Agreed.

MR. STIVER: Okay, moving along, PER-23. This is Argonne National Laboratory-West. This was again a TBD revision. It was revised in May 2005. The PER was released in September 2007. Then again there was another, the latest revision was produced in December 2009. So again we have kind of a moving target.

This is once again an occupational medical dose -- frequency of X-ray exams. Originally based on the employee's age according to the TIB-6. Went on to be changed

to using annual exams for all employees. This was for the period 1954 to 1974.

And looking at the table that is in the attachment to the revised TBD the doses, the annual doses, as you might expect, are quite small. I believe the highest was 70 millirads per year for skin. The others were significantly smaller than that.

There were 22 cases potentially affected. The Probability of Causation less than 50 percent. We felt that because it was such a minimal impact on the Probability of Causation that this wouldn't be one we'd necessarily want to review right away. We might want to hold it in abeyance for some later date. So we recommend deferring this one.

CHAIR MUNN: I would agree with that. Any objection?

MEMBER BEACH: Agreed.

CHAIR MUNN: Okay, next we have

PER-19.

MR. STIVER: PER-19. This is the Savannah River Site. This is the effect of the additional neutron dose data. Back in the 2007 time frame SRS notified NIOSH that not all the neutron dosimetry data were sent for several claims. There were 17 that were initially identified. Four of these required reevaluation.

Now this is another one, let's see. We don't really know what the time frame is, at least I don't. NIOSH may have a better understanding of that for when these particular claims, these 21 claims were -- what time period we're looking at.

But as you remember in February 2012 an SEC Class was added from 1953 through 1972. So there may be an impact there on the number of claims that were evaluated.

Once again, while this could benefit from a review given the impact of the

SEC cases the Subcommittee may want to defer this one.

CHAIR MUNN: Am I hearing you correctly, John? You just said -- I could scarcely hear you toward the end.

MR. STIVER: Okay, I'm sorry. I kind of faded out there.

CHAIR MUNN: Do I understand correctly that essentially there's only one claim that hasn't been reevaluated?

MR. STIVER: There were 17 that were initially identified and of these 4 needed to be reevaluated.

CHAIR MUNN: Right. And you did three. And there's one still outstanding?

MR. STIVER: No, three haven't been done. This was just the initial scoping by DCAS of the universe of affected claims.

CHAIR MUNN: Okay, I misunderstood what I was reading then.

MEMBER ZIEMER: There's no real

change in methodology or approach here, it's just we found some additional dose that needed to be assigned to several people, isn't that correct?

MR. STIVER: Yes, it would be assessing whether the -- for those claims whether the doses were actually indeed assigned based on the new data that were available. But yes, no changes in methodology.

MEMBER ZIEMER: Yes. I mean, it looks to me like that would be about $100 worth of effort to do that.

MR. STIVER: One analyst one afternoon could probably do that one.

MEMBER ZIEMER: Well, I mean I don't object to it being done but I don't see $6,000 worth of work on this. You're just looking to see whether they actually went back and added in the new neutron stuff, right?

MR. STIVER: Yes, that $6,000,

again those values are like the absolute high-sided estimate. This is just based on those three categories, low, medium, and high. I think this would be -- we really should say up to $6,000.

MEMBER ZIEMER: This is almost like the cake we had for lunch should be gratis.

(Laughter.)

MEMBER ZIEMER: Inside joke here. Anyway, okay.

MR. STIVER: Quite a response there.

CHAIR MUNN: I can see no reason why it shouldn't be done. It's fairly simplistic.

MEMBER ZIEMER: If they can do it. I mean please don't spend $6,000 on it.

MR. KATZ: I'm trying to understand again sort of rationale for where we select these. Because I thought the original thinking was, again, where you have a change

in a dose reconstruction methodology and it's completely straightforward, there's nothing controversial about the change. Sort of like before we were talking about we deferred it but I mean, even I don't know why we deferred it, medical doses, that we're going to do the medical doses. Those are cranked out in very well known machinery. There's no complexity. I don't understand why we would assign a review of the PER for doing that, period. I mean we deferred it, but I would say why would we even do it, ever.

MEMBER ZIEMER: This is sort of like that in my mind. If there's no methodology change that I understand. You just said oh, here's some -- here's a couple more neutron doses that should have been assigned.

MR. HINNEFELD: Lori pulled up the PER and the reason that only 4 of the 17 were reevaluated was 1 of the 17 hadn't been done

yet. And the remainder apparently were compensable. They were above 50 percent.

MEMBER ZIEMER: Already.

MR. HINNEFELD: Already. Without the additional neutron data. So there's not a lot to look at.

MEMBER BEACH: Yes, I would say no on that one.

CHAIR MUNN: No.

MR. STIVER: Okay, so then no on this one. I would not disagree with that.

Ted, in response to your comment earlier the table is really just a compilation of all the unreviewed PERs. And we tried to kind of get an initial, maybe a first order approximation of whether we thought they should be reviewed with the idea of bringing it to the Subcommittee to have this discussion we're having right now.

MR. KATZ: No, I'm all in favor of going through these systematically. I think

it's great. I just wanted to clarify because I just think we keep losing focus on why we would have one reviewed. And I think again we would have one reviewed where there's complexity and there's uncertainty about whether it would be handled right or not. But some of these are really just, we know very well how these get handled and it's just completely mechanical and there's no reason to spend time on it whatsoever. Money, any of it.

CHAIR MUNN: Almost a QA action in some cases. All right.

MR. STIVER: Sorry, I might have dropped off the line there. It went quiet for a bit.

Okay, the next one in line here is PER-15. This is a Mallinckrodt TBD. This was issued in July 2007. It refers to Rev 1 of the TBD.

This is a response to some issues

that arose from the SEC being granted. Some gave rise to higher doses and others went down.

This is one of the situations, let's see, there's about 16 claims evaluated. Again, referring to Rev 1. Now, the latest revision came out in November of 2010. And there's no indication whether Rev 3 actually resulted in increased dose assignment, but I did note here that it might be inferred from the statement here in Section 17071. It would be changed to clarify the external exposures to monitored employees as to conclude dose reconstructions for individuals employed prior to 1949. This exposure was previously excluded from dose reconstruction reports. So I guess you could infer that there might be an increase that would not necessarily be captured by this PER because it took place at a later time period. So to the extent that it should be reviewed we would consider deferring

it pending an evaluation of this pre-1949 exposure potential.

CHAIR MUNN: Well, it sounds as though it's going to be straightforward in any case. Any objection to deferring this?

MEMBER BEACH: No.

MEMBER ZIEMER: No.

CHAIR MUNN: Deferred.

MR. STIVER: Next is PER-22 Chapman Valve TBD revisions. This was produced in September 2007 based on Revision 1 of the Technical Basis Document which was dated October 2006.

This TBD was modified to provide a constant intake of uranium as opposed to a log normal distribution in the original TBD. It was difficult to determine the effect on dose and PoC and best estimate was required for some cases. The number of cases reevaluated were 10, a very small number.

Again, this is Rev 2 to the TBD has

been released the following year in September 2008. And this revision incorporated some new information regarding dates of uranium fires, periods of operation, details of plant processes, facility layout, radiological control practices, and monitoring results. So it really kind of is a rewrite across the board.

Updated information on the data of the uranium fire results in changes in the internal exposure scenario. It was not indicated whether this resulted in an increase.

So again, given the magnitude of changes to TBD we would recommend deferring this pending a reevaluation after that new TBD review.

CHAIR MUNN: Any objection to deferring?

MEMBER BEACH: No.

MEMBER ZIEMER: No objection, just

a question though. Is an evaluation of the fire scenario under way?

MR. STIVER: I don't know. Stu, could you weigh in on that?

MR. HINNEFELD: Well, I believe what's gone on is there's been a subsequent revision to Chapman Valve. What was the date of this revision?

MR. STIVER: This was September 2007.

MR. HINNEFELD: Yes, I think the actual Chapman Valve disposition is more recent than that.

MEMBER BEACH: Well, this says Revision 2 released September 2008.

MR. STIVER: Revision 2 is the one that seems to have the biggest impact.

MEMBER ZIEMER: But SC&A hasn't reviewed Rev 2 yet?

MR. HINNEFELD: The discussion of Chapman Valve is over I believe.

MEMBER ZIEMER: Why does it say pending evaluation of revised fire scenario in Rev 2?

MR. STIVER: That's just a recommendation that we would think that that fire scenario and other aspects of the TBD should be evaluated to determine the potential for increased doses.

MEMBER ZIEMER: So you haven't reviewed Rev 2 yet is what you're saying.

MR. STIVER: Yes, yes. Rather than spend money on evaluating this PER which is kind of outdated at this point it might be money better spent to wait until an evaluation of the most latest.

MEMBER ZIEMER: Of Rev 2.

CHAIR MUNN: Has Rev 2 been assigned?

MR. STIVER: I didn't hear you, Wanda.

CHAIR MUNN: John, do you know if

Rev 2 has been assigned?

MR. STIVER: I don't believe it has. I can't speak to that directly. I can certainly find out. I don't think it has though.

MR. KATZ: I don't think it has.

CHAIR MUNN: If it has not then we're deferring based on the assumption that at some juncture you're going to have that assignment?

MR. STIVER: The way -- word this correctly. I was thinking more on the lines of having NIOSH reevaluate the number of cases that might be affected and issuing a new PER. Kind of the situation where if there was a new PER that came out then we could kind of roll these two into one combined, rather than look at issues that may no longer be relevant.

MEMBER ZIEMER: So the 10 was based on Rev 1?

MR. STIVER: That was based in the

September 2007 evaluation. This was all old.

MEMBER ZIEMER: Gotcha. Okay.

CHAIR MUNN: So it sounds as though we need to request NIOSH to take a look at this to identify first of all what the claimant base is and second to determine whether there is -- well, I guess it's our job to determine whether there's an issue with respect to the fire.

MR. HINNEFELD: Well, we always knew there were fires. But early on we didn't know the dates of the fires. And that's what was changed. And there's also -- the description was changed to include the Dean Street location which was their second location that DOL added --

MR. KATZ: I thought John's question was whether there's a PER.

MR. HINNEFELD: -- PER on this.

MR. KATZ: Right.

MEMBER ZIEMER: A different PER.

MR. KATZ: Yes, a newer one in the works.

MEMBER ZIEMER: And a different number of people affected.

MR. HINNEFELD: Well, the idea was that this is the final change in the PER. Let's look at it once. Let's look at the PER once and it would incorporate all the changes made up to that time. That would be the thought, and I don't know if -- do you have the PER list? And there's a not a second Chapman on there?

Sometimes the revision doesn't require one because the doses don't --

MR. KATZ: Right.

MR. HINNEFELD: So I'll have to go find it. I don't know.

MR. KATZ: Okay. So we'll just follow up on that to find out if there is or isn't a PER in the works. And the answer isn't I guess means that there's no dosimetric

importance to the changes. On the positive side, moving up the doses.

MR. HINNEFELD: If there is no dose impact on Rev 2 then you would reconsider the question.

MR. KATZ: Exactly.

MR. STIVER: So we're really just kind of pending this waiting on a -- by you guys whether the dose will increase.

MEMBER ZIEMER: So we would defer that.

CHAIR MUNN: We'll defer that for the time being, and we'll have an action item for NIOSH for possible PER in process on Rev 2 -- that's even going to be an issue at that next time.

All right, John, PER-34.

MR. STIVER: Okay, 34 Harshaw Chemical Company. There was a revision to the TBD-22, included several changes. Only one resulted in an increase in the estimated dose

and that's related to the intake of type S uranium for the period 1949 through 1953.

There is an SEC here. However, the SEC -- let me see. I believe it's 1942 to `49. So this is all post SEC. There is no impact on this particular PER based on the SEC because it took place after the SEC was granted.

A small number of cases again. Six were affected here. But given the fact that it is a uranium intake for a 5-year period we felt that it might not be as straightforward as say something like a medical X-ray dose and therefore would benefit from a review.

CHAIR MUNN: So you've reviewed the most recent TBD revision, right? Yes? No?

MR. STIVER: Was that question directed at me?

CHAIR MUNN: Yes, it was, John. I'm sorry. Yes. Has SC&A reviewed the most recent revision of Harshaw?

MR. STIVER: I don't believe we have. This was December 2011. But that wouldn't necessarily be based on our review of it so much as whether there's anything that had changed since this PER was issued. Fairly recent PER. It's only been a year, not even a year yet.

CHAIR MUNN: All right. So essentially the only change that we're aware of is intake rate for type S.

MR. STIVER: That's correct.

MEMBER ZIEMER: Intake rate. What caused that to change? Does anybody remember?

CHAIR MUNN: I have no idea.

MR. STIVER: Anybody on the DCAS side can enlighten us on that?

MR. HINNEFELD: Off the top of my head I don't remember this one. Seems like Harshaw CC is quite a lot older than that.

MR. STIVER: Yes, the SEC was in 2007.

MR. HINNEFELD: Four years later, we decided we shouldn't even be changing the Site Profile for --.

MR. KATZ: Maybe we could just get a report from DCAS for the next meeting of what went on here.

MEMBER BEACH: Because it says there were several changes. However, there's only one --

MR. HINNEFELD: That would cause the dose to go up.

MEMBER BEACH: Yes.

MR. HINNEFELD: That was only a year ago. For the life of me I can't remember our Harshaw activity a year ago.

CHAIR MUNN: We'll have a report from NIOSH next time, okay?

MR. HINNEFELD: Yes, we'll get something out ahead of the meeting.

CHAIR MUNN: All right.

MEMBER ZIEMER: Yes and if this is

simply an agreed-upon change in a rate factor or something which means you -- you know, it's really straightforward.

MR. HINNEFELD: I'm trying to think what would have gotten us back to Harshaw a year ago.

CHAIR MUNN: Could be suspension factors again. All right.

MR. STIVER: It may have just been held on the backburner for a number of years.

CHAIR MUNN: We'll check on it for next time. In the meantime, John, we're back to PER-24.

MR. STIVER: PER-24, General Steel Industries as we all know is still very much in the works. This is a September 2007 PER as we all know. Many, many changes and Work Group meetings have taken place since that time. We would certainly recommend deferring this one -- resolution of those SEC and Site Profile issues that are ongoing.

MEMBER BEACH: I would agree with that.

MEMBER ZIEMER: Right. Appendix BB will be revised and in the event we have a number of changes beginning with the length of the work day and onto some of these other issues. And there could be other changes as well that need to be addressed at the same time. So it would make sense to defer this till we get Appendix BB resolved.

CHAIR MUNN: Any objection to deferring until -- all right. Deferred. PER-25, John.

MR. STIVER: PER-25 is -- we just talked about the Huntington Pilot Plant in regards to 33. Now this is an older PER that came out back in 2007. External electron dose required in the reevaluation. Only one affected claim.

Our thoughts on this is that since 33 has been authorized that we just look at

this and kind of amalgamate them into one report to the extent that this is still relevant and just kind of combine them for one PER review.

CHAIR MUNN: Let me ask since you're going to be looking at Huntington anyway.

MR. STIVER: Yes, we're already looking at it.

CHAIR MUNN: For 33.

MEMBER BEACH: So is that a two for one special?

MR. STIVER: Two for one special.

CHAIR MUNN: Sounds like a two-fer.

MEMBER BEACH: Perfect.

CHAIR MUNN: All right. We'll list it as assigned. And PER-37.

MR. STIVER: These next three were PERs that we've added since our last meeting. They're all quite new. Thirty-seven is the Ames Laboratory TBD revision which took place

in January of this year. The previous version was 1 year prior to that, January 2011. There's a whole series of these dating back to August of 2008. Those considered changes that are made in all those revisions and I've kind of summarized. There's four aspects that will be considered.

First in Revision 1 there was an increase in uranium intakes for researchers in the chemistry building during the period `42 to `53. Revision 2 included the increase in the intakes for all employees in the chemistry building between `54 and `76. So there's another group that was considered there in the later time frame.

External doses for unmonitored workers before 1946 were increased in -- categories. They remain the same in Revision 2 but then increased again in Revision 3. External dose monitored workers based on a coworker model between `46 and `53 decreased

for all categories in Revision 1. They remain the same in Revision 2 but increased in Revision 3. However, the Revision 3 increase was still below the Revision 0 values with the exception of extremity dose.

So there's kind of a mix of changes taking place throughout all these revisions. Sixteen cases were considered for reevaluation. We thought that this would be a good candidate for review.

CHAIR MUNN: Well, it's certainly not straightforward, is it?

MEMBER BEACH: It would be interesting.

CHAIR MUNN: Comments? Questions?

MEMBER BEACH: I say you should assign it.

MEMBER ZIEMER: Agreed.

CHAIR MUNN: Assigned.

MR. STIVER: Okay. The next one is PER-38, Hooker Electrochemical. This is the

one where there was the site-specific -- TBD-6001 back in 2007. Then superseded by a standalone TBD in 2011, Rev 0. Then -- later Revision 1 corrected an error.

The changes that were made in Rev 1 -- doses for operators to decrease during the operational period. There was no increase in any dose in Revision 1, but the Revision 0 did result in some increased doses when compared to Appendix AA. Therefore Appendix AA was compared to Revision 1 to itemize the increase.

And this PER was issued in July of this year. Intake rates and external dose rates were assigned based on type of job, job-specific. Different doses were assigned in the operational period and the residual period. This and the Appendix, TBD were different. A detailed listing of rates and dose rates were included in attachments.

The bottom line, the dose

assignments had increased in the current revision compared to documents for uranium intakes during the operational years. Do not assign the operator intakes which were -- high intakes in Appendix AA, dose rates during residual period for all categories.

Again, we think this is complicated enough that it warrants a review.

CHAIR MUNN: Any thoughts?

MEMBER BEACH: I agree, assign this one.

CHAIR MUNN: Paul?

MEMBER ZIEMER: Yes, I think it's sufficiently complex.

CHAIR MUNN: Is Dick back yet? I haven't heard from him so I assume he's not. You're assigned.

MEMBER ZIEMER: This is 38, yes. It's Hooker Electrochemical.

CHAIR MUNN: PER-38. And next we have PER-41.

MR. STIVER: Okay. This is -- we talked a bit about OTIB-6 today. This is the latest revision -- effects of previously completed claims for dose reconstruction from occupational medical X-ray procedures.

Thirty-five cases were initially identified. Of those, 26 warranted reevaluation. This again is a fairly recent one in July 2012. Rev 4 was issued in 2011, June 2011. Previous versions date back to 2003.

This is interesting. A change in Rev 2 and earlier were addressed in PER-2 which we reviewed without any findings whatsoever.

Several changes were made in Rev 4. Some did result in a slight decrease. Others resulted in increased doses. And these are listed here in these two bullets. There was an increase in the dose from lateral projection of the lumbar spine X-ray for all

years for stomach and bone surfaces, liver, gallbladder, spleen. And an increase in the dose to the ovaries from pelvic X-rays through the end of May, `70.

There are four sites that currently still use TBD -- or OTIB-6, Harshaw, Brookhaven, the Extrusion Plant, and Paducah East. This is, again, they are X-ray doses which are typically sufficiently complex in impact that we thought that might benefit from a review.

CHAIR MUNN: So despite the scope of this it appears to me to be the exact thing that Ted was talking about earlier. This is a case where there's no question about the technical merit or reason for these changes. The changes are now codified, and they are implemented, and the only thing this review would do, as I understand it, is to see that the implementation was being made in the correct way. Am I reading that right, John?

MR. STIVER: Yes, I think that pretty well sums it up. To the extent that these changes would be captured in the dose reconstruction reviews then that may be the proper venue to do this in. In this case -- ascertain whether the changes were made at one time in one shot as opposed to waiting for cases to come through for those particular sites.

CHAIR MUNN: I don't see that this rises to the level of need that we supposedly identified earlier in our discussion here. Any thoughts?

MEMBER ZIEMER: I'm trying to understand the last part of the comment about the TBDs that require or allow lumbar spine and pelvic X-ray, and it lists these four facilities. Why these four? I didn't quite catch that. Are these doing X-rays differently from the rest of the facilities?

MR. STIVER: I think that's the

sites that are still using TIB-6 as opposed to having their own site-specific guidance.

MR. HINNEFELD: I think there was selected -- some -- not every site did a lumbar spine or pelvic X-ray. There were certain selected sites where that was part of the regime. And I think that's probably what this refers to. It's that there are only certain limited places where they were done.

MR. STIVER: Yes, this is the -- that actually used those, those procedures

MEMBER ZIEMER: Right, right, but the procedure itself is -- I mean they would -- you would use it on these because they specify --

MR. HINNEFELD: They specified that they took lumbar and pelvic.

MEMBER ZIEMER: The procedure itself is not specific to those sites. The procedure is a universal procedure.

MR. HINNEFELD: Right.

MR. STIVER: -- was addressed in a procedure.

MEMBER ZIEMER: But this is where you would get the cases to review.

CHAIR MUNN: The 253.

MEMBER BEACH: The first one, I was looking at all the revisions but when you read through them they're all fairly minor and straightforward. I think this one probably should be deferred at this time.

CHAIR MUNN: I agree. Paul, do you have an objection?

MEMBER ZIEMER: No, I was just wondering if there was something unique here. At least some of the revisions were just grammatical or something it looks like.

MEMBER BEACH: Typographical error.

MEMBER ZIEMER: Typographical.

MEMBER BEACH: Revision 3 PC --

MEMBER ZIEMER: What else changed?

CHAIR MUNN: That's why I asked

what I did, and John said that apparently my reading is fairly accurate, that primarily what they'd be doing is checking to see that the changes were applied correctly which is a QA.

MEMBER ZIEMER: Right. But when it says Rev 3 added dose estimates for procedures not previously addressed, is this where they added the lumbar, spine, and pelvic stuff that wasn't in the procedure before?

MEMBER BEACH: Yes, that's under Revision 4 they did.

MR. HINNEFELD: I think it just changed the numbers.

MR. STIVER: Yes, Rev 4 has really resulted in those changes from the lumbar spine.

MEMBER BEACH: And, John, you guys reviewed this, the 2003 Revision 2 was reviewed by SC&A already, right? With no findings.

MR. STIVER: Anything -- prior has already been reviewed with no findings. This was really related to -- Rev 3 is pretty minor in its impact. It looks like Rev 4 is really where the big change --

MEMBER ZIEMER: Has Rev 4 itself as a procedure been reviewed?

MR. STIVER: No, it has not. Not by SC&A.

CHAIR MUNN: Seems to be fairly pro forma.

MEMBER ZIEMER: Yes, but I'm just thinking I wouldn't spend time on this unless the procedure itself had a problem.

CHAIR MUNN: Yes. Deferred?

MEMBER ZIEMER: Yes.

CHAIR MUNN: Deferred, John.

MR. KATZ: Deferred or no?

CHAIR MUNN: Well, actually no from my perspective.

MR. STIVER: I take that as a no?

CHAIR MUNN: Yes, let's do it no. Unless I hear objection to the otherwise. That's it, right?

Good. So you have your assignments. What were there, four or three?

MEMBER BEACH: The two for one.

CHAIR MUNN: Actually four but really three.

MEMBER BEACH: And NIOSH is going to report back on a couple.

CHAIR MUNN: We have two actions for NIOSH. And that's good. Thank you, John.

Now we'll move on to our 1:30 agenda item which is OTIB-37. This is SC&A's responses to three of the outstanding findings.

MR. MARSCHKE: I think I'm going to punt this back over to NIOSH because if you look at what was entered into the BRS and look at the transcript from the last meeting I think we had decided that we were going to

wait until the TBD was reissued. This is on the Paducah internal dose coworker data.

And for findings 3 and 4 we kind of indicate that we were going to wait for the reissuance of the Paducah TBD. And so we haven't really done anything on this because we're waiting for that.

MEMBER BEACH: And we have a meeting that should cover this as well in December.

MR. KATZ: We do.

MR. STIVER: There's a meeting coming up.

MR. KATZ: And a teleconference, but I'm not sure how much is resolving matters versus sorting out the path forward. I don't recall right now, but I'm thinking it's more getting our bearings again.

MEMBER BEACH: I think so.

MR. KATZ: A planning meeting. I think it's a planning meeting versus an issues

resolution meeting.

MR. HINNEFELD: These Site Profile chapters are being redone.

MR. KATZ: Are they?

MR. HINNEFELD: Yes.

MR. KATZ: I mean the Work Group had actually gotten through a lot of material already.

MR. HINNEFELD: Yes, I mean --

MR. KATZ: They worked very well with DCAS.

MR. HINNEFELD: There's been a lot of revisions made because of those resolutions I think.

MR. KATZ: Yes, that makes sense.

MR. HINNEFELD: If you want, I'd have to get on my computer, but I could probably find the schedule for these Site Profiles. I can do it now, or I can do it later at a break or something.

But it seems like this one's pretty

far along. I remember gaseous diffusion plants, for the ones that ran up to high enrichments there's this product having to do with neutron doses from high enriched uranium which has to be put to bed. But that didn't happen at Paducah. They didn't run up to the high enrichments there. And so I think Paducah is done or getting done. So I know where to look on my computer for it if you want me to or I can wait and do it later.

MEMBER BEACH: I thought we were pretty darn close, but I haven't reviewed it.

MR. KATZ: Yes, we don't have to sort it out at this meeting though. I don't see any reason why we need to sort it out right now.

MR. HINNEFELD: Okay.

MEMBER BEACH: So maybe just an action.

CHAIR MUNN: So. Do I understand correctly that SC&A won't respond to finding

2?

MR. MARSCHKE: Well 2, 3, and 4 I thought we -- finding 2 we did not indicate that we were going to wait for the reissuance of the TBD. With 3 and 4 we did indicate that. And so I didn't see any sense in getting Joyce started looking at the review and then having her look at this 2 and then come back and look at 3 and 4 separately. So I just kind of held 2 until you can do them all at one time.

MR. STIVER: Steve, I talked to Joyce about that too, and she would prefer to wait until the TBD is released before doing that 2 as well.

CHAIR MUNN: So this is a NIOSH action.

MR. KATZ: So we'll get word back from NIOSH on when those revisions are expected.

CHAIR MUNN: All right. OTIB-54,

status of the revision. NIOSH?

MS. THOMAS: This is Elyse and --

CHAIR MUNN: Good afternoon.

MS. THOMAS: -- these responses won't be finished until the revision is finished. And that's still several months away, probably shortly after the first of the year.

CHAIR MUNN: Okay. So our next meeting is probably -- it will definitely be after the first of the year. So should we carry this for our next meeting? Is that a possibility you think? If we meet in late January and I'm quite sure it will be at least late January by the time we meet can we anticipate some kind of response on TIB-54? Or should we set it out further than that?

MS. THOMAS: I'm not sure. I know that the authors didn't want to prepare the responses until the revision was pretty much ready to be published.

CHAIR MUNN: We don't have any dates.

MS. MARION-MOSS: Wanda, that's the one I forwarded some information to you and Ted. That TIB-54 will not be ready until February of `13.

MR. KATZ: You did send that.

MS. MARION-MOSS: Yes. So probably if we meet early February it might not be.

CHAIR MUNN: Okay. February possible. That's good, then we won't carry it for next time. We'll just have it when it's ready. Which brings us to IG-1 and the NIOSH result from the status review.

MR. HINNEFELD: Okay. Some of these I'd like us to talk about a little bit today.

CHAIR MUNN: Let's do.

MR. HINNEFELD: Which is our first finding that we got to deal with here, 2?

CHAIR MUNN: Yes, the first one we

have listed is 2. We had a half dozen, or actually more. Eight. It's very nice to be addressing these actually.

MR. HINNEFELD: Okay. Well, the finding here and I want to go back to the nature of this document and the nature of the findings and when they were written.

This particular finding is that the guidance for deriving uncertainties, neutrons or source term in occupational medical dose rate using x-ray machine operating parameters are not available to a dose reconstructor. In other words, it says things should be done in a certain manner, but the resources to do that are not available to dose reconstruction.

Now remember IG-1 was like one of the first documents we wrote. It was an implementation guide and it kind of lays out the principles of doing a dose reconstruction, but it doesn't really give specific instruction for dose reconstruction. It never

was intended to give instructions to the dose reconstructor. All these other technical documents that we write, that we've been reviewing, those are supposed to incorporate principles in IG-1 with specific instructions to the dose reconstructor.

So the fact that this has, you know, makes reference to pieces of information that are not available to the dose reconstructor is irrelevant because the dose reconstructor doesn't ever look at this document. He has a procedure that tells him what he needs in order to do it. We think this should just be closed based on that, that the finding doesn't speak to the nature of the document. We should just close it despite anything we may have said in the past.

CHAIR MUNN: There's certainly a logic in that.

MEMBER ZIEMER: It seems to me that the simple solution is to have a statement to

that effect in here as the response.

MR. HINNEFELD: You mean a statement like that in here in the database.

MEMBER ZIEMER: A response to the finding is that this document isn't intended to provide that. This is sort of a --

MEMBER BEACH: It does say that though. It does say that.

MS. MARION-MOSS: It is in one of the responses.

MEMBER BEACH: Even though it sometimes employs language that implies -- and then you go down further it says it's not intended as a step-by-step procedure but rather a guidance. So.

MEMBER ZIEMER: But for this particular finding 02 there's no response here.

MR. MARSCHKE: It says basically recommend NIOSH modify procedure.

MEMBER ZIEMER: Here. It wasn't

coming up when I looked at it.

MR. MARSCHKE: So basically what we want to do is we want to say that Rev 2 was issued. I guess what you could do is you could reiterate.

MR. HINNEFELD: We could just say -- you know, down at the -- we can make the last entry here.

CHAIR MUNN: Yes.

MR. HINNEFELD: Because the last entry still needs one thing.

CHAIR MUNN: That's appropriate.

MR. HINNEFELD: So you've got a note.

CHAIR MUNN: And the new note can simply say the Subcommittee agrees that this procedure is not used as that procedure.

MR. HINNEFELD: You can make that statement today.

CHAIR MUNN: Yes, we can make that statement today. And I think that's

appropriate.

MR. MARSCHKE: If you want to close it we can just close it and say that Stu Hinnefeld explained once again that this is a procedure and a principles guidance document and not an implementing document.

MR. KATZ: You were doing fine.

MEMBER BEACH: It looks like it's been said over and over over the years.

MR. MARSCHKE: That's why I say reiterate it.

CHAIR MUNN: Let Steve just say the Subcommittee agrees.

MR. MARSCHKE: Where do I get to edit status?

MR. HINNEFELD: Actually I hope I have it right. Do you add a comment or just edit the finding. How do you?

CHAIR MUNN: I think final comment.

MR. MARSCHKE: No, we're going to close it.

CHAIR MUNN: Yes, but --

MR. HINNEFELD: When we put the closure, that's when --

MR. MARSCHKE: We can't have a comment box.

CHAIR MUNN: Right.

MR. HINNEFELD: See I never do that.

MEMBER BEACH: So Stu is that true for all of these?

MR. HINNEFELD: I don't know.

CHAIR MUNN: Well, we'll do this one.

MR. HINNEFELD: I think it's true for more than just this one.

CHAIR MUNN: Yes, but we'll do this one at a time. We get the words correct.

MEMBER BEACH: I was just curious but one at a time is good.

CHAIR MUNN: Yes. Just a slight change in some of the wording.

MR. MARSCHKE: Okay.

CHAIR MUNN: Let's say -- instead of the detailed implementation let's say -- start with detailed. Detailed implementation.

MR. MARSCHKE: Detailed.

CHAIR MUNN: Not can be found, is to be found. Is to be found in other documents and procedures.

MR. MARSCHKE: Information and guidance.

CHAIR MUNN: Detailed implementation guidance and related information is to be found in other documents and procedures. The Committee agrees -- the Subcommittee agrees period. Consequently this finding has been closed.

CHAIR MUNN: Okay, now it reads in its entirety NIOSH reminded the Subcommittee that IG-1 provides general principles, not specific guidance. Detailed implementation guidance and related information is to be

found in other documents and procedures. The Subcommittee agrees. Consequently the finding has been closed.

That should do it. Anyone else have any editorial comment to make there?

MR. MARSCHKE: Are you going to use this again?

CHAIR MUNN: Yes, we can use that if that is what we agree on. Others? We can use that same wording. Okay. Very good.

Finding 2. Wait, something strange happened. Number 3.

MR. HINNEFELD: We're trying to figure out why this thing won't work.

CHAIR MUNN: Why does number 3 say closed?

MEMBER BEACH: Because we should see it pretty quickly, right?

MR. HINNEFELD: It should change right away. It's not doing something.

MR. MARSCHKE: It's not doing

something.

MR. HINNEFELD: I might not have rights to close something.

MS. MARION-MOSS: You have rights.

MR. MARSCHKE: I'll have to make a note and close it when I get --

MR. KATZ: That's fine.

MR. HINNEFELD: Steve will have to do it himself. We can work with IT on my rights. What's the good of being the director if you can't do everything?

CHAIR MUNN: Yes, that's true.

MR. HINNEFELD: There's a lot of downside to being the director, I'll tell you that.

CHAIR MUNN: They never told you that.

MR. HINNEFELD: I mean I kind of knew.

CHAIR MUNN: You've watched, right?

MR. HINNEFELD: I've been there.

MS. MARION-MOSS: Steve, could you try one more time on behalf of Stu?

MR. MARSCHKE: On behalf of Stu?

MS. MARION-MOSS: Yes, just one more time to see if I have rights to add Stu.

MR. HINNEFELD: So you're trying to add me.

MR. MARSCHKE: Lori's going to enter this on behalf of Stu.

CHAIR MUNN: Even you're not on here.

MR. HINNEFELD: Well she'd have to be screwing with the rights table, and I'm not sure any of us can do that. Okay, Steve can close these back when he gets --

CHAIR MUNN: Yes, that's fine. You have the verbiage now.

MR. HINNEFELD: Well, I don't, because it's -- well I can get it out of the transcript.

CHAIR MUNN: Well, that's good.

I'm sure that our court reporter has all those words that I read verbatim.

MR. KATZ: You can recreate it.

CHAIR MUNN: They can do that for you.

MR. KATZ: It wasn't that complex.

CHAIR MUNN: We have the words. And the next one that we have is 12. And 12 is an entirely different kind of animal. It's talking about Appendix B's PA geometry. The DCFs are in error and underestimates dose.

And we said in the past that that would be picked up in a revision, but Rev 2 came and it wasn't there. And as of last May there was no modification introduced into Rev 3.

MEMBER ZIEMER: Why would this table be in there if the document is not used for dose reconstruction?

MR. HINNEFELD: Well, these tables are used -- aren't going into the dose

reconstruction pools. They're --

MEMBER ZIEMER: Into the other documents.

MR. HINNEFELD: Yes, into the other technical documents.

CHAIR MUNN: Right.

MEMBER ZIEMER: So it looks like they're saying that it didn't actually get changed in the revision. Is that correct?

CHAIR MUNN: That looks like it was one of those things we had expected to get picked up in Rev 3. And for some reason it wasn't. So it's still in abeyance. And nothing has happened. And I'm assuming that there is going to be a Rev 4 at some juncture.

MR. HINNEFELD: Well, we don't revise them with any frequency.

CHAIR MUNN: No, I know that, but hopefully somewhere there's a to-do list that includes adding -- changing this table when next the revision comes around.

MR. HINNEFELD: Well, I remember the discussion about taking it out, and I got a lot of resistance from the technical folks about taking PA geometries out.

MEMBER ZIEMER: I guess what I'd like to know is whether the correct table has shown up in the documents that are actually used.

MR. HINNEFELD: Yes.

MEMBER ZIEMER: In other words, this is still one of those things that --

MR. HINNEFELD: There has been a correction written that recognizes that certain of the PA geometries are not to be used and do not use a PA geometry except for a couple of organs where the PA geometry actually gives you the highest DCF. And that's written, and I can't remember where that's written, whether that's here or somewhere else. But I know we've got that down somewhere.

I got a lot of resistance to taking these numbers out of here because (a) we do use them for a couple of organs, and (b) there may be a special case where you have a geometry like that, a long-term exposure with a source behind the person. And so there was resistance to taking it out. So that's why it's still there after a couple of revisions.

I think I may need to go back and refresh my memory about where exactly we are with this. And where all those things are written. And we can even -- and it would probably seem to be pretty easy to put into the verbiage of this or in the tables themselves the prescription or the warning, cautionary note about these PA geometries. So let's take that action.

CHAIR MUNN: Maybe the agenda mentioned it.

MEMBER BEACH: This has been a finding that we've carried for a long time.

And it was supposed to be put into the two revisions, so there must be a reason why it's not making the revision.

MR. HINNEFELD: Well, it's the technical guys that think we should keep these geometries there in case we want to use them.

MEMBER BEACH: But I mean it's not to take them out it's to fix them, right?

MR. HINNEFELD: Well, the table, I don't know that the table -- I'll have to go back. I'm not sure there's general agreement that the table is in error.

MEMBER ZIEMER: Well, that was the original finding. DCF values are in error.

MEMBER BEACH: Right. So if it's not in error that would be the --

MEMBER ZIEMER: It says OCAS will revise to correct the DCF tables.

MR. HINNEFELD: This all happened so long ago that I don't recall. I'm just going to go back and try to figure it out. I

apologize that I didn't get that done before I came.

MEMBER ZIEMER: The finding says they didn't change the tables.

MR. HINNEFELD: Yes. If I recall the full discussion had to do with the way the PA geometry, there was some question about whether the PA geometry was DCFs, what way -- where the dosimeter badge was located when it generated those DCFs.

I think what the idea -- I think what the objection was according to a reviewer was that they were derived as if the person wore their dosimeter on their back. So the dosimeter was exposed directly to the beam and then the beam entered from the posterior side. And so the attenuation and distribution across the organs is different than when it comes in from the front. But having the beam correctly measured at entrance.

And the reviewer's point is nobody

wears their dosimeter on their back, they wear it on their chest. And so the adjustment is wrong because the exposure to the badge in the front would be different if you're going to attenuate across the body for DCFs it's certainly going to affect -- the exit dose is going to be different from the entrance dose.

So if I'm not mistaken as I think about it that's the basis for the finding. And I've just got to go back and figure out what in the hell the conversation was because it's been too long since I've talked about it.

CHAIR MUNN: Just have to check it again. And I believe that -- we know what we're doing with 12, right? We're going on --

MR. HINNEFELD: Sort of.

CHAIR MUNN: Okay. We're going on to 16 now. And in 16 it appears to me just on reading it that this may be another one of those that's not supposed to be there. Environmental uncertainty, that is heat,

humidity, light, et cetera was not addressed in the IG. And is our position that it's not supposed to be?

MEMBER BEACH: It looks like we were waiting for revisions but then it never got added.

CHAIR MUNN: It says the reference to this section is mistaken. An analysis of environmental uncertainty for film-based dosimeters was not done in IG-01. OCAS will revise the uncertainty language in various sections of the procedure so that it reflects the basis for the uncertainty approaches utilized in the program. The revision will address the NAS's case -- additional uncertainty. We recommend it modify the procedure.

No, this is a different thing. Revise it -- Rev 2 is issued. There's been no discussion added that addresses environmental uncertainties. And then last May --

MEMBER ZIEMER: Same thing.

CHAIR MUNN: There's no addition in Rev 3 so it's still in abeyance. So the question is should it be there since this is an overall guidance document. Sounds like it might be, it should be there.

MEMBER BEACH: Well, here up on right -- the very first one that said the revision will address the NAS's KE additional uncertainty. And I'm wondering if that still applies or if that's changed through the last couple of --

CHAIR MUNN: In the last 7 years.

MEMBER BEACH: Yes, exactly. That was a 2005.

MR. HINNEFELD: This kind of falls in between the first two I think in terms of feeling about what should be here or not. The fact is we've written probably dozens of Technical Basis Documents, the OTIBs, and tools that incorporate the dosimeter

uncertainty value.

And as a general rule there's not been a lot of discussion about that. Once or twice we've had some comments that the uncertainty is too tight on dosimeters. We discussed like 20 percent, and people thought it should be 30 percent, things like that, or 40 percent. So, but the actual wording in this document is relatively -- whether, you know, what we describe about uncertainty in various uncertainty components in this document doesn't have a whole heck of a lot of outcome on how to put into those documents.

So I think it really falls in the category of the first one that we talked about. Putting that information into this document serves no real purpose in the end, that the actual uncertainties that are in the site-specific or operation-specific technical documents seem to be acceptable to people and so the wording here is kind of not really very

relevant.

MEMBER ZIEMER: Stu, it sounds like the document itself is referencing something that's supposed to be in Section 2.1.3. Somewhere in the document it must be indicating that it's going to discuss this and then it doesn't.

MR. HINNEFELD: Well, I think what it said was there were --

CHAIR MUNN: Uncertainty of environmental dose.

MEMBER ZIEMER: And it may be that all this document has to say is that uncertainty will be addressed in this other specific documents. There must be some internal inconsistency that it's -- I don't think we know what it's saying here.

MR. HINNEFELD: I can go back and find --

MR. STIVER: I might be able to weigh in on this. This is coming out of the

1980 report "Dosimetry and Atmospheric Nuclear Testing." And this is one of the different sources of uncertainty that are factored in.

This seems like kind of a real detailed thing to include in what would be kind of a high-level guidance document. There's several different types of uncertainty that need to be factored in. I don't know if -- I haven't read that particular section of IG-001 to know if all the others are included or not.

If these values are being included in the lower-level documents they really shouldn't belong there.

MEMBER BEACH: I'd say that's a NIOSH one. Go back and look.

MR. HINNEFELD: I mean, we can go back and see what it said. As I recall there's a description of the things that inject uncertainty into dosimeter readings in the IG. And there were some things that were

not addressed and that's what the finding was, and one of them being this National Academy of Sciences as a function of energy.

So that's my recollection. There's kind of a general, you know -- motherhood and apple pie paragraph about these things affect dosimetry uncertainty. And it didn't list everything that the reviewer said. Well, you didn't list these other things.

MEMBER ZIEMER: But the other part of this is that it looks like OCAS originally made a commitment to --

MR. HINNEFELD: Yes, we were going to like put those words in there.

MEMBER ZIEMER: As opposed to the first one where you guys said this is not --

MR. HINNEFELD: Yes.

CHAIR MUNN: Isn't supposed to be there anyhow. But this looks like something which perhaps should be there.

MEMBER ZIEMER: Well, I don't know.

MR. HINNEFELD: I don't know if it should or not.

MEMBER ZIEMER: It looks like they committed to doing something that wasn't done, and they just need to find out whether it really is important or not.

CHAIR MUNN: It looks like it might be, and it looks like it might be a simple change.

MEMBER ZIEMER: It might be a simple change.

CHAIR MUNN: Simple fix. All right, 17 is -- NIOSH is going to check that. It'll be on our list next time. Number 17, guidance for the selection of uncertainty distributions for total organ dose. Raises questions of consistency and requires professional judgment. Was going to revise the uncertainty language in various sections so that it would reflect the basis used. And our last finding, requested SC&A to review IG-

1 Rev 3 to determine whether it addressed any of the findings. It doesn't resolve the issue of consistency or address the need for professional judgment. So, sounds like it may be another item for pending Rev 3.

MEMBER BEACH: Well, it says Rev 3 was issued and it doesn't resolve --

CHAIR MUNN: -- Rev 4.

MEMBER BEACH: Rev 4.

CHAIR MUNN: Possibly. Does that go on your have to check this out, Stu?

MR. HINNEFELD: Well, I can. But I mean the fact that the finding talks about raising questions of consistency and requires professional judgment seems to be a finding as if dose reconstructors were using this document. And so the fact that dose reconstructors don't use this document doesn't matter if there would be professional judgment in the reading of this. The dose reconstructor would use a more specific, a

site-specific tool or a more specific technical document that would tell him how to do the dose reconstruction. And so to me this sounds like a finding that was written with the idea that dose reconstructors would be working from IG-1.

CHAIR MUNN: Certainly I can see that with professional judgment. I don't know about selection of uncertainty distributions for total organ dose.

MEMBER ZIEMER: Well, if you look down through the findings as they progress here it looks like NIOSH eliminated the examples to accomplish what you said, Stu, to make it more clear that we're not trying to use this document --

MR. HINNEFELD: Right.

MEMBER ZIEMER: -- for that purpose. But then that was misunderstood in saying well now it's less clear.

MR. HINNEFELD: It's less specific

now.

MEMBER ZIEMER: Yes.

MR. HINNEFELD: So, yes.

MEMBER ZIEMER: I think the only thing it seems to me that's missing is something similar to your first statement on that original one that says look, this is just an overall document. It may be that something like that has to be incorporated in several cases here to remind folks.

But it's not completely clear what you committed to. You apparently did -- or "you" I say. DCAS apparently did revise it, but the reviewer apparently is still thinking of it in the original terms of how it's utilized as a dose reconstruction document.

CHAIR MUNN: Can we include that in the group of things that NIOSH is going to look at and tell us whether it falls in the category of this doesn't count, we're going to close it? Or whether it counts as yes, you're

right, something does need to change in the next revision. Because that's really what we're asking you to do.

MR. MARSCHKE: Or is something we close right now like we did with the first one.

CHAIR MUNN: Yes, this one's not clear enough.

MEMBER ZIEMER: I think we just need to see what it says. I think NIOSH says look, we can just add -- or we can do it here in the group I guess. But it's not clear exactly what it is that's --

MEMBER BEACH: I think we need assurance from NIOSH that that is the same.

CHAIR MUNN: And the next of the findings is 19 which is sort of a different booger. The deficiency identified under Rev 1 review was the fragmented structure and illogical sequencing of information during the findings resolution process.

NIOSH agreed that SC&A's comments were constructive and future revisions would include a change to the structure of the document. However, that didn't happen in Revision 2.

MEMBER BEACH: It says finding 1.

CHAIR MUNN: Rev 3 made no change to the structure of the document. SC&A had recommended keeping it open but believe that finding 1 was very similar and could be incorporated into this finding. Did we close?

MEMBER ZIEMER: Finding 1 has been closed.

CHAIR MUNN: We closed it based on the fact that we were going to deal with it here in 19. And apparently we've gone through the next revision without any changes in structure. And it appears to me that this was more a matter of format than anything else. And the format wasn't changed.

MR. HINNEFELD: It seems that way

to me.

CHAIR MUNN: All right. Let's leave that one as is.

MR. HINNEFELD: So what do we have to do?

CHAIR MUNN: What we're going to have to do is I guess from the perspective of the Subcommittee that's another one of those things that needs to go on a list of changes that will occur.

MR. HINNEFELD: I wouldn't propose we change a format for a document for a reviewer at all. The reviewer doesn't use the document. The reviewer's view of the format of the document is irrelevant.

CHAIR MUNN: I didn't get the feeling that this was particularly for the reviewer.

MR. HINNEFELD: Well, the reviewer says I don't like the structure and the sequence of the information. I mean that's

what they're saying. They didn't find anything wrong with the information, they just don't like the order in which it's presented.

CHAIR MUNN: It says it's fragmented and illogical sequence.

MR. HINNEFELD: Yes, the sequence isn't -- what the reviewer would put it in and it was fragmented. I mean there would be a piece of information here and then a related piece of information later.

I don't see any particular reason why we should change a document that serves the purpose that it serves, this purpose. Again, it's not like there's a dose reconstructor who has to choke through those being directed various places to have to do this and then to have to look somewhere else to do the next step.

That's not what we're talking about here. We're talking about this general principles document that this information has

to be included in other technical documents. It's not like people were using this all the time.

MEMBER BEACH: I think we should close that one.

CHAIR MUNN: Well you know, it's been years since I read any of those IGs, but I do remember agreeing with this kind of finding in one or more from my own reading, thinking this doesn't follow. You have to jump around too much to get to it. And I, frankly I don't remember whether this was -- it may not have anything to do with IG-1. But the only point I'm making here is the dose reconstructors are not the only people who refer to this from time to time.

MR. HINNEFELD: They never refer to it.

MR. KATZ: They don't refer to it. That's this one.

CHAIR MUNN: I know, I know.

MEMBER ZIEMER: Well, it just seems to me that in terms of time and effort probably our time is better spent on doing the other kinds of changes. This is something, I guess at some point if you do a Revision 4, we're talking about shuffling stuff around.

MR. HINNEFELD: That's not always a trivial change though. I mean to say okay, I've got all the information I want in this document. Now how am I going to write it in a different sequence that is more -- that doesn't fragment it and is more appealing, that's not trivial.

MEMBER ZIEMER: It's fairly subjective.

MR. HINNEFELD: Even if you're just moving blocks around. And it's a subjective determination anyway.

MR. KATZ: And it's not worth it if it's not substantive frankly because they have this whole pile of things that are substantive

that they have to do.

MR. HINNEFELD: Yes. I don't intend to do anything about that.

MEMBER BEACH: I would close it honestly.

MEMBER ZIEMER: I'm okay to close it.

CHAIR MUNN: Let's revise the language to our closure slightly and say that the Subcommittee agrees that the sequence of information is not a key factor in providing adequate guidance and therefore feels that this finding can be closed.

MEMBER BEACH: How about recommends the finding is closed.

CHAIR MUNN: Well, we're the only people who can do it. We either do it or we don't do it.

MEMBER BEACH: I just didn't like the wording of "feels." That's okay.

CHAIR MUNN: Well, but the buck

stops here. You know, SC&A can recommend, NIOSH can recommend.

MEMBER BEACH: I understand what you're saying. Okay.

CHAIR MUNN: We have to do it. So we either bite the bullet or we don't.

MR. MARSCHKE: The Subcommittee agrees that the sequence of information is not a key factor and --

CHAIR MUNN: In providing adequate oversight.

MR. KATZ: And closes.

MR. MARSCHKE: Comma and closes. And has closed. Okay.

CHAIR MUNN: All right. The next one is 20 Rev 1. Identify guns was not provided regarding the assessment of neutron doses using source term data. Rev 2 simply removes the equation for calculating neutron fluence. However, the methodology for assessing neutron dose from source term has

not been changed. The revision also neglects to direct the dose reconstructor to site-specific documentation for additional information.

Now that last sentence falls into the category of never mind. But if the methodology for assessing neutron dose from the source term should have been changed and was not then we still have an outstanding item. That appears to be the question before us. I don't know the answer to whether neutron dose from source term should be addressed in this document.

MEMBER ZIEMER: It seems to be saying that you use the source term for determining neutron doses and doesn't tell you how to do it. Well that's exactly what you're saying the document is for. That's the basis for which we're doing it.

And again, you're not pointing the dose reconstructors to site-specific documents

because they're not reading this to start with. It would seem that your answer to the first item would be similar to this one, or this one would be similar to the first one. Because the business about the original finding doesn't provide guidance regarding assessment of doses using source term data.

CHAIR MUNN: Correct.

MEMBER ZIEMER: You don't need the guidance here in this document. You're just saying we'll use source term data to calculate neutron doses.

MR. HINNEFELD: Right.

CHAIR MUNN: So the wording of the first --

MEMBER ZIEMER: And by removing the equation you're doing what you said don't do that.

MR. HINNEFELD: We don't do that here.

MEMBER ZIEMER: Right.

MR. MARSCHKE: Actually I remember the history on IG-1. SC&A reviewed it twice. We reviewed Revision 1, and then we reviewed Revision 2.

CHAIR MUNN: Yes.

MR. MARSCHKE: And this comment actually is just a follow-on to IG-1 which we have already closed. I guess we closed it because it's here -

MS. MARION-MOSS: You meant to say Rev 1.

CHAIR MUNN: All of the findings after 18 I believe are Rev 2.

MEMBER ZIEMER: I guess I would recommend that we close this in a manner similar to item 2.

CHAIR MUNN: The first one. Item 2.

MEMBER ZIEMER: It was item 2.

CHAIR MUNN: Any objection to closure?

MEMBER BEACH: No.

CHAIR MUNN: Then our next item would be number 22. IG-01 should but does not direct the dose reconstructor to technical and site-specific documentation where the DR can find more specific guidance. That would be in my view the same response as item 2. Is that agreed?

MEMBER BEACH: Yes.

CHAIR MUNN: Any contrary comment? We will close 22. The last and final item that we have is 24 and we're back to PA geometries in Appendix B. All DCFs associated with PA geometries in Appendix B of Rev 1 are in error and underestimate dose. NIOSH should have either identified the problem and recommended a badge placement correction factor as they did for erroneous isotopic and rotational DCFs or eliminated the use of PA geometry altogether.

Environmental uncertainty

associated with dosimeters was not addressed as Rev 2 does not include any discussion of environmental uncertainty associated with dosimeters. And reference to the topic in Section 21131 has not been changed.

Guidance for selection of uncertainty distributions raises questions of consistency and required professional judgment. In addition, Rev 2 should have identified the fact that calculational tools and workbooks have been developed for best-estimate cases that automate the process of determining dose uncertainty using Monte Carlo sampling techniques.

That sounds like item 2, closed because it's not applicable. Is that correct? Am I misreading that?

MR. HINNEFELD: Well, I think there are three items actually listed here.

CHAIR MUNN: Yes.

MR. HINNEFELD: Number 3 does fall

into that and is like a number 2 closure. But the other two are restatements of things that we're going to go look at I think.

MS. MARION-MOSS: Number 12.

MR. HINNEFELD: Number 1 would be a statement of the geometries that I'm going to look at.

CHAIR MUNN: Let's include that, 12, 16, 17, and 24.

MR. MARSCHKE: Can you close it as saying it's already been included -- being taken care of under the --

CHAIR MUNN: Let's just wait until Stu has reviewed what's going on.

MR. HINNEFELD: When I provide something I'll also provide my judgment on which of the other findings. Because 1, 2, and 3 are restatements of things we just talked about. And so I'll just say number 1 should be addressed by such and such a finding, number 2 should be addressed by such

and such a finding, number 3.

CHAIR MUNN: That's pretty clever to get three findings in one there.

All right. The only thing that I have now is holdover for a NIOSH report next time on findings 2, 16, 17, and 24.

MR. HINNEFELD: Twelve.

CHAIR MUNN: Did I not say 12, 16?

MS. MARION-MOSS: You said 2.

CHAIR MUNN: And 24. No, 2 is closed. So 12, 16, 17, and 24. All right. That was an exercise and it's almost 2:30. Let's take our afternoon break, and we'll address our carryover items when we get back starting with TIB-10. Fifteen minutes.

(Whereupon, the foregoing matter went off the record at 2:26 p.m. and went back on the record at 2:40 p.m.)

CHAIR MUNN: Our next item looks like it's a NIOSH report, TIB-10, Rev 4 posting, question mark.

MR. HINNEFELD: Okay, which one are we on? Is this the one where we --

CHAIR MUNN: TIB-10, Rev 4.

MR. HINNEFELD: Okay. Yes, I think at the last meeting we said we would -- this is -- the finding here relates to SC&A ran MCNP and got one set of results. We had used Atilla to arrive at a different set -- I think a different set of results. We had Atilla for a short period of time. It was extraordinarily expensive so we didn't keep. There was an annual fee that was really expensive so we didn't keep it.

And since we don't have it, it's silly to have stuff based on it. We're going to redo the calculation with MNCP and then we'll have a basis for having an understandable conversation with SC&A about the finding. So that is being done by our contractor and it is on their project list. I'm thinking we're looking at the end of the

year, end of this calendar year before we have a result from that. So it might be ready for the next Board meeting which will be after the first of the year to talk about that.

CHAIR MUNN: Essentially we need to carry it over.

MR. HINNEFELD: Yes.

CHAIR MUNN: And none of the other --

MR. HINNEFELD: But now Rev 4 to the document is available for you to look at. I don't think the BRS brings it up but if you go to your ABRWH folder on Site Tools.

CHAIR MUNN: Okay.

MR. HINNEFELD: Okay, if you bring up the ABRWH folder.

CHAIR MUNN: No, it's not opening.

(Simultaneous speaking.)

MR. HINNEFELD: And in that folder there's a Procedures Subcommittee folder if you open that, and then NIOSH documents.

There it is.

CHAIR MUNN: Okay.

MR. HINNEFELD: So that's available now to look at.

CHAIR MUNN: All right.

MR. HINNEFELD: But now what we're going to do though is we're going to run --

MEMBER ZIEMER: Where is it?

MR. HINNEFELD: Do you see an ABRWH folder?

MEMBER ZIEMER: Yes, I think I'm in it.

MR. HINNEFELD: And there's AB Document Review folder.

MEMBER ZIEMER: Procedures Subcommittee folder?

MR. HINNEFELD: Yes.

MEMBER ZIEMER: Yes.

MR. HINNEFELD: And then there's NIOSH documents.

MEMBER ZIEMER: Oh, NIOSH

documents. Gotcha. There it is.

MR. HINNEFELD: Okay. So, it's available for you to look at. Since we're going to rerun MCNP, there's going to be further discussions to get that done.

And so the findings 5 and 6 are covered in TIB 13. What are findings 5 and 6?

MR. MARSCHKE: We put together this little document here that's attached to finding 8 and it has some thoughts on finding 8 including some pictures of the glove box that was said to be used and some specifications for the glove box that was said to be used.

I don't know if you've been looking at this but you may find it helpful if you're redeveloping and refining your model to use for MCNP. It's there. It's the results of our investigation. So if we want to take a look at it and if it's helpful, good. You know, and if not.

MR. HINNEFELD: Okay.

MR. MARSCHKE: But it's there for you to see.

CHAIR MUNN: That was a nice little White Paper.

MR. MARSCHKE: It was a nice little White Paper.

CHAIR MUNN: Thank you.

MR. MARSCHKE: And the other thing we did in this White Paper if you want to jump ahead to finding 9 is that we do make a recommendation in here that finding 9 be closed because the Rocky Flats data has been removed from the TBD. So there is a recommendation that finding 9 can be closed.

Finding 9 was this one here, use of the Rocky Flats data to validate the model was questionable and that data has been removed.

CHAIR MUNN: Is there any objection?

MEMBER BEACH: No.

MEMBER ZIEMER: No.

CHAIR MUNN: We may -- the Subcommittee agrees, finding 9 can be closed.

MR. MARSCHKE: That's all.

MR. HINNEFELD: What are findings 5 and 6? I'm not real familiar with those. It says they were addressed or covered in TIB-13, question mark, but I wonder what they are.

MR. MARSCHKE: It's the location of the film badge I guess relative to the glove box and the angular -- Bob Anigstein, are you on the phone?

DR. ANIGSTEIN: Yes, I am.

MR. MARSCHKE: Can you give Stu a brief summary?

MR. HINNEFELD: I can see that there's a fairly --

DR. ANIGSTEIN: Sorry, summary of what?

MR. MARSCHKE: We're talking about findings 5 and 6. I think we were discussing

transferring these to TIB-13.

DR. ANIGSTEIN: Okay. Now finding 5 was more a matter of philosophy and methodology. And that was, what was done in the original -- not very clearly described but what was done was apparently they did the Atilla and there was a slight amount of speculation in what I'm saying. It was not clearly spelled out but this is the general impression we got.

They did the Atilla and they divided the torso into two regions, two rectangular regions of the body. One comprising the chest and abdomen, or part of the chest and abdomen, and the other one comprising locations where the lapel might be, where the film badge might be.

And then because the advantage of the Atilla apparently why they used it is you can get multiple dose points at once. Actually you can do that with MCNP also.

And then, having produced the output and tabulated the output, they used Crystal Ball, I believe, they don't specify but that's what they used to randomly sample and pair. So let's get one point, a dose point on the body and a receptor point where the film badge might be, and take the ratio of the two. And this is done repeatedly sampling with no correlation, sampling over the dose point and over the -- I'm going to call them receptor points which is the -- or detector points for the film badge. And then -- and this way you get a distribution of ratios.

And from that distribution, I don't have it in front of me but there was a -- the mean was 2 point something, 2.1, 2.3, in that range, and then there was of course a standard deviation.

And our objection to that is that you're looking at a specific worker who wears his, shall we say habitually wears his film

badge in a specific location and more important he has a cancer on a specific organ. He doesn't have a cancer over a range of organs. So that range is inappropriate. It should be more appropriate to say either doing it for each organ which would be a bit of a chore but not terribly difficult in saying for a cancer of the liver this would be the dose, this would be the ratio of the dose between the liver, the center of the liver and the film badge on the lapel. That would be one approach.

The other approach would be a limiting one where you simply say which organ would be at the greatest distance from the lapel. Which organ would be reasonable to expect it would be in line with the -- in the glove box, it would get the highest exposure. Which organ would get the highest exposure with the lowest film badge reading and use that as a ratio to have a limiting claimant-

favorable case. One or the other, but not this range. That was our approach and philosophy.

Now, what we did way back I believe in 2005, imagine we're going back that far, actually it just so happened that there was -- my colleague [identifying information redacted] who was at that time a staff member of Los Alamos, LANL, had a colleague first name [identifying information redacted] who did his Ph.D. thesis. And he modeled, he hunted around because they no longer use them, but he hunted around, found a glove box at LANL that was still in dust, somewhere in storage, carefully took measurements on it and reproduced it in an MCNP model. So here you have the detailed model of the dimension, the thickness, the materials.

And we use that model to represent an organ that was directly in line with the plutonium flows being handled or radioactive

flows being handled -- I think we used plutonium -- and the likely location of the lapel. And we did get a ratio that was within 10 percent of the NIOSH ratio. So, the number came out reasonably good but we just disapproved of the concept behind it. And we don't feel that there was a good basis for using a distribution as opposed to a fixed number.

So sorry, that's a long-winded answer to what -- that's basically what finding 5 is all about. More a question of approach and methodology than actually the number.

MR. HINNEFELD: Okay. Thanks, Bob. This is Stu. I thought that was pretty clear, actually.

DR. MACIEVIC: This is Greg Macievic. It was pretty clear but incorrect.

MR. HINNEFELD: Okay, Greg, go ahead.

DR. MACIEVIC: Let me explain actually what we did and then -- first of all, Bob keeps talking about doses. In no cases are we computing doses in any of this scenario. What we did, because the dose computation comes in from the dose reconstruction reconstructor. He is the one who has to look at the badge types that were used, filter configurations, whether it's TLD or film, also look at where the organ for the cancer is and do all the corrections and modifications that are required. The functions of things like the energy of the protons and all that has to be done first. The whole point of this modeling is that it's a geometric correction.

What I did was because you can pick and not just a few points, and Atilla can't just pick a few. You can pick 10,000 points if you want to and it does it much faster than MCNP and that's why we use this. We picked --

I picked 30 points that covered the entire area of the chest. I picked 30 points that covered the whole lower abdomen.

And the whole point is that you compared the fluxes at -- you would take, say, the lower abdomen or the lower torso part, you'd have the first point. You would take the ratio of that first point with all the 30 points of the chest. And you did use Crystal Ball and that is stated specifically in the procedure. It is stated throughout that, what was done.

You take that and use all these different ratios, just of the flux. Because the intention is that if the dose reconstructor has done all his dose computations, you will take that badge reading that's been corrected, take that number which is the geometric mean and the whole distribution, geometric mean of 2.19 plus the geometric standard deviation of 1.35. So you

have a ratio range that goes from 0.89 to 4 and you get -- that applies that distribution to the badge reading and you will get a distribution of the potential doses that corrects that badge. So now you are not talking in terms of dose.

And as a matter of fact what you're doing, I think when one of the parts of the response where you use the MCNP and said, boy, this is a simple inverse square law geometric effect and you came up close to our number, it's funny how you keep coming up close to what the Atilla number is but yet you don't accept the Atilla.

Because part of the problem is you don't want to get into the specific organs and discussing each one because there are too many things. I mean even the type of glove box, there are so many types of glove box out there. So to make it as simple as possible and only 16 pages, we went with that, I went

with that methodology of computation. And there is nothing unusual about a distribution of ratios between two regions because those regions are right at the surface. And I have rambled too much.

DR. ANIGSTEIN: Once again, to answer that briefly, the problem is you're having -- the distribution of ratios assumes the distribution of organs and yet you're applying that distribution to a specific worker with a specific cancer in a specific organ. And it just seems to be illogical.

DR. MACIEVIC: No, what you're doing --

DR. ANIGSTEIN: Because they would also consider at the low end, he could get a small correction because what if the organ was high on the body and not that far from the lapel whereas in reality his organs, that's not his organ. So it's not -- if you were doing epidemiological study of a lot of

workers and saying, well, on average this would come out. But if you're doing a dose reconstruction of a specific worker that distribution based on exposure of all the organs in the body just does not -- is not reasonable.

DR. MACIEVIC: You are looking at -- the reason you're covering both regions of the body is because all you're trying to get is you're saying with a glove box, the dose is going to be to the lower abdomen because he's working on a table and the dose is going to the lower abdomen. And you want to ask well how do I correct that badge reading. How much is that badge reading under-responding based on a dose to the lower abdomen and that is what you're correcting.

When you're talking about the organs and the doses to the organs now you have to start looking at the photon energies, you have to start looking at different types

of corrections for the glove box material. When we tried to make that glove box as simplified by having the Lexan face and the lower abdomen in the line of the exposure as opposed to in a real glove box where you have a lower metal portion and a higher Lexan portion, you would get less dose to the lower abdomen. So we were trying to make it --

DR. ANIGSTEIN: That's not correct, by the way, because our glove box was a real glove box. So we did not get less dose.

DR. MACIEVIC: No, and you came up with my --

DR. ANIGSTEIN: Well, we came up with the average, the same average number. But again --

DR. MACIEVIC: Did you run all the --

DR. ANIGSTEIN: I'm not sure we're addressing the same -- we're talking about the same thing. The objection is that by sampling

from a distribution, sometimes the worker is going to get a lower correction factor that may be applicable to somebody else with a different cancer but not to his cancer. So it just seems that it should not be a crap shoot that he takes his chances of where particularly, where you draw the distribution, but it should be a fixed value, a conservative fixed value that will be claimant-favorable, that will not risk underestimating the dose. That's the objection.

DR. MACIEVIC: -- made the specifics of a LANL glove box and said okay, the LANL glove box is the glove box of choice for all workers at all sites.

DR. ANIGSTEIN: No, we're not saying that because as it turns out you're correct to point it out that in general as it turns out, the inverse square law gives you a reasonably good correction without considering the energy and the attenuation. That seems to

come out. But again, by using a distribution, you're also sampling from the low end as far as, as well as from the high end and you risk underestimating the correction factor. I won't say dose even though we use doses. You risk underestimating the correction factor by simply lumping the individual cancer with a whole array of possible cancers. That's the objection.

DR. MACIEVIC: Well, the objection would be more valid if that correction factor went down to zero, between zero and 4. But you're basically between 1 and 4 and the mean at 2.19. So you're really -- the sampling is always going to be greater than 1 in a correction to that dosimeter --

DR. ANIGSTEIN: How can you have a correction factor of zero? That means that the film badge got a dose and the organ got zero dose?

DR. MACIEVIC: No. Obviously, you

can't have a correction factor of zero. I said zero to 4 just to go to the extreme down to zero.

DR. ANIGSTEIN: No, 1 would be the lower limit.

DR. MACIEVIC: A lower limit to the upper limit which covers all the calculations from Tim Taulbee's calculation.

DR. ANIGSTEIN: Okay.

DR. MACIEVIC: Also --

DR. ANIGSTEIN: Well, again I can see clearly we're not going to agree. It's my point, and I believe SC&A stands with this, is that this should be a fixed number. I'm not saying that this should be the fixed value that we came up with the LANL glove box, we just used that as a -- limited. We were not asked to do 10,000 possible simulations, we just did one to see if it's reasonable. That the thing is, it should be offhand I would say, if you want to use a distribution you

should take maybe the 95th percentile of that distribution and use that as the fixed value.

DR. MACIEVIC: I would agree.

DR. ANIGSTEIN: Or use the mean for a particular organ. But not to use a distribution which includes both above and below.

DR. MACIEVIC: Well, that's true. You could do that and truncate it and move the upper part, I would agree with that.

DR. ANIGSTEIN: Okay, that would be claimant-favorable and reasonable.

DR. MACIEVIC: Right. I'm done.

(Laughter)

MR. KATZ: That's surprising how it came out at the end. What does the Subcommittee think?

DR. MACIEVIC: You've got a lot to vent after 7 years.

MR. HINNEFELD: This is Stu. I just want to make sure I -- the last part of

that conversation caught me by surprise. Apparently both of you feel like if we used the distribution that we generated but rather than use the full distribution use the 95th percentile of what you get from the distribution we generated that that would be an acceptable correction factor. Did you both say that would probably be okay?

DR. MACIEVIC: I would have no problem with it.

MR. KATZ: And Bob, that sounded right to you?

DR. ANIGSTEIN: Say it again? I didn't quite -- could you repeat what you said?

MR. HINNEFELD: Yes. If in fact using the values that were generated in our document, it's got a median, a mean and a geometric standard deviation. And if we use -- what would be the resulting 95th percentile of that.

DR. ANIGSTEIN: That would be great.

MR. HINNEFELD: That would be an acceptable item for you.

DR. ANIGSTEIN: Yes, that would be very favorable.

MR. HINNEFELD: Okay. I think we might have a resolution then. That would be something we would have to change in our approach though.

DR. ANIGSTEIN: It only took 5 years.

MR. HINNEFELD: That's why I was a little caught off guard by that conversation.

(Laughter)

MR. HINNEFELD: So that would be essentially something that we could come back and say as a result of this we have agreed to do that and that if we do that then that presumably would put this in abeyance until our guidance is included.

MS. MARION-MOSS: I have a question. Steve, this potential resolution will address what finding? Is it 8 or 5 and 6?

MR. HINNEFELD: This is 10-05.

MS. MARION-MOSS: But we have what they discussed just now in finding 8.

MR. MARSCHKE: That's another question. We have to go back through those. Those findings in 10, findings 5 and 8 are still open and 6 is still open but 6 is going to -- there's also the TIB-13 factor in here. There's some connection between the TIB-10 findings and the TIB-13 findings which are very similar. In fact, finding 6 we said the last entry in the BRS was this finding will be transferred to TIB-13. Until then the status is changed to in progress. So I don't know why we didn't change it to transferred at that particular point in time but we didn't.

So I think I've been confused on

the TIB-10 findings and the relationship between TIB-10 and TIB-13 for 5 years now. And I would think we need to take a step back. Now that we have some agreement between NIOSH and SC&A on an approach to resolution of this we can go back and look at all the findings and see which ones this resolution will address. And what it's going to take to address any ones that this proposed resolution does not address.

CHAIR MUNN: That's an excellent suggestion.

MR. MARSCHKE: Bob, does that sound reasonable to you?

CHAIR MUNN: Bob, are you there?

DR. ANIGSTEIN: Yes, yes. I'm not quite sure what the question. Sorry. I'm having a little trouble hearing.

CHAIR MUNN: Steve was questioning the fact that we appear to have this overlap of issues.

DR. ANIGSTEIN: I'm well aware of that.

CHAIR MUNN: Of issues between --

DR. ANIGSTEIN: I want to comment on the other, the summary of the open findings on TIB-10. And I think largely they're thinking of finding 8. Finding 8 arose because NIOSH ran and constructed an MCNPX model which was quite different from the model they used for Atilla. And that was withdrawn in Rev 4. So that finding is gone.

MR. MARSCHKE: Finding 8 is gone now?

DR. ANIGSTEIN: I believe so because that was a question of the model used in the MCNP for Rev 3. And NIOSH then withdrew the MCNP analysis when they issued Rev 4. So finding 8 is gone.

And finding 6 which talks about the model of glove box is also more of an issue of appearances. We disagreed with the model but

we don't disagree with the results. In light of what we just said, I think we can withdraw both findings as being editorial issues. The model is not a correct model but it doesn't change the results. I don't know how NIOSH wants to handle that.

MR. MARSCHKE: Well, I think what I want to do is there's three outstanding issues on the TIB-10 which is 5, 6 and 8. And we seem to be -- they seem to be very fluid.

DR. ANIGSTEIN: Yes. Again, we produced a report together, Steve and I, showing that the glove box -- I believe it was called Innovative Technologies if I remember correctly -- that was used in the original Atilla model was simply not -- that was not in fact innovative technology, the glove box. There was a misinterpretation of the engineering drawings and there wasn't enough information available at the time. So it's a technical point but it doesn't change the

result. So I'm not sure how the NIOSH and the Subcommittee want to handle the fact that there was a technical error in the analysis but the result is still reasonable.

CHAIR MUNN: Well Bob, the way I would like to handle this is I would like to have whoever is the point person for SC&A and the point person for NIOSH discuss now where we are now that we have one or two points of agreement, and meld the two issues, what we have in TIB-10 and what we have in TIB-13, identify which issues are still outstanding and agree which ones can be closed and have that information brought to the Subcommittee at its next meeting so that we can at least get some clarity on exactly what we still have outstanding. At this juncture, I don't know about the other Members of the Subcommittee but it's very muddled in my mind as to what's clear, what we have agreed upon, what we have not agreed upon. That's obviously a technical

question and you need to bring some resolution I think, some suggested resolution to the Subcommittee before we begin to close or attempt to actually place language in a closure statement for any of these items.

MEMBER BEACH: Well, 6 seems to run --

DR. ANIGSTEIN: Who is the NIOSH point person on this?

DR. MACIEVIC: Greg Macievic.

DR. ANIGSTEIN: Greg Macievic.

MEMBER BEACH: Six falls under the same thing because it references 13 and the MCNP model so all of them.

MR. MARSCHKE: I think we're going to look at 5, 6, 8.

MEMBER BEACH: Nine is closed.

MR. MARSCHKE: Nine is closed. And TIB-13 I think there's only one open on TIB-13. We'll look at that as well.

CHAIR MUNN: Four.

MR. MARSCHKE: Four.

MR. KATZ: You said 5, though. We're already in agreement on 5.

CHAIR MUNN: I'm not asking for specific findings. I'm asking that you look at TIB-10 and TIB-13 and identify which findings can be closed based on the discussions that we've had today and previously and which ones are open and why. Can we agree that we'll have that at our next meeting? Can our SC&A and our NIOSH folks get together on your own without us and identify where we are, bring us back closure statements or updates that we can post to the database with the Subcommittee's approval at our next meeting. Okay? Is that agreeable?

DR. ANIGSTEIN: Wanda, would you want to participate in that technical call?

CHAIR MUNN: I would like to hear it. Yes, if I can. Just let me know that it's going on. I'll let you know if I can

make it.

MR. KATZ: Whoever organizes it send me date and time and I will distribute that and any of the Subcommittee Members who want to listen in can.

CHAIR MUNN: All right?

MR. HINNEFELD: Yes. And then any communications that are done, for instance email exchanges or things like that --

MR. KATZ: Yes, just email those. We can't have a quorum for a call but otherwise you guys can listen in, some of you at least.

MEMBER ZIEMER: Now what we heard is that maybe Bob and Greg are close to agreement on that particular issue. I'm not sure that the Subcommittee is in agreement on it.

What's not clear to me now, I think you were -- I guess NIOSH was proposing that they would use the distribution in the

calculational thing as opposed to a fixed point. But if you use a distribution, ultimately you're still picking up the tail anyway. It's not clear to me how the endpoint differs very much in these two cases.

DR. ANIGSTEIN: SC&A did a study at the very beginning of its contract -- this goes back to 2004 -- over how the fixed 95th percentile of the distribution compares to using an entire distribution. And depending on the distribution but in most cases we found the 95th percentile was more claimant-favorable.

MEMBER ZIEMER: Well, that's very much dependent on the size of the error bars.

DR. ANIGSTEIN: It does. I said in most reasonable cases. This was done together by myself and Harry Chmelynski, a Ph.D. in statistics, another part of our group. And in most cases, there were a few unusual cases but with very, very large error bars but in most

cases the fixed 95th percentile was more claimant-favorable. This is the answer to that question.

MEMBER ZIEMER: I don't think you're required to use what you would call claimant-favorable assumptions at every step of a calculation. You have to use reasonable assumptions along the way. And the 99th percentile on the distribution ends up giving you the claimant favorability that you want. You don't always have to -- I mean you could pile 95th by 95th by 95th.

DR. ANIGSTEIN: Well, the only way you can confirm that categorically would be to do it twice but maybe that's not unreasonable to do each run twice.

MEMBER ZIEMER: Well, there's always going to be exceptions. I guess it seems to me there has to be a decent rationale for selecting a single point versus a distribution when in fact -- if you're talking

about workers having their organs in different positions then it seems to me it makes sense to use a distribution.

DR. ANIGSTEIN: But we're talking about, again, I'm sorry, it sounds like we're reopening the issue which we just agreed on. Again, we're talking about the specific work, not an individual whose organ -- the individual organs doesn't wander. The cancer can be two different organs. We're talking about a specific dose reconstruction to a specific, a known, specific cancer. To say -- I'm sorry, I thought we just solved this issue. Resolved.

MEMBER ZIEMER: No. I said you and Greg agreed to it. I don't think the Subcommittee did and I was asking why you would go with a single point versus a distribution.

MR. MARSCHKE: I think the thinking is, again, it's like what Bob says. The

individual is going to have a cancer in a particular organ whether it be prostate or something like that and that's going to be a fixed relationship between the organ that has the cancer and the location of the dosimeter.

MEMBER ZIEMER: Yes but in fact you don't know what it is for that individual.

DR. ANIGSTEIN: We know where the cancer is or you wouldn't be doing the dose reconstruction.

MEMBER ZIEMER: You don't know where that individual's organ is.

MR. MARSCHKE: We don't know the height of the individual. I think what Paul is saying --

DR. ANIGSTEIN: We have pretty detailed information from the ICRP reference man. We know the approximate location of each organ.

MEMBER ZIEMER: Exactly. That's my point, Bob. That you're using a reference

phantom and --

DR. ANIGSTEIN: But all your dose conversion factors --

MEMBER ZIEMER: -- distribution --

DR. ANIGSTEIN: -- interrupting. All the dose conversion factors in use by NIOSH and by every other body that I know of is based on the reference man.

MEMBER ZIEMER: Exactly.

DR. ANIGSTEIN: Otherwise you would have to rewrite the whole book and do it for each individual and I don't think anybody is going to do that.

MEMBER ZIEMER: No, no. I'm saying that makes the argument for using a distribution because --

DR. ANIGSTEIN: No, I don't agree with that.

MR. KATZ: Okay, well ultimately it's the Subcommittee that has to --

DR. ANIGSTEIN: Excuse me. Because

the distribution that is used by NIOSH is still based on a particular phantom, not on a range. Not on a range of sizes.

It just so happens that I'm working on a contract with CDC Radiation Studies Branch on this very topic on screening people for radiation intake and should they use a standard phantom or should they use a different one for each individual. I think the resolution --

MEMBER ZIEMER: Well, no, I wouldn't be arguing for that. I'm just thinking off the top of my head here that the organ position relative to the phantom is still in a sense a part of a distribution.

DR. ANIGSTEIN: That may be the case.

MEMBER ZIEMER: There's an uncertainty is all I'm saying.

DR. ANIGSTEIN: Oh, there's no question. There's no question.

MEMBER ZIEMER: And wherever there's uncertainty we've got to try to use distribution.

DR. ANIGSTEIN: But this distribution developed for TIB-10 does not address that uncertainty. It addresses an uncertainty as to we don't know which organ is affected not that we don't know the size of the individual or where, you know, his liver is with respect to his collarbone, for short individuals compared with --

MEMBER ZIEMER: You're saying that uncertainty is --

DR. ANIGSTEIN: That's not what was addressed.

MEMBER ZIEMER: I understand. Thank you.

CHAIR MUNN: All right. We have our marching orders with respect to TIB-13 and TIB-10, right? And we can now close that for purposes of discussion here.

Our next agenda item is IG-003 and IG-005. Final reports were to be transmitted and we were to load them on the database. Both SC&A and NIOSH had actions. Who can tell me where we are?

MR. MARSCHKE: I don't think we did anything. I think that's going to be a carryover item, Wanda. I don't know.

MEMBER BEACH: They're not loaded, I just tried.

MR. MARSCHKE: So I'm not even sure. From SC&A's point of view I guess I'd have to look into that. I apologize, Wanda, I did not -- that agenda item slipped my --

MR. HINNEFELD: The reports have been written?

MEMBER BEACH: That's what I was going to ask, do we have final reports.

MR. HINNEFELD: I don't think we have final reports. IG-003 and IG-005, SC&A's review of IG-003 and IG-005. I guess that's

what we're talking about, right? Did we task them to do that?

MR. MARSCHKE: I don't think we're reviewing -- are we reviewing IG-003, IG-005?

MR. HINNEFELD: What's the action here?

MEMBER BEACH: Well it says the final reports transmitted and then loaded into the database but do we even have a report? I don't remember seeing one.

MS. LIN: I don't remember findings for IG-005.

CHAIR MUNN: This goes back a long way.

MEMBER BEACH: IG-004 says there's seven findings. Oh, we weren't talking about 4.

CHAIR MUNN: Three and five.

MEMBER BEACH: Zero zero, so.

MR. MARSCHKE: John Stiver, are you on the phone?

MR. STIVER: Yes, I'm on. I don't recall what this was about though either. We'll have to look into it.

MS. LIN: IG-003 is the external exposure.

MR. HINNEFELD: External is 1, internal is 2. Three is exposures that are included. Five, excuse me, classified information.

CHAIR MUNN: For some reason our prior information led us to believe that both those were outstanding and needed reports, both what's covered and --

MR. HINNEFELD: Were we supposed to report on what's in them?

CHAIR MUNN: Classified information.

MR. HINNEFELD: To be honest I don't remember.

MEMBER ZIEMER: What would be loaded would be the findings, right? We don't

have any yet.

MR. HINNEFELD: I don't think you've been tasked to review.

CHAIR MUNN: I will have to track back and see exactly what the instruction was because as I said, this has been carried over for at least three meetings. So I'll go back and check to see what it is.

MEMBER BEACH: Well, 003 actually says Rev 1 on here, so. Wanda has that action.

CHAIR MUNN: Wanda has the action. I'll double-check it.

Our next one is PER-29. NIOSH is going to give us an opinion on what the approach was going to be.

MR. HINNEFELD: I think I sent that. Did I send that?

CHAIR MUNN: Yes, there was something that was sent.

MR. HINNEFELD: This PER is about

Clarksville/Medina, the weapons storage sites -- or modification centers. The PER was written, this is unusual but it was written at the initial issuance of the Site Profile for those sites, the reason being that some dose reconstructions had been done with some -- where we only have a few cases, a lot of times we'll just do the dose reconstructions rather than write a Site Profile. And then we got more cases and we decided we've got enough. I guess this is what happened. We eventually issued a Site Profile for Clarksville/Medina.

MEMBER BEACH: Well, this says 027 is Clarksville/Medina, 029 is Hanford.

MR. HINNEFELD: Okay, I'm sorry. I said --

CHAIR MUNN: Internal --

MS. MARION-MOSS: Is 29 the Y PER?

CHAIR MUNN: Twenty-nine is Y-12.

MS. MARION-MOSS: Twenty-nine is Hanford.

MEMBER BEACH: Well this says 00 and I have 029.

MR. HINNEFELD: That won't make any difference.

MEMBER BEACH: Okay.

CHAIR MUNN: Well, we were supposed to have cleaned those numbers up theoretically.

MR. HINNEFELD: I sent 27 which I thought was what was in my notes from the last meeting. That notebook's out in the car.

MEMBER BEACH: It seems like it would make sense because we were talking about --

CHAIR MUNN: PER-29 is --

MEMBER BEACH: Irregardless there's zero on both of these.

CHAIR MUNN: Hold on just a moment. No. Since that was a carryover also it would have to be something I'd have to go back and check from at least three meetings ago. I'll

take the action check and make sure I'm very clear and then the parties involved will get a note from me about what those are.

That brings us a little early but back to PROC-44 and the document review that we were going to see if we had John Mauro for.

MR. HINNEFELD: Well, if you want my opinion on Hanford PER I would kind of recommend you wait until the new one comes out because there will be one probably, well, I'm trying to think of when that's going to come out. We're going to issue a Site Profile revision soon so that we can do the non-presumptive cases covered by the last SEC but there's still things to talk about. So we might need to wait and do an ultimate PER when all the changes are done. So I'd have to -- just let us know which one that is.

MR. STIVER: As I recall I think the issue was that we were tasked a review of 29 for the first set several years ago. And

then I think Kathy Behling brought up the issue that there had been new changes in some of the latest revisions that impacted, had a pretty significant impact on neutron dose.

And so the question was, as mentioned, should we go ahead and get started or combine and amalgamate the PERs based on what might come out of the TBD. I think the suggestion to wait until the new revision comes out is probably the best way to go.

MR. HINNEFELD: Yes, I mean that's not imminent because there are still changes that I think that are going to affect post 83 which would want to get those resolved and done, and then do a PER rather than doing iterative PERs.

MR. STIVER: Right.

CHAIR MUNN: My memory of the PER-29 issue was that you were going to look at what you wanted to do and when you wanted to do it.

MR. HINNEFELD: Okay, I just told you.

CHAIR MUNN: I know. But I hadn't heard that before.

MR. HINNEFELD: Okay.

CHAIR MUNN: So all right. We'll take that under advisement I guess and continue to carry it here until we get some feel for when that's going to happen. Otherwise we'll lose that.

MR. HINNEFELD: I mean, yes, you can keep it on there but I think that PER for Hanford will wait a while because as I said there are still issues to solve post 83.

CHAIR MUNN: Right.

MR. HINNEFELD: And so we'll want to resolve those, then write one PER.

CHAIR MUNN: We just need to get a feel for how and when. I suppose you can't double-check that until events unfold. So we'll just continue to carry it until we find

out what we're doing.

PROC-44. John Stiver, are you there?

MR. STIVER: Yes. I told John Mauro that we're going to go at 4 o'clock, that I'd give him a call about 15 minutes beforehand. Let me call him and let him know that we're starting a little early. And Steve Ostrow also agreed to be on the line.

DR. OSTROW: Hi guys, this is Steve Ostrow. I'm on the line.

MR. STIVER: Had you talked to John earlier?

DR. OSTROW: I spoke to John. I went through our report briefly with John. He's operating with a cell phone and candlelight right now in New Jersey so he wasn't sure whether he'd be able to connect to this call but he'd give it a try. If not I'll try to lead it.

MR. STIVER: Okay, all right.

That's good, thanks.

DR. OSTROW: So John, you're going to call up John Mauro.

MR. STIVER: I'll go ahead and give him a call. And also I believe Bob Barton's on the line. He was involved in the appendices.

DR. OSTROW: That's right. Bob, you there?

MR. BARTON: Yes, I'm here guys.

DR. OSTROW: Okay, good. So let's take a little break while John Stiver calls John Mauro.

MR. STIVER: I'll go on mute here and I'll get a hold of John if I can.

CHAIR MUNN: Why don't you folks go ahead and do that and we'll move onto our administrative work while you're doing that. We'll take a look at what our schedules look like and when we might be able to arrange our next meeting. Based on what we said earlier I

think everyone agrees that the earliest we could possibly do this was late January sometime.

MEMBER BEACH: Or February.

CHAIR MUNN: February is always such a terrible weather month.

(Laughter)

CHAIR MUNN: Well, I think it'll be worse than January. February is always worse than January.

MR. KATZ: February is worse than January.

CHAIR MUNN: Yes, it is, in terms of --

MR. KATZ: Not necessarily in this part.

MR. HINNEFELD: Depends on where you are.

CHAIR MUNN: Unpredictability. If it's just snowing and ice then you know it's snowing and ice. But if it's storming.

MR. HINNEFELD: Well, I don't know if this will affect your decision or not but I'm going to be on vacation from January 18th to the 29th.

CHAIR MUNN: Yes, that does affect our deliberations, no question about it.

MR. KATZ: That sends us into February.

CHAIR MUNN: That does put us into February.

MEMBER BEACH: We have a Board call on the 7th.

CHAIR MUNN: Yes. And I am out from the 8th to the 15th.

MEMBER BEACH: I've got the 31st or the 1st.

CHAIR MUNN: Thirty-first or first of February?

MEMBER BEACH: January 31st or 1st.

CHAIR MUNN: I was going to say.

MR. STIVER: This is John Stiver.

I just called John Mauro and he's going to try to connect. I said we'd give him about 5 minutes. He's had kind of spotty connectivity so far.

CHAIR MUNN: Okay, thanks. Appreciate that, John.

MR. HINNEFELD: Eighteenth through the twenty-eighth. I'll have essentially no ability to prepare for the end of January.

MR. KATZ: Yes, so that's not good.

CHAIR MUNN: No, it isn't.

MR. KATZ: And Wanda, when do you leave?

CHAIR MUNN: I'm out from the 8th through the 15th, that week.

MR. KATZ: So what about February 6? It's a Wednesday.

CHAIR MUNN: February?

MR. KATZ: Sixth. That gives Stu a week to get up to snuff.

CHAIR MUNN: Well, that puts us,

the teleconference is the next morning.

MEMBER BEACH: So the fifth or the sixth.

MR. KATZ: What time are your flights out of here, Wanda, when you leave?

CHAIR MUNN: I leave early in the morning. What about the 20th?

MEMBER BEACH: That's getting real close to the next Board meeting and that gets pretty busy. That was the only thing I was thinking. If we wait until the end.

CHAIR MUNN: Well, it's 2 weeks away, 2 and a half weeks away between the next meeting. The Augusta meeting isn't until the 12th of March.

MR. KATZ: How about February 5?

CHAIR MUNN: February 5 is okay with me. It's still pushing Stu a little.

MR. KATZ: Stu, how is that for you?

MR. HINNEFELD: Lori will get us

ready.

(Laughter)

MR. HINNEFELD: You guys really overestimate how much I do.

MEMBER BEACH: Sounds like the fifth it might be.

CHAIR MUNN: Is the fifth a good date for everyone?

MR. KATZ: Will February 5 work for other folks?

MR. HINNEFELD: February fifth is a Tuesday.

CHAIR MUNN: February fifth is a Tuesday, yes. Nine a.m., Cincinnati. February fifth it is. Okay.

Is there any other administrative activity that we need to see to before we go back into PROC-44? All right. We're good with that then. Only wise people take vacations in January and go somewhere where it isn't the way it is here in January.

MR. HINNEFELD: Weather's nice here in the summer. Why not go on vacation in the summer?

CHAIR MUNN: Yes, I agree. Good thinking. From the very beginning. All right. John, do we have any feel yet for when John Mauro might be back?

DR. MAURO: I am. Hi, Wanda, it's John. Can you hear me okay? I was able to get through.

CHAIR MUNN: Very good, that's wonderful. Welcome back.

DR. OSTROW: This is Steve, I'm here too.

CHAIR MUNN: Good. Glad you're both here. We're ready to have you update us on PROC-44.

MR. STIVER: Yes, John, I'm here too.

DR. MAURO: Okay, very good. Wanda, how would you like to proceed?

CHAIR MUNN: However is most convenient for you. You're the one with the process problem here.

DR. MAURO: Okay. You know what would be best? Steve and I earlier today went over the document carefully. I don't actually have the document. I never printed a hard copy for myself and I cannot get to it electronically on my computer. So what I would suggest is, since Steve and I did go over it carefully today, and Steve has a copy in front of him and he wrote, basically there were three authors. Steve did part, I did part and Bob did part. Steve, if you wouldn't mind could you sort of be the point man and tell our story about our findings with respect to this? And I could help out as you go along.

DR. OSTROW: Sure. Is that okay with you, Wanda?

CHAIR MUNN: Yes, that would be

ideal. Thank you.

DR. OSTROW: Okay. All right. So, what we reviewed is PROC-44 Rev 0 which is dated October 2005 which is sort of important in some of our comments. The procedure is about 7 years old and because of that it's somewhat outdated. And although we have criticisms of some parts of it part of it just may be because it's an old revision and hasn't been changed recently.

That said, as John was saying we reviewed it in our report which came out October 15, 2012 we had our review report. And we divided it into three technical sections. One was on the procedural evaluation, how well does this procedure follow the administrative requirements. Does it cover all the bases. We had a technical evaluation also and then we looked at it. And we had two appendices that gave SC&A's examples of some of our strategies that we

used in reviewing the completeness of available site-specific data and examples of strategies that we used in analyzing allegations of data falsification. We put in those two appendices also.

So, just to build background. SC&A was asked to review this procedure in the June 2012 Santa Fe meeting of the Advisory Board. And in reviewing it, we used three different three-part methodology.

First, we used the protocol for the review of procedures and methods employed by NIOSH for dose reconstruction. Secondly, we also took some guidance from the Board procedures review of Special Exposure Cohort petitions and Petition Evaluation Reports.

And third, beyond that, since we've been involved in the SEC process for these past few years, we also tried to use some of our own experience of how the review process is actually done. Not how it's written down

necessarily but how it actually goes. So we gave some insights based on that too.

The overall PROC-44 is divided into two parts really. It provides protocols for determining whether an SEC petition qualifies for evaluation, that's the first part. And then if it's qualified, then it looks at evaluating how do you evaluate those qualifying petitions.

Based on our understanding of the mission of the Advisory Board we only covered the part 2. That means we assumed that a petition is already qualified. We didn't look at the first part, how NIOSH decides if a petition is qualified or not. But that's our understanding, that's the mission, the second part.

We reviewed the procedure looking at a hierarchy of documents in that context. The highest part is the Act of course and then its implementing regulations, 42 C.F.R. Parts

82 and 83. Then you have the DCAS guidelines which is specifically DCAS-PR-004 and OCAS-IG-001 and -002.

So we tried to address two questions. Does the procedure materially follow the provisions of statute and are the guidelines scientifically sound and claimant-favorable? And after we did this review we ended up with ten findings and a bunch of comments. The findings, the first six of them were procedural and the last four were more technical.

So with that preamble, I'll talk first about the procedural evaluation which is Section 2 of our report. The way we did that, we looked at 42 C.F.R. 83 which is the SEC part of the Part 42. And we lined up the requirements of that against the DCAS-PR-004 which is the DCAS procedure, internal procedures for the processing of Special Exposure Cohort petitions. And in another

column the ORAU procedure 0044. So we wanted to see at the end, did the ORAU PROC-44 capture everything that was required by the 42 C.F.R. 83 and the DCAS procedure. That's the hierarchy. So that's what we did. And we have some tables summarizing this.

And I'll go through, I'll get to the heart of some of our findings now. And finding 1, I'm not going to read the whole thing, it's too long, but the essence is that part of the ORAU PROC-44 mis-cites sections of OCAS-PR-004 and 42 C.F.R. 83.

As I said, there's no reason why the PROC-44 should line up with sections of OCAS-PR-004 since they were like 6 years apart, the two procedures. However, it did mis-reference 42 C.F.R. 83 sections which it should be noted. That's a minor finding.

Finding 2, the PROC-44 does not appear to include the requirements of 40 C.F.R. Part 83 and the DCAS PROC-44 with

regard to timeline. Both the 40 C.F.R. 83 and the DCAS procedure have extensive discussions and requirements about timeliness and how much time each step should take in the process. And the ORAU PROC doesn't seem to include very much of that. It leaves a lot of that out. That's our second finding. I'm looking for my findings here. Okay.

Three is that both the Part 83 and the DCAS procedure cover the period after the evaluation findings are reported. And I have several sections on that. The ORAU PROC-44 ends with the -- at the time that the evaluation findings are reported. And it doesn't include anything about the iterative process that we all know goes on, that after the report is given, we have the back and forth between the Board, SC&A, DCAS, the petitioners, et cetera, which can go on for years and that's not really mentioned.

So we thought that was important.

We mention that again later in our technical findings.

Finding 4, and this I mentioned before, that this is a -- we realized that the ORAU PROC-44 in 2005 and it antedates the current version of the DCAS PR-004 which is 2011. So whenever the ORAU PROC is revised citations to different sections should be updated so that things line up.

The finding 5 is that the ORAU PROC doesn't adequately reflect the role of the Advisory Board and the Board's technical support contractor, which is us, in the SEC process.

And for example, the Advisory Board Work Group for specific sites often become very involved in reviewing, commenting on and rendering additional analyses. And plus outside groups like the petitioners and et cetera also get very involved in the process. And this can go on for a long time. And this

ORAU PROC doesn't capture the process.

Finding 6, which was the last of the sort of procedural findings, is that the ORAU PROC doesn't discuss the issue of separating the SEC from Site Profile issues. Just based on our experience and my experience personally working on some of the SECs, there's a lot of discussion and back and forth also on how do you distinguish between what's a Site Profile issue and what's an SEC issue. And that should be probably mentioned in the PROC-44.

DR. MAURO: Steve, this is John. I'd just like to add a little comment here.

DR. OSTROW: Let me get a drink of water while you comment.

DR. MAURO: Okay. On that matter, you know, it became very important -- it's really a question for the Subcommittee and NIOSH. The very fact that our experience is that we very often try to sort issues out,

technical analyses and issues into those two categories when they serve the process well. Very often we are able to do that easily and sometimes we're not. There's always some concern that we might call something an SEC issue or a Site Profile issue.

I've got to say, I'm not sure the degree to which this procedure should attempt to capture that and to discuss it. And sort of make an effort at actually having some discussion regarding that process and making such distinctions. But we thought it important to raise it here because it has become an important part of the whole SEC issues resolution process. Perhaps not so much in the actual review.

In other words, when NIOSH and its contractor reviews a petition and prepares an Evaluation Report the real question becomes -- and an Evaluation Report is produced by NIOSH and delivered to the Board the whole process

as Steve pointed out sort of stops there in this procedure. And it's really a judgment call whether this procedure should continue to address the process after it's delivered and after it enters into the deliberative part of the Board, the degree to which this procedure should cover that part of the process.

And also if it does it's at that point where an attempt to distinguish between -- identify issues once the Board identifies the issues that are before them. So this is really part of the back end of the process. And once you enter the back end of this process, this SEC issues resolution process, making distinctions between what might be critical SEC issues and what might be more considered Site Profile issues is very important to the process.

But the bigger question is, and this is really a question too, one of our comments was it seems that the PROC itself

would benefit if it went beyond just stopping at delivery of the SEC Petition Evaluation Report completion but went on to the post -- when the deliberative process begins. And that's a judgment call I guess that the Subcommittee might want to discuss, whether there would be a benefit for the procedure to go beyond and enter that realm.

DR. OSTROW: Well, this is Steve. Let me just add one more thing. One of the reasons I put this comment in is that the OCAS-PR-0044 does go beyond the delivery of the Evaluation Report. And the ORAU procedure basically follows the OCAS procedure pretty much section by section except for it ends earlier.

MR. KATZ: Can I just toss out a thought into this discussion? Just because, I mean it occurs to me once you have the report before the Board for NIOSH, an ER report, the resolution process, ORAU does not drive that

process. It's not in the driver's seat whatsoever. Really it seems to me DCAS takes the lead on that and uses ORAU for technical support when it comes to issue resolution where all these matters of sorting out, well, there's this finding but it's really a Site Profile or not and so on.

So I'm just wondering whether it really is germane to the ORAU procedure since they're getting guidance from DCAS in terms of what issues to resolve, what paths to go down, what follow-up is needed. You know, with guidance from the particular Work Group that is assigned that petition as well.

MR. HINNEFELD: Yes, this is Stu and I guess I'm kind of neutral on this one. Certainly you can't write anything in this prescriptive in this procedure past that delivery because the authority to be prescriptive about decisions after delivery of the Evaluation Report is really with the

Advisory Board. To be prescriptive, what has to be accomplished in order to resolve these findings. Are we going to review this once there are findings, how do we resolve the findings. Really it's the Advisory Board who speaks definitively or authoritatively about those steps.

And so you can't write a procedure that's descriptive in terms of what will you do after that. You can write some general statements about in the event of such and such then provide. But that process -- and you can't really write much and that's driven by our project planning activities that occur between DCAS and ORAU. That's how ORAU gets their instruction for proceeding beyond. Really that's how they get the instructions all the time but certainly beyond the delivery of the Evaluation Report that's where it comes from.

So we could -- I guess I'm kind of

neutral on it. It wouldn't hurt to write something in there about the possibility of that kind of a follow-on activity but it's not going to really provide much oomph to a procedure.

MR. KATZ: Well, I guess my point is it's not going to really change anything.

MR. HINNEFELD: No.

MR. KATZ: Because you are going to tell them what to follow up on no matter what through that process as the Board gives its feedback on the issues that concern it. So you know, it's not going to affect how things get done, whether there's more written or not.

MR. HINNEFELD: Right.

MR. KATZ: I don't think. But just my point of view.

CHAIR MUNN: It would be very difficult to be prescriptive.

MR. HINNEFELD: Yes, PR-4 was revised somewhat recently and I believe there

are a series of timing sort of things built into there and that's part of the reason why it was revised was to put in some timing and questions of is it worthwhile to proceed to research, you know, continue research. Things like those kinds of questions were put in there. That was all written after and it's all -- and that decision process is on our side. There is no part of the decision process which is on ORAU's side other than that they can give us feedback on, you know, possible avenues that appear.

To me it's a wash. It doesn't hurt anything to write it there. I don't think -- to write it there either.

MEMBER ZIEMER: I certainly think they can make some general statements about what would happen but be very prescriptive would be appropriate it would seem to me. This is strictly how they're interacting with you.

MR. HINNEFELD: This is a largely administrative procedure.

DR. MAURO: To help out a little bit here we have -- portions of this procedure that begins with I guess the process. I could envision, and this is certainly a judgment call, that the PROC describes this process and how for example it takes its direction, who takes the lead.

For example, you could very well move into as Steve pointed out an outreach process where the role of your contractor is to support the additional data acquisition. And I could see cross-referencing I believe it's PR-12. In other words, procedurally, and this is really a judgment that needs to be made on what the scope of this procedure could be. There are elements that go into the process and the role that is played by I guess your contractor in supporting the back end of the process.

And the value that describing the elements that comprise that process and how it's implemented by your contractor under your direction might add some value for those reading it. But again, like you said, it can't be very prescriptive. It really is just structuring that there is a world after the SEC petition evaluation is completed and there is a process that takes place. And certainly your contractor because this is clearly for your contractor has a role to play in that process.

And that was why we brought that point up. And we recognize that this is clearly a judgment call on whether there would be value to go that step first.

CHAIR MUNN: It's hard for me to see how that would be helpful, especially in light of the fact that it will vary significantly from one situation to the next.

MR. MARSCHKE: That might be the

answers to the comment. We made the comment and whether or not you feel it's a valid or worthwhile comment to take any action on that's up to NIOSH and the Subcommittee to make the decision. I mean we're not, you know. And so it's really, it's out there now and you know.

CHAIR MUNN: Well, it's worth looking at. It's worth asking the question.

MR. MARSCHKE: Make people think about it a little bit and if the answer comes back and say no, it's not needed then it's not needed.

CHAIR MUNN: It's not needed. So that's good. All right, good. Finding 7.

DR. OSTROW: Okay, perhaps I'll continue then.

CHAIR MUNN: Yes. Thanks, Steve.

DR. OSTROW: As we get to the last few of our comments, findings are related to technical matters. And John led on this. The

findings -- and this is our Section 3 of the report.

Finding 7 is that we make the statement that the special review process seemed to miss the fundamental issues which includes the adequacy, accuracy and completeness of data needed to reconstruct exposures. The fact that there is a Site Profile user's guide and previous dose reconstructions for a given site does not necessarily mean that doses can be reconstructed with sufficient accuracy. That's in the preamble.

Our actual finding 7 is that ORAU PROC-44 should de-emphasize its dependence on Site Profile -- aside and previous dose reconstructions for evaluating SEC petitions and emphasize the need to review source documents that will help to achieve a completely understanding of the operations, radionuclides is concerned, exposure

scenarios, et cetera. And review of Site Profile, user's guide, dose reconstruction is helpful but should not be assumed to be the authoritative documents with respect to SEC petition evaluations.

John, do you want to jump in on this?

DR. MAURO: Yes. I think the statement the way you just read explains it. See, the way I've looked at it is in the PROC itself it starts out technically the process that's used, the first thing that's done is to go to the Site Profile. And the argument I make there is that that really -- and to judge, using the Site Profile as to explain this is how we're going to do doses, reconstruct doses.

And I felt that that's not the starting point. I think that it's a document that's there that's useful but the starting point is the fundamental questions regarding

data adequacy. That really should be the starting point.

And going to cases that have been completed again which of course use the Site Profile is not the starting point. And there really -- the fact that those exist and have been used in the past, you know, those were never written -- in fact, I always said the Site Profile is a living document. And so I don't think it was ever intended to be the starting point for an SEC petition evaluation process.

And so I felt that that should be de-emphasized and the emphasis needs to be placed on the data adequacy, completion, accuracy, that sort of thing which actually starts to be addressed a little later in the procedure. And that's where I think a lot more attention has to be given. In fact, I think that the next finding -- so that's the finding we have. And really to de-emphasize

the role of the Site Profile and previously done dose reconstructions and let's now zero in on where the action is. Data adequacy, data completeness. And I believe that's the next finding, Steve, is that?

DR. OSTROW: Okay, I'm going to read finding 8, that's the next one.

DR. MAURO: Yes, please.

DR. OSTROW: The guidance should be more specific with respect to the evaluation of NOCTS data that will help to determine data adequacy and completeness. That's the NIOSH OCAS Claims Tracking System. So I think John's comment here was that there's a lot of information in the Dose Reconstruction Database Claims Tracking System and that this procedure should give a specific guidance on what's in there and how to use it. John, is that right?

DR. MAURO: Yes. In fact, what we did here with the help of Bob Barton who's on

the phone is that, you know, when we look at all of these SEC petition reviews, when we were asked to review them, we always asked ourselves the question what does the data look like. Is it complete? Is it solid? Does it give you the information you need?

And right now the procedure, the PROC says yes, you must review the data for completeness but it doesn't really -- and here's where the hard part is. It doesn't really say how do you do that. What do you mean you want to look for data completeness, accuracy, adequacy?

So what we did is provide an appendix, I think it's Appendix A where we go into some detail and this really draws from our experience on the kinds of things that need to be done and checked in order to evaluate the degree to which the data set, the air sampling data, the bioassay data, the film badge data, the site description, et cetera,

et cetera, is complete and adequate based on knowledge of what took place at the facility.

So I think that in our opinion the procedure could be kicked up a notch by going into the various tools and techniques and approaches that can be used to evaluate data completeness, data adequacy and accuracy.

And we gave examples in Appendix A of how we do it. In a funny sort of way what we do when we're asked to review an SEC Petition Evaluation Report and its supporting Site Profile is what I think that your contractor should be doing also. And the lessons we've learned and the skills we've developed, and certainly the skills your contractor has developed should be articulated.

Here's a golden opportunity to actually -- in fact, quite frankly I enjoyed working with Bob Barton on this part of it because I said let's take a look. What do we

do to see whether the data are adequate and complete? What are the questions we ask ourselves and then what do we do when we dive into the data sets and the Site Research Database.

And that's where Bob laid out very nicely -- I think, Bob, you had four examples of different SEC petition reviews and what we did as exemplifying the different kinds of things that can be done.

We recommend as a finding here that it would be a useful exercise to extend this procedure and provide examples or actually recommended steps that could be taken to check for data completeness, data adequacy.

And as we try to write them down in the procedure. And that would add a lot of value so that others later when they're doing an actual SEC Petition Evaluation Report could draw from that and use it as guidance.

And you know, quite frankly I think

it would close the gap between when we're asked to review something, an SEC Petition Evaluation Report, if that -- in a way you can see what we do. And whether you see that as valuable, and maybe we should write it down as part of your own instructions for your own selves or your contractor might be useful.

It sounds a little arrogant but this is what we've been doing for 6-7 years now and I thought it valuable to sort of write that down because I don't think it was ever written down before. You know, what do you actually do to check for data adequacy and data examples provide some, I guess a path forward for doing that.

MS. LIN: Hi everyone, this is Jenny with HHS. I just want to provide one perspective which is that all these recommendations that I'm hearing so far from SC&A has been great but I really want to know what would be the substantive impact in

improving -- in incorporating all these recommendations into the current ORAU procedure.

The scope of ORAU's work is primarily driven by the Agency's directive and also by their resources. So by adding a lot of these recommendations into the PROC you know, you sort of inadvertently extended the scope of the work that ORAU may be directed to do. And I'm just not sure if that necessarily there's a way how an Agency decides to use their resources in terms of providing contracting work to ORAU. So I just want to keep that in mind.

CHAIR MUNN: Paul has a comment. Thank you, Jenny.

MEMBER ZIEMER: It seems to me that NIOSH is going to have to take the first crack at some of these suggestions and see if they make sense both in terms of what is practical from the Agency's point of view as well as

what the issues that Jenny raises.

It seems to me some of these ideas are great ideas and they might be incorporated in a way that doesn't look like a mandated procedure but things that might be considered. But certainly the first step would be for NIOSH which I guess is the next step anyway to react to all of these things. Because I think it's written out only for NIOSH and ORAU but also for the Board to have some of these data adequacy issues sort of codified in the sense that we are doing it in sort of a similar way on different facilities. At least with our contractor that we say yes, this is how we go about doing it.

MR. HINNEFELD: This is Stu. I was just going to comment that this procedure dates from 2005, is that right? Okay. Those of us who have been around for a while remember the nature of discussions in 2005 and that over the course of 7 years we've had this

sort of collective learning process about how this is going to work. So it's not surprising to me that this, something written in 2005 doesn't really reflect what's done now. That speaks to the issue of you have a procedure that's 7 years old, why haven't you revised it already, but that's another question. So I think certainly we would want to take this information, go back in light of what we do now because certainly, you know, we view the SEC process differently than we did the 7 years ago. And so I think that's certainly worthwhile to go take a shot at this, take this under advisement.

MR. KATZ: My two cents, I think it's great, really valuable actually John and Bob and Steve to be laying out this on the table in terms of how SC&A goes at that and thinks at these issues. Because I think you're absolutely right, the more convergence there is on methods and so on the more

efficient the whole system will be in terms of disposition of SECs in a timely fashion which we all want to achieve for the sake of petitioners and claimants at these sites. So I just want to commend. I think this is a really worthy effort to be laying these issues out and sorting through what are the best ways to go at this on both sides of the fence, whether it's DCAS or SC&A.

CHAIR MUNN: Well, it's certainly interesting to see them step by step as the contractor has laid them out here so far in what we've seen up through these first seven. By the same token Jenny's comments are certainly well received and well thought out I think. It's a natural concern I think to have your first reaction be in what kind of effort is it going to take to do these things.

So, I'm looking forward to the NIOSH response to what's been laid out for us because that's really intriguing and I'd like

to hear the last three, right?

MR. HINNEFELD: We've already covered 8.

DR. OSTROW: Before we put this issue away for a while I just want to make a general comment on this. You really have to look, take an overview of the entire process you know about resources and saving time and all that. It may be if you look at the overall SEC cycle for a particular SEC adding some work up front to ORAU's scope may actually reduce the overall time and cost to complete the entire SEC review from beginning to end.

MR. KATZ: And Steve, that was my point.

DR. OSTROW: Yes, I know, and I agree completely. This is something I think the Subcommittee should think about, you know, look at the entire picture.

DR. MAURO: This is John. I'd go a

step further. When all is said and done and all of the work that we've all been engaged in for so many years and where things have been most contentious have always been data completeness, data adequacy, always. And I think this was an opportunity for us to get our thoughts together.

And quite frankly I think that thinking through this and the degree to which maybe not a procedure, maybe it shouldn't be a procedure because this is clearly a creative process. Each one was unique. You'll see by the examples that are provided in the attachment that Bob put together.

And you know, each one is different but you start to see a common thread. In a certain class of problems you look for certain things to see for completeness and adequacy. And they emerge from the examples. And Bob picked his examples carefully to reveal the different classes of problems that we've all

been challenged by and which have consumed so much of our efforts.

And by putting this down on paper I'm hoping that it starts a dialogue that may result in a procedure that gets a little bit more detailed and that is a little more helpful to not only the contractor but you know it almost establishes when you're working on your Petition Evaluation Report you may actually want to check the degree to which you may need to look into this or look into that.

The way I went through this with Bob I have to say I didn't realize all the experience we all acquired over these years and this was our first opportunity to actually write it down. So I really hope you find it useful.

Oh, one more thing. We have also Appendix C. That might be another separate finding. Like I say I don't have the report in front of me. We have a separate section on

a very delicate subject dealing with data falsification.

DR. OSTROW: That's Appendix B, John.

DR. MAURO: That's Appendix B, I'm sorry. I don't know if that's a separate finding but I don't want to lose sight of that. In many ways that might be even more interesting let's say.

We have encountered, we have all encountered claims of data falsification which is one of the most difficult, challenging and stressful issue that we've all had to try to deal with. We all encountered it at the Nevada Test Site, for example, and that's the one that I'm most familiar with.

But Bob put together -- how many cases did you have in there, Bob? I don't have it in front of me. Of different.

MR. BARTON: It was two main instances of where we -- kind of in one case

we actually did investigate data falsification. That was the Nevada Test Site, the one you just mentioned.

And in the other case we were tasked with trying to develop strategies to investigate it at Fernald. And that case was very unique because we went through and we came up -- there were three different strategies we had to sort of put the data to the test to see if it kind of held up.

And what eventually happened is we came up with the strategies, we sort of did a sort of proof of concept and then weighed the pros and cons. And when we went and discussed them with the Fernald Working Group you know everyone was pretty much in agreement that none of these strategies would ever really come to any sort of quantitative conclusion to whether there was data falsification.

So while that might initially be seen as a failure, you know, you couldn't

investigate it, it also showed that we performed our due diligence to see what we could have possibly done there and how feasible was it and what would be the benefit that we'd get from it.

And again, all these situations are very unique and it's a lot of information in those appendices so I don't really want to get into it too much. But the situations are there.

DR. MAURO: Yes. The reason I bring it up is I hope you find it valuable when you look at the Appendix. And Bob prepared all that material. It reflects the collective experience of SC&A over many years on these SEC issues which, as I said, and I broke them down to two categories, these two appendices. One dealing with just data adequacy, completeness, and the other, a special one dealing with data falsification.

It's, you know, the degree to which

NIOSH would probably find it useful and the Board finds it useful, wonderful. I know we did in collecting our thoughts and experience and putting it down on paper.

MR. KATZ: One other thing I'd just add for everybody's thought too. I don't know if you addressed this in your report, John and company, but there is one significant difference that also needs to be taken into account as DCAS wrestles with these and the Board, and that's the timing issue because DCAS is always under this statutory deadline situation which makes some sorts of analyses pretty challenging to get to within the deadline and is a situation where I think SC&A has more latitude in terms of digging on data and so on sometimes than DCAS does in some of these cases.

DR. MAURO: That's absolutely true, absolutely true.

MR. KATZ: Keep in mind.

CHAIR MUNN: Your appendices are pretty impressive and it will be interesting to go through them in more detail. Thank you for a good report, all of you.

DR. OSTROW: This is Steve again. We have two more findings, technical, 9 and 10 which are short.

CHAIR MUNN: Yes, I saw them.

DR. OSTROW: Finding 9 is that the guidance would benefit from identifying specific types of flaws in personnel and air and facility monitoring data that should be investigated and examples of how these investigations can be performed. So specifically talking about air and facility monitoring data.

And finding 10 is the procedure would benefit by referencing the Advisory Board's surrogate data criteria. So those are the end of our findings.

DR. MAURO: The surrogate data part

is of course relatively recent and I realize that but that's certainly -- I think it's important that the procedures do address the surrogate data part of the story now. I realize that was not a subject back when this originally was written but it's certainly a very important part of the whole SEC process now.

DR. OSTROW: So that's it for our evaluation. Plus we just mentioned the two appendices that we included also.

CHAIR MUNN: Very good.

DR. MAURO: Yes, I think that about covers our report. I know there's a lot there to think about.

CHAIR MUNN: There is indeed and we'll all make an effort to try to assimilate at least the bulk of this information between now and our next meeting. Is there any possibility that we'll have any feedback from NIOSH?

MR. HINNEFELD: On these?

CHAIR MUNN: On these.

MR. HINNEFELD: Yes, there's a good chance of that.

CHAIR MUNN: All right. We will include this in our agenda item as a NIOSH response action. Thank you to all of you out there on the phone for getting such a large number of questions in front of us all at the same time. We do appreciate it and the report itself will be I'm sure the subject for much midnight oil between now and the next time we meet. Thanks.

Does anyone else have any other items that are not shown on the agenda that need to be covered? I don't want to miss any topics that we might have discussed but for some reason failed to get on our agenda list. If not --

MR. KATZ: So there are no other -- just to make sure there are no other -- we

covered all the PERs that are going to come to fruition for the next meeting and so on. There are no other procedure reviews where SC&A is coming out with a report?

MR. MARSCHKE: Just the ones we talked about this morning.

MR. KATZ: Yes, no, I mean we covered a bunch.

MR. MARSCHKE: Right.

MR. KATZ: Okay. Just to make sure. Okay, good.

MR. MARSCHKE: As far as I know. I mean John Stiver might know of some.

MR. STIVER: I think we covered the waterfront on this.

MR. KATZ: Good.

CHAIR MUNN: All right. Any other concerns? Any other comments? If not we are adjourned.

(Whereupon, the foregoing matter went off the record at 4:22 p.m.)