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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DOSE RECONSTRUCTION SUBCOMMITTEE

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MONDAY
APRIL 18, 2011

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The Work Group convened in the Frankfurt Room of the Cincinnati Airport Marriott, 2395 Progress Drive, Hebron, Kentucky, at 9:00 a.m., Mark Griffon, Chairman, presiding.

PRESENT:

MARK GRIFFON, Chairman
BRADLEY P. CLAWSON, Member
MICHAEL H. GIBSON, Member
WANDA I. MUNN, Member
ROBERT W. PRESLEY, Member*
DAVID B. RICHARDSON, Member

ALSO PRESENT:

TED KATZ, Designated Federal Official
KATHY BEHLING, SC&A*
ELIZABETH BRACKETT, ORAU*
DOUGLAS FARVER, SC&A
STU HINNEFELD, ORAU
JENNY LIN, HHS
JOHN MAURO, SC&A
MUTTY SHARFI, ORAU*
SCOTT SIEBERT, ORAU*
MATTHEW SMITH, ORAU*
BRANT ULSH, ORAU

*Participating via telephone

C-O-N-T-E-N-T-S

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

9:07 a.m.

MR. KATZ: Good morning everyone. Advisory Board on Radiation and Worker Health, Dose Reconstruction Subcommittee. We have a pretty full house in the room. So beginning roll call with Board Members in the room.

CHAIRMAN GRIFFON: Mark Griffon, chairing the Subcommittee.

MEMBER CLAWSON: Brad Clawson, Work Group Member.

MEMBER MUNN: Wanda Munn, Work Group Member. Subcommittee Member, please.

MEMBER GIBSON: Mike Gibson, Subcommittee Member.

MEMBER RICHARDSON: David Richardson, Subcommittee Member.

MR. KATZ: And on the line?

MEMBER PRESLEY: Bob Presley, Subcommittee Member.

MR. KATZ: Welcome, Bob. NIOSH

ORAU team?

MR. HINNEFELD: Stu Hinnefeld, NIOSH.

DR. ULSH: Brant Ulsh from NIOSH.

MR. KATZ: And on the line?

MR. SIEBERT: Scott Siebert, ORAU team.

MR. KATZ: Welcome, Scott.

MR. SIEBERT: Thank you.

MR. SMITH: Matt Smith, ORAU team.

MS. BRACKETT: Elizabeth Brackett, ORAU team.

MR. KATZ: SC&A team in the room?

DR. MAURO: John Mauro, SC&A.

MR. FARVER: Doug Farver, SC&A.

MR. KATZ: And on the line?

MS. BEHLING: Kathy Behling, SC&A.

MR. KATZ: Okay. And federal officials or contractors of the feds in the room?

MS. LIN: Jenny Lin, HHS.

MR. KATZ: And on the line? Okay.

And this is Ted Katz. I'm the Designated Federal Official. Any members of the public on the line? Very good. Then let me just remind the folks on the line to mute your phones, except when you're speaking. *6 if you don't have a mute button. And, Mark, it's your agenda.

CHAIRMAN GRIFFON: I actually don't know the order that you ended up putting those items in, Ted, but I think I'd like to start with the printed version that Wanda is handing me. Okay, we can do it in that order, I guess. The first item is selecting cases for review for the PER-12, the highly insoluble plutonium compounds. And cases were distributed to the Subcommittee, is that correct? Somebody help me out here.

DR. ULSH: I think where we were, Mark, if my memory serves, is that Hans had come up with a pretty detailed set of criteria for selecting the cases, and then it was in our house, meaning NIOSH and ORAU's house to

actually select the cases. We've not yet completed that.

CHAIRMAN GRIFFON: Oh, okay. Alright.

DR. ULSH: So if they were distributed --

MR. HINNEFELD: I think we distributed a list and asked for comment but weren't going to wait for comment. Was that --

MR. KATZ: Yes, you had a list. I mean, you had developed a list. I don't know what happened after that.

MR. HINNEFELD: Well, I think what happened is, I think selection still has to happen after that. I mean, it was --

MR. KATZ: By the Subcommittee.

MR. HINNEFELD: Well, however we want to do it, but I'll have to go back and find that because I was thinking that we had distributed a list for one of those PERs at least.

MR. KATZ: There's only one.

MR. HINNEFELD: Right now, I'm putting the matrices on the flash drive for people who I can't send it to, and this is an encrypted drive so I have to put it on each person's computer. But then after that I'll look for that, so if we can move this later.

CHAIRMAN GRIFFON: Okay. We'll move this later on the agenda. Okay.

MR. HINNEFELD: I'll see what I can find out.

MEMBER MUNN: If you could give us an approximate date when you sent, when that was sent.

MR. HINNEFELD: Well, I'll have to look. That's part of what I have to look for.

MEMBER MUNN: Thanks.

CHAIRMAN GRIFFON: Okay. Let me move to item four. We can move that one later in the agenda. Item four is this first 100 cases report and the QA/QC review. I think we, at one point, discussed a lot of the

findings we have are related to QC/QA findings, and we were going to delve down into those further, and then we thought, well, as a good starting point, we should understand a little more and in better detail what ORAU and NIOSH do as far as QA/QC. So, NIOSH had offered to present to us on that. I think this was a couple of meetings ago, but, anyway, it hasn't happened yet.

The other, just talking last night with David, another option maybe to move this along might be if the Subcommittee or Members thereof could actually come to NIOSH, to your office, and get a briefing and kind of a walk through the system: how does it work, how does the data flow? I think that might be useful for all of us, and it might, you know. I don't know how, as a Subcommittee, I don't know how we'd do that, Ted, if it's a --

MR. KATZ: We could do that fine.

MR. HINNEFELD: How are you going to --

MR. KATZ: It's no trouble with that whatsoever.

CHAIRMAN GRIFFON: We can do it, and it doesn't have to be a public meeting or --

MR. KATZ: No, no, not to get an administrative run-through of the program.

CHAIRMAN GRIFFON: So I propose that we do that before the next full sit-down Board meeting.

MR. HINNEFELD: Okay, alright. Which is in late May.

CHAIRMAN GRIFFON: Is that the end of May? So like mid-May, could we --

MR. HINNEFELD: Yes.

CHAIRMAN GRIFFON: As I said --

MR. HINNEFELD: We'll have to clear it with ORAU because I think it would be most beneficial to start there --

CHAIRMAN GRIFFON: Yes, absolutely.

MR. HINNEFELD: -- and see how

their process works.

CHAIRMAN GRIFFON: Absolutely.

MR. HINNEFELD: In fact, the process does start on our side, but we'll start over there at ORAU and then we'll catch the beginning part of the process when we go to our side, to our building. Everybody's a U.S. citizen, so that won't be an issue.

So, yes, I mean, we can schedule it just like any other Board meeting. We just want to make sure that ORAU will have people there, but I think one of the best people to be there is Scott Siebert, who is local. So he can usually get there on days we need it.

CHAIRMAN GRIFFON: Alright. Ideally, before the next Board meeting, but if it went a little after, I suppose, you know, just given schedules, I'm not sure we can coordinate the dates. Do you think that would give you enough time to --

MR. HINNEFELD: Well, yes. I don't know that there would be --

CHAIRMAN GRIFFON: A lot of preparation.

MR. HINNEFELD: -- a lot of preparation necessary just to kind of demonstrate the process.

CHAIRMAN GRIFFON: That's what we were hoping, just to go there and get a lot, you know. Do you want to look at dates for that or --

MR. KATZ: Yes, we can look at dates right now, or we can do that following this meeting. Either way, whichever you want.

CHAIRMAN GRIFFON: Let's go ahead and look at dates right now. Might as well.

MEMBER MUNN: The first week of May you already have some schedules here.

MR. KATZ: Yes, there's some meetings.

MEMBER MUNN: And then St. Louis is coming up the third week.

MR. KATZ: Well, that's at the end of the month.

MR. HINNEFELD: That's the 24th - 25th.

MEMBER MUNN: I guess that's the fourth week.

CHAIRMAN GRIFFON: Yes. For me, it would probably be that week before the 16th through the 20th.

MR. KATZ: Okay. The 16th through the 20th you say? The 16th is a Work Group meeting. And, I mean, there are other Work Groups looking for dates. May I just suggest, this would be a better one actually. That gets so busy with Work Groups, and you hate to get in the way of a Work Group for this.

CHAIRMAN GRIFFON: Okay. We can move after the Board meeting then, I suppose, right? Is that what you're saying?

MR. KATZ: Yes. And after the Board meeting, typically, you know, it's a desert in terms of meetings.

CHAIRMAN GRIFFON: Right.

MR. KATZ: Nobody wants to meet

after that, so that would be a good time.

CHAIRMAN GRIFFON: Well, we do have this classified meeting on June 13th, right?

MR. KATZ: Right. We could do it before that, though.

CHAIRMAN GRIFFON: Before that? For some reason, June 6th --

DR. ULSH: I am on vacation starting June 11th.

MR. HINNEFELD: Okay. That's late anyway. You're on vacation for a week or two weeks?

DR. ULSH: Oh, I hope it's two.

MEMBER MUNN: I hope it's two, also.

DR. ULSH: I think it is two weeks.

MEMBER MUNN: You don't think the first week in May would be a good time to do that?

MR. KATZ: Well, what about the

9th - 10th, before that? June 9th - 10th? I mean, they only need a day, right? You only need --

CHAIRMAN GRIFFON: June 9th - 10th?

MR. KATZ: The day would work, wouldn't it?

CHAIRMAN GRIFFON: Yes, I would hope a day.

MEMBER MUNN: It would have to be the 9th for me.

MR. KATZ: It doesn't work for David.

DR. ULSH: Is that whole week out or just June 9th?

CHAIRMAN GRIFFON: Well, early in the week I'm in Texas so --

MEMBER MUNN: And I'm still questioning why the end of the first week in May is not good.

MR. KATZ: The end of the first week in May? You mean --

CHAIRMAN GRIFFON: June's 1st, 2nd, and 3rd, you mean?

MR. KATZ: You mean May 30th or 31st? Is that what you said?

MEMBER MUNN: No. I meant the first week in May.

MR. KATZ: Oh, the first week in May.

MEMBER MUNN: Because that's further, that's before the --

MR. KATZ: Okay. Well, we have Pantex meeting the 3rd.

MEMBER MUNN: You still have LANL on the 2nd, right? LANL on the 2nd, Pantex on the 3rd. And so you'll have some people who are already here. The 4th?

CHAIRMAN GRIFFON: I couldn't do the 4th.

MEMBER MUNN: The 4th or 5th? What about the following week, the Mother's Day week?

MR. KATZ: Well, what about the

6th of May? Does that not work?

CHAIRMAN GRIFFON: Yes, that's probably okay.

MR. KATZ: It's a Friday, but does that work for you guys? Want to do it then?

CHAIRMAN GRIFFON: Alright. Yes, let's do it. Yes. We may not find another good day.

MEMBER MUNN: Bob, can you be on the 6th?

MEMBER PRESLEY: I just have to wait and see.

MEMBER MUNN: Okay.

MEMBER PRESLEY: That's a Friday.

MEMBER MUNN: Yes.

MEMBER CLAWSON: What day was this?

MR. KATZ: Sixth of May. It's a Friday.

CHAIRMAN GRIFFON: And we would just have to think about, I mean we'll have to go to NIOSH, right? Rather than here.

MR. KATZ: Right. So there's no reason to stay at this hotel, for example, because this is across the river. So we'll make arrangements.

CHAIRMAN GRIFFON: Okay. Alright. So I think that will --

MR. KATZ: And, you know, two-thirds of the day is plenty, right?

CHAIRMAN GRIFFON: Yes, I would think.

MR. HINNEFELD: I would think.

MR. KATZ: Do we need to get in that morning because of the dissertation defense?

MEMBER RICHARDSON: I could get in that night, assuming there's not tears. I should be done by four.

MR. KATZ: Okay. So we could start off in the morning.

(Simultaneous speaking.)

CHAIRMAN GRIFFON: Okay, good. We made a little progress there then. I mean, I

really would like to close out the first 100 cases report, and it's been like held up for over a year waiting on this QC question.

DR. MAURO: So in that report, I know that there's a lot of discussion regarding the QC issue, so this is really the part of the report which we actually walk through the process.

CHAIRMAN GRIFFON: Right, right. I mean --

DR. MAURO: One of our --

CHAIRMAN GRIFFON: Hopefully, someone -- I think it's critical that Doug be there.

DR. MAURO: Doug probably, if he can, but we have other people, people like Ron Buchanan. So we'll have someone there.

CHAIRMAN GRIFFON: Okay, okay. Then I guess we can -- where do we stand on item two, Ted, the selection, oh, selection parameters.

MR. KATZ: Yes, we just need to

sort of start off with some marching orders for DCAS.

MR. FARVER: That's the 15th set.

MR. KATZ: Yes, the next set.

CHAIRMAN GRIFFON: I mean, the marching orders being give us another 40 to pick from, right?

MR. KATZ: Yes, and if you have any --

CHAIRMAN GRIFFON: And if we have any modifications to our normal selection criteria. Right, right, right, okay.

MR. HINNEFELD: Okay. Well, I think you want to look at all internal and external, as our HP marks them, only. I mean, we've looked at that I think previously, haven't we? We used to do a random pull and we --

CHAIRMAN GRIFFON: Yes. I think lately we've pulling from an external, yes.

MR. HINNEFELD: Okay. And then we should be able to pull a cutoff date, you

know, a completion date because we wanted to look at more recent ones? We still need that, right?

CHAIRMAN GRIFFON: Yes, yes, a cutoff date would be good.

MR. HINNEFELD: Okay. So a completion date, anything completed after such and such a date, pull internal and external, and then, yes, we'll have to run the entire list by DOL because we've learned since the last selection and this one that our information on cases that are complete isn't up to date. We've been trying to pull cases that are done, meaning there's a final dose reconstruction of cases that have been adjudicated.

CHAIRMAN GRIFFON: Right.

MR. HINNEFELD: We thought we were getting information in a final decision letter that told us so we could do that pull. Well, we're not always getting that final decision letter, and it's been a while since we've been

getting those final decision letters. So rather than try to remedy that situation, we're going to do our initial list, send that over to DOL, and say which one of these are finally adjudicated? They can tell us which ones are finally adjudicated, and then we have cases that are eligible for pull. We've been actually selecting from a smaller set, subset of --

CHAIRMAN GRIFFON: Oh, okay. So we should get a larger --

MR. HINNEFELD: Yes, we should get a larger set of ready-to-review claims.

CHAIRMAN GRIFFON: Okay. And for the next Subcommittee meeting, I think, Kathy or Doug, you've been keeping up with this, sort of the up-to-date matrix of what we've done, sort of demographics of the cases, you know, the statistics of the cases.

MS. BEHLING: Yes. I've been keeping up with that, yes.

CHAIRMAN GRIFFON: Hi, Kathy.

MS. BEHLING: Hi.

CHAIRMAN GRIFFON: Maybe for the next Subcommittee meeting, when Stu brings those cases, if we could have, you know, sort of your standard update on that so we can see what we've selected thus far and compare it to our criteria. I think that would be useful.

MS. BEHLING: Okay. That will be fine.

CHAIRMAN GRIFFON: Yes, alright.

MEMBER MUNN: What date was our last group of selections that we made?

DR. MAURO: The 14th set?

MEMBER MUNN: Yes, the 14th set.

CHAIRMAN GRIFFON: Well, is this the 14th one coming?

DR. MAURO: No, the 15th is coming. We're working the 14th right now. We're actually up to the --

CHAIRMAN GRIFFON: Oh, okay. So you got 14, so this will be 15.

MEMBER MUNN: I was trying to

remember whether we had established a cutoff date at the time that we selected those.

DR. MAURO: I don't remember when you selected the 14th.

(Simultaneous speaking.)

DR. MAURO: It almost comes as a way where we see how we're progressing in terms of getting back that current set that's active, getting it out the door. We know it's at least two months, just like today, and today to when we get the 15th set we're probably talking two months. So that's how I think about it, so that I'm thinking now -- that's why I like the idea if we could start as soon as possible on the 15th set. It will put us in a place where it will be just about the right time for us, without breaking stride --

MEMBER MUNN: Right, right.

DR. MAURO: -- just to get right into the 15th set.

MEMBER MUNN: I was trying to

think in terms of starting date for NIOSH to begin their selections.

MR. HINNEFELD: Well, we don't want to get too recent because there's a certain amount of time that it has to go through after we do a final dose reconstruction for the adjudication of the case, so we're not going to go right up to the latest day. We're going to go back a month or two as the latest completion date we're going to use, and then we'll pick a date that will give us a nice big, a big but not unwieldy class of, you know, group of claims to choose from. How's that?

And then the normal process is then this Subcommittee selects maybe some 40 or so. And in this case, most of those should survive because we've already looked at them and said they're ready to be reviewed.

MEMBER MUNN: Okay.

CHAIRMAN GRIFFON: And the set size, John, do you need more cases? Do you

need --

DR. MAURO: Well, we have --

CHAIRMAN GRIFFON: I think you talked to me about this.

DR. MAURO: Yes, we have an interesting situation. I'm looking at the future. Right now, we're busy. We have lots of SECs, but I can notice something is happening. The SECs are starting to get cleared. I can feel the homestretch on Fernald, on Savannah River, on Hanford. I can feel it coming.

CHAIRMAN GRIFFON: I'm glad you can.

DR. MAURO: I almost see the light at the end of the tunnel, which is good.

MEMBER MUNN: It's a freight train.

DR. MAURO: It's a freight train. Now, what I mean by that is I think by next year we're going to largely have this wrestled to the ground, and that's our major revenue.

Right now, that's where our investment is in terms of the Board's monies being spent. If you look at the big picture, that's where the money is going.

So I can envision by next year we'll be in a position where there will be resources available to do the things that we haven't been doing because we've been so consumed by the SEC process. And one of the places certainly is this Subcommittee in terms of the Subcommittee, of course, has been working at right now one percent of the sample. We've been working one percent, and we're doing fine. All I can say is if there's any desire on the part of the Subcommittee to kick that up a notch and start to drive closer to two percent or two and a half percent, which was the original goal way back when. And the reality is starting next year it won't be unreasonable to start to move that up if the SECs start to close down, and I think that they are. I can see it happening. I don't

know if you folks have the same feel I do for it.

MEMBER MUNN: I certainly hope you're right because there's been too much to even consider two and a half percent. There's too much.

CHAIRMAN GRIFFON: We can't keep up with the review --

MEMBER MUNN: No, no.

DR. MAURO: I'm watching the revenue flow. We have a certain budget every year, and we're holding it very nicely. We're coming right in every year nicely. It just worked out that way for some reason. The balance has always been there, and I can see that the nature of the program is now evolving. Basically, the procedure of the Subcommittee, we've completed 90 percent of the issues resolution.

MEMBER MUNN: I know.

DR. MAURO: We're almost done. And there aren't that many new procedures --

MEMBER MUNN: I keep trying to convince myself of that.

DR. MAURO: What are going to do without the Procedures Subcommittee?

MEMBER MUNN: Oh, I have an idea.

(Simultaneous speaking.)

DR. MAURO: No great rush for that.

CHAIRMAN GRIFFON: Yes. So for this set, we may not really need to deal with it.

DR. MAURO: Exactly, exactly.

CHAIRMAN GRIFFON: But in the future, I think we might want to. And my concern would be, and I think this would be a domino effect if the SEC is closed, like you said, and NIOSH theoretically would have a little more time, and we could get the resolution process moving along quicker.

MR. KATZ: There's not much point --

CHAIRMAN GRIFFON: Right.

MR. KATZ: Falling behind, further behind.

CHAIRMAN GRIFFON: Right. And I don't think we want to be working on the 20th set and reviewing the 9th.

DR. ULSH: So I think the way that we normally do this, once we have the criteria in mind, we identify 50 or 60 candidate cases. Is that pretty typical? And then we bring them to you, and you guys pick which ones?

CHAIRMAN GRIFFON: Yes. And we're saying use the criteria we have for now.

DR. ULSH: Okay. But the same size set, 50 or 60 for you guys?

MEMBER MUNN: Pretty much.

CHAIRMAN GRIFFON: Yes, yes. Okay. Now on to the more mechanical portion of the program. I think we're ready to go into the DR set reviews, 7th, 8th, and 9th set. And I think let's do the 7th set. I think there's only one issue or so to close out. But Brant forwarded some responses,

right, Brant? And I'm going to pull those up live. I imagine most of us haven't had a chance to look at those.

MEMBER MUNN: Just scanned them. Ran them real quick. No absorption.

CHAIRMAN GRIFFON: So we got, let's see, case number 122.

MEMBER MUNN: An appropriate method used for estimating proton dose.

MR. KATZ: That's the only alternative for folks that aren't using their laptops.

MR. HINNEFELD: Can they print off directly off one of these?

MR. KATZ: I mean, one person could have that in their computer and just read off that. It will never be on their computer --

MR. HINNEFELD: But they can't load it on the computer.

MR. KATZ: You can't load it.

MR. HINNEFELD: Okay. Let me see

what I can do.

MEMBER MUNN: Well, we have what you just sent, though.

MR. KATZ: Not everybody is on the government computer.

MEMBER MUNN: Oh, right.

(Simultaneous speaking.)

MR. KATZ: Can we just put it on mine, and they can --

CHAIRMAN GRIFFON: If you're on the phone, stand by. We're trying to get everybody with the right materials here.

MR. KATZ: I don't have my key fob.

MR. HINNEFELD: I sent it to your email account, your government email account.

MR. KATZ: Yes, but I don't have my key fob so I can't get into my --

(Simultaneous speaking.)

MEMBER MUNN: Or you can read it from one of us who has it up.

(Off the record remarks.)

CHAIRMAN GRIFFON: Alright. We're ready to, most people got pulled up?

MEMBER MUNN: We got something.

CHAIRMAN GRIFFON: Alright. I'm going to turn over, it's the 7th set matrix we're looking at, and a response was sent by Brant, Friday, was it? Thursday last week? Thursday last week. And I'll let you take it from there. It's case 122.1.

DR. ULSH: Right. And the finding number is 122.1-C.1.1A. You see that there's been a lot of interchanges back and forth, mostly remaining action for NIOSH. And April, there was a question about the film badges that were used. I guess maybe I should read the original finding. The summary of the finding is method used for measuring external submersion/surface contamination doses not claimant-favorable. Our latest response -- do you want me to just read it, Mark?

CHAIRMAN GRIFFON: Sure.

DR. ULSH: Alright. Twenty film

badges used in the study were placed throughout the facility. Placement was not limited to the rolling mill, as is suggested in the comment. A review of the film badge result -- and there's an SRDB number for that file, it's SRDB reference ID number 12437. And a review of those results indicates that a badge was placed in the furnace area, and results indicated from this badge was not within the upper 50th percentile of the population of results.

So that was the response that we sent on Thursday. Scott, I know you're online, right?

MR. SIEBERT: Yes.

DR. ULSH: Okay. Any other points that we need to bring up at this point or just open it for discussion?

MR. SMITH: I'd say open it for discussion. We also have Mutty Sharfi on the line from an AWE point of view, so he may need to answer on those specifics.

DR. ULSH: Okay.

DR. MAURO: You want me to pick it up from here? Conceptually, it's a classic example of how do you go about reconstructing the external dose when you have some data, whether it's film badge data or, in this case, they actually had film badges hanging from the ceiling sort of capturing the radiation field leading to external exposure. And then along comes a person that works in this facility, and he doesn't have any personal dosimetry, but you want to assign something to him. I think even NIOSH's procedures call for when you have a person that's working in an area, if you pick the geometric mean of, let's say, these 20 numbers, what you're basically saying is there's a 50-percent chance he might have gotten higher and a 50-percent chance he might have gotten lower. So it's always been our position, and I believe it's even in one of the procedures that say when you're in a situation like that you give the guy the 95

percentile of the distribution, not the 50 percentile. So I guess our concern here is that, for this particular person, you know, there's a 50-percent chance you may be underestimating his dose. So it's always been, and correct me if I'm wrong, the approach that's always been adopted by NIOSH is when you're confronted with a situation like this you put the high end value in the distribution.

Now, one of the reasons given here is that it turns out this particular fellow worked in a furnace area, which, in classic AWE sense, the furnace area is often dirtier than other areas. And that was one of the arguments we gave that not only did you not, you know, you picked a median, but also he happens to be in the furnace area where you would think things might be worse. But you correctly come back and say, well, one of the badges actually was in the furnace area, and it wasn't so bad. I don't think that still

drives it, even if one of the badges, you know, okay, you happen to have one badge in the furnace area and it didn't turn out to be so bad.

I still think SC&A's position still is when you're in a circumstance like this, whether you're dealing with this film badge hanging from the ceiling or just a sampling of workers where you've got some data and along comes a guy that doesn't have any, I don't think you should be assigning the geometric mean to the person. I think you should be assigning the upper end, and that's been our position for the longest time.

CHAIRMAN GRIFFON: Okay. So I'm not sure how we close this one out. Is this during the residual period? I'm trying to go through the old comments. Is this the residual operation period that we're talking about?

DR. MAURO: It is operation.

CHAIRMAN GRIFFON: It is

operation. MEMBER MUNN: So the question that John has raised then, not having the case file before us, is whether we do, in fact, have a procedure that indicates we should be looking at the 95th percentile instead of mean. Is that correct in that?

CHAIRMAN GRIFFON: Is that the normal protocol sort of is what you're saying, right?

DR. MAURO: I'm pretty sure. In fact, that was one that goes back a ways, and I would argue that this becomes a quality assurance issue because I do believe there is an issue. There is a procedure that specifically says do it that way, and it's not being done that way. So I think it's a double-edge one. I know that there's some debate on internal on when you what, and that there's good reason why it's not so clean-cut when it comes to internal. When it comes to external, you're hard-pressed to pick the geometric mean.

MEMBER MUNN: But the argument has always been that you don't know where you've been, and if you have a situation where this person is identified as having been primarily in the furnace area then the argument that you don't know where he's been if the furnace area is the high exposure area normally sort of falls on soft ground because if he's working in the highest exposure area and you have readings for the highest exposure area then other readings that he would have had would not likely have been higher.

DR. MAURO: Let me try again. You've got these film badges hanging from the rafters throughout the plant. It happens to be one of them is hanging in the area where, in theory, it might be higher than others --

MEMBER MUNN: That you would expect might be.

DR. MAURO: Right. But it turns out it's not. It's not. I don't think it takes away from the idea that, listen, you've

got yourself a collection of data which is indicative of the range of exposures workers at this facility may have experienced, and really the question becomes when you have 20 numbers and along comes the persons you're going to assign a number to, do you assign the geometric mean? I mean, it really becomes almost a common-sense kind of discussion. Are you comfortable assigning a geometric mean to a person? In my opinion, that's claimant-neutral. That's not claimant-favorable.

So I argue, I think high-end, an 84th percentile, a 95th percentile. And in addition, I do believe there's a procedure out there that says that also.

CHAIRMAN GRIFFON: Well, I think that's an important factor. Do you know what procedure, or you don't know offhand?

DR. ULSH: I don't know. I could ask Scott or Mutty to maybe take a look and see what procedure we cited in that particular DR. I don't know if we can do that real quick

but, if we do, we would have to look and see if that procedure allows us any flexibility to assign something other than the 95th. If it doesn't, then --

MR. SIEBERT: If I recall correctly, this one actually used the TBD for Simonds.

MR. HINNEFELD: This is an AWE, right?

MR. SIEBERT: Yes.

MR. HINNEFELD: Does anybody remember which one it is?

MR. SIEBERT: It's Simonds Saw and Steel.

MR. HINNEFELD: So it has its own TBD, and the TBD is written to say assigned, and it says assign doses in this fashion.

MR. SIEBERT: That is correct.

MR. HINNEFELD: So that's the way the TBD was written.

MR. SHARFI: It's a single distribution model for Simonds in the TBD.

This is Mutty Sharfi. Sorry.

MR. HINNEFELD: Okay. So it was done in accordance with the TBD. Now, the question about a procedure is, you know, is that procedure, is that applicable to a TBD preparation. Maybe the technique that was used should have been done is one question, but to say that the procedure says use 95th percentile but this TBD didn't, I don't think the TBD author would be expected to follow procedure on dose reconstruction.

(Simultaneous speaking.)

DR. MAURO: Yes, and I would agree. Simonds Saw goes way back, so that's apprised that there might be a procedure in an old Simonds Saw AWE that calls for this because this was a discussion we had many years ago and we have matured since then. So maybe we take the QA issue off the table.

MEMBER MUNN: I think we should take the QA issue off the table, yes.

DR. MAURO: It's just a matter now

do we want to revisit this in light of the more recent procedures that say you really should go with the upper end when you're in a situation like this. Your call.

DR. ULSH: Well, if the procedure --

MR. HINNEFELD: Well, here's the thing. I mean, the procedure is sort of irrelevant. Is it our practice now to say that dose reconstruction in this situation, is that really our normal practice? And so that's the kind of thing, and then, based on that, does the Simonds Saw and Steel Site Profile need to be revisited? You know, those are the questions that we need to take out of here.

Now, in this particular case, as I recall, it's not really going to matter, right? Isn't this one pretty low? I don't remember now, but I thought it was pretty far, and external dose usually --

DR. MAURO: External dose, yes.

CHAIRMAN GRIFFON: But if it is, just to go back to the QA thing, if it is the procedure or policy that NIOSH does this, then this Site Profile should have been corrected a while ago. So from that standpoint, it does kind of --

MR. SHARFI: Mark, can I add that this isn't a coworker analysis, which there we would have a 50th and 95th. This is a fuel data analysis in which they tacked on the distribution to the field data, which is a little bit different than a coworker where you use a 50th versus 95th percentile.

COURT REPORTER: Excuse me. Is that Scott Siebert on the phone?

MR. HINNEFELD: That was Marty Sharfi.

MR. SHARFI: Add that the operational period is now covered by an SEC, which was after the fact.

MR. HINNEFELD: Oh, yes.

DR. ULSH: I think the SEC at

Simonds, though, was based on thorium exposure, not on external, right?

CHAIRMAN GRIFFON: Right, right. But still this person would probably be covered right by that.

DR. ULSH: Well, I understand.

MR. HINNEFELD: The question is are people with non-covered cancers --

CHAIRMAN GRIFFON: Right, right, right.

MR. HINNEFELD: -- but people with non-SEC cancers are getting appropriately, a partial dose reconstruction. That's the question. The question remains that we just need to, I think we're not going to solve it here because I don't think we know here, sitting here how we would normally do things. We probably have other precedents. And it's not necessarily, and it's not a coworker precedent, the way Mutty said. It's a Site Profile, and so there's precedents out there and we just need to take a look at those

probably with guys on our side, Dave Allen.

DR. MAURO: When it comes to AWEs, we're always dealing with what I call the generic -- for all intents and purposes; they're all coworker models in a way. Whether you're using data or you're using your understanding of process knowledge, you're basically constructing, you know, one-size-fits-all or maybe a little binning. So the way I see it is that really doesn't change the concept, do you go with a claimant-neutral or do you go with a claimant-favorable approach. And it seems to me here this was a claimant-neutral strategy, how to use the data, and it's that simple.

DR. ULSH: But if this is an underestimating dose reconstruction or, sorry, an overestimating dose reconstruction, which I think it is, because it's not common, claimant-neutral is perfectly fine. We can use a mixture of claimant-neutral and overestimating assumptions, we just can't mix

over and under because then you don't know where you are.

DR. MAURO: Wait, wait. So you have got a guy that you want to do an overestimate and he still comes in under, that's fine. But you didn't do an overestimate; you used the claimant-neutral one.

DR. ULSH: If we overestimated his internal and his x-ray dose, and when it comes to external we use a claimant-neutral assumption, that's not a problem. John, we're not required to overestimate every single parameter of the DR.

DR. MAURO: If you're doing an overestimate -- wait, wait, wait. You've got a guy and you know he's not going to be compensated, so you give him the overestimate and say, listen, he was hit by three or four different pathways and you hit with everything you've got on all those pathways, but you didn't hit with everything you've got on this

pathway. Now, I agree with you. If you did, it wouldn't turn this fellow, but I don't think that's in keeping with the philosophy.

DR. ULSH: Well, you've hit on the question. I mean, for this particular DR, it's probably not going to make a difference. We can agree on that. But it gets to the philosophical question, and that is when we're doing, for example, an overestimating DR, is it appropriate to use claimant-neutral procedures in some parts of it and in other parts using an overestimating assumption, like, for instance, the internal and the medical. I say it is. We don't have to overestimate every single parameter.

MEMBER RICHARDSON: I don't know how you would be able to come to a determination that, using an overestimating approach, the Probability of Causation was X unless you systematically used an overestimating approach. I mean, how do you have an intuition about what the gamma dose

effect is going to be on the risk estimate for a given outcome under a given latency pattern and agent exposure function and saying that you think that, you know --

CHAIRMAN GRIFFON: Neutral was okay, yes.

DR. ULSH: Because as long as we are not underestimating it, at worst, it's accurate. That's claimant-neutral.

MEMBER RICHARDSON: But here, this is, I mean, we actually don't know the truth at all, right? I mean --

DR. ULSH: Well, no. We have a study here that shows the distribution of external doses.

MEMBER RICHARDSON: In a work area, but we haven't placed the worker into that field with any -- this is why we have this decision about the uncertainty around the external dose for that person and whether we want to err on the side of giving them the geometric mean or giving them some other part

of the tail of this log normal distribution. We don't actually know what this person's experience was. We just have field measurements. So you can't say it's claimant-neutral. It's highly uncertain.

MEMBER MUNN: But we have field measurements at the high, the anticipated high exposure area. If you have five pathways and you are overestimating four of those pathways --

(Simultaneous speaking.)

CHAIRMAN GRIFFON: One person at a time for our court reporter, please. I know they're having these side conversations. Guys, let Wanda talk. Sorry, Wanda.

MEMBER MUNN: If you assume that you have five pathways and you have overestimated four of those pathways and are neutral on the fifth, then you still have, clearly, a claimant-favorable approach. The stack-up of uncertainties when all of them are positive puts you in tenuous area with respect

to arguing that you are accurate. That just simply doesn't mesh up. If you have, if the --

MEMBER RICHARDSON: I guess my position, I totally disagree with that argument. I mean, the only reason to expedite an evaluation by using the overestimating approach instead of making your best estimate is to do it in some sort of systematic way and not an ad hoc fashion to say I think one pathway is relatively inconsequential. I mean, this would be, this is a procedure of convenience to expedite the processing. In that case, I would think, as John said, you would throw everything at it. You would overestimate those pathways, make an evaluation of Probability of Causation, and then you can step back and it may be that you have to do a more detailed one.

CHAIRMAN GRIFFON: Because the idea is if you throw everything at it and it comes in over 50 percent then you might have

to sharpen your pencil, as Jim Neton always says, and do a best estimate. So, yes, it doesn't seem logical to me to --

MR. FARVER: You can overestimate the entire internal and then do best estimate on the external. That's okay because you're doing your best estimate.

CHAIRMAN GRIFFON: That's what Brant is saying kind of.

MR. FARVER: Well, I think the determinant of this being claimant-neutral is being synonymous with best estimate, and I don't think that's the case.

MS. BEHLING: Mark?

CHAIRMAN GRIFFON: Yes.

MS. BEHLING: This is Kathy Behling. The other thing that we should also keep in mind in this particular case is that this individual is a furnace operator, and so I think that plays an important role in assuming a 50th percentile or a 95th. It has to do with the fact that he is a furnace

operator. CHAIRMAN GRIFFON: Right. And that's the nature of the response. I think that brought out the badge data that pointed that it was near the geometric mean, I guess, or the below the --

DR. ULSH: Well, it at least wasn't in the --

CHAIRMAN GRIFFON: Yes, the one measurement. Right.

DR. MAURO: I think this is important because I think we've come to a place where the longest time was our opinion that you had to hit them with everything. And I do not recall any procedure where when you're doing a bounding estimate for, you know, a maximizing approach for the purpose of denial you could let one off the hook. Now, the other way you could go, if you were doing a minimizing approach and you just did one case and you did a minimum and it came over, you're done. But I think that not in this case. I think the flip doesn't work.

DR. ULSH: Well, I don't want to short-circuit anything. If you guys want to continue to discuss this, we can do that. It does seem to me that we're not going to come to agreement on this. We've put a position on the table, SC&A has stated their objections, and I think we hear and understand what they are. So the next step would probably be for us to come up with an additional response in light of, I mean, the alternative --

MEMBER MUNN: You're right. You're right.

CHAIRMAN GRIFFON: Yes, that's fine. I guess the one thing I would ask is in your response include the overall policy response, that is it NIOSH's position that in the overestimating approach you don't have to overestimate all pathways? Because I think I've been like John. For 11 years here, I've been assuming that was the case.

MEMBER RICHARDSON: Could I ask for two little pieces of clarification in

helping me understand the problem? One is there is this description, which is the first time I've heard of this, of 20 dosimeters hanging in a room in a facility. The readings on those yielded kind of a log normal distribution of doses or dose rates. When you would, when you're getting the, let's say the mean or the 95th percentile of these distributions, are you fitting a log normal curve to that and then deriving that from that, for example; or is the 95th percentile the 19th out of the 20 readings? Is it an empirical value, or is it derived from a fitted curve? Because there would be two ways of saying what the 95th percentile is.

DR. ULSH: Right. It's not a non-parametric. I think it's derived from a log normal fit. Am I correct, Scott and Mutty?

MR. SIEBERT: That's correct.

DR. MAURO: Along those lines, another important issue. On many occasions we have engaged this very question when you have

data, and very often we find that the tails don't always match the 95th very nicely. In fact, sometimes we see it going off. For some unusual reason, the high-end guys get more than you would expect if you fit. So one of our positions is when you see not the best fit in your distribution, you go with the rank order approach. We've taken that position in the past, and we feel as if it's more claimant-favorable, but I don't think we've ever come to resolution on, you know, that protocol. When do you use the best fit and are there times when you'd really be better off going with rank order? We've had that discussion on other occasions.

MEMBER RICHARDSON: And is the empirical data set simply 20 measurements, or were there repeated measurements at these 20 locations?

CHAIRMAN GRIFFON: We better look at that report. They reference the report, too, so we can get -- good question, but yes,

yes.

DR. ULSH: It's presented in our response as 20 different locations, but that doesn't give you necessarily the number of measurements. I don't know off the top of my head.

MEMBER RICHARDSON: Okay, thanks.

CHAIRMAN GRIFFON: Mutty, do you have that? Or we can pull the report, I suppose.

MR. SHARFI: Yes, I don't know that off the top of my head.

CHAIRMAN GRIFFON: Okay. I think we'll leave it at that for now. NIOSH has the action again on this one. And to look back at the procedures we're doing, overestimating cases versus the Site Profile use for this case, does that capture it kind of?

DR. ULSH: I think so, yes.

CHAIRMAN GRIFFON: Yes. Alright. Moving forward. The first couple always take us the longest. 125.9 is the next one I have.

MR. KATZ: What page is it on? The page number is at the bottom. Is there an easier way to --

CHAIRMAN GRIFFON: I'm scanning up to it.

MEMBER MUNN: I'm just pulling up what he sent.

CHAIRMAN GRIFFON: I mean, I just added in our response, to the page numbers, but anyway --

DR. ULSH: Are you talking about a page number in the matrix?

MR. KATZ: Yes.

CHAIRMAN GRIFFON: The next one with yellow on it. Twenty four I have.

MR. HINNEFELD: It's 24 of 111 on mine.

CHAIRMAN GRIFFON: Yes, it's 24 on mine.

MR. KATZ: See, these are all different.

MEMBER MUNN: So this is still

125.9, right?

CHAIRMAN GRIFFON: So this is NIOSH did not properly address radiological incidents and potential missing bioassay data is the original finding on this. I'm not sure what site this is.

MR. SIEBERT: This is Hanford.

CHAIRMAN GRIFFON: Hanford. Okay, thank you.

DR. ULSH: Well, we sent out a response, but it's not --

CHAIRMAN GRIFFON: Right. Not matrix form.

DR. ULSH: -- because it's kind of extensive.

CHAIRMAN GRIFFON: Yes.

DR. ULSH: Mark, would you just like Scott or Mutty maybe to --

CHAIRMAN GRIFFON: Summarize it, yes. You don't have to read the whole thing necessarily.

DR. ULSH: Alright. Scott, do you

want to take a crack?

MR. SIEBERT: I'll be happy to do that. Basically, what happened was when we did the claim and SC&A did the review, they found some incidents that were reported in the DOE file that did not have follow-up bioassay reported by Hanford to us in their response. However, the incident files indicated that bioassay was required at the follow-up.

The question was: Were we actually getting all the data from Hanford that we should be and were there actually bioassay results for these incidents that we hadn't yet received? The answer is no. We requested additional information from Hanford yet again specifically discussing with them these incidents, giving them the dates and actually the pages in the DOE response with those incident files. They went back to all their records, and they came back with a little extra data, but what it turned out to be were results for plutonium samples prior to and

around that time, but it was nothing that we didn't already have in the file. We already had those samples in the file. We didn't have results in REX because they usually did not put negative sample results in REX at that time.

So we made the assumption that there's no result there that is below detection, and when we got this additional information that is exactly what we saw for those plutonium samples. The results were below detection. So the bottom line is we didn't have additional information. So, basically, the main question was: Were we missing data? And the answer is no.

Now, to be thorough, what we did is we looked at, our basis initially was the fact that the bioassay that we already had in hand was acceptable for limitation of the incident. And what I went through the rest of this response for plutonium, uranium, and fission products is using the actual data that

we already have on hand, assuming intakes occurred during those incidents and comparing them to what was assigned within the actual assessment that we did, doing a comparison and seeing if any of the potential doses from the incident could exceed what we already assigned. And in all the cases, what we assigned exceeded anything that would be incident-specific.

CHAIRMAN GRIFFON: Done deal.

MR. SIEBERT: There are a lot more words in the response to cover that.

MR. FARVER: So in our finding we identified incidents that said bioassays were requested on it looks like at least four different occasions, and you're saying that, no, there were no bioassay results for those incidents. Or are you saying the bioassay results were zero?

MR. SIEBERT: No, I'm saying that there were follow-up bioassays in the first incident, which we do have on hand and we

always did. For the second two incidents, which were in May and July of '57, we did not find any additional bioassay that was follow-up of it.

CHAIRMAN GRIFFON: And your next samples are a couple of years later, right?

MR. SIEBERT: Yes. The next samples are in like '59, and chest counts in '74.

CHAIRMAN GRIFFON: Right.

MR. SIEBERT: And those next samples that we actually do have, those are what they used to limit the intake based on the actual incident date and compare that to what we already assigned.

MEMBER MUNN: So the bottom line here is you covered it?

MR. SIEBERT: Correct. If you look at the actual incident data and go to later bioassay, it gives a smaller dose than anything we assigned.

MEMBER MUNN: Okay.

MR. FARVER: So I guess what we learned from this is just because it says in the record that bioassay was requested, maybe it wasn't or we can't get the results?

MR. SIEBERT: I can't say if it was actually requested or not for back in `57. All I can say is we've asked Hanford to go through all their records, and they gave us all the bioassay records that exist for this individual.

MR. FARVER: I mean, what prompted this is we're reviewing the DOE records and we see an incident form and it says bioassay requested, and then we try to compare that with the bioassay data we have and the dates don't coincide. So that's kind of what prompted this.

MR. FARVER: Which is a valid question, yes.

MEMBER RICHARDSON: I mean, another one is that, I don't know, when I was thinking back to this, I thought that there

were like 114 confirmed internal depositions in the entire Hanford bioassay program, which seemed to be exceptionally small. And it raised a question. I mean, at least going back, this goes back through the epidemiologic cohort studies when we have tried to use the computerized records of the bioassay program and when Ethel Gilbert tried to use them. There were a very, very small number of workers who had a confirmed deposition and you set that against other facilities doing similar work, it looks very, very small, which raises the question, are those computerized records of the bioassay program complete? It's always one question I've had. I don't know where to go with this, except it's an interesting observation for a single worker you're encountering multiple situations where you thought there would be bioassay information and it's not there.

MR. SIEBERT: Well, one thing I will point out that they did go back to the

paper records in this specific case and there was no additional information outside what was already in record from a bioassay point of view. So it wasn't just the computerized records. Everything in the computerized records matches up with this person's hard copy.

MEMBER RICHARDSON: That's useful.

MR. FARVER: I guess we'll close out because they really can't do anymore. I mean, they did go back and look. This is the data that was available. It just appears to be incomplete.

CHAIRMAN GRIFFON: But the bottom line I think they're presenting is that the bioassay they did use is still bounding of these reported incidents.

DR. MAURO: The '61 data covers it.

CHAIRMAN GRIFFON: Right, right, right. And you're in agreement with that, I

think, right? So I don't think there's anything else we can do with this one. I think it's closed, right, that SC&A agrees with NIOSH?

MR. SIEBERT: Do we want to discuss it a little bit more? Because it took me a lot of time to do all that work.

MEMBER MUNN: I know, I know.

CHAIRMAN GRIFFON: Okay. Let's open it up for discussion again.

MEMBER RICHARDSON: While we're sitting here quietly, I have a question for you. The later bioassay data are derived from in vivo counting; is that right?

MR. SIEBERT: We had both in vitro and in vivo.

MEMBER RICHARDSON: I've wondered if the limited detection on the in vivo counting is so high for some types of intakes that that was, you know, that's also kind of maybe a constraint on why there are fewer internal depositions there than places that

made less use of in vivo counting. Does that make sense to you?

MR. SIEBERT: I can't specifically speak to Hanford and how they ran their program and everything, I can just tell you what we have.

MEMBER RICHARDSON: No, I'm not speaking about the program. I'm just wondering about in vivo counting in general.

MR. HINNEFELD: Your statement makes sense that in vivo counting, particularly for plutonium, has a quite high detection limit compared to regulatory intakes.

MR. SIEBERT: Well, the in vivo counts for americium, which is what we're actually looking at, are relatively low.

MR. HINNEFELD: Oh, that's true.

MR. SIEBERT: And it's a very good limitation for insoluble forms of plutonium mixtures.

MEMBER RICHARDSON: Yes. So

you're looking for the trace of americium within the plutonium intake, right? So it would have to be --

MR. HINNEFELD: It actually, it grows in as the plutonium grows.

MR. SIEBERT: It's the americium that's originally in the mixture and any that decays in from the Pu-241, as well.

CHAIRMAN GRIFFON: Okay. I think we're ready to move on to the next one, which is the last one I believe on this 7th set. Number 135.1. I'm not sure of the page number, Ted.

MEMBER MUNN: I got 45, 46.

CHAIRMAN GRIFFON: On mine, it's on page 64. Sixty-five. I'm sorry.

MR. HINNEFELD: What's the finding number?

DR. ULSH: 135.1.

CHAIRMAN GRIFFON: So, Brant, if you want to introduce it, I guess, and --

DR. ULSH: Well, this is going to

be similar to the last one in that our response is somewhat lengthy. So I think, Scott or Mutty, do you want to summarize it?

MR. SIEBERT: Well, let's see. Basically, for 135.1, there was back and forth as to whether the appropriate number of zeros were used, this is a Y-12 case, whether the appropriate number of zeros were assumed for missed dose calculation of external. Originally, we agreed quite a while ago that the original version did undercount the number of zeros, and the claim has actually been reworked under a PER and/or a couple of PERs, and that's been rectified as well. The additional question that came out of that actually was SC&A was questioning how we could tell the difference since there were no monitoring results whether they were to be counted as zeros or if the individual was unmonitored and should have been dealt with using missed dose instead of assuming zeros across the time frame where we have no

results.

As I said, we re-worked the case and we used the number of zeros that were suggested. The question on actual monitoring comes down to, this is the bold section that's about halfway, a third of the way through the response, it was as a result of the criticality in '58. The program was instituted in '61 to monitor all Y-12 workers individually. So we make the assumption from their records that if an individual does not have monitoring results they were not recording zeros, they were just leaving blanks, we make the assumption that the individual was monitored during that time frame; however, a zero non-detect for the badge is what the record is actually reflecting and that's how we calculated the assessment that's been updated. As I said, the first revision of this, all those zeros accurately. And then the rest of the response is just giving more information about the

rework that reflected it and the fact that it still was a non-compensable claim once the zeros were adequately counted.

CHAIRMAN GRIFFON: And then there's the response about treatment exposure, as well, right? Is that the --

MR. SIEBERT: Yes, that's the next response, 135.4.

CHAIRMAN GRIFFON: Oh, okay. Alright. We'll hold off on that one.

DR. MAURO: So you're saying the weight of evidence is, given the circumstances, it's likely this person was badged?

MR. SIEBERT: Correct.

DR. MAURO: And he came back below the limits of detection, as opposed to unbadged, given the criticality?

MR. SIEBERT: Correct.

MR. FARVER: And that's from the Y-12 TBD?

MR. SIEBERT: The external TBD,

correct.

MR. FARVER: Okay. Which is?

MR. SIEBERT: Page ten of the TBD, if you want to look --

MR. FARVER: It probably has been revised since 2003?

MR. SIEBERT: Yes, numerous times.

MR. FARVER: Okay. Just looking at the reference that was used for that dose reconstruction. It was 2003, Rev 0.

MR. SIEBERT: Right.

MR. FARVER: So additional information has been added since that time. Okay.

CHAIRMAN GRIFFON: So you're in agreement?

MR. FARVER: Yes, if that information just wasn't available back when we did our audit of it. That's part of what comes out of this, we make modifications to the document.

CHAIRMAN GRIFFON: Right. And

that closes that item out then. And then the next part of that, 135.4.

MR. SIEBERT: Okay. And as you said, Mark, this actually has to do with tritium and tritium potential. The individual stated in their claimant interview that tritium was processed at Y-12 during time frame, and SC&A was questioning whether tritium exposure should be considered. Obviously, we did not. The Y-12 he is talking about, the fact that there was a radioanalytical analysis method available at Y-12 during that time, there was very minimal tritium work being done during that time frame, as well, as far as I'm aware. And the TBD does specifically say that people who were potentially exposed submitted three urine samples per month, and this individual had no urine samples whatsoever. Once again, tritium sampling being relatively straightforward and relatively inexpensive, individuals who were being monitored, who needed to be monitored,

would be monitored. So we did not assign tritium.

CHAIRMAN GRIFFON: And any information on work area? I mean, given the time and the job he had, the work area he was in, no indication based on that that he should have been assigned tritium?

MR. SIEBERT: He was a machinist and inspector, so, as far as I'm concerned, as far as I can tell from what I reviewed, I didn't necessarily see a reason why we would assume that he would be in areas where tritium was being worked with.

CHAIRMAN GRIFFON: Except for the fact that he said he was, right? I mean, it does speak to the question of how do we value these CATI interviews. That's a pretty specific comment, you know?

MR. SIEBERT: He's also saying that tritium was present or processed at Y-12.

CHAIRMAN GRIFFON: It doesn't say he was -- yes.

MR. SIEBERT: It doesn't necessarily say he was being exposed to it, so it's semantics. And I think the weight of the stuff that we're seeing, he doesn't have sampling and does not seem to indicate that he would be a tritium worker, so --

CHAIRMAN GRIFFON: Any follow-up with the individual? Probably not, I'm guessing.

MR. SIEBERT: Not that I'm aware of.

MR. FARVER: And, once again, what triggered it to us was he mentioned it in the CATI report, and there was only just a couple of words about tritium in the Y-12 TBD, almost nothing.

CHAIRMAN GRIFFON: And inspections does sort of, it could possibly indicate that he was in an area where, you know, but you said machinist and inspector or something?

MR. SIEBERT: Yes, that was the job title.

MR. FARVER: And really what our findings said was that they did not consider it, which could be as simple as saying something in their report as, you know, we understand that he mentioned it in the CATI report but we have no indication that there was tritium exposure.

MR. SIEBERT: I would agree that the report could probably reflect the fact that he said tritium and we did not say that we specifically addressed that issue. I would agree with that.

MEMBER GIBSON: Well, it mentions machinist and inspector. You know, there are situations where the machinists will make a part maybe outside of the tritium area, but it's to be installed in the tritium area for a tritium process and then he goes in there to inspect it to see if it's working properly.

MR. SIEBERT: I would agree. But once again, generally, it comes down to the fact that tritium sampling was inexpensive and

easy to do, so people who needed to be sampled generally were. Can I say that in all cases? It's hard for me to say that, obviously.

MR. FARVER: Well, are there tritium results for Y-12?

MR. SIEBERT: There are tritium results for Y-12, just not for this individual.

MR. FARVER: Okay. The other thing, I have not seen any tritium results for Y-12, so I was not aware that they did tritium sampling.

CHAIRMAN GRIFFON: So there is no protocol for assigning any kind of coworker tritium at Y-12? It's only if you have evidence for the individual, right? That it would be assigned?

MR. SIEBERT: I believe that's correct.

CHAIRMAN GRIFFON: Yes. And I guess that would be one question. I don't know if this was a -- oh, this was a lower

level, right? I mean, the PoC was like 22 percent, I think if I recall, the adjusted PoC.

MR. SIEBERT: Yes, the new PoC is around 22.

MR. FARVER: And does the new TBD talk about when the tritium sampling was done, like typically it will say the years it was done, from such and such to such and such?

MR. SIEBERT: That I can't speak to.

MR. FARVER: Okay. I haven't reviewed the recent Y-12 TBD.

MR. SIEBERT: Right. But I can tell you there is an effort to revise the Site Profile right now. I don't know if that's being considered, but you can obviously mention it to the TBD office.

MEMBER CLAWSON: This is Brad. Is there a criteria to be able to be on the tritium sampling program, or were they just people that they felt were most highly

exposed?

MR. SIEBERT: I can't speak to that.

MEMBER CLAWSON: See, because as an inspector, you'll go into a lot of places continuously and they may not figure that you're there. We've seen this at Pinellas, we've seen this everywhere that these people were receivers and inspectors and they were in there numerous, quite a bit. That's kind of why I have a hard time with this one.

MEMBER GIBSON: Because you might sign in on a general RWP instead of a job-specific, so you may not be required to complete the sample.

MEMBER CLAWSON: Right.

MS. BEHLING: Mark, this is Kathy Behling. I believe that in our initial finding we also quoted a statement out of the TBD that was available at the time that says the internal dosimetry program has included limited monitoring for cesium, technetium,

thorium, plutonium, and tritium. So that was part of our initial finding.

CHAIRMAN GRIFFON: And what's the, explain the relevance on that, Kathy.

MS. BEHLING: Initially --

CHAIRMAN GRIFFON: Limited, meaning it may not cover everyone that was --

MS. BEHLING: No, just indicating that Y-12 had limited monitoring for tritium.

CHAIRMAN GRIFFON: Okay, okay. Yes, yes.

MS. BEHLING: That's not what I heard earlier on.

CHAIRMAN GRIFFON: Right.

MR. HINNEFELD: I think probably it would be limited compared to uranium.

CHAIRMAN GRIFFON: Right, right, right.

MEMBER MUNN: Some tritium sampling was done, yes.

DR. ULSH: I guess it comes down to, it's a quote that is given in the response

here from the TBD that says as of 1957 personnel engaged in processing materials with a potential for tritium contamination submitted three urine samples per month. It comes down to do you believe that? I mean, if you do, then the fact that this guy doesn't have tritium urinalysis indicates that he was not exposed.

CHAIRMAN GRIFFON: As of what year did it say?

DR. ULSH: 1957.

MR. HINNEFELD: We kind of have to know the basis for the statement.

MR. SIEBERT: And I seem to recall that this claimant was at Y-12 like from '76 on through like 2002.

MR. FARVER: Well, as I'm looking through the updated Y-12 TBD, there's a lot more information in there about tritium than just the one statement that we quoted in our findings.

CHAIRMAN GRIFFON: So it has been

updated with regard to that?

MR. FARVER: Yes. And it talks about the liquid scintillation and then other methods. It does explain a whole lot more.

CHAIRMAN GRIFFON: Okay. So I think we can close it out. I mean, I think the original nature or a big part of the original finding was just what we said, that it was mentioned in the CATI and not mentioned in the DR report. I think that stands, and NIOSH agrees it should have been at least explained why it wasn't --

MR. FARVER: Well, then the documentation didn't really mention that there was tritium sampling done on any regularity. So it was just kind of interesting all the way around.

CHAIRMAN GRIFFON: Okay. Let me just update the matrix, and then we'll move on.

MR. SIEBERT: And, Mark, when you say update the matrix, does that mean closing

it?

CHAIRMAN GRIFFON: Yes, it will close it. But I'm just updating the -- yes.

MR. SIEBERT: Okay. I'm just making sure.

CHAIRMAN GRIFFON: Yes.

MR. SIEBERT: Thanks.

CHAIRMAN GRIFFON: Okay. I think that's the last one on the 7th set, right? So maybe this is a good chance for like a ten-minute comfort break, and then we'll come back and start on the 8th set, if that's okay with everyone. Everybody on the phone, like ten minutes, and then we'll start up again, alright? Thank you.

(Whereupon, the above-entitled matter went off the record at 10:28 a.m. and resumed at 10:43 a.m.)

MR. KATZ: We're going back online, and I just have a request. Scott and Mutty, you both sound similar on the phone, so if you would just be sure to identify yourself

when you speak that would be helpful.

MR. SIEBERT: You got it. This is Scott.

MR. KATZ: I knew that, but thank you.

CHAIRMAN GRIFFON: Good, good. Okay. I think Ted pointed out that on the 7th set, 137.6 and 137.8 were still highlighted, but they are closed, so I've removed that. I've updated the matrix for the 7th set, and I will email it out right after this meeting, actually, so I get it out of my hands.

DR. ULSH: What was that? 137.6?

CHAIRMAN GRIFFON: And 137.8. They're both closed, just the highlighting was left on. Okay.

MEMBER MUNN: If you're going to be emailing, may I make a suggestion that perhaps it would be helpful, I'm sure it would be helpful for David, if we had your current updated copies of all of the current existing matrices. If they were all sent out at the

same time to us then perhaps we could establish a file of nothing but matrices and we'd know we'd all be on the same page.

CHAIRMAN GRIFFON: Okay. You mean all the ones we're working on?

MEMBER MUNN: All the ones we're working, yes.

CHAIRMAN GRIFFON: Yes, yes. And I think I did that the last time. I sent out the 7th, 8th, and 9th.

MEMBER MUNN: Yes, you did. Yes, you did.

CHAIRMAN GRIFFON: I'll do that again.

MEMBER MUNN: That would be nice.

CHAIRMAN GRIFFON: That's fine. Okay.

MEMBER MUNN: Get us all updated at the same time.

CHAIRMAN GRIFFON: Okay. So let's move on to the 8th set matrix. And, Brant, you'll have to tell me if you sent responses

for this. I believe you did but --

DR. ULSH: Lots of them.

CHAIRMAN GRIFFON: Yes, yes.

DR. ULSH: About nine files, I think. And these were sent on Friday.

CHAIRMAN GRIFFON: Okay. Does everyone have those files except for me? I think I just didn't download them, so I'll get them off the email right now. This was sent Friday. Is that the only -- let's see.

DR. ULSH: And they're also available, well, for us it's --

CHAIRMAN GRIFFON: Oh, okay. So they're all sprinkled throughout your email here. Okay, right. Alright. Well, maybe I can just turn it over to you, starting with the first one. Is it 162.1? Is that the --

DR. ULSH: I think it might be 150.1, going in numerical order.

MR. SIEBERT: Actually, you can go all the way back to 149.2 is in the matrix that you sent.

DR. ULSH: This is going to take some jumping around.

CHAIRMAN GRIFFON: Okay. We might have to jump around a little. That's fine. Alright. And what about --

MR. SIEBERT: Sorry. That was Scott.

CHAIRMAN GRIFFON: That 149.1, just to go through the matrix sequentially here, 149.1 was not updated yet? On my matrix, it says NIOSH to review SC&A's analysis.

DR. ULSH: I think you're correct, Mark. We did not finish that one yet.

CHAIRMAN GRIFFON: Okay. So then on to 149.2.

DR. ULSH: So the summary of the finding is that the use of the default values in the Site Profile likely resulted in substantial overestimates of the dose to this worker, and the NIOSH action item was to follow-up to determine whether something other

than the 95 should have been assigned. We provided a response here in the matrix, NIOSH agrees that the TBD could be revised at a tiered coworker model rather than the one-size-fits-all model. For this particular case, the DR correctly followed the guidance in the TBD. However, if a 50th percentile option was in the TBD then it would have been more appropriate since the worker's job category falls into the lower potential exposure category. The internal intakes are based on limited air sample data and, in cases like this, we commonly use the flat 95th percentile in order to limit variability due to limited data. So we agree with the argument that SC&A makes, but we can also see why we did it the way that we did it based on the way the TBD reads.

DR. MAURO: And you can see the interesting dilemma we have. The previous one, the Simonds Saw one with the geometric mean, and at that time that's what you did.

This one, which is Bridgeport Brass, I believe, with the 95th percent, and it turns out, interestingly, just the opposite of the last one, I wouldn't have used the 95th percent on this one because it was a nurse and didn't work in the production area.

CHAIRMAN GRIFFON: Right. Likely less exposure.

DR. MAURO: Yes. So there is a parity issue here. And over time, it's not surprising these things happen. This was relatively recent compared to Simonds Saw. So we do have this what do we do about, you know, leveling the playing field is what we're doing right now, you know.

CHAIRMAN GRIFFON: And this is also an overestimating case, I assume, or is that right?

MR. HINNEFELD: Well, I think if we write a Site Profile and say give everybody the 95th percentile, we would not consider it overestimating, which is --

CHAIRMAN GRIFFON: Might be the approach.

MR. HINNEFELD: -- the technique that we not consider it overestimating.

CHAIRMAN GRIFFON: Right. Okay.

MR. HINNEFELD: I would just offer that, in the case of a nurse, it's probably relatively straightforward that you could make a judgment about the extent. You know, nurses quite frequently are in work areas, spending time in work areas for whatever reason, but it's not a majority of their time. But the problem with having a tiered approach and a dichotomy is that you have to trust the quality of the work category job used, which may not be that good and you may just get the last job the person had, which rather than the jobs that they had throughout their career. So, personally, I'm not a real big fan of saying we can sort people into the ones that were really, you know, in an AWE that operated 50 years ago, we can sort people that well.

DR. MAURO: I think the philosophy you embraced in TBD-6000 where you have lots of granularity, you have years in all categories, and you say, listen, based on, I think it was the Harrison-Kingsley data we were able to bin things. But then at the very end, you say, listen, we don't know or there's some ambiguity, you go with the worst guy. I mean, I think that's the right philosophy.

CHAIRMAN GRIFFON: So according to the TBD, in this case you should have assigned the 95th, right?

MR. HINNEFELD: That's what it says.

CHAIRMAN GRIFFON: And you did, so you stuck with the TBD. Right.

MR. SIEBERT: I think one of the major reasons -- this is Scott. One of the major reasons this was a question is this was compensable at 52 percent.

CHAIRMAN GRIFFON: Yes, that does change the playing field.

MR. HINNEFELD: Well, I think the question really is, the Simonds Saw and Steel question is how much do you really want to argue about using the full distribution, which really ends up using median, compared to using the 95th percentile routinely? Under what circumstances and how much do you have to know? Now, sitting here today, I'm not smart enough to tell you, you know, what we would use to differentiate, even today if we would even make that differentiation. So that's something that we have to deal with, the fact that that's already on the plate from the Simonds Saw and Steel case.

MEMBER RICHARDSON: I'd advocate not revisiting a kind of policy question about dose reconstruction after you know the Probability of Causation. I mean, to the extent possible, I would lean towards developing procedures that are independent of the compensation decisions for fairness to the claimants.

DR. MAURO: Especially to be compensated.

MEMBER RICHARDSON: Regardless. I mean, in a sense, you would want a procedure that would appear fair and blinded to the kind of case status.

MR. HINNEFELD: It is best, you know, if you could do it with a reasonable amount of efficiency, it's best to do it with best estimate and not to do an overestimate in general because there's a lot of downside. The main downside is a person who dying of cancer comes back and we do a best estimate and the PoC goes down. I mean, it's just not, I mean there are situations where it saves a lot of effort. Now, you might argue that we're not so behind the eight ball on claims now or claims are less than a year old and they're getting down to be like nine months old. So we don't have these eight-year claims hanging out there anymore, so maybe there is an argument to be made that you don't really

need that sort of efficiency, so it's sort of a philosophical thing, I guess, for us to deal with a contractor amount first.

CHAIRMAN GRIFFON: Where do we take this one, John or Doug?

MR. FARVER: Oh, back on that first one?

DR. ULSH: 149.2

DR. MAURO: Can I -- I mean, to me, a process was put in place that was, protocol was followed, so no quality issue here. The protocol resulted in compensation of a person that, on closer inspection, if we were to revisit it today, would you have been this person as a nurse at the 95th percentile because you do have criteria now. In theory, one could argue that, you know, you could have put this person in the 50th percentile category, as opposed to 95th percentile. You know, our job is to raise these issues, but, in this case, you know, I don't think you do anything about it because, you know, the

person was compensated. You're not going to redo the PoC. But whether or not you want to, you know, whether or not there's any issue that goes deeper than that, that is this philosophy, but I think the philosophy has been embraced in the TBD-6000. It's all there, so you've got it all. So what we have is everything is matured, years have passed and everything has matured, and it's getting pretty tight. And then we go back in history and we look at some cases with that vision and, in my mind, we don't do anything. What do you do here? You have to change the PoC.

CHAIRMAN GRIFFON: Well, you might change the Site Profile, though --

DR. MAURO: Oh, the Site Profile, yes.

CHAIRMAN GRIFFON: -- 95th but to comply more with the 6000 approach. That's the question I'm asking you.

DR. MAURO: That's a good question. But now let's say there are a bunch

of cases that were done at Bridgeport Brass that were done years ago under this procedure, are you going to deny people that were granted or --

CHAIRMAN GRIFFON: Well, no, of course not. You're not going to reverse decisions.

DR. MAURO: Right. So I would say the only time you revisit Bridgeport Brass is if you need a PER where you used an approach that you need to increase people's doses. That's what we should have our eye on: are there any issues that we've raised here that we then would --

CHAIRMAN GRIFFON: Yes, so not re-evaluating cases necessarily but it would be modifying the Site Profile for future cases.

DR. MAURO: And then determine what could be affected --

CHAIRMAN GRIFFON: Yes, because right now is that still the practice. I imagine it's still the protocol, right? To

assign a 95th for all?

MR. HINNEFELD: It depends on whether there's been revision to the Site Profile. I don't know --

CHAIRMAN GRIFFON: Yes, I don't know. I don't know. I mean, I think that would be the only action would be to revise if needed to be consistent with the 6000 approach, at least that's what you're saying.

MR. HINNEFELD: Well, the note I took, whether you want to track it in here or not because we already have to do this under that Simonds Saw and Steel case, is to take a look at these old AWE Site Profiles that were developed before TBD-6000 and see if they faithfully carry forward, you know, the philosophy that we've evolved.

CHAIRMAN GRIFFON: Consistent with --

MR. HINNEFELD: With TBD-6000 and, if not, we can make some revisions to the

earlier Site Profiles from this point forward.

CHAIRMAN GRIFFON: I can put NIOSH will compare the Site Profile with the TBD-6000 approach and make revisions as necessary and no further action for this case. Yes, as necessary.

MR. HINNEFELD: The situations where TBD-6000 philosophy would cause us to actually raise the dose, then we would reconsider old cases. But if we were going to say, well, in this case, we wouldn't necessarily, we would have binned these people, that needs to be 6000, we won't have to go back to these cases. We're unpopular enough the way it is.

MR. SIEBERT: This is Scott. Does that mean this one will be closed and it will be carried forward on the Simonds Saw we already did earlier on since it seems to be the same action?

CHAIRMAN GRIFFON: Yes. Well, I put no further action on this case, so yes.

DR. MAURO: Well, I don't know about the case. This issue.

CHAIRMAN GRIFFON: Yes.

DR. MAURO: Because we do have other issues on this case that I think are --

CHAIRMAN GRIFFON: Oh, okay. Yes, right.

MR. SIEBERT: But 149.2 would be closed?

CHAIRMAN GRIFFON: Yes.

MR. SIEBERT: Okay, thank you.

MEMBER MUNN: Yes, I think so.

CHAIRMAN GRIFFON: You don't think so?

MEMBER MUNN: Yes, I do think so. Yes.

CHAIRMAN GRIFFON: Alright. Moving on. Is it 149.3, the next one we have?

MEMBER MUNN: The one that's highlighted.

CHAIRMAN GRIFFON: Yes. I mean, I didn't know if Brant had anything on that one.

DR. ULSH: No, I don't think I -- wait, wait. No.

MR. FARVER: So which one did we close? Did we close 149.2? Not 149.1?

MR. HINNEFELD: That's correct.

MR. FARVER: Okay.

DR. ULSH: Now, in the matrix that I sent out, Mark, the ones that we've made progress on are highlighted in light blue, and 149.3 is not one that we --

CHAIRMAN GRIFFON: Okay. I'm just --

DR. ULSH: I understand.

CHAIRMAN GRIFFON: We'll walk through them.

DR. ULSH: Yes, and it's going to be kind of tough because we have them kind of spread out.

CHAIRMAN GRIFFON: Right.

DR. ULSH: The next one I think that we have made progress on, and, Scott, jump in if I've missed one, 150.1, is that the

next one?

MR. SIEBERT: I would agree with that.

MR. HINNEFELD: Mark, do you want to go through the rest of these 149s?

CHAIRMAN GRIFFON: I don't think we need to. I mean, if there's still remaining actions --

MR. HINNEFELD: Yes, 149.5 is sort of the one we talked about.

CHAIRMAN GRIFFON: I don't see any reason to revisit them unless you do, Stu.

MR. HINNEFELD: Yes, they look like they're all the same issue.

CHAIRMAN GRIFFON: Sort of fall into the same --

MR. HINNEFELD: One was transferred, and the others were the same, you know, should you use a tiered approach.

CHAIRMAN GRIFFON: Okay, right. Alright. 150.1. Go ahead, Brant.

DR. ULSH: The summary of the

finding method for deriving internal doses is not claimant-favorable, and it looks to me that this is a Simonds issue. In November of 2010, the resolution is listed as provide a response in light of the Simonds' evaluation report. We added an SEC for Simonds based on thorium exposures. So our response for this time around is, the TBD is currently being revised to incorporate the assessment documented in the SEC evaluation report. The revised methodology provides an intake estimate at the start of the residual period based on the average of general area air samples collected during the operational period. The resultant intake at the start of the residual period is 422 picocuries per day (as opposed to the value of 1.4 picocuries per day using the previous assessment). This intake has reduced the time in accordance with the methodology contained in OTIB-70.

CHAIRMAN GRIFFON: Okay. We might be catching up because we're looking at these

real time, right?

MR. FARVER: I think we'll pass on this one.

CHAIRMAN GRIFFON: If you hear radio silence, that's why. We're all looking at these live.

DR. MAURO: I have to admit I didn't go over all these Bridgeport Brass, the three special cases -- this is where we are, right? CHAIRMAN GRIFFON: Yes.

DR. MAURO: I just didn't go through them in detail because I did these, but I don't remember them all.

DR. ULSH: Maybe SC&A to consider NIOSH's response, would that be the --

CHAIRMAN GRIFFON: Yes. I guess that's where we have to go, yes. Alright. And then go ahead on the next one, Brant, while I catch up.

DR. ULSH: Okay. I think the next one is 152.6.

MR. SIEBERT: This is Scott. What

was the resolution on that one?

DR. ULSH: SC&A to consider NIOSH's response.

MR. SIEBERT: Thank you.

DR. ULSH: You're welcome. The next one we have progress on is 152.6. And finding was failure to account for internal doses from all fission products. Prior to this time, NIOSH will compare the model used and, in parentheses, that's the chooser approach, with the OTIB-54 approach.

CHAIRMAN GRIFFON: I'm sorry. This is 152.6?

DR. ULSH: Yes. So we were to compare the chooser approach with the OTIB-54 approach. Our latest response is that we did that comparison and it demonstrates that the chooser in the original assessment overestimated doses based on whole-body counts of cesium-137 and of 254.

MR. SIEBERT: This is Scott. And this is one of the ones that has a bunch of

supporting files.

CHAIRMAN GRIFFON: Which you'll probably need to look at. SC&A will have to.

DR. MAURO: But, conceptually, the argument is the actual way he did was more conservative than the OTIB-54 approach.

MR. SIEBERT: Correct. And these are all tied together. 152.6. There's two others that are further down the line, two more cases that we did all the work together for all three of the cases for the OTIB-54 stuff, so we'll run across this again shortly.

MR. FARVER: And, no, I have not had a chance to look at all the files. There are quite a few when you start uncompressing the file folders.

CHAIRMAN GRIFFON: Okay. So it remains an SC&A action. We'll move it. Moving on.

DR. ULSH: Unless I am missing one, I think the next one -- Scott, is it

153.1?

MR. SIEBERT: Yes.

DR. ULSH: And we sent out these responses, a number of them together in one document.

CHAIRMAN GRIFFON: This is 150 --

DR. ULSH: 153.1. And other responses that are grouped in here together are 153.1, .2, .6, and .7. The issue here is, the finding was DR report does not include 1982 photon doses less than 30 keV recorded in missed. And this is a rather extensive one. Scott, do you want to go ahead and summarize whether than me --

MR. SIEBERT: Yes, just a second. Let me pull it up. I thought I had this one printed out. Yes, let's see here.

CHAIRMAN GRIFFON: Now, this is not within that matrix, is it, Brant?

DR. ULSH: No.

CHAIRMAN GRIFFON: No, it's separate from that. Okay.

MR. SIEBERT: Okay. For 153.1 and for 153.2, they're both basically the same issue: low energy photons recorded missed dose. The original finding was that it appeared that we should have assessed less than 30 keV photons from '78 through '82, but we only assigned it during some of those time frames. Our initial response did not seem to be clear, so the new response has a lot more words to be unclear, as well. Basically, it's just an explanation of dealing with shallow dose and shallow doses at Savannah River. Basically, for this claim, for 1982, which is the specific year in question for this finding or these two findings, the shallow and the deep doses are equal, so that leaves you a non-penetrating component of zero. So it appears that we could have dealt with a small percentage of a deep component being assigned at a shallow dose, which apparently did not occur and we'll agree that it should have occurred for the 30 keV photons, less than 30

keV photons. Basically, it's a very small amount. If you notice the numbers, you're talking about less than a millirem. And we did rework the claim on the Super S PER, and we evaluated the 1982 photon dose directly split between the less than 30 keV and 30 to 250 keV, and the PoC, the compensability decision did not change.

MEMBER RICHARDSON: I think I'm not clear on what you said. Maybe you could talk me through this. There's a dosimeter result.

CHAIRMAN GRIFFON: Was the document sent in that same 4/15? I couldn't find this one for 153. Was it on the same Friday email that he sent it?

DR. ULSH: Yes.

CHAIRMAN GRIFFON: I'm looking through all the responses.

DR. ULSH: Unless I didn't get it attached to the email, but I did put it in the O: drive.

CHAIRMAN GRIFFON: Alright. Go ahead. I'm sorry, David. Go ahead and get your explanation. I thought if I pulled up the document it would be easier to read through.

DR. ULSH: Scott, can you go ahead and walk David through the --

MEMBER RICHARDSON: Maybe we could start with, one thing that I don't quite understand is the first statement in here that prior to 1981 that there's an issue with the filters on a multi-element dosimeter. They weren't including aluminum and that somehow this impacted on how you would treat the kind of shallow dose estimate. Maybe you could start there. That's relatively late, I guess, for dosimeter technology, so what was the limitation prior to 1981?

MR. SIEBERT: Just a second, I'm reviewing. Matt Smith, are you on?

MR. SMITH: Yes, I am. I'm trying to run my tape backwards. That's the year

they switched to a Panasonic system. Let me go look at some TIBs, including TIB-17 and also some OCAS TIBs. Hold on.

MR. SIEBERT: Matt Smith is the principal external dosimetrist, for those who don't know him.

MEMBER RICHARDSON: While he's looking at that, there's one other issue. You described, in the dosimetry record, there's a recorded value for the shallow dose and the deep dose, and the difference between those was zero. That is, the recorded shallow dose equaled the deep dose. Is that what you said?

MR. SIEBERT: Yes. What they actually record is, what they call shallow is open window, which would include shallow and deep together.

MEMBER RICHARDSON: Right.

MR. SIEBERT: And then they also give us the shielded, which would be the deep dose. And in this case, what they record as open window and shielded are the same number,

so all of the dose was from deep dose, as opposed to shallow. When you subtract it out, the shielded from the open window you've got --

MEMBER RICHARDSON: All the photons which struck the dosimeter had enough energy to penetrate through the shielding.

MR. SIEBERT: Correct.

MEMBER RICHARDSON: And so why is this statement then, well, we didn't include the low energy photons because all the dose was high energy photon? That's what I'm not, that would seem to be the inference I would take from that.

MR. SIEBERT: Well, everything is, prior to '81, such as in this time frame, when you're subtracting out -- yes, you're right that the assumption is that all the photons had enough energy to get through that shielding. However, and this is what I'm relying on Matt looking all this up, prior to '81, the aluminum filtration could have

resulted in an underestimate of shallow dose in plutonium facilities where there's that 17 keV photon. We're dealing with that. In cases such as that, prior to 1982, we made the assumption of, although all of it is recorded at deep dose at that point, 25 percent of the dose is coming from less than 30 keV photons, basically, on the understanding that the filter did not filter, it filtered out those 17 keVs, and I believe that is based on the source term for plutonium at Savannah River.

MEMBER RICHARDSON: But why is the difference between the open and the shielded not capturing that?

MR. SIEBERT: I'm not understanding your question.

MEMBER RICHARDSON: There still should be a dose recorded on the open window of the dosimeter. There's no shielding there. And it should be higher.

MR. SIEBERT: No, it is identical. For this badge cycle, the dose is identical

for the open window and the shielded.

MR. SMITH: And in that case, there's no net non-penetrating radiation, in a sense. The guidance then is to take the deep dose and partition it, as Scott just said, into less than 30 keV and 30 to 250. This is Matt Smith.

DR. ULSH: Does that make sense?

MEMBER RICHARDSON: It doesn't make sense to me still, no. There's the open window. It's not shielded. If there is presence of low energy photons, why aren't they recorded by the dosimeter on the open window?

CHAIRMAN GRIFFON: In other words, why isn't there a difference, right? That's what you're asking? Yes, yes.

MEMBER RICHARDSON: I mean, this is just like kind of, I guess, a missed dose issue that I've never been exposed to before. So I can't, I'm still, I think I'm just not catching up with you on it. I'm familiar

with, for example, multi-element dosimeters' poor response of the dosimeter at low energy photons, over response for example, but I haven't heard that a worker in a field with low energy photons would be somehow missed by the open window, that that component of their dose wouldn't be captured.

MR. FARVER: Let me try to help out. The previous years, it looks like the dosimetry results, there was always a difference, that the open window was higher than the shielded window. So then based on their Attachment C to OTIB-17 for shallow dose, you would calculate a less than 30 keV photon dose, so you would have the low energy dose. But as it turns out, the one year, 1982, the numbers were identical, 15 open window, 15 shielded. So you assume it's all shielded, so there is no less than 30 keV photon dose for that year, according to their OTIB. So it's the one year where both the windows were the same.

DR. MAURO: So there are two reasons for why this raises eyebrows. One is years before they did have it; and, two, the isotopes they were dealing with did have these low energy that should have been --

CHAIRMAN GRIFFON: Should have been the same, right? Yes.

DR. MAURO: They should have been shielded out, but they weren't. So something about the data in that particular year raises questions.

MEMBER RICHARDSON: And this is across the board for all SRS workers in 1982, there's no difference between open and shielded dose?

MR. SIEBERT: This individual's badging.

MEMBER RICHARDSON: I mean, I would assume that the dosimetry system was functioning properly and that, for some reason, they didn't have any low energy photon exposure, I guess.

MR. FARVER: I'm looking at it now, and it looks like they may have followed OTIB-17.

MEMBER MUNN: It sounds that way.

MR. FARVER: That's what it looks like from, I'm looking at the individual's data.

CHAIRMAN GRIFFON: We're talking about a measurement of 15 millirem; is that what --

MR. FARVER: Yes.

CHAIRMAN GRIFFON: Yes. I mean, could it have just been a data entry error where they put the deep dose in both fields?

MR. FARVER: No, there's only a couple of positive cycles. That's just the way it turned out. Apparently, it slipped through our review. We wrote it up when we shouldn't have.

MEMBER MUNN: Not on a low dose field.

MR. FARVER: That's what I'm

gathering from this is that they appeared to have followed OTIB-17. Just for this one year on this individual, the open window and the shielded were the same.

CHAIRMAN GRIFFON: Okay. I'm getting a little confused, too, because Scott started off saying that NIOSH agrees that a small portion of the dose should have been assigned for less than 30 keV photons.

MEMBER MUNN: Even though there's no reason.

MR. SIEBERT: That is based on the partitioning after subtraction --

CHAIRMAN GRIFFON: Oh, okay.

MR. SIEBERT: -- of the deep dose.

MR. SMITH: I don't know if the group has access to getting at TIB documents, but if you're able to open up OTIB-17 and go to page 21 you'll see a table there that kind of summarizes the steps in Attachment C.

DR. MAURO: This particular table

has always been a brainteaser for me.

MR. SMITH: It is a brainteaser, and the overall effect it's probably a claimant-favorable one, on the missed dose front. But you can see there the example that Scott's speaking of where you have an open window and a shielded reading both equal with each other. There's no net non-penetrating dose, obviously no missed dose. The photon energy is directed to be partitioned per the TBD or OCAS TIB-6. For this particular year, we would be using the TBD. And, Scott, that's where you got a fraction going to less than 30, correct?

MR. SIEBERT: Correct.

MR. SMITH: Or was it 25 percent, if I'm recalling?

DR. MAURO: I seem to recall that one of the dilemmas I always had in trying to tease this out when I speak to some of the folks who do this is you have your exposure or your film includes not only the low energy

photons but also electrons, and I think the difference, when you get a reading on your film badge that could be either from the low energy photons or the electrons, it does make a difference when you run your Probability of Causation if whether the dose is delivered from electron versus a photon. And this machination which is confusing, but I think it's right. You know, when it was explained to me, I could see why -- is this part of the play we have here, trying to deal with the electron versus the low energy photon issue here?

MR. SMITH: You're somewhat correct. The PoC would be higher for the low energy photons compared to calling it electrons. The choice of whether to call it one or the other is going to be based on the facility and comparing that to the guidance in the TBD.

DR. ULSH: So it sounds to me, if I can try to summarize it as I understand it,

we're faced with a situation where a year where the open window and the shielded are exactly the same. And in that situation, for this case, the TBD says take the deep dose and partition it into these different energy photon doses. We, in fact, did not do that, and I think that's what SC&A commented on, and we agree that we should have done it.

CHAIRMAN GRIFFON: Right. But it makes a minor difference.

DR. ULSH: But it makes a minor difference. Have I adequately summed that up, Scott?

MR. SIEBERT: This is Scott. The only caveat I would put in there is because, if it was a Monte Carlo calculation with the Monte Carlo tool and the fact that the partitioning of that less than 30 keV dose is very small, less than one millirem, it may have been considered and removed. But I cannot speak for sure of that one way or the other.

DR. ULSH: I don't know if that helps, David. By the look on your face, I'm guessing not.

MEMBER RICHARDSON: So one follow-up question.

CHAIRMAN GRIFFON: Maybe we should both look at OTIB-17.

MEMBER RICHARDSON: Yes. I looked for it. I didn't find it right away. But when you partition the dose, you take that dose contribution; you're then saying that some of the total reported dose is not deep dose anymore and you subtract that out?

MR. SIEBERT: Correct. It's partitioned out. The 25 percent of that dose comes from -- well, let me back up. I have to look at the facility and look at the partitioning. I don't know that off the top of my head whether it says you still assign 100 percent to 30 to 250 keV and then an additional 25 percent to low energy photons or if it's partitioned in total up to 100

percent. Matt, do you have that off the top of your head?

CHAIRMAN GRIFFON: Yes, that's the question.

MR. SIEBERT: There's a 75/25 split.

CHAIRMAN GRIFFON: Oh, so it is split.

MEMBER RICHARDSON: That, in a way, doesn't sound claimant --

MR. FARVER: Well, one of the things that concerns me now is I think if you go back to the DR report, did they split that into 100 percent less than 30 keV, 100 percent 30 to 250 keV for 1978 to 1982? I'm trying to find it.

MS. BEHLING: It's 100 percent less than 30 keV and 100 percent 30 to 250.

CHAIRMAN GRIFFON: Is that Liz Brackett?

MS. BEHLING: This is Kathy.

CHAIRMAN GRIFFON: Oh, Kathy. I'm

sorry.

MS. BEHLING: Sorry.

MEMBER RICHARDSON: So I don't know what that means. What does that mean? Does that mean that you say that the worker's dose that's going to be entered into the IREP Program includes the recorded dose, the recorded deep dose as 100 percent of that recorded deep dose coming from higher energy photons and then, in addition, in the IREP Program for the same calendar year you say the recorded deep dose, there's a recorded shallow dose of identical magnitude coming from lower energy photons, where I mean less than 30 keV?

CHAIRMAN GRIFFON: That's the question, yes.

MR. SIEBERT: Kathy, this is Scott. Where are you pulling that it's 100 percent/100 percent?

MR. FARVER: Well, I was pulling that from our report, but now I'm looking in the DR report and I don't see any energy

breakdown.

MR. SIEBERT: The actual dose reconstruction report has the, let me pull out my calculator, but I want to say it's 25 to 75 percent split.

MR. FARVER: It does look to be that.

MS. BEHLING: Okay. I'm sorry. I was also in our dose reconstruction audit.

MR. FARVER: It's a little confusing because for that DR report, a lot of times they'll put down the split of the energy ranges, but for this one they didn't. So they calculated it into their dose conversion factors, so it is a little bit confusing to look at.

MEMBER RICHARDSON: I can't imagine down-weighting a penetrating dose that's recorded on a film badge. I mean, I don't know, just as a starting point, it seems odd to me that you would then take it as three-quarters of that as actually the dose

that was recorded by that dosimetry system as penetrating.

DR. ULSH: Is it fair to say that we have a pretty lengthy response on the table and that SC&A might want to take some time to look at it?

DR. MAURO: I have to say every time I go into OTIB-17 and I run into these questions, this is the most arcane product of dose reconstruction we work with. I always have to be refreshed. If you don't do it every day you sort of lose it. So all I can say is that right now it sounds like no one really has a really good handle on exactly what is going on here.

DR. ULSH: Yes. And it might be, Mark, you might want to put down an additional action item that we should review our own response and make sure that we don't want to change anything. If you don't hear from us, we don't.

CHAIRMAN GRIFFON: Okay, yes.

MEMBER CLAWSON: Actually, you really ought to let us know if you are or not because sometimes we miss things.

DR. MAURO: A little primer on OTIB-17 and this nuance would help me.

CHAIRMAN GRIFFON: Yes, I think --

DR. MAURO: Because I've been doing this for a while --

CHAIRMAN GRIFFON: I think that, I wouldn't put it in the matrix but I'd say as a Subcommittee action we should all review OTIB-17, this table. Right.

DR. MAURO: Everybody is on the same page.

CHAIRMAN GRIFFON: Because I think we can go around in circles on this.

MR. FARVER: This is totally different because if you would go by this table for this year, that 1982 dosimeter result, by OTIB-17 there would be no less than 30 keV dose because the open window and the shielded are even. But because you're going

by the TBD, which breaks it down into energy level of 25 percent less than 30 keV, 75 percent 30 to 250 keV, you do get a small portion of less than 30 keV dose. And I think the part of that is what's confusing this whole thing.

MR. SMITH: I'll add one more document for consideration on this one, and that is DCAS or OCAS TIB number six. At the same time, I have to tell you that the text of OTIB-17 supersedes a little bit of this document, but when you take it all together the statements that Scott have made makes sense in terms of how this is being partitioned based on the procedures that are out there.

CHAIRMAN GRIFFON: And from the dose reconstructor's standpoint, this is all in their worksheets, right? I mean, is this in the spreadsheets that they work from?

MR. SMITH: That's correct, Mark.

CHAIRMAN GRIFFON: Yes. So even this instance where they have open and shielded dosimeters with the same values, is there sort of some if, then kind of decision in the worksheet? Well, does it consider separately that kind of scenario? In other words, they don't have to go back to TIB-17 every time and go through what we're talking about to decide what values to put in.

MR. SIEBERT: Correct. It looks at the data and applies the OTIB-17 methodology.

MEMBER MUNN: Much less OTIB-6. Now my brain is starting to hurt.

CHAIRMAN GRIFFON: I know. And in this case you're saying it did apply it correctly, though? Because if that is automated and the dose reconstructor put in these values or whoever enters these values into the spreadsheet, it should have automatically selected the right partitioning.

MR. SIEBERT: And that's correct,

and that's what I'm saying. I don't know if, since the dose was so small, why it didn't partition appropriately and left out because it was such a minuscule dose or whether it was not done correctly. I just can't tell you that.

CHAIRMAN GRIFFON: Yes. I mean, I guess the point I was getting at is this, and we've done a lot of Savannah River cases and I don't think we've had this error come up repeatedly. And I think if it was a systemic problem in the system, we would have seen it, right? So it doesn't seem to be a worksheet problem is what I'm getting at, I guess.

MEMBER MUNN: Yes. And is this not a question that was, the original question was whether or not it was done correctly, right? Not knowing what the partitioning was at the time. What was the original finding?

CHAIRMAN GRIFFON: It didn't assign any shallow dose, right?

MR. FARVER: For one year.

CHAIRMAN GRIFFON: For that one year, right. And we all agree it's a tiny, you know --

MR. FARVER: And what we're finding out when we look into this is it's, if you look at the different OTIBs and the TBDs and everything, it probably was done correctly, but it would not be apparent unless you really started digging through the documents. In other words, according to OTIB-17 you wouldn't have any dose, but according to the TBD you would have a small dose. But the small dose might be less than a millirem, so it won't get recorded.

CHAIRMAN GRIFFON: Well, that's what I'm asking, from a QA standpoint, if the worksheet, theoretically, takes all that into account, what you just said, that it would --

MR. FARVER: Usually, yes.

MEMBER MUNN: Pretty much.

MR. FARVER: It should.

CHAIRMAN GRIFFON: Because in this

case, it's a small exposure.

MR. FARVER: So what I need to do is I'll go back and look at the doses, and I'll calculate it out by hand, and if it turns out to be less than a millirem then it was probably all done correctly and we can just close a few findings.

CHAIRMAN GRIFFON: Okay. I guess we'll leave it as a NIOSH, like Brant said, a NIOSH and SC&A action to look back at this and check.

MEMBER MUNN: Yes. Just see if what was done was the right thing.

CHAIRMAN GRIFFON: And, in the meantime, we as Subcommittee Members should probably pull TIB-17 and OCAS TIB-6 to refresh ourselves, yes.

MR. FARVER: Yes, because it does get pretty complicated, and that's part of the thing that we go through when we review these.

CHAIRMAN GRIFFON: Yes, it's hard to -- alright.

MEMBER MUNN: But my point is if it's really more of a QA issue than anything else then I'm not sure that I'm going to be further enlightened after I review the TIBs.

DR. MAURO: I have to say when I review a TIB, I like to get to the place where it makes sense and I remember --

CHAIRMAN GRIFFON: That's always good. It's not intuitively obvious to the casual observer. Okay. Let's move on. I think let's leave it at that, and let's move on to 153.2.

DR. ULSH: Those are both 153.1 and 2.

CHAIRMAN GRIFFON: Okay. They cover both. Okay.

MR. SIEBERT: Right. It covers recorded and missed dose.

DR. ULSH: And, unfortunately, we can't completely move on because 153.6 and 7 appear to be the same kinds of issues only now for neutrons.

MR. SIEBERT: I wouldn't agree. I think it's a different issue for the neutrons.

DR. ULSH: Well, explain.

MEMBER MUNN: Tell us why.

MR. SIEBERT: This one for .6 and .7, the question is we assigned neutrons during '78 and '81 but did not assign them the other years that the individual SC&A thought they may have been exposed to neutrons during that time frame, whereas we did not assign it. So it really went back to a question of why did we not assign neutrons during specific years. They were talking about -- and, of course, we're going to bring in yet another TIB, OCAS TIB-7, which is dealing with neutron assignment at Savannah River, and that's an OCAS TIB-7, I might point out. SC&A was questioning the fact whether following that thought process was done adequately in this case or not.

Our follow-up response is we don't believe by the information that we have that

the individual was consistently routinely assigned to the B line facility, which is where you would be getting the neutron exposure potential. We did assign that facility for that whole time frame for photons to be claimant-favorable. However, we did not assign neutrons in years where the individual did not have neutron dosimetry.

And if you look further in response, it gives some information as to the records that we have and indication as to areas where we believe the individual, at least where their records seem to indicate, they were in the shallow to deep dose ratios during those years as well and, based on those, where we think the likely facility they may have been working in and being exposed to in those time frames. And if you look at that, it's not the neutron areas during the years where we did not assign neutrons.

MEMBER CLAWSON: Scott, this is Brad. How did you come up with all this of

where he was working and when he was working? Your records are that good?

MR. SIEBERT: No, I didn't say they were great. What I'm saying is the individual, if you look at the response, in 1978 the individual left bioassay and it was listed in a reactor facility. Same thing for '79 with the fission products and plutonium bioassay and is listed in a reactor or possibly F-canyon tank farm. That's the information that we have, and that's where we could pull that information.

MEMBER MUNN: That's pretty decent.

MR. SIEBERT: As well as the fact that this individual did have neutron dosimetry during a couple of those years, and that's during the time frame that we believe Savannah River was actually monitoring for neutrons on an as-needed basis.

CHAIRMAN GRIFFON: And this person was a laborer during that whole time period in

question, right? Is that the job title listing?

MR. SIEBERT: I believe so.

MEMBER CLAWSON: Well, he basically could have been any place on the site. It's just the main place that he's run out of.

DR. MAURO: Every so often, we run into a case where the level of resolution and analysis that's done on a worker starts to really find, like you pointed out, we know he was there this week, he wasn't there that week. And then I look at the Probability of Causation, and I see it's like just right under 50 percent. And I have to say this. It seems to me that they're working really hard to get him under 50 percent.

CHAIRMAN GRIFFON: Is that the case here? Is it near 50?

MR. SIEBERT: Forty-four percent, forty-four and a half.

DR. MAURO: Well, I see a lot of

that. I see a lot of that. And maybe there's some rationale. Don't get me wrong. I'm hearing an argument for, well, we think he wasn't there in that year because of this, this, and this. But you know what? My perspective is when you have to go that far, you know, let it go. Give him the neutron dose.

MR. SIEBERT: I would argue with that because we followed the dictates of OCAS TIB-7, which gives us the information of how to make that decision and that is what was followed. It's not like we were trying to get him under 50 percent. We were trying to do the best estimate we could based on the information that we have and the documentation that we could source it back to, which is what was done.

CHAIRMAN GRIFFON: I think the strangest part of that for me, Scott, was when you said that you assigned photons as if he were in those areas, you know, to be claimant-

favorable, but then you didn't assign neutrons as if he was in that area. That, to me, you know, seems a little bit illogical, at least from the claimant standpoint if they're getting this back. You know, if you're saying best estimate, why did you assume the photon exposure was from those areas? It was more claimant-favorable; those were you words I think, right?

MR. SIEBERT: Right.

CHAIRMAN GRIFFON: But then you didn't do that for neutrons. I guess that's just a little illogical for me. I mean, I'm not --

MR. SIEBERT: Well, a simplification of putting them in a facility that was claimant-favorable as opposed to pulling them into reactors for a year and then back into the FB line. You know, it's a simplification. I'm not saying that this is an absolute full best estimate, that's my point, when you're looking at the detailed

assessment here in this table that the individual may have been in other areas. What I'm saying is what we did was claimant-favorable, and, as I said, I don't see a reason here to be assigning neutrons from his records.

MR. FARVER: So where did he work for that time period?

MR. SIEBERT: Well, look at the table that's there, you know, the bioassay that he left in '78 was the reactor facility; '79 reactor was F Canyon maybe; '80 reactor tank farm; '81 there's no bioassay; '82 there's a couple of bioassays for plutonium, it looks like F area. As I said, from a neutron point of view, we're going back to OCAS TIB-7 and we followed the dictates of that thought process. CHAIRMAN GRIFFON: And not being familiar with that TIB-7, I do see the response before was that SC&A indicated that in this case the E meets all three criteria in Section 3.1, Page 5 of OCAS

TIB-7. So I guess there's a little dispute of --

MR. FARVER: Well, that hinges upon the work location.

CHAIRMAN GRIFFON: Right. Work location but also job type, right? What are the three criteria?

MR. FARVER: Three criteria are the work location, job description, and positive photon exposure.

CHAIRMAN GRIFFON: Oh, okay, yes.

MR. FARVER: So he had the photon exposure. He was a laborer, which I believe is part of that --

CHAIRMAN GRIFFON: And the location is in question, I guess.

MR. FARVER: So it's the work location is what it comes down to.

MR. SIEBERT: Right. And in OCAS TIB-7, there's an additional facility-specific direction for separations that have criteria of routine plutonium bioassay monitor and

relatively high shallow dose to deep dose ratio greater than two and relatively little enriched uranium bioassay indicating the employee worked on FB or HD line. That is not met. The shallow to deep dose ratio is not relatively high. It did not exceed two in any of those years.

MR. FARVER: Where are you reading that from, Scott?

DR. ULSH: This is our response.

MR. SIEBERT: The bottom of OCAS TIB-7. I believe it's at the bottom of page three or top of page four, probably in the latest revision of it. I don't have it open at the moment.

MR. FARVER: Oh, okay. That's the latest revision, not the one that was used for the dose reconstructions.

DR. ULSH: Well, the words that Scott just gave you are from our response, but our response refers you back to the bottom of page three, top of page four of OCAS TIB-7. I

don't know that Scott said that this one wasn't used for dose reconstruction.

MR. FARVER: No. Because I'm looking at the one that I believe was used for the dose reconstruction, and I don't see those words.

CHAIRMAN GRIFFON: It doesn't talk about the ratio of greater than two, that kind of stuff.

MR. FARVER: Correct. I don't see it. And if it is, that's why I was asking where it was so I can find it.

CHAIRMAN GRIFFON: Well, this actually says although -- TIB-7 wasn't in effect at the time, is that what you were saying?

MR. SIEBERT: Actually, yes. Revision 0 of OCAS TIB-7 dated 9/17/2003, I'm looking at it right now, the top of page four, separations 200, area, H and F Canyon, word for word what I just read from our response.

MR. FARVER: Oh, I see it now

under separations area. Okay.

DR. ULSH: So it sounds like we've put a response on the table. We don't agree that we didn't follow the correct procedures. We're saying that we did.

MR. FARVER: And I'll have to review that in detail.

CHAIRMAN GRIFFON: Okay. So that's fine, SC&A to review. And that covers 153.6 and 7, I believe, right?

MR. SIEBERT: Correct.

MEMBER RICHARDSON: So just as one last question. In trying to place the location, you had given, there had been focus on, was it the 200 area, the B line; is that right? And SRS being if the worker had been there that that would have been the greatest potential for neutron exposure?

MR. SIEBERT: Correct. The plutonium area, correct.

MEMBER RICHARDSON: The worker was also in the 100 area, the reactor area, and

perhaps in other areas. And there's not the potential for missed neutron dose in those areas?

MR. SIEBERT: I'm going back through. Once again, OCAS TIB-7 does address that, as well. Neutron exposure should only be considered for energy employees who might have been involved in maintenance activities in the crane wash areas of the reactors.

MEMBER RICHARDSON: I mean, I had remembered earlier on at SRS that there were calibration facilities, the 300 area high potential for neutron exposure, that there was actually potential for neutron exposure, at least in the early Site Profile document, in a number of areas at SRS.

MR. SIEBERT: And once again, if I'm correct, I believe that's all addressed, how we deal with those is in OCAS TIB-7.

CHAIRMAN GRIFFON: Okay. So, yes, SC&A will look closer at that. Okay. What's the next one, Brant, that you have that you've

given a response on? Okay. Oh, 153.8, this is back to the chooser versus TIB-54.

MR. SIEBERT: Correct.

CHAIRMAN GRIFFON: Is that the same response we had from prior?

MR. SIEBERT: Right. That's still another one Doug that we'll need to go through the files and verify.

CHAIRMAN GRIFFON: The files, right. So I'll just update, while Brant looks I'll update that matrix item.

DR. ULSH: Yes, 153.8 is the chooser.

MR. SIEBERT: I believe it goes down to 155.4, Brant.

DR. ULSH: Right. That's what I just pulled up. The summary of the finding is that NIOSH used one-half bioassay data instead of one-half MDA data use, and the latest instruction was NIOSH would consider adding this instruction into the Site Profile document. So our response for this meeting

is, the following has been placed in the SRS DR guidance document until it is added to the Site Profile and likely ORAU OTIB-60, as well. Now, here's the quote that's going to be placed in. MDAs contained in the Site Profile are intended as defaults when there is no better information available, i.e. sample-specific MDAs. When the bioassay results in the employee's personal records include an MDA or a clear value that the site considers the value below, such as "less than 0.05," that MDA takes precedence over the site default value and is to be used in the dose assessment. This applies regardless of whether the sample's MDA is larger or smaller than the value in the Site Profile. So that's going to be placed in the DR guidance until we update OTIB-60 and the Site Profile.

MR. FARVER: And where are the DR guidance documents kept so we can look at them?

DR. ULSH: Scott, where is it that

SC&A could access the DR guidance documents?

MR. SIEBERT: They're kept in the tools folder along with all the tools. The Savannah River one would be in with the Savannah River tool.

MR. FARVER: Okay.

MR. SIEBERT: As well as, and this is something that we dealt with quite a while ago, all DR guidance documents that are appropriate whenever we do a claim are also placed in the individual's dose reconstruction file, along with the assessment. It was not done back at the time where this claim was done because we're talking 2006, but we do that now and we have been for a couple of years.

CHAIRMAN GRIFFON: Thank you, Scott. You're anticipating my questions.

MR. SIEBERT: I'm here for you, Mark.

CHAIRMAN GRIFFON: We've been down this path before, I know. And it's on the O:

drive under, I don't find tools immediately. Is it a subfolder?

MR. SIEBERT: Yes, everything is a subfolder.

CHAIRMAN GRIFFON: Yes. I mean, just so we know.

MR. HINNEFELD: We're going to have to move it, I think, to a place where you can see it.

CHAIRMAN GRIFFON: We may not see it here.

MR. HINNEFELD: I don't think you guys can see it.

CHAIRMAN GRIFFON: Alright. You can take that as an action, Stu or Brant.

MR. HINNEFELD: Yes, Brant.

CHAIRMAN GRIFFON: Okay.

DR. ULSH: Okay. I have as an action item for us that we're going to move the tools to a place where both SC&A and the Board can review it or can access it.

CHAIRMAN GRIFFON: Right. And

these are, just for clarification, these DR guidance documents don't exist for every site, right? I think we've discussed this before.

MR. SIEBERT: That's correct. There's basically information as they come up that we have learned that we give additional guidance to dose reconstructors until it is incorporated into the TBD.

CHAIRMAN GRIFFON: And one other question. Has the policy changed on the archiving of these dose reconstruction guidance? Because before I asked for the guidance that would have been in place at the time a case was done, and I was told that they weren't really saved, they were just updated and not archived, which I found incredible. But is that, I mean, I would like to be able, going forward, to know. And you said they are being saved in the case, so that helps, as well.

MR. HINNEFELD: These are supposed to be in the case file.

CHAIRMAN GRIFFON: Yes. So I guess if it's in the case file that's a moot point, I guess.

MR. SIEBERT: That's what we consider the archiving.

CHAIRMAN GRIFFON: Okay, alright.

DR. MAURO: I'm going to be a little provocative.

CHAIRMAN GRIFFON: Sure. Not you, John. We only have seven minutes of provocation to --

DR. MAURO: No, no. A lot of these special DR treatments for a particular case where we really get out and just take a closer look and do a better job, I'd like to know how many of those result in an increase in a person's dose as opposed to a decrease in a person's dose. So we are sharpening that pencil, and you always sharpen your pencil to get the guy's dose down. I'd like to hear a little more about that because I have to say I've been looking at an awful lot of these

things and I see refinements and refinements and a level of sophistication that are really, I mean, at a point that are really getting down there and they're chipping away and they go out and we got rid of another millirem. Listen, I have to say it because it's on my mind. I've been doing this too long. I'd like to see a little bit of when that sharpening occurs, yes, many times we find we have to increase the guy's dose because we're really not doing it the right way here. When we're dealing with the circumstances, it should go up. I have a funny feeling when we take a close look at that we're going to find that they're going down.

MEMBER MUNN: Well, it's probably true --

CHAIRMAN GRIFFON: I mean, to be fair, in some cases they're starting off with overestimating approaches, so you'd expect them to go down, right?

MR. HINNEFELD: I think

systematically you will see more go down because of doing an overestimate first and determining whether that overestimating approach will answer the question or not. If that overestimating approach provides with some particular level of expedience, then there might --

DR. MAURO: Okay. Fair enough, fair enough.

MEMBER CLAWSON: This is the same thing that I've been saying for years. So you use an overestimating approach to above get them 50 percent or whatever --

MR. HINNEFELD: No, we can't get them above 50. We do an overestimating approach because we think by that overestimating approach we'll still be below the compensation line and it doesn't work out that way. It comes in above 45.

MEMBER CLAWSON: This is what I'm saying. You initially start out with an overestimate, and if it goes over 50 then you

start sharpening your pencil.

MR. HINNEFELD: If it goes over 45 then we start sharpening the pencil.

MEMBER MUNN: Overestimations are not permitted to go over 50 percent.

CHAIRMAN GRIFFON: At least anymore. We learned that early on.

MEMBER CLAWSON: Wait a minute. Because what you're saying, that's when it starts, that's when the pencil is sharpened?

MEMBER MUNN: At 45.

DR. ULSH: At 45 percent.

MEMBER CLAWSON: Okay. I know, but that's the trigger, 45, not 50. Then that's when the sharpening starts going because you really stop -- it could be up in 70 or 80 or something like that, but you're stopping at 45, starting to sharpen your pencil because you can't compensate on an overestimate.

CHAIRMAN GRIFFON: But then to get to John's question, I don't know that you

would have the data to indicate when you triggered at 45 but overestimating and then you reassessed the case which way they went.

MR. HINNEFELD: I don't know an easy way to find that, no.

MEMBER CLAWSON: If you have an overestimating --

CHAIRMAN GRIFFON: I expect most of them to go down, but some might go up and that would be an interesting split to look at anyway.

MEMBER MUNN: But what you want is the best calculation so that if your overestimate doesn't give you the best calculation you want the best calculation.

DR. MAURO: Very often you're in this nether land where you're really not sure and you have no alternative but to give the benefit of the doubt, so there are some places where we just don't sharpen it any further. Leave it alone, leave it alone. And that's what I wanted to offer up.

MEMBER CLAWSON: And my understanding, as small as it is on this, is that if you guys do an overestimating approach to it and they come nowhere near 45 percent or whatever, then that's where you say, well, you know, they can't be compensated. And this is where some of the people get into an issue of watching, well, last time I was 44 and now I'm 38, and this is where one of the issues come in. But my understanding of the overestimating is to even see if there's a remote possibility that they were exposed.

MR. HINNEFELD: If there is an overestimating approach that saves you some amount of time.

DR. MAURO: See, I would come at the problem, I'm going to do everything I can to give this guy the most dose I can give him without being unreasonable. You see, it's a philosophy. That is, you say you try to do realistic estimates -- but I'm confronted with a guy --

CHAIRMAN GRIFFON: No, I think that's the first triage is --

MR. HINNEFELD: Well, I think, John, you're espousing a philosophy that I don't think we have a different philosophy. I mean, our dose reconstruction techniques assign a lot of dose that, for instance, an epidemiology study would not. They would never use our dose reconstruction to do epidemiology. So we have techniques that are favorable. We want to make sure we don't cheat the claimant. The claimant at least gets a fair shake. If he gets better than a fair shake I don't really care as long as that's the best we can do. Like you say, if there's this area of uncertainty, that's why your technique then is a claimant-favorable technique, not an overestimating technique but a claimant-favorable technique. I believe that's built into our best-estimate approach is what you're talking about.

And, Brad, to your point, I'm

fully cognizant of the heartache it causes, the confusion and the antipathy it engenders when we send a dose reconstruction that's 40 percent and the person gets another cancer and we do it again and it's 30 percent.

CHAIRMAN GRIFFON: The second cancer is --

MR. HINNEFELD: It's completely illogical, and it happens far more, it happens far more than we thought it would when we started the program. So having said that, I think a legitimate argument here is should we even be overestimating at all at this point? There's a total of 1500 claims waiting for us to do dose reconstruction compared to 10,000 a few years ago. The oldest one, except for these outliers where we can't get an SEC through so there are a few oddball things that are holding some up, but except for those outliers everything is done in a year and almost in nine months. In another couple of weeks, everything will have been done in nine

months from the time we get it, except for some oddball.

CHAIRMAN GRIFFON: Yes, maybe you should eliminate the overestimating --

MR. HINNEFELD: So the argument here is should we even be doing overestimates, even if it is expedient? That's a legitimate argument. And I have to go back and look, but I think there might be a theme to that in some of the ten-year review drafts that are out there. Now, there are draft part one's to most of the ten-year review report, and you can find them on our web site. I've got to find a link to what's called the docket because they're collecting comments on this, as well. But you can find those ten-year reports part one drafts on our web site and see if that satisfies, see if some of the stuff that's in there captures this issue appropriately.

CHAIRMAN GRIFFON: Well, I know we raised the concern in the first 100 cases

review, too, but now it might have more merit because, like you said, the back load is gone.

MEMBER CLAWSON: That's where we got into this whole overestimating was because of the backlog. We had numerous --

MR. HINNEFELD: And they were years and years older and 10,000 of them --

MEMBER CLAWSON: And I realize that, and that's kind of -- you've got to understand I'm looking at it from a claimant or something like this that doesn't see all of this internally.

MR. HINNEFELD: And those people all write to me, Brad. I don't see everyone, but I see it --

MEMBER CLAWSON: And I understand. It's hard for us as a group that's been involved in this to even capture it sometimes. That's just kind of hard.

MR. FARVER: Well, one of our actions, we have two cases from the 8th set, I believe it's the 8th set, that we're supposed

to look at and have been reworked, reworked cases that we're going to go back and look at and do a comparison between what was done for the original DR and then what was done in the rework so we can see what went up and what went down. And I hope to have those ready for the next Subcommittee meeting to show you, you know, just so you can see what happens when they do a rework.

CHAIRMAN GRIFFON: Okay. I suggest we -- do we want to finish 155? There's a couple more. One of them is the chooser thing again I think, which I think is the same response maybe.

DR. ULSH: Well, we just did 155.4, and I can tell you that 155.6 our response says it's the same as 155.4.

CHAIRMAN GRIFFON: Right. That's what I thought. What about 155.7 while I'm cut-and-pasting?

MR. SIEBERT: That's the chooser one.

MR. FARVER: So that completes 155.

MR. HINNEFELD: So does our work on the chooser satisfy those claims, as well, that the chooser was more, whatever we did for --

CHAIRMAN GRIFFON: Well, SC&A is going to review that.

MR. HINNEFELD: Oh, okay.

CHAIRMAN GRIFFON: And then I think, where was that originally? Was that in 151.1? Was that chooser?

MR. FARVER: 152.6.

MR. SIEBERT: Correct. This is Scott. Can I go back? 155.4 and 6, what was the resolution on that? What's the step forward?

DR. ULSH: SC&A to consider our response.

CHAIRMAN GRIFFON: Yes.

MR. SIEBERT: Because all our response is, is what we are putting in the TBD what's in the DR guidance. For .4 and .6, all

they asked us was to document -- we already hashed all this out.

CHAIRMAN GRIFFON: Right. Yes, I think we can close that, actually. Good point, Scott. Thank you.

DR. ULSH: So that was 155.4 and 6?

CHAIRMAN GRIFFON: Yes. If that language is acceptable, I think that -- yes, we got kind of sidetracked on the DR guidance and where it was and all that. But SC&A agrees with that, correct? Okay. So we'll close this, Scott.

MR. SIEBERT: Thank you.

CHAIRMAN GRIFFON: Thank you for bringing that up. So that was 155.4 and .6, correct?

MR. SIEBERT: Correct.

CHAIRMAN GRIFFON: So I'll change that. Okay. And then I think it's 12:05. I propose we break for lunch and take until 1 or 1:05, whatever. One-ish. On the phone, you

know, we tend to be a little late coming back from lunch, but we'll try for 1:05 for sure. Alright. Thank you all. We're breaking from the record.

(Whereupon, the above-entitled matter went off the record at 12:04 p.m. and resumed at 1:08 p.m.)

MR. KATZ: So good afternoon. We're rejoining after lunch. It's the Advisory Board on Radiation and Worker Health Dose Reconstruction Subcommittee. Let me just check and see that we have some folks on the line, starting with Bob. Are you there? Robert Presley?

MEMBER MUNN: I guess he went to work.

MR. KATZ: Okay. No Bob at this moment. How about Scott, are you on the line with us now?

MR. SIEBERT: I am here.

MR. KATZ: Great.

MEMBER MUNN: You're very weak,

Scott.

MR. KATZ: Okay. That's it.

CHAIRMAN GRIFFON: Okay. We left off on the 8th set of cases. I have item number 156.1. I don't know if -- do you have some progress on that?

DR. ULSH: That's where I'm at, too, Mark. This is another one of those work location questions that we're all so fond of, and the finding is that, after reviewing the DOE records, SC&A does not believe that NIOSH assigned the Energy employee to the proper work locations during select periods of employment. DOE records indicated that the employee was monitored for neutron exposure in 1998 and 1999. However, NIOSH placed the employee in 200 F facility during those years and did not assign any neutron doses.

So we provided an initial response on this, and that is, the specific concern mentioned was that 200F was used as a representative facility in '98 and '99, even

though zeros were reported for neutrons for two cycles in '98 and the first six cycles in 1999. The implication of the comment was that a facility with neutrons should have been used instead. The locations reported on the whole body counts are 735 for 1998 and 241H for 1999. The TLD dosimeters issued at Savannah River for these years contained neutron TLDs. Information in the Site Profile gives 735 as their Rad and Environmental Science Building that analyzed environmental and bioassay samples and external dosimetry and that the radionuclides involved were fission activation products. 241H is at the H area tank farm for which the radionuclides concerned are fission products. Based on that information, use of a facility with neutrons was not supported. The photon energy mix is the same for 200F and 200H so the use of the 200H facility in the tool and report would have no effect on dose.

So, basically, I think the heart of the matter is the interpretation of those

zero results for the neutron dosimetry. I think SC&A interpreted those zeros to be indicative of a neutron exposure potential, but our response is that during that time period, the dosimeter issued by Savannah River had neutron TLDs in it. So that doesn't necessarily indicate a neutron exposure potential.

MR. SIEBERT: And, Brant, I just want to point out, too, that there's one single response in this for .1 and for .5. The updated response is a single response at the very end of both of those responses.

DR. ULSH: Thanks, Scott. Yes, I missed that. Alright. Let me give you the other part of it. The cancer diagnosis in this claim is prior to the zero dosimeter results for neutrons in '98 and '99 described in the finding. Cycles 11 and 12 were dosimeters that were issued in November and December of '98. The diagnosis date was July 26th, 1998. Therefore, it is noted in the

dose reconstruction these potential doses were not included in the dose used to estimate the PoC. Yes, thanks, Scott, that made it even easier.

MEMBER MUNN: Yes, that's certainly all cleared up.

CHAIRMAN GRIFFON: And, Doug, have you had time to --

MR. FARVER: No, all I've had is 20 seconds to look it over. I mean, the second part of it, I mean if that was after the diagnosis date, that does explain that part and why it was not, why there were no neutron doses for '98 and '99. I always find the work location was a little fuzzy, so I have to go back and look at those. But you can probably go ahead and close the, what was that? 155.6?

DR. ULSH: 156.1.

MR. FARVER: 156.5.

CHAIRMAN GRIFFON: so .5 parts you're saying you're comfortable with?

MR. FARVER: Yes. I mean, I have to verify that that's after the diagnosis date, but I believe Scott.

CHAIRMAN GRIFFON: Okay. But .1 you need time to review?

MR. SIEBERT: And let me point out, this is Scott, the reason I answered both of those together is they really went back to the same question. Point five is missed neutron dose, but it's based on the idea of -- we didn't assign it because of worker location, which obviously goes back to .1. And really the bottom line for all these is when the individual did begin to be monitored for neutrons it was about four or five months after the date of diagnosis. And in the '98 time frame, we would consider an individual would be monitored for neutrons if needed because they had neutron dosimetry.

MR. FARVER: Yes. We'll go ahead and close that one because I don't know how else to proceed on it. I mean, they were both

linked together.

CHAIRMAN GRIFFON: Okay. Anybody have any questions on that?

MEMBER MUNN: No. This is pretty clean.

CHAIRMAN GRIFFON: I mean, we've had this work location thing come up on other ones. In this case, you know, it's the diagnosis part that might rule it out and get rid of the overall question of --

MR. FARVER: Oh, no, that's --

CHAIRMAN GRIFFON: Yes, it comes up from time to time, so we can close this one, yes. I was just asking if others -- alright. Let me document that, and the same for 156.5. We'll close that also. Alright, what's the next one?

DR. ULSH: I think the next one that we have action on is 163.4. Is that what you have, Scott?

MR. SIEBERT: I've got 157.1 and .2. These are actually initial responses.

MEMBER MUNN: Yes. We don't have anything on the matrix for them so far.

CHAIRMAN GRIFFON: Did you send those initial responses?

DR. ULSH: Scott, is this one of the ones that dealt with the glove box TIB, the discussion that we had?

MR. SIEBERT: No.

DR. ULSH: Oh, okay.

MR. SIEBERT: This is counting of zeros, and this was in, when Brant sent the things out on Friday, this was in the zip file.

MEMBER MUNN: In bright red.

MR. SIEBERT: I printed it out. You're right. It is red, isn't it?

MEMBER MUNN: Yes, it is. That's fine. Keeps us awake.

MR. SIEBERT: Catch your eye. I knew it would be right after lunch.

MEMBER MUNN: Thank you so much.

DR. ULSH: Oh, okay. I've got it

now. Okay. This is a relatively long one. Scott, why don't you go ahead and give us the summary on that?

MR. SIEBERT: Sure. If we go back -- I'll go back, I don't want you to go back -- to the matrix, the two findings are failure to properly account for external photon dose during all years of employment and lack in consistency in assigning missed photon dose. What they both tie back to is the assignment of zeros when we have nothing in the monitoring record.

So what we have done with the claim, and the reason we have an initial response now is because it was pretty complicated to go back into, we have the 19, I mean 19, that's how old I'm thinking, the 2006 version which is what SC&A reviewed. We based missed dose in zeros, especially during the 1956 to '64 time frame, that the individual was monitored when he needed to be monitored. In other words, when there were no dosimetry

record he was not being monitored. We're not counting those as zeros. And the basis for that, which is what was questioned, is the fact that in 1956 there's clear indication that the individual's permanent dosimeter badge was pulled, and from that point on, from '56 to '64, there are documented visitor or temporary dosimeters in this individual's file.

So what we did is we based all dosimetry upon those visitor and temporary badges. When he had those, we assumed exposure. When he did not, we assumed there was no exposure and we assigned ambient instead. And we're comfortable that's exactly what should have been done. That's appropriate during that time frame because we have the records.

That leaves open the other years where we did not assign missed dose, which were '52, '53, '72, '76, and '81 through '84. So we assigned ambient during that whole time

frame. We agree that those years we should have addressed in different ways. For the first few years, we should have used coworker when we had nothing in the file, and from '76 and '81 through '84 we should have used zeros which is based on OCAS TIB-6 during that time frame from '72 to '88 when an individual has no record, no dosimeter record if not -- they did not list zeros but individuals were monitored, so we made the assumption the individual was monitored with zeros.

That whole method -- so the bottom line is we're agreeing that for some of the years we should have done some coworker and missed doses differently. But for the '56 to '64 time frame, which was really one of the big ones that was being keyed on, we're comfortable with the whole visitor badge/temporary badge thing.

The rest of the response explains that we did rework this claim in 2009 under the Super S PER, PER-12, and zeros were

evaluated, basically, as I spoke, the same during that '56 to '64 time frame we dealt with when there's badging. We assigned coworker during '52 and '53 and '72 and also filled out zeros for '76 and '81 through '84. The compensability decision did not change.

And then on the next page there's a little bit more detail on a year-by-year breakdown as to how the zeros changed between the original reviewed version and the rework we did in 2009. And, honestly, I don't expect everybody to get their heads around this. I'm guessing this is going to be something that SC&A is going to want to review.

MEMBER MUNN: Yes, but that's pretty straightforward. That's easy to see.

MR. FARVER: I don't know. I already have questions just from looking at it. You say the 2009 update had a PoC of 38 percent, and the original one was 40 percent, and then you added 6 rem and went down 2 percent. So I'm not sure. This is one of

these cases where you looked at it, what prompted it, I believe, was the PER on insoluble plutonium, so that's what you should go back and look at. You also did this evaluation on these missed doses, added in some unmonitored doses, and then you added 6 rem from unmonitored doses and then dropped the PoC 2 percent.

MEMBER MUNN: Is it rem or millirem?

MR. SIEBERT: Rem.

MR. FARVER: Rem. So that answer's from looking at it briefly. So I'll have to have a look at it.

CHAIRMAN GRIFFON: Yes, you need to have a look at it. I'm just curious about the review process on this case.

MR. FARVER: Well, see, this is one where you almost have to go back and look at the 2009 reworked case and find out what changed, and I hate to volunteer to do that.

MR. SIEBERT: I'm pulling it up

here.

CHAIRMAN GRIFFON: No one else is stepping forward.

MEMBER MUNN: Everybody loves a volunteer.

MR. FARVER: So, I mean, I'll have to go back and then review the response for these two specific findings, but I don't know if it's going to answer questions or generate more.

CHAIRMAN GRIFFON: Hey, Scott, you didn't, by any chance, write a Reader's Digest version of that that I can fit in the matrix, did you?

MR. SIEBERT: Maybe that's why we didn't stick it in.

CHAIRMAN GRIFFON: Yes. It's really hard to summarize all that.

MR. SIEBERT: The Reader's Digest version is we agree that for '52, '53, '72, '76, and then the span from '81 to '84 the external dose was not calculated appropriately

because we could have used coworker and filling in the missed zeros. And I am pulling up the most recent report. In each of the reports, now when we make changes we give an overview as to what the changes were.

MEMBER RICHARDSON: Could I ask a question?

MR. SIEBERT: Sure.

MEMBER RICHARDSON: So this worker continued employment into the 1980s? That's right?

MR. SIEBERT: Yes.

MEMBER RICHARDSON: And so their dose was entered into the -- I don't remember what the electronic file is called for the dose of record at SRS. Is it -- oh, are you there?

MR. SIEBERT: Yes.

MEMBER RICHARDSON: Okay. We're losing power.

CHAIRMAN GRIFFON: Power flickering, yes.

MR. SIEBERT: Oh, that's not good.

CHAIRMAN GRIFFON: One way to end this meeting.

MR. SIEBERT: I mean, no, I'm not here anymore.

MEMBER RICHARDSON: So their dose is entered into HPAREH, and so for the -- I'm just trying to think about what their dose of record is for '56, '57, '58 through '64. If the worker would ask the facility for kind of a summary of their occupational doses, for those years would the dose of record be this temporary or visitor's dose? Was that entered into HPAREH?

MR. SIEBERT: Yes.

MEMBER RICHARDSON: Yes?

MR. SIEBERT: Yes, that is where the doses are that are in HPAREH. That's correct.

MEMBER RICHARDSON: That's where these dose values are.

MR. SIEBERT: That's the dose of

record, correct.

MEMBER RICHARDSON: And they have no -- so they have a single record in there for the year, and it's -- I guess I have to wrap my head around it. And is it flagged as being a temporary dose? Is that how you know that, or have you also gone back and pulled the paper records?

MR. SIEBERT: We also have the actual records themselves.

MEMBER RICHARDSON: Okay.

MR. SIEBERT: Which they're marked. In my response, it gives the pages where these specific visitor dosimeters are found. I'm actually looking at the record here right now.

CHAIRMAN GRIFFON: Yes, it's in the case file, right? Pages 73 through 75 and --

MR. SIEBERT: Correct. And I'm looking at the one that's on page 51 of the DOE response, and the badge is clearly marked

as a V badge for visitor. So that's where we get the information for the V and T badges.

MEMBER RICHARDSON: Okay. It's interesting to me. So it doesn't mean there was a break in employment? They're just badging them with what's called a visitor's badge rather than a temporary badge.

MR. SIEBERT: Rather than a permanent badge, correct.

CHAIRMAN GRIFFON: Or a temporary, yes.

MR. SIEBERT: They're using, their nomenclature would change at different times. They use V for visitor and T for temporary. I don't know the differentiation as to why they would assign the two. But during that time frame, the person does not have any routine -- he would not have the V or T numbering.

CHAIRMAN GRIFFON: Okay.

MEMBER MUNN: In other facilities a visitor's badge is usually one or two days,

and a temporary badge would be assigned if you were expected to be working there for a week or two. But I don't know whether that was true at SRS or not.

CHAIRMAN GRIFFON: But a visitor, I guess, could have been an internal visitor, like from one area to another or something like that, not just outside of the facility.

MR. FARVER: And what I'm thinking is maybe he showed up at, say, the reactor facility and he didn't have his dosimeter with him, so they issued him a visitor badge or something like that or a temporary dosimeter.

MEMBER MUNN: He wasn't badged --

MR. SIEBERT: They don't have any permanent dosimetry during that time frame for him. If that was the case you would have both.

MEMBER MUNN: It's fairly common if your work takes you out of the area they take your badge away.

CHAIRMAN GRIFFON: Well, I think, unless there are any more questions, I think, clearly, it's an SC&A action to look at this response.

MR. FARVER: Yes, I'll review that. I really can't disagree with that first part of that. It's the second one that just kind of bothers me where you add 6 rem and then the PoC drops. Those kinds of things bother me more.

MR. SIEBERT: Well, we're not saying that we added 6 rem. What we're saying is we use a total of about over 6 rem, whereas the badging dose record of assignment only was about 400 millirem. That's not comparison to the first versions, the 2009 version. The actual dose between the versions went up very slightly, somewhere between 14 to 15 rem of increase. It started off at 14 rem and went to 15 rem. It was about a rem increase overall.

MR. FARVER: Okay.

MR. SIEBERT: It wasn't nearly the large increase that you're thinking of. Maybe I wrote that a little confusingly. I apologize.

MR. FARVER: Okay.

CHAIRMAN GRIFFON: Okay. So I have that as a SC&A action to look at this one. And 157.2, Brant or Scott?

MR. SIEBERT: Those are both the same issue.

CHAIRMAN GRIFFON: They're both the same issue. Okay, got it. Okay. So the next one must be that 160 -- what did you have, Brant?

DR. ULSH: 165.1. Have I missed any, Scott? The next one I have is 165.1.

MR. FARVER: We have one on 160, which is to review the reworked case.

DR. ULSH: Right. But we might not have progress.

MR. FARVER: Oh, no, I'm just saying that we haven't reviewed your reworked

case.

MR. SIEBERT: Right. We gave Doug the -- for 160.3, and they haven't reviewed that.

MR. FARVER: Correct. You put the files out there, as I believe you also did for 175?

MR. SIEBERT: That sounds right.

MR. FARVER: I thought those were the two cases.

MR. SIEBERT: You are correct. Those are the ones.

MR. FARVER: Okay.

CHAIRMAN GRIFFON: Those are 160 --

MR. FARVER: All the 160s and --

MR. SIEBERT: Okay. Brant, before we get to the 163, we have the 162.1 and 2. That's the PER for the 100 percent AP issue.

DR. ULSH: Okay. Why don't you go ahead on that one?

MR. SIEBERT: Sure, I'd love to.

This is one that Brant sent out that, if you look at 162.1 and 162.2, this is actually a Rocky Flats claim. But the latest responses of resolution is NIOSH will check old SRS claims that predate the new workbook, it started talking about the external dose workbook at Savannah River when we started using 100 percent AP for the DCFs versus using the max and min of all geometry. I think during one of the meetings we kind of went off on a tangent from this Rocky case because it also had a question about DCF, and that's where we got locked into looking into the 100 percent AP issue for the Savannah River external dosimetry tool, just to kind of you give you a little background as to why we're discussing Savannah River for a Rocky Flats case, which is very odd.

So what I have done is we pulled, the question was if we did a PER review of the 100 percent AP issue, and an official PER was not determined to be appropriate at the time,

but we did go through, we had a list of the claims, and I have re-run through that full list of claims that use that tool and determined almost all of them were either reworked under this -- we were looking into this issue, or they were reworked under another PER, such as Super S, lymphoma, something like that, or we were reworking the claim and it was administratively closed, such as the claimant passed away and there's no survivor, we just don't get any response, things like that.

Brant, do you want to get any of the rest of the PER issues? That kind of gets us started.

DR. ULSH: Well, I think there were just a couple of claims where we still had a problem, right? If I recall correctly.

MR. SIEBERT: Yes. From my list, I found three claims that were considered under the Super S PER and needed to be reworked. However, it appears those three

were not requested or we did not get those back from DOL for rework at any point, so they would still need to be reviewed.

DR. ULSH: I can give you the numbers on those if you're interested, or if that's more detailed than you want that's --

MR. HINNEFELD: What? The claim numbers?

DR. ULSH: Yes.

MR. HINNEFELD: Don't be describing claim numbers on the phone.

DR. ULSH: Oh, alright.

CHAIRMAN GRIFFON: Give me that explanation again for why SRS appears in the response. I mean, it was the AP geometry issue, but why were we asking for you to look at SRS claims, or did you look at Rocky Flats claims?

MR. SIEBERT: The Rocky Flats claims had a DCF issue.

CHAIRMAN GRIFFON: Right.

MR. SIEBERT: And, honestly, I

can't tell you how we ended up on the rabbit trail of Savannah River by tracking what we've got in the matrix. But I believe it's the fact that under this Rocky Flats claim we used Monte Carlo calculations with a max and min such as what was used in the Savannah River external dosimetry tool at that time, and I think that's how we got on the track of ensuring that we looked at all the Savannah River tool claims to make sure they were reworked or reviewed as well if they were impacted by this issue.

CHAIRMAN GRIFFON: Okay. So the claims you looked at, though, were Savannah River, not Rocky Flats?

MR. SIEBERT: Correct. All the claims that were looked at were the Savannah River claims that used the external dosimetry calculation workbook, which is where that systematic DCF max/min issue actually appeared.

DR. ULSH: And if you go into the

DR Subcommittee folder on the K: drive, there's a subfolder under there called 8th Set Responses '04 - '11, and there's a spreadsheet in there that shows the results of Scott's re-evaluation of these cases, and there are three cases that are highlighted in red, which are the ones that we're going to have to go back and pull back and look at them again.

CHAIRMAN GRIFFON: Just help me to understand this. You checked the old claims that predate the new workbook and that new workbook approach was used -- the same approach was used in this Rocky Flats case? That new approach was used in this case, right? Or is that incorrect?

MR. SIEBERT: I believe this case was -- used Monte Carlo calculations using Crystal Ball, and the general process was based on the same thought process at the time. We didn't have a -- and this is from my memory but I believe this is correct, Rocky Flats did not have a best estimate Monte Carlo

tool at the time this was calculated originally, so the methodology from the Savannah River tool was applied.

CHAIRMAN GRIFFON: Okay.

MR. SIEBERT: I believe that's how we got down this road.

MR. SMITH: This is Matt Smith. That's correct.

MR. SIEBERT: Thanks, Matt.

CHAIRMAN GRIFFON: So where are we, Doug?

MR. FARVER: Boy, that's a good question, Mark.

CHAIRMAN GRIFFON: I mean, before this, we accepted the response for this case, right? That it was -- it said SC&A accepts the response that the Monte Carlo approach used is appropriate, no further action.

MR. FARVER: Yes.

CHAIRMAN GRIFFON: But then we wanted to look back at these other. I think that was the concern. You're right. So now

NIOSH has provided this analysis of the others and --

MR. FARVER: They did what was asked.

CHAIRMAN GRIFFON: Yes. And it was, you know, I mean do you want to look at this analysis or it looks reasonable or --

MR. FARVER: It looks reasonable. I don't see anywhere to go from there.

CHAIRMAN GRIFFON: Right. I don't think there's much further to pull that string, is there? Does everybody agree with that?

MEMBER MUNN: They've done what we asked to do.

CHAIRMAN GRIFFON: I would think we can close it out.

MEMBER MUNN: I think so.

DR. ULSH: So 161.1 and 2 are closed?

MR. FARVER: Yes.

MEMBER MUNN: It should be closed.

CHAIRMAN GRIFFON: So that was 162.1 and 162.2?

MR. FARVER: Yes.

CHAIRMAN GRIFFON: Okay. Alright. Let me just make sure that I just switched 160.1, 2, 3, and 4, to be an SC&A action, right?

MR. FARVER: Yes.

CHAIRMAN GRIFFON: In other words, NIOSH provided analytical files, and SC&A will review. I added that into number 160.1, .2, .3, and .4. I just want to make sure that's the right thing to do.

MR. FARVER: Yes.

CHAIRMAN GRIFFON: And I think we can go ahead.

DR. ULSH: Okay. I'll take another shot here. I've tried to jump to 165 a couple of times.

CHAIRMAN GRIFFON: I know. You were trying your best.

DR. ULSH: Is now the right time

to jump to 165? I think it is.

MR. SIEBERT: I hate to do this to you, Brant. 163.4.

DR. ULSH: Alright.

MR. SIEBERT: And then we'll get to 165. I promise.

DR. ULSH: 163.4.

MR. SIEBERT: That's in the matrix.

DR. ULSH: That helps. Thank you.

CHAIRMAN GRIFFON: It's in the matrix, in your updated matrix.

MR. SIEBERT: Page 41 of --

DR. ULSH: Got it, got it. Alright. So the finding on 163.4, the summary is that assigned occupational medical dose not correctly converted to the organ dose of interest for 1994 kidney cancer. Alright, the latest NIOSH response is that we agree that the finding is correct. As a way of explanation here, the lung dose is used as a surrogate for liver, gallbladder, stomach,

thymus, esophagus, and in the TBD the larger of the male and female lung dose was carried over to the surrogates in the TBD table regardless of the employee's gender as a claimant-favorable assumption, and that is the female lung dose.

Since the kidney is not in the table, the DR used the same thought process to assign a surrogate dose, in parentheses lung, but used the male lung since the employee was a male and the direction on the surrogate organs was not cleared. The IREP sheet has been updated and run with the female lung doses as a surrogate dose, which resulted in a change of PoC from 45.2 to 45.24.

MR. SIEBERT: This is Scott. I will also add that the use of the surrogates, especially for these organs, have been difficult to track because most TBDs were very specific on how to deal with them, but every once in a while an organ would be left out and the dose reconstructor would make an

assumption based on thought process, such as this. The present version of -- let me see. Am I talking about a procedure or an OTIB? I want to say OTIB-6, but I'm going to verify. We are updating the OTIB that handles x-ray assignments, and it is very specific and very clear about use of surrogate organs in cases such as this, for clarification purposes.

CHAIRMAN GRIFFON: I want to document that because I think that's important that you're updating this as a result of some of these findings. NIOSH is updating, what is it? OTIB-6?

MR. SIEBERT: ORAU OTIB-6. And I am aware of that because I am deeply ingrained in doing that lately, so I made sure that all got in there.

DR. MAURO: Scott, this is John. So OTIB-6 did the follow-up look-up numbers in one of those tables. Right now you're saying that some of them are overly conservative as applied to particular organs and you're coming

up with more specific doses to the organs of concern rather than using surrogates?

MR. SIEBERT: No, it's more specific as to which surrogates to use for which organ. The problem in this case is kidney did not have a specific surrogate organ listed for it in the TBD, so the DR used the thought process of using the lung surrogate, which is the appropriate thought process. It's just they missed the thought of since there's some variability involved, from a project point of view, we've determined when they do the surrogate for the lung we pick the larger of the male or female lung doses for that surrogate.

DR. MAURO: Rather than leave it ambiguous?

MR. SIEBERT: Yes, it's very clear now.

DR. MAURO: Okay.

CHAIRMAN GRIFFON: Any follow-up on that, Doug?

MR. FARVER: Well, I'll ask why was the lung used instead of the liver if it's a kidney cancer?

DR. MAURO: There's probably a big difference, right? What's the difference if you use the lung versus --

MR. SIEBERT: There is no liver DCF in ICRP 74, if I remember correctly.

MR. FARVER: I'm looking at Table A5, organ dose for a beam in 1982 to present. This says from --

MR. SIEBERT: In what document?

MR. FARVER: Y-12 Technical Basis under the medical dose.

MR. SIEBERT: Okay.

MR. FARVER: Page 23 of 23, last page.

CHAIRMAN GRIFFON: And what does it show?

MR. FARVER: Well, I mean it has the whole list of organs and --

CHAIRMAN GRIFFON: It has liver,

right?

MR. FARVER: And the lung dose.

MR. SIEBERT: Well, once again, liver is using the surrogate of lung. It may not list it there but --

DR. MAURO: Oh, is that right? Because they both look like the same number.

MR. SIEBERT: The liver is using the lung --

CHAIRMAN GRIFFON: That's why you're clarifying.

DR. MAURO: And I was surprised because you would think that the chest -- the lung dose would be higher than the liver dose. You know, that's why your chest x-ray. Okay. I mean, there's no doubt it's conservative.

MR. SIEBERT: Correct. And that's what it was designed to be.

MR. FARVER: Well, no, let's go back a step. The female lung dose is the same as the liver dose. The male lung dose that you used is less than the listed liver dose in

the table.

MR. SIEBERT: Correct.

MR. FARVER: So you used a smaller value.

MR. SIEBERT: Correct.

MR. FARVER: For an organ that's not close to the kidney. I don't understand why you just didn't choose liver off that table and go with that dose value, like you would on any other organ there. You would just choose the dose value and go with it.

MR. SIEBERT: Well, in an optimal world, the kidney would be listed in that table. However, as I said, if something is not listed in that table, the dose reconstructor will generally go -- in this case what it appears that they did was they went back to the first principle of what surrogate is used for those organs. And for those organs, the lung dose is used as a surrogate. The mistake they made was they used the male lung dose because it was a male

individual versus the female, which is a larger value. I understand what you're saying that they could have gone to the liver and just used the liver for the kidney. However, I'm just reconstructing what their thought process was at the time.

MR. FARVER: And this is all taken care of in a workbook, isn't it? They're not really -- they're not really going through and selecting a value.

MR. SIEBERT: At the time this was done -- what plant are we on again? 163?

MR. FARVER: Yes.

MR. SIEBERT: This was done in 2006, so that may not have been specified in the -- well, if it wasn't in that table, I would venture to say that the kidney was also not in the tool.

CHAIRMAN GRIFFON: I guess that's a follow-up question. I mean, from a QA standpoint, it's not, you know --

MR. FARVER: No, I'm just

concerned if this is a workbook error where it's selecting the wrong value.

MR. SIEBERT: No. I would say it was not a workbook error because the workbook would not have given you the option of kidney would be my guess.

DR. MAURO: As an overarching issue, which would probably fall more toward Wanda than it would at this meeting, now that I -- the Procedures Subcommittee, all I'm saying is that I got to tell you, I mean I use OTIB-6 all the time when I check numbers, and I just go into the table and I look because I know we reviewed OTIB-6 and we love it. We love OTIB-6. But people that looked at it found it very claimant-favorable and appropriate, but now that I'm realizing that an awful lot of the organs' default values are lungs. And certainly that's claimant-favorable. I mean, that would be the highest dose you're going to give -- I would imagine if you look at all of them you're going to

find that up there.

This goes toward this maximizing approach. In other words, it's so easy to, I guess, run an MCNP to say, listen, let's get better numbers for these other organs. That might buy you a factor of two or three difference if you were to go and become a little bit more realistic, rather than assigning this. So in a way, and I tell you these doses, these chest doses sometimes are not insignificant in terms of the contribution. This is just a thought more for maybe Wanda's group whether or not, you know, you want to rethink using this one-size-fits-all almost, this lung dose to apply to all these other organs. It's certainly claimant-favorable, but it wasn't until now that I realize that's what was being done.

MEMBER MUNN: I thought it was chosen because it was claimant-favorable. That was my assertion.

MR. FARVER: No. They did not

choose a claimant-favorable one.

DR. MAURO: On this particular case.

CHAIRMAN GRIFFON: He's talking about the procedure.

DR. MAURO: I'm sort of saying that the fact that the male/female difference is superseded by the fact that they're using the lung. I mean, you know, whether you use the male or the female, either way, that's going to be conservative as applied to this case. So I just went on to this thought that I had that, you know, it's not -- it is relatively straightforward to come up with realistic doses to these other organs rather than using the lung as your surrogate for so many organs, and that's something more for the Procedures Subcommittee.

CHAIRMAN GRIFFON: You're running out of procedures to review.

DR. MAURO: Yes, we've got to find some work here.

MEMBER MUNN: When we've looked at OTIB-6 --

DR. MAURO: We did, and I have to say that I don't think we looked at it from the perspective of maybe it was overly conservative in some cases.

MEMBER MUNN: Well, I thought we had, I thought we were using lung because it was the most sensitive one and, therefore, claimant-favorable in all cases, no matter what, at least from what little I remember of OTIB-6.

DR. MAURO: That goes way back, and it was at a time when we viewed the world that way, that is, oh, it's claimant-favorable, it's okay. I'm just saying that the world we live in now, we're trying to be a little more realistic so that there's parity. Probably not the best place to discuss this. This is more Procedures Work Group Subcommittee.

CHAIRMAN GRIFFON: Well, where do

we stand on this particular one? Doug, do you want more time to examine this?

MR. FARVER: I mean, I understand --

CHAIRMAN GRIFFON: Yes, yes, yes.

MR. FARVER: It was just confusing because, you know, their DR report says the external dose to the kidney was determined by using dose calculated to the liver, but they didn't select liver out of the table. So when you go to that procedure and that page of the Technical Basis and you look under liver, that's not the dose they used.

MR. SIEBERT: Agreed, if you go from the table. I agree wholeheartedly with you. They should have used the liver dose. I'm just going back to the original thought process of the liver dose, if you go back to thought process, is surrogate by the lung dose and then the DR made the mistake of assuming it's a male individual so you use the male lung dose. That's all there is to it.

MR. FARVER: Okay.

CHAIRMAN GRIFFON: I guess the other thing that came up in our previous discussion was that, if you look at the paragraph in the matrix, you know, that this should have been corrected during a peer review. I mean, the question of how did this get past the peer review came up at least in a prior discussion. Any insights on that?

MEMBER MUNN: What's the use of the male versus female -- get by peer discussion? Is that --

CHAIRMAN GRIFFON: Yes.

MEMBER MUNN: Well, probably because it was a male claimant, wouldn't you think?

MEMBER RICHARDSON: Well, but why did two people make the same, let's say, divergence from the procedure?

CHAIRMAN GRIFFON: Right.

MR. SIEBERT: Well, I'm going to say, likely, the procedure did not really

cover kidney. That is the issue that it came down to. Kidney was not in the game. So in my mind, I could easily see that thought process being used by the dose reconstructor and verified by the peer reviewer.

MEMBER MUNN: Yes, you choose a surrogate, the surrogate you choose is for a male because you have a male subject.

MEMBER RICHARDSON: So the suggestion was to move it so that -- you're saying it's a limitation of the Technical Basis Document. There's ambiguity, and the reservation might be, as you suggested, go back and look at the Technical Basis Document.

MR. SIEBERT: At the time the claim was run, yes.

MEMBER RICHARDSON: I sort of agree with you kind of from the principle of these factors are from an ICRP report, which is almost 30 years old now, and there's been a huge amount done on -- what do they call it? Those little --

DR. MAURO: The tables and the -- well, this is more the MCNP modeling.

MEMBER RICHARDSON: Yes. I mean, medical dosimetry.

DR. MAURO: Medical dosimetry.

MEMBER RICHARDSON: Voxel phantoms. That's what we call them. Great dosimetry stuff going on where you could actually --

DR. MAURO: See, in this case what we're saying is you want a surrogate number to make sure you're being claimant-favorable, and you pick the liver, which you really didn't pick the liver, you really picked the lung which is claimant-favorable. And whether you picked the male lung or the female lung, it's still claimant-favorable. It's almost like gilding the lily.

MEMBER MUNN: Yes, it turns out to be inconsequential after it's --

DR. ULSH: Well, SC&A said we made a mistake, and you say we agree we made a

mistake and we fixed it.

CHAIRMAN GRIFFON: Yes. And the convincing thing for me was that you're modifying TIB-6, so that's good. I don't see any further action on this particular case. I mean, you know --

MEMBER MUNN: And now you've dumped it on me and --

CHAIRMAN GRIFFON: So everybody's happy. Alright. So Wanda will report back to us next month.

MEMBER MUNN: I would have if I'd been allowed to put together a meeting. I tried. I was getting all kinds of flack about meeting too soon and nobody could do anything between now and then. So it will be July before you hear anything back.

CHAIRMAN GRIFFON: Okay. I think we can move past that one. Hey, Brant, we can do yours now, I think.

DR. ULSH: Hey, alright.

CHAIRMAN GRIFFON: 165.1.

DR. ULSH: The summary of the finding is inappropriate factor used to convert greater than 15 keV electrons to organ dose. Let me pull up the other file. Alright. So our response is that, this issue was due to the overlapping dates in Table 6.5 of the ORAU TKBS-0007-6, which indicate that electron dosimeter correction factors of 2.04 and 2.86 are both applicable to 1958. The difference between the two 1958 correction factors is a factor of 1.4. Only after going back to the sections and discussing the various dosimeter types can the readers of the TBD determine that the end date for the 2.04 correction factor should be the end of February 1958 and the start date for the 2.86 correction factor should be March of 1958. So version 1.82 of the INL tool was issued around March of 2010 and included a modification to use the higher of the two potential correction factors for 1958. Other INL and Argonne National Lab West claims with organs that

include shallow dose also had measured or missed electron doses assigned for 1958 and also likely been affected by this TBD and tool issue. So that's the response.

And it looks like we can get a two-for-one on this. 165.2 is the same.

MR. FARVER: So the workbook has been corrected?

DR. ULSH: It has been, in March 2010.

MR. FARVER: Okay. That had to do with the look-up parameters in the INEL workbook.

CHAIRMAN GRIFFON: So NIOSH updated the look-up parameters in which workbook?

DR. ULSH: This is Version 1.82 of the INL tool.

CHAIRMAN GRIFFON: And the earlier question; were there cases affected by this?

DR. ULSH: These are other claims where shallow dose is an issue, and that would

be organs including skin, breast, penis and/or testes, cancers of those organs with that same issue.

MR. HINNEFELD: Well, that tells us we ought to do something about it.

CHAIRMAN GRIFFON: Yes. So other cases have been affected and --

MR. HINNEFELD: We got to go check and see and find those cases.

CHAIRMAN GRIFFON: Right.

DR. MAURO: So this process we're in right now is really a way to get to the tools. In other words, we had this conversation before and we've probably had it more than once, but what's really happened here is you've got your Site Profiles and then you've got all your 105 procedures and then they're being implemented on a case-by-case basis, and tools are developed to facilitate a consistent, reliable way of doing a dose. And those tools build into them all of the requirements or guidance that's provided in

the Site Profiles and in the various procedures. But then they take another step. Sometimes, they have to do a higher level of granularity of resolution to deal with a particular case, and that becomes the new standardized approach for doing cases that are like this.

So what I'm saying is so, in this programmatically, in this program where we're continually scouring and reviewing and evaluating, one of the things I was concerned about for some time but I think I'm no longer concerned about it is that the tools are, in fact, continually being revised and they're continually being reviewed through the process we're in right now. And that's a very important point because, you know, we were always nervous that reviewing the procedure, but they're not using the procedure, they're using a tool. But we are reviewing the tools. What we really have is very much a living process that has to be living because there's

continuous improvement and refinement. But we're not missing those by going through these types of case-by-case evaluations and we're picking them up as we go through.

CHAIRMAN GRIFFON: Right.

DR. MAURO: I wanted to get that on the record.

MEMBER MUNN: This is a pretty rigorous process.

DR. MAURO: My question to, let's say, to Brant, we're doing one percent. In your sense, and Stu, too, in your sense, by doing one percent of the cases, do you feel that we're capturing most of the tools? In other words, the tools are not so unique from case to case to case to case that by sampling from realistic cases which are where the tools are used and the ones we've been looking at, let's say for the past year and a half or two years, we've been doing a lot of realistic cases, what we call realistic, do you have a sense that we're really getting a good

sampling? Is SC&A doing a good job in looking at the tools that you guys work with, or are there a large suite of tools we're missing?

MR. HINNEFELD: Well, I mean, Scott can certainly correct me, but the selection process focuses on sites with large numbers of claims, which are the sites where you're more likely to build a tool in order to do a lot of claims consistently. And so I would say that, yes, that most of the tools that come into play are covered in what's being done. Scott, you can certainly correct me if you want.

MR. SIEBERT: I would agree with Stu.

MR. HINNEFELD: Of course, he's a contractor and he specializes in saying --

DR. MAURO: By the way, I believe that.

MR. HINNEFELD: I could be on Fox News and he would say he agrees with me.

(Laughter.)

MR. SIEBERT: I don't agree with that, Stu.

(Laughter.)

CHAIRMAN GRIFFON: Okay. But I guess the only question I have on that is NIOSH is going to follow up on these cases. Where does that leave -- how do we know what happens from there, or do we need to follow that anymore on this Subcommittee?

DR. ULSH: It sounds like a PER.

CHAIRMAN GRIFFON: Right. Would you establish a PER for this, or would we --

MR. HINNEFELD: It sounds like we're obliged to do that, to me.

CHAIRMAN GRIFFON: So then we'll pick it up in that process. We'll see that you form a PER.

MR. HINNEFELD: Yes. It would be on the PER list, then, for review. Let's see. I forgot now. What was the issue we're talking about?

DR. ULSH: Shallow dose.

MR. HINNEFELD: Okay. So it's going to be a handful of types of cancers. And other than skin, they're really not all that common.

DR. ULSH: Well, breast cancer is.

MR. HINNEFELD: Yes, you're right. Breast is fairly common. Yes, I mean, it will be on there and available to look at.

CHAIRMAN GRIFFON: Yes, okay. The reason I'm asking is then I think we can close it out here. Those two, I think we can close out here, and they're going to that PER process which I put in here. So if the Board ever wants to look at that again, you know, we can, but it can be closed for our purposes.

MEMBER MUNN: For our purposes, I think so.

CHAIRMAN GRIFFON: Okay. That sounds good. We've got to close some, right, Wanda?

MEMBER MUNN: We have to because otherwise --

MR. HINNEFELD: Well, I mean, is the finding on this the correction factor of 2.04 or 2.86? Is that really the finding?

CHAIRMAN GRIFFON: Yes.

MR. HINNEFELD: Okay. We'll take it.

CHAIRMAN GRIFFON: Alright. So those two, for our purposes, are closed. For Stu's, they're not closed. Nothing is ever closed.

MR. HINNEFELD: From where I sit.

DR. ULSH: 165.3?

CHAIRMAN GRIFFON: Yes.

DR. ULSH: Alright. The issue there, the summary is neutron organ dose calculation in error. Alright. Use of a dosimeter bias of 1.6 to calculate the neutron doses to the bladder was incorrect because there is no basis in the INL TBD for the application of a bias factor. Because of the use of complex-wide best estimate external tool 1.10, which is a Microsoft Excel workbook

with Monte Carlo capabilities, the measured and missed neutron doses were only underestimated by a total of .317 rem or by about 29 percent, and that's the comparison of the original assessment to the present revised version.

MR. FARVER: Well, the concern was that the workbook was actually dividing by 1.6 in the calculations. Right. It was dividing by a dosimeter bias of 1.6, which is going to underestimate your doses.

DR. ULSH: I think this is probably similar to the last issue in that we need to go back and identify any cases where that was done.

MR. SIEBERT: I want to point this out. This falls -- if I remember correctly, we're talking 165 and I didn't even look when it was done. 2006, yes. There was no best estimate tool for INEL at that time, and this is where we fall into the same thing they had at the Rocky Flats case before that kicked us

over to Savannah River. If there's not a specific best estimate tool for that site, the dose reconstructors need to use the complex-wide best estimate tool back at that time.

What happened in this case, apparently, is there's a bias factor that is built into that tool that should have been removed for INEL that was not removed. So it would not be systemic for claims that -- the INEL claims. It could be systemic in best estimate INEL claims that were done using this tool.

DR. ULSH: But it seems to me that we need to find out.

CHAIRMAN GRIFFON: Yes, yes. How many best estimate claims use that tool, yes.

MR. SIEBERT: I'm not saying that we don't need to look at that. I'm just trying to narrow in on what the actual issue is.

DR. MAURO: While we're going through these, I like to sort of bin them in

my head as to, okay, yes, here's a procedure, you're supposed to follow the procedure or use this tool to follow the tool, and an error was made. And that's one of your quality problems. That shouldn't have happened.

But then we have another circumstance, and this is an interesting nuance. A person is going through a dose reconstruction, and he's using all the tools available to him but there isn't any really particular tool for this particular problem so he jury-rigs in his best judgment. Nothing wrong with that, using the tools that are available that he believes reasonably apply to this particular problem. So now the dose reconstructor is doing his job, and he makes his judgment.

Now, I think, and this is more of a question, when that happens, how transparent is it? And I really have to ask this question maybe of Kathy and of Doug. It should be that there's really nothing wrong with the person

doing something like this. He's using his best judgment, and he's going to disclose it in his documentation to the world to see, for his QA people internally to see and, of course, eventually, if we happen to have one of those cases thrown our way, for us to see.

I guess my first question would be to Doug. When you went through this case and found a problem, was this explanation -- in other words, the thought process that the dose reconstructor went through to get to where he got, was that disclosed? In other words, was there transparency to what he did and why he did it? Since he did not actually have a tool at that time, he had to resort to something else that he felt was reasonable.

MR. FARVER: Well, he did have a tool. He had a complex-wide best estimate external tool 1.1.

DR. MAURO: And he selected that thinking that was reasonably appropriate to

this problem.

MR. FARVER: And that's what was used to calculate the photon doses and neutron doses.

DR. MAURO: Okay. And then later on, in retrospect we're looking at it and we know that there's something else out there. I guess I'm trying to get to the genesis of the process where, you know, he does his dose and it sounds like he did it at the time to the best of his ability, best of his knowledge, and documented it as best as he could so that everyone could see what he did. It went through a QA process that was accepted. But then somewhere along the line up steps SC&A into the picture and has asked to review it. Now we're reviewing it through our lens, which might be two and three years later, and is that the reason the comment came out? Is that how this comment emerged? Because now we're looking at it from the perspective that has grown.

MR. FARVER: No. We're looking at it from a perspective of there's an equation in this cell or this spreadsheet that divides by 1.16. Where does that number come from?

DR. MAURO: That's what I was just asking. I thought we just heard the answer to that.

MR. FARVER: Well, but according to the documents, that number shouldn't be there.

DR. MAURO: These documents? The ones he cites or the ones that we're looking at that we think don't apply?

MR. FARVER: The ones that are referenced when he does his dose reconstruction.

DR. MAURO: Oh, so we do have a quality problem there.

MR. FARVER: Well, and what prompted the finding was where that 1.16 comes from because we're looking at this and comparing it to how we know the doses should

be calculated and then it has an extra value in here.

DR. MAURO: Just help me out. Do we have a quality problem here? In other words, was there an error made at that time by this dose reconstructor where he inserted a 1.6 when he shouldn't have?

MR. FARVER: He didn't insert it. It was programmed into the workbook.

MEMBER MUNN: The question is why it is in the workbook.

DR. MAURO: But he used the workbook.

DR. ULSH: It's the application of the workbook that's the problem.

DR. MAURO: What is that? What do you call that? Is that a quality problem? What is that?

MEMBER MUNN: I don't think so. I think this is one of those indefinable things. This is a site-wide workbook.

MR. FARVER: No, this says

complex-wide best estimate.

MEMBER MUNN: Pardon me. Complex-wide estimate.

MR. FARVER: I believe it wasn't specific to INEL. They did not have their own workbook.

MEMBER MUNN: Understood.

MR. FARVER: So this was taken from another place.

MEMBER MUNN: This is the best he had at the time. He used the best that he had at the time. There's no way he should have been required to know that it would not be applicable to INEL.

MR. FARVER: Shouldn't he know how he's calculating his numbers and what the values --

CHAIRMAN GRIFFON: Right. Shouldn't the peer review have caught the --

MEMBER RICHARDSON: You were pointing to a situation where you said you had a document which had an expression for

calculating the dose, and when you set that against the spreadsheet you saw that there was --

MR. FARVER: Well, we understand that there's a basic way you go and you calculate your, in this case it's neutrons. You know, there's certain values that go together. And then even though they used the Monte Carlo calculation, that value is here in the cell equation. And multiply by 2.2 factor, which is all documented in the Technical Basis. And then at the end, it divides by 1.16 or 1.6.

DR. MAURO: And there's a reason for that. The complex-wide workbook includes the 1.6 factor for a reason.

MR. FARVER: I don't know.

CHAIRMAN GRIFFON: Oh, you're not even sure on the complex-wide.

MR. FARVER: I don't know why this number is in here.

CHAIRMAN GRIFFON: Because we're

getting the suggestion that it's a problem maybe for Idaho but shouldn't have a factor.

MR. FARVER: Why is it divided by 1.6? The original NIOSH response is that it was bias, and that it was actually claimant-favorable in increasing the dose, and then I replied back, no, it isn't, it's decreasing the dose.

MEMBER RICHARDSON: So the 1.6 is, as I understood it, is -- well, first, is this spreadsheet or this algorithm used, you said it was put forward as complex-wide and is it also, is it for a specific set of years or is it for all years?

MEMBER MUNN: It's a dosimeter basis. It's a dosimeter bias.

MEMBER RICHARDSON: No, I'm asking first about this expression, I mean this calculation. Is it used for a series of years or any? Because the dosimetry technology is changing over time and --

DR. MAURO: Maybe the bias isn't

always needed in later years.

CHAIRMAN GRIFFON: Well, it's not in all the cells.

MR. FARVER: So for all years for this individual. I don't have the whole, it just has the years that there's doses.

MEMBER RICHARDSON: Right. Yes, I would think, like, yes, there's dosimeter-response issues. They change with the technology. Was the reason we thought it was only an INEL because they were using a better dosimeter than the rest of the sites, and is that true over all time? So I guess, I mean --

DR. MAURO: I have to say, I'm trying to find something systematic that might be important. I think that's what I'm headed to. The use of workbooks are invaluable, and what we have here is obviously a situation. Let's presume for the moment that the workbook itself was well conceived, well designed and implemented at the time it was prepared for

the purpose for which it was intended, including the 1.6 factor. However, the person who did it never really realized that, you know, when it comes to INL maybe this doesn't really work. I don't know if there's anything you can do about it.

CHAIRMAN GRIFFON: Well, that's the impression I got from Scott's summary. And then it would be a case of, you know, it could be systemic for Idaho best estimate cases but not complex-wide cases. I mean, if it's wrong for everything then --

DR. MAURO: Then it's wrong. Then there's a quality problem. But now we have a different quality problem. The quality problem really is the person that reviews its case for Idaho, for example, should have picked up and said you can't use this factor for Idaho. You know, it doesn't fly because there's got to be a place where you have to hang responsibility, and I'm just trying to find that.

MR. FARVER: Yes, that's where I feel it should be picked up, the person who looked at this specific case and could have just pulled up this workbook and the first thing that pops up is --

CHAIRMAN GRIFFON: But, I mean, the first question -- Scott, maybe you can weigh in on that. The first question, is it appropriate for complex-wide and just its application to Idaho is the problem, or are we understanding that correctly?

MR. SIEBERT: I can't tell you. I just don't know off the top of my head.

CHAIRMAN GRIFFON: Okay, okay.

MEMBER RICHARDSON: Could I ask you a question? The first response to pointing this out was that it was claimant-friendly rather than not. And I was wondering, because one of my, I don't know a lot of neutron dosimetry, but for, at least for some years, kind of the problems I've heard with neutron dosimeters is under-

response as opposed to over-response. You know, early years, it would be difficult to track. You may actually be in a neutron field where you're missing some of the dose. Is it possible that the thought process behind this factor for correcting dosimeter bias was a division as opposed to a multiplication? You know, it was reflecting a problem with neutron dosimetry that was complex-wide in the early years.

CHAIRMAN GRIFFON: It was supposed to multiply, yes.

MEMBER RICHARDSON: It was very late, actually, that you thought the neutrons were reliable.

MR. SIEBERT: No, there's no correction bias factor for neutrons in INEL in the TBD that I'm aware of for that.

MEMBER RICHARDSON: I'm asking more generally about neutron dosimetry. I mean, when I mostly talk to people --

DR. MAURO: There's circumstances,

because of the dosimeter you use, you want to reduce the dose because of the reading you'll get. So normally you've got to jack it up because it's missing less than one meV or whatever the cutoff is. Hey, we're at the circumstance. No, no, no, we're actually, whatever reading we're getting is too high. That might be true, and that's the 1.6 divisor is here. I don't know.

MEMBER RICHARDSON: But I've looked at other facilities when they've introduced better neutron dosimetry technology that recorded neutron doses have increased substantially. It's not been that historically they were underperforming.

DR. ULSH: I can add just a little bit about what I know, and it is just a little bit. The switch was from NTA film in the early years to neutron TLDs in the later years. And with neutron films, there is an issue about the response of the film to low-energy neutrons, and you can define low

energy. That's been the topic of a lot of discussion. But I don't think it's accurate to, across the board, assume that the NTA films under-responded. It depends on the neutron energy. I think that there are some neutron energy where it actually over-responds.

DR. MAURO: And that could be the reason for this.

DR. ULSH: It could be. That's about the limit of what I know.

MEMBER RICHARDSON: Yes. Except that this is a weird factor in that it seems to be across --

MR. FARVER: All energies.

MEMBER MUNN: Is it across all energies for all organs, or are we, in this particular case, we're speaking only to the bladder?

MR. FARVER: We are just looking to the bladder.

MEMBER MUNN: And is this

correction factor specifically to the bladder, or is it to all neutron exposures?

MR. HINNEFELD: The write-up says organ DCF is applied, so you'd have an organ DCF that would be specific to the bladder --

MR. FARVER: It looks like it is a dosimeter bias.

DR. MAURO: For the bladder, though, you said.

MR. HINNEFELD: No, no, I said it's not the bladder.

DR. MAURO: Oh, it's not the bladder. I'm sorry.

MR. HINNEFELD: The DCF for the bladder would have been applied separately than this factor where it says organ DCF. To me, this is a puzzle to me and, to me, the starting place of the puzzle is the best estimate tool and a division by 1.6 is the best estimate tool. Now, to me, that's the starting place of the puzzle. If that actually turns out, for whatever reason, to be

correct, then the question becomes, well, to that point then, what criteria did you go to when you said I don't have a best estimate for this site, but I want to use it, you know, use this complex-wide best estimate tool. What vetting process do you go through to say that that tool is appropriate for this site which I want to use in that fashion?

So, to me, it's a two-phase kind of thing. The first thing we've got to figure out is the origin of this factor in the best estimate tool.

CHAIRMAN GRIFFON: That's the action then. You got it.

DR. ULSH: Well, I think there might be two actions, one of which might be subsumed here. The first action is we've got to look and see whether or not there are other Idaho claims that used this bias factor inappropriately.

MR. HINNEFELD: Well, let's start at the beginning. Let's start earlier than

that. Let's start at the tool itself, the complex-wide best estimate tool, because none of us in here right now can think of a reason why you would have this division by 1.6. So let's start there, and then once we've done that, it may not just be an Idaho issue anymore, is the problem. It may be an issue with any case. If there's a problem with that workbook, then it's a problem with all cases done by that workbook. It's not an Idaho-specific look anymore.

DR. ULSH: Well, that was the second action I have.

MR. HINNEFELD: Let's do that one first.

MR. FARVER: And it's difficult for us to tell in this case because this workbook does not have a worksheet of look-up parameters, so we can't say, well, I went to this page and pulled this parameter. It appears to have macros running, and it's pulling numbers from somewhere, and that

always makes it difficult.

MEMBER MUNN: It's interesting you have the dosimeter correction actually of 2.2 and min and the other dosimeter bias of 1.6.

CHAIRMAN GRIFFON: Yes.

MEMBER MUNN: It appears, if you were going to have a bias or a correction factor, the two somehow confuses me.

CHAIRMAN GRIFFON: I think that's a good course of action, Stu. That makes sense to me, so I'm putting that down as our action.

DR. MAURO: I've got one more little twist to this. I'm not a wiz at spreadsheets, okay? And I find myself, when I check -- I'm going to sort of bare my soul a little bit here.

CHAIRMAN GRIFFON: That's why we've got Doug.

DR. MAURO: You know why I do all the AWEs?

CHAIRMAN GRIFFON: Because they're

hand calculations.

DR. MAURO: Because they're hand calculations, and I can understand what they're talking about and I can use my slide rule. I can count on my fingers. I don't do these. You know why I don't do these? These things make my head explode. The spreadsheets and they're nested and nested, and I've got to tell you you've got to be born with certain kind of skills or spend years. We have a few magicians in our group, you know, and Doug is one of them and Kathy is one of them. But I've got to tell you these things are murder. I think you're pretty comfortable with them. You're okay. But believe me, I guarantee you, not everybody is.

So my question is I guess to the group. Is it really fair to ask an auditor, whether it's internal to NIOSH or external, the Board, to have to be a wizard at spreadsheets in order to check to see if these things make sense? Never mind the nuclear

physics that go behind it.

MEMBER MUNN: No, actually it isn't. But these things, you're right, they're like Russian dolls. You take one apart, and there's --

DR. MAURO: I tried to do it once. My daughter can. I can't do it.

MR. FARVER: Actually, this one was pretty straightforward because the first thing that pops up is a description of the external dose calculations, and it's all documented. And then you can see it's very transparent what each number is, so this is a pretty straightforward one. You can look across and say, oh, what's that number for?

CHAIRMAN GRIFFON: I'm going to leave you all to ponder while I take a comfort break. So let's take a ten-minute break, and we'll reconvene on John's thought of the day.

(Whereupon, the above-entitled matter went off the record at 2:31 p.m. and resumed at 2:44 p.m.)

MR. KATZ: We're back after a short break. Scott, are you on?

MR. SIEBERT: I am.

CHAIRMAN GRIFFON: I think we're up to 165.4. And, Scott, Brant has just indicated that you might be the best to summarize this four-page response.

DR. ULSH: I'm going to bag you with both of the next ones, Scott, 165.4 and 5.

MR. SIEBERT: 165.4?

DR. ULSH: Yes, start there.

MR. SIEBERT: I'm actually going to ask if Matt Smith is on the phone and if I could bag it off to him.

MR. SMITH: I'm on the phone, but you talk it through and I'll have to just kind of back you up.

MR. SIEBERT: There. That will work for me. Basically, if you read our initial response, the question was, is using dosimeter correction factors with missed dose

for the neutrons. Basically, our initial response is generically true for most sites. However, for INEL it actually has been determined to be appropriate to use the correction factors for missed dose, as well as for measured dose. So the initial response that we have is not accurate. We don't agree that we shouldn't be using it for missed dose, we should, and that it wasn't in the TBD and that it's what is done.

MR. SMITH: And this is a case where it is NTA film, and the group was kind of discussing those correction factors earlier and that's the case here because of the lack of NTA response to some of those neutron energies. That's why the TBD does explicitly call out a correction in LOD values if you have a claimant in those reactor areas.

CHAIRMAN GRIFFON: So you're saying the workbook was correct in this case, though, right?

MR. SIEBERT: Correct, because it

assigned against missed dose as well as measured dose.

CHAIRMAN GRIFFON: And I'm just stalling for Doug to have a chance to look.

MR. FARVER: Is that clear in the TBD?

MR. SIEBERT: Yes. I'm trying to get to that section. It's Section 6.5.4.

MR. SMITH: And in the original revision, it was 6.5.2. On this current revision, the revision number two that's not on the websites right now, it would be on the top of page 41.

MR. FARVER: And, Scott, you said it's in the Rev 0 also?

MR. SIEBERT: I believe so. I have that written down. I'm looking at it as we speak. Actually, I'm not quite looking at it yet, but I will be.

MS. BEHLING: This is Kathy. I also have another question. It appears, and I'm just looking at our dose reconstruction

review, but it appears we also made mention that this correction factor, dosimeter correction factor was used for the skin dose calculations but not for the bladder calculation. I haven't verified that, but if that's correct that doesn't seem to make sense.

MR. SIEBERT: No, I agree with you. It should be used for both.

MR. FARVER: It does not look like it was used for the missed neutron on the bladder. This is part of that same spreadsheet, complex-wide best estimate external tool. I'm not sure why it wasn't used for bladder.

CHAIRMAN GRIFFON: Right, right.

MR. FARVER: That's why I was asking if it was in the TBD.

CHAIRMAN GRIFFON: The original finding in the matrix said skin, but going back to the report, I'm wondering if I should say neutron missed skin and bladder dose

calculation error.

MR. FARVER: Well, originally, we thought they shouldn't apply the 2.2 factor, and that's why they did that for the skin.

CHAIRMAN GRIFFON: Oh, they did it for --

MR. FARVER: They applied it to the skin doses, the missed skin doses.

CHAIRMAN GRIFFON: Okay.

MR. FARVER: And, typically, a dosimeter correction factor is not applied.

CHAIRMAN GRIFFON: And they didn't put a bladder, and you thought that was correct for the bladder.

MR. FARVER: Correct.

CHAIRMAN GRIFFON: Right. Okay. I see, I see. Scott, I mean, you're following this that you agree that it wasn't, it should have been done for the bladder then if it was --

MR. SIEBERT: I would agree that it makes sense it should be done for both

organs. I don't have the tool in front of me, and I apologize. I'm not an INEL guy. I'm winging on this one. I just don't know on the original one for the bladder.

MR. FARVER: Well, I would think that, one way or the other, either they should both with the correction factor or both be without.

CHAIRMAN GRIFFON: Right.

MR. FARVER: We could figure out a reason we would do one one way and one a different way.

DR. ULSH: So I think we're in agreement that there's inconsistency between the two organs. The question now is should they both have it or both not?

MR. FARVER: Yes.

DR. ULSH: And I think we have a position on that table that they should be applied. I guess it's up to you guys to review that and see if you agree.

MR. FARVER: If it's in the TBD,

which is what I was trying to get at, then that's fine. See, the only other place I know where they apply a correction factor to the missed dose is, I think it's Portsmouth. Most of the time they do not apply a dosimeter correction factor to the missed dose.

MEMBER RICHARDSON: At Y-12?

CHAIRMAN GRIFFON: I'm sorry. Is it a situation of, again, examining that tool or is the tool correct but the application should have been for both organs?

MR. FARVER: Well, if it's documented that you apply that 2.2, then the tool is incorrect, then it did not use that.

MR. SIEBERT: Let me go back. I talked to, real quickly, our tools folks while we were on the break, and the complex-wide best estimate tool would have specifically -- it doesn't have the defaults for these bias and these correction factors. They would have been hand-entered by the dose reconstructor during the assessment. So it doesn't appear

to be a general tool with the best estimate tool itself, just what the dose reconstructor put into this version of the tool that he used for this assessment. I'm not defending it. I'm just saying that's what this appears to be in this case, such as when we were talking about the 1.6 factor before. That's not generically in the tool. From what I was told, it would have been entered by the dose reconstructor.

CHAIRMAN GRIFFON: Okay. That's a big difference from our standpoint, yes.

MR. FARVER: Yes, I couldn't find any input that had that value, so I don't know where they would put it in.

CHAIRMAN GRIFFON: Well, is this another case where we have to examine that tool, though? I mean, we already have that action. If this is another --

MR. FARVER: Yes. I would just go ahead and examine the neutron missed doses and review those calculations while they're

looking at it.

MEMBER RICHARDSON: Can I ask a question about, for an individual who's doing a series of dose reconstructions, where does the tool reside I guess is the question? Like, is it possible for a person to have entered a value, like 1.6, and then propagate that error going forward because they start with the last time they used that spreadsheet and they update values for the next dose reconstruction for a different individual?

MR. SIEBERT: No. The tools are kept in a specific folder, and when a new claim is begun the dose reconstructors go to that folder and use the latest version of the tool and the template that go with the site.

MEMBER RICHARDSON: Okay. So they keep a clean -- somebody maintains a clean tool and they try to avoid propagating errors?

MR. SIEBERT: That is correct.

MEMBER RICHARDSON: Okay.

DR. MAURO: And we call that

configuration control. One of the biggest problems you have in your software is configuration control, and you nailed it. And that's going to be a big part of a QA process.

CHAIRMAN GRIFFON: Okay. What I have is NIOSH and SC&A, I just put it as both action, to review the tool and case to determine if this is a case-specific issue or broader potential issue. Alright. Obviously, it was treated differently for the two organs: skin and bladder. I just want to get to the bottom of where the mistake was made, if it was an incorrect entry of a correction factor or if it was in the tool itself.

MR. FARVER: And, see, the skin doses were calculated using a different spreadsheet, a different tool. So you have one tool that's calculating your bladder doses and another tool that's doing your skin doses, and they did them differently or they used different calculations. So one is correct probably and one isn't.

MEMBER MUNN: Maybe they're both correct --

MR. FARVER: That could be.

MEMBER MUNN: -- for specific instance for which they were being used.

CHAIRMAN GRIFFON: Alright. So let's agree to move on to the next, .5, right? 165.5?

DR. ULSH: Yes. The summary of the finding is uncertainty improperly calculated for medical organ and doses, and the response is fairly short so I'll read it. The response is, a 30-percent uncertainty was correctly applied to the x-ray doses to the bladder and a 20-percent uncertainty was incorrectly applied to the x-ray doses for each of the skin cancers. Because the x-ray doses were assigned as a normal distribution, the error in the uncertainty value did not affect the assigned doses.

MEMBER RICHARDSON: I don't get the last part.

CHAIRMAN GRIFFON: Yes. Say that again.

MR. SIEBERT: The assigned doses are based on the mean of the distribution, so the doses themselves did not change. It would be, the normal distribution around it should have had an error of 30 percent versus 20 percent for the skin cancer. So the dose itself is identical. It's the distribution around it that was incorrect.

MEMBER RICHARDSON: But do you or don't you use the bounds for the distribution of the estimated doses when you calculate the Probability of Causation, that is, to propagate the uncertainty in the doses and to derive the risk estimate?

MR. SIEBERT: Correct. It should have been 30 percent versus 20 percent, and it would make a small difference, could make a small difference in the PoC.

DR. ULSH: That's ultimately where we want to end up with the right calculation

in the Probability of Causation.

MR. SIEBERT: Right. The doses themselves, which is frequently what we're looking at, the doses do not change but the distribution around them should have been appropriately applied. And when we applied, we did apply that correctly and re-ran IREP, so we knew there was no change in compensability.

CHAIRMAN GRIFFON: And I actually think that was the action from last time. If you look ahead, I think we had agreement, but then we said NIOSH will review to assure that the dose difference doesn't affect the outcome. So I think that's what you were looking at this time, yes.

MR. SIEBERT: Correct.

CHAIRMAN GRIFFON: And are you in agreement with that?

MR. FARVER: Yes. That's just one of those things that should have been caught.

CHAIRMAN GRIFFON: Right.

MEMBER RICHARDSON: Is that something that's not in the worksheet, workbook? Is that something that has to be individually entered for --

MEMBER MUNN: Distribution?

MEMBER RICHARDSON: Yes.

MR. SIEBERT: To tell you the truth, back in 2006, I can't answer that off the top of my head.

MEMBER RICHARDSON: And today?

MR. SIEBERT: Today it's built into the worksheets, the workbooks. So that error would not occur in a site-specific workbook.

CHAIRMAN GRIFFON: Okay. So that item is closed. And moving on.

DR. ULSH: Okay. I think the next one that I have is 166.5. The summary of the finding is failure to account for all occupational medical dose, and our response is that, this claim was reworked based on additional skin cancer diagnosed in 2006.

This latest version of the assessment included all x-rays in the record.

MR. SIEBERT: Yes, a little background on this one. This is one where additional x-ray information came in approximately the time we were submitting the claim. So additional information came in about the time that it was being completed, and there's a question -- we probably should have caught that before it got submitted to DOL but we've gone back and looked at the rework that was done after that and it did include all of the additional x-rays that were received in the record.

CHAIRMAN GRIFFON: No further action, I assume.

DR. MAURO: Just a question on this process you're in where, you know, you're getting better all the time where there's a PER. I know the PER is very formal, but in a case like this what we really did is in the process of review we found an issue was

raised. While you were addressing that issue, simultaneously you picked up something related to additional x rays, and that's fixed and it's re-run. There is a history here now that's unfolding. Is there a record of that history, sort of the way we try to track everything on the procedures, every meeting, everything, you know? Is that something that was documented, how a particular dose evolves in, let's say, the person's administrative record so that where it started and where it ended is all there for posterity, or is that not the case?

MR. HINNEFELD: Well, each of the dose reconstructions would be there. As of some date, I don't know, a year or two ago, each subsequent dose reconstruction explained what's different between it and the previous one. So as far as the entire history of the program, there would be some cases where it would maybe a little hard to figure out, going from one to another. But for now and for a

while now, the most recent dose reconstruction should explain what has changed from when previous one was current.

DR. MAURO: Good.

CHAIRMAN GRIFFON: Okay. 166.6; do we have anything?

DR. ULSH: Yes. The summary of the finding is NIOSH's CADW data inconsistent with IREP input entries. And our response on this one is, this claim's original IREP sheet was updated to reflect the missed plutonium-238 triangular dose for exposure lines 210 through 230. Overall, PoC changed from 48.38 percent to 47.22 percent.

If I look back in the resolution column, the action that we were supposed to take was NIOSH will check to determine if this affects the outcome of the claim. It looks like we did do that.

MEMBER MUNN: That's what you were asked to do, and you did it.

MR. SIEBERT: The purpose of the

response is the fact that we agreed if that it's a QA issue. We corrected the issue, and it had no impact on compensability.

CHAIRMAN GRIFFON: And I'm kind of catching up, but is this one any concern of a broader application, or is this a specific issue for this claim? It seems like a specific one.

MEMBER MUNN: I think it's specifically this claim.

MR. SIEBERT: This is a specific issue for this claim. What it is, it's a cut-and-paste issue that was not picked up in peer review. That's what it looks like the actual issue is.

CHAIRMAN GRIFFON: So I think there's probably no further action. We identified it as a QA. Alright.

MR. FARVER: Well, I'm trying to review this. Is this where, was it just typographical or did you forget to include the intake in the dose?

MR. SIEBERT: What it appears is, when the doses were cut from the CADW tool and put into the IREP sheet, the plutonium-238 doses were either overwritten or not included. So as I said, it was a cut-and-paste issue.

MR. FARVER: Okay. So at intake, doses were omitted and you added them in.

MR. SIEBERT: That's correct.

MR. FARVER: Correct. And the PoC dropped a couple of percent.

MEMBER MUNN: Yes, a fraction.

MR. SIEBERT: Correct.

MR. FARVER: Okay.

MEMBER RICHARDSON: How did that happen?

MR. SIEBERT: Because it's based on distributions.

MEMBER RICHARDSON: What's based on distributions?

MR. SIEBERT: The PoC.

MEMBER RICHARDSON: I'm not following.

MR. SIEBERT: Because the Probability of Causation calculation is a Monte Carlo calculation, small changes in dose, whether they add small amounts of dose or subtract small amounts of dose, since things are driven by distributions, as well, at the 99th percentile, adding a small dose can actually reduce your PoC just like reducing by a small dose can also increase your PoC.

MEMBER RICHARDSON: Only if you're not running your Monte Carlo simulations long enough to get the sampling variability out of the Monte Carlo process.

MR. SIEBERT: Well, I would agree entirely.

MEMBER RICHARDSON: Well, then you need, I mean, that's a fundamental, fundamental problem. If the same input values aren't resulting in posterior distributions that are stable, then there's a problem with the Monte Carlo tool.

MR. SIEBERT: Well, you're not thinking about the fact that when we hit into the 45 to 52-percent range, we also do, well, NIOSH runs 10,000 iterations. It runs the IREP calculation 30 times to come up with the PoC. That is not done outside of the 45 to 52-percent range.

MEMBER RICHARDSON: I mean, you're talking about computational times that are, I'm imagining, on the order of seconds to minutes to go from 10,000 iterations to 100,000 iterations. I mean, it shouldn't be that, if we ask a question about why is there an extra dose added and the Probability of Causation result changes, it's because of simulation error in the statistical tool. I mean, in these days where you're not paying for processor time, that should be something which you can run out several decimal places I would think, I mean unless I'm really not picturing what's going on. But, I mean, that doesn't seem like the place where we should be

having this kind of variation going on.

MR. HINNEFELD: Well, I understand your point. I think a better place to have the conversation would be in the Science Issues Work Group because I don't think the people engaged in this Work Group are going to be equipped to deal with it very well. But I think in the Science Issues Work Group, you'll have a different cadre of staff from our side.

CHAIRMAN GRIFFON: But from an operational standpoint, though, I mean, I guess I would ask the same thing David is keying in on. How long do these runs take, the very complicated runs even?

MR. HINNEFELD: Well, the 30 runs of 10,000 run overnight. We don't sit and wait to run 30 iterations, 30 times of 10,000 iterations. We don't ask anyone to sit and do that. We run those --

CHAIRMAN GRIFFON: Thirty IMBA runs.

MR. HINNEFELD: Thirty IMBA runs.

IREP. Thirty IREP runs of 10,000 iterations are run overnight.

DR. MAURO: There's another reason why that could happen: the distribution you put in. In other words, you just added another number, some positive number that has a distribution in it, right? Now, I'm just thinking if it turns out that, let's say it's a triangular distribution and you have a lot of weight toward the left, the low-end dose, in other words so that, when it samples, is it possible that -- no, it still wouldn't --

MR. HINNEFELD: If you're adding a completely new dose --

DR. MAURO: If you're adding a new dose it can't. It can't.

MR. HINNEFELD: It does not make --

DR. MAURO: Alright. Yes, I'm just trying to find --

MR. HINNEFELD: -- my head, but that number should go down.

DR. MAURO: It can't go down.

MR. HINNEFELD: It's pretty, I mean we've observed it from the start of the program. Small changes in dose have an unpredictable outcome in the PoC number that comes out of IREP. And, generally, you run the same number of iterations in random sequence, and so that's a bit puzzling to me. I'm not sure about same way in the seed. I think so. But to be honest, I don't think we're going to solve it here.

MEMBER MUNN: Less than one-percent difference.

MR. HINNEFELD: Well, when we chose the 45 to 52, that was chosen with the idea that if you get within 45, it might make a difference. Then you really want to make sure you don't have modeling error associated with those number of iterations, including the Monte Carlo. And so the 45 to 52 was selected for that purpose, feeling that it doesn't seem likely, based on our investigation, that you

would have that large of a change based on just the way the Monte Carlo ran. And so it was chosen that way. I'm going to get over my head really quick on this, and we would probably want to have our statisticians --

CHAIRMAN GRIFFON: Yes. I guess the surprise to me was you had to run some of these overnight for the full iteration.

MR. HINNEFELD: We run 30 IREPs at 10,000 iterations, and we run those overnight.

CHAIRMAN GRIFFON: It's probably because of the complicated input files that you have, yes.

MR. HINNEFELD: It may be that. It may be an artifact of how IREP does the arithmetic. You know, this was built for a particular, you know, particular instance in a particular way. And just because things are a lot faster now or newer now, it's not clear to me that the IREP program has been modified to take advantage of, perhaps, better processing speeds today than over ten years ago. So I

don't know if that's true or not. But to me, it is, you know, just the basic run is 2,000 iterations of every line on an IREP page. So one iteration is every line on the IREP page and sampling from every distribution goes into that line, which would be the distribution on the IREP page as well as sampling from the distribution of the risk model, which is hidden from all of us in IREP. And so there's a fair amount of sampling, I think, in the entirety of it. So the time for, you know, thirty 10,000 is significant enough that we don't do it at a desk; we run it overnight.

CHAIRMAN GRIFFON: Something we can examine but not here probably.

MR. HINNEFELD: I think it certainly could warrant some examination. I would love for someone to explain it to me.

CHAIRMAN GRIFFON: Okay. I mean, I think that item is closed out for the purposes of our work here.

MS. BEHLING: Mark, can I ask a

question here?

CHAIRMAN GRIFFON: Sure.

MS. BEHLING: This question not only applies to this particular case. In fact, I was thinking about it during our discussions of a previous case, 165. When you asked the question, or when Brant was trying to respond to the question of the impact of finding 166.6 and, as we've just been discussing, it actually may be reduced to PoC, when you look at this particular case, shouldn't we be also considering the impact of other findings, not just 166.6 but if we also include the fact that there was some additional x-ray doses from, you know, finding 166.5. It seems to me that we're looking at one specific finding, changing the values based on the change for that finding, but did we also incorporate any changes in this particular case that has to do with other findings and then reassess the impact?

CHAIRMAN GRIFFON: Yes. Was this

the way we just said for PoC? I forgot.

MS. BEHLING: Yes. Well, this PoC is 46 or 48 or something like that.

CHAIRMAN GRIFFON: Yes, yes, yes. Yes, I think in the past, Kathy, you're right. If we had ones that were close, NIOSH sort of said, well, we have to examine all, you know, you have five findings that may have added a little dose, so we have to sort of redo everything.

MS. BEHLING: Right. Also 165, I hope, if there are still open items there that everything in combination be looked at when we're re-assessing because it's not just one finding, it may be a combination of findings. That will increase the dose and --

CHAIRMAN GRIFFON: Right, right, right. We've done that in the past where we've asked, you know, and I know for a couple of Savannah River cases, Stu, I think you probably recall this, that NIOSH re-ran basically the entire cases because they were

very close to, you know --

MR. HINNEFELD: Well, yes. I mean, we should do that on each of these if there's several findings rather than just, you know, sample one finding.

CHAIRMAN GRIFFON: Right.

DR. ULSH: For some of these that we've talked about, we said that this case was re-run, but I don't remember if that was clear or not. I mean, we wouldn't have just re-run it for one issue. We would have re-run it for all the updated issues --

CHAIRMAN GRIFFON: Yes, but I think the way we worded it in the matrix, it says NIOSH will check to see if this affected the case, and Kathy is saying what about all the, you know, all five of these. So it's a good point that we don't want to lose sight of, I guess.

MR. SIEBERT: We were talking about 165. That claim was re-worked. It stayed non-compensable. We can look at the

factors as to whether everything that was mentioned in these findings were addressed in that re-work or not.

CHAIRMAN GRIFFON: Okay. Yes, I think that's --

MS. BEHLING: In 166, the PoC is 48 and change, so I think we have to look at all findings there, too.

MR. KATZ: Wouldn't that be standard procedure after you go through this when you validate that certain findings are correct in your view? Don't you, wouldn't you automatically, if it's anywhere out of potential, you would re-run it, right?

MR. HINNEFELD: I think so, but, sitting here today, I don't know exactly what we did. So we'll make sure that's what happened.

MR. SIEBERT: I do want to point out, going back to 165, I'm sorry. This is Scott. When we did re-run that to determine if the PoC was affected, we did include fixing

the 1958 factor for the skin cancers, the x-ray is corrected, and the 1.6 bias factor pulled out. All those things were addressed in the numbers that I gave you in the response.

CHAIRMAN GRIFFON: That's for 165?

MR. SIEBERT: 165, yes. It was not just response number six. It was all those responses are rolled into, they were corrected for that final PoC.

MEMBER RICHARDSON: Scott, do you know if something similar was done for 166?

MR. SIEBERT: Give me a second. Actually, give me more than a second. Yes. As I said, for 166, we had to do a re-work based on the Super S PER and additional cancers. And the re-worked claim did stay non-compensable. So I'd have to go back and look to see if any, like the CADW cut-and-paste issue was corrected, which I assumed it would be. But we would have to go back and look at that.

CHAIRMAN GRIFFON: Okay. So for 166, you can verify. Yes, we'll leave that as an action to verify. But for 165, it seems like it was done. What was the resulting PoC for 165? Does anybody have that number? After you did your re-runs and everything, what was the PoC for 165?

MR. SIEBERT: I may not have that because it may have been at a 45 to 52-percent range, and that's outside what I can see.

CHAIRMAN GRIFFON: Okay.

MR. SIEBERT: I'm trying not to say actual claim numbers out loud as I type. Okay. What we would have done is 46.55, then it would go over to DCAS for the 30 run. I don't think I have that number.

DR. ULSH: Well, you conclude that it's between 45 and 52.

MR. SIEBERT: You conclude it between 45 and 50. That's non-compensable. I just don't have the results of the 30 IREP runs at my fingertips. Brant, you may have to

find that one out for us.

CHAIRMAN GRIFFON: Alright. So then we'll track that down, and then 166 you're going to check to make sure that all findings were considered in the re-analysis. Alright. And then we're moving on.

DR. ULSH: The next one I have is 167.3. The summary of the findings is that failed to consider unmonitored neutron dose. This is a pretty long response, so maybe I'll have Scott summarize.

MR. SIEBERT: Sorry. I'm writing a note to the last one. Just a second.

MEMBER RICHARDSON: Could I ask when you, this would be related to that note, when you get the answer about what the value is, could you tell us the 30 values, the results for the 30 runs, each of the 30 runs?

MR. SIEBERT: Okay. 167.3. Let’s see here. This is going to be near and dear to all our hearts. This has to do with assigning neutrons when there's not neutron

dosimetry available for an individual based on worker location and so and so forth in OCAS TIB-7. This is that issue yet again. In the latest version from SC&A and the responses and the resolution from July, SC&A believes that TIB-7 was published two years after the dose reconstruction was completed, but the relevant sections are given. And then they believe that all those relevant portions actually fit and neutrons should be assessed.

When we went back to look at it, the first part of the paragraph is basically just describing, yes, it's a subjective, but you go back to OCAS TIB-7. OCAS TIB-7, actually, the original version of it was in place when we assessed this claim, so we used the original version of OCAS TIB-7, which is not horrendously different from what SC&A was looking at the time, especially for this portion of it. So that's kind of a, it doesn't really matter a whole heck of a lot.

OCAS TIB-7 does a claimant-

favorable approach with the information that's in Section 2.2.1, and that's when you meet or do not meet the things that you have to consider for whether there's neutron exposure. None of the conditions in that section are met for this claim where there's no neutron monitoring from '71 later, there's no documentation of the use of 17 keV calibration curve for shallow dose, and there's no neutron monitoring in any of the dosimetry responsible for this individual. All three of those, there is no indication that there's exposure to neutrons for OCAS TIB-7. Therefore, it all relies on the employee's work and location and job.

The individual apparently worked at P reactor for some or all of their time. Reactors are known for facilities where neutrons could be a potential exposure. But once again, going to another section of OCAS TIB-7, Section 2.2.2., it discusses the specifics of the reactor facilities and

occupations being maintenance, clerics or other individuals responsible for radiation monitoring in the workplace, and this individual's occupation does not fall. So per OCAS TIB-7, we don't believe the neutron exposure was likely, and it should not be assigned.

CHAIRMAN GRIFFON: What was the occupation?

MR. SIEBERT: I knew you were going to ask that, and I'm in the midst of pulling that up as we speak.

MS. BEHLING: It was an engineer.

MR. FARVER: I'll have to go back and review the response.

MR. SIEBERT: This is one where, SC&A is going to review that response?

CHAIRMAN GRIFFON: Yes.

MR. FARVER: Yes.

MR. SIEBERT: Okay.

CHAIRMAN GRIFFON: Was this something, I think we're ready to move on, but

was this something that was brought up by the individual in the CATI, or did you just, oh, yes, according to the CATI.

MEMBER MUNN: It says they noted in the CATI related to technical --

CHAIRMAN GRIFFON: Right. So then just put down location and --

MR. SIEBERT: Right. We pulled more information from the CATI. Rather than just stating that the individual was an engineer, they did state specific things in the CATI, which, once again, did not seem to support any neutron exposure. Technical engineering of uranium slugs, electroplating.

CHAIRMAN GRIFFON: Okay. It's an SC&A action, so we'll leave it there. And we can move ahead.

DR. ULSH: The next item that I think we have action on is 168.4. The issue on this one, the summary of the findings says, improper method used to determine medical dose. If you look at the latest resolution on

this, let's see --

CHAIRMAN GRIFFON: You were going to correct this section of the TBD, right?

DR. ULSH: Yes. NIOSH agrees and indicates that Section 3.5 of the medical section of the TBD should be corrected. And then our response for this meeting is, until the TBD is updated, the following wording has been added to the Mound dose reconstruction guidance document under the medical x-ray section. The medical x-ray TBD for Mound presently states to use positive error only when assigning error to medical x- rays after a discussion of reasonable-error TBDs. In order to be in line with medical x-ray assignment throughout the project, and parenthesis, and ORAU Procedure 61, DRs will assign medical x-rays as a normal distribution with a 30-percent standard deviation, not by multiplying by the factor of 1.3.

MR. SIEBERT: This is Mound where the TBD was -- it specifically said that you

could use the distribution, the normal distribution with 30 percent or going on the 1.3 and just using the high bias on that. And then it seemed to recommend only using the 1.3 factor, whereas we're updating it to reflect what we do across the project, which is all x rays are normal with that distribution.

CHAIRMAN GRIFFON: I think we're okay with that.

DR. ULSH: Well, that being the case, I believe the next one is 168.5. The summary of the finding there is ambient dose improperly converted to organ dose. And we committed to, under the resolution, NIOSH will check back to determine how ambient doses were calculated.

So our latest response is that, we agree that the spreadsheet documenting the application of DCFs, dose conversion factors, to the ambient dose was not included in the initial assessment and should have been. This assessment was concluded before this

Subcommittee agreed upon clarifying that all supporting tools/sheets/documents should be included. Oh, my gosh, this goes on for a long time. Let me see if -- Scott, do you want to summarize?

MR. SIEBERT: Oh, but you were doing such a fine job.

MEMBER MUNN: He was doing so nicely.

MR. SIEBERT: We start off basically agreeing that the spreadsheet that demonstrated how ambient doses were calculated should have been included. We'll all agree with that. That being said, it is correct that the organ dose DCF isotropic were used and that ambient isotropic DCFs should have been used. There is a discussion on the proper DCFs to be used for ambient in OCAS IG-1 and Procedure 60. In the original assessment, actually maximum ambient dose values were used with the incorrect DCF values, so we agree that the isotropic DCFs

should have been used to be most appropriate. But the fact that the overestimating maximum ambient doses were used, when you correct that and use the best estimate ambient doses and the appropriate DCFs -- and then we also, just like we talked about for the previous cases, we also included the errors that we agreed on, 158.1 and .2, when we included all those things together the PoC was, combined PoC of 39.61 percent. So there's no change in overall compensability.

MR. FARVER: So was there an error in the workbook that it was pulling the wrong value from a table or was --

MR. SIEBERT: The issue is there is no workbook at that time for assessing ambient dose at that point. So it was done -- apparently it was done separately in a spreadsheet by the dose reconstructor and that should have been included in the submission and apparently was not. And we back-calculated, both you guys and we back-

calculated. It appears the inappropriate DCFs were used. And when you make that correction, along with the other assumptions, compensability doesn't change.

MR. FARVER: So you never found a worksheet. You just did your back-calculating like we did?

MR. SIEBERT: Correct.

CHAIRMAN GRIFFON: And since then, these values are all in the workbook, right? Since this time when this case was done, these values are now all in your workbook or your tool; is that correct, Scott?

MR. SIEBERT: I can't say that for sure, but I would assume so. We can look that up. This was, once again, done back in 2006.

CHAIRMAN GRIFFON: So basically they're agreeing that it was -- yes.

MR. FARVER: It was an error, just don't know why it was made or how it was made.

MR. SIEBERT: I hope to have an answer to that in the next, you know, few

minutes, so we may want to go on and then I can yell back on that.

CHAIRMAN GRIFFON: Alright, alright. Go ahead, Brant.

DR. ULSH: Okay. Hold on. I want to make sure I get this. I'll erase it if he gets it. Otherwise, I don't want it to slip through the cracks. The next item that I think we have action on is 168.7. This is another long response, so I'll summarize the issue. NIOSH did not properly address potential radiological exposures in T Building, and we can investigate this further, and then we have a rather lengthy response. Scott, do you want to summarize or make me read the whole thing?

MR. SIEBERT: Sorry. The server kicked me off, and I'm trying to get back on here real quick. If somebody could send me Stu's thumb for that thumb print, that would probably help me out.

CHAIRMAN GRIFFON: It should only

take about 15 minutes with the level of password protections.

MEMBER MUNN: Or would you rather we sent you his thumb?

DR. ULSH: Well, I'll start reading the response anyway. Okay. So our response is, the employee was not exposed to plutonium above environmental levels. He did not work with plutonium. The determination bioassay was less than half the MDA, and you can tell where that is in the DOE file, and the error of the result was equal to the result. A determination bioassay sample was standard procedure at the time. The site dose reconstruction project did not determine likely exposure to plutonium. We used default assumptions to assign dose based on the sample equal to the DL. This is clearly stated in the letter to the employee dated 9/11/2002. This states, due to the scope of the project, exposure investigations were not conducted as part of these re-assessments, and we give a

citation for that. Additionally, the employee had a lung count conducted on July 1st, 1992, which is clearly marked as a practice exam, and we give a citation for that. It's unlikely that any count conducted for actual monitoring purposes would be marked as a practice exam. And finally, given the employee's job duties and the various information in the record, there is no reason to suspect an occupational plutonium intake.

MR. SIEBERT: This is Scott. I just want to point out this specific response, I just want to make sure everybody knows this is a Mound case and the letter that's written that's talking about this was part of a project that I worked on as a dose reconstruction calculation project and I was part of that project. So I just want that on the record when we discuss this.

DR. ULSH: So it's probably better that I read the response anyway.

CHAIRMAN GRIFFON: Exactly.

MR. SIEBERT: I'm glad you did, actually, once I realized which one it is.

CHAIRMAN GRIFFON: Right, right.

MEMBER MUNN: Well, his only bioassay had been a termination plutonium bioassay.

CHAIRMAN GRIFFON: What were these practice exams? You read about practice exams. What were they?

DR. ULSH: Yes. Well, what we say in the response is that the employee had a lung count conducted July 1st, 1992, which is clearly marked as a practice exam. We give a citation in there in his DOE file for that.

CHAIRMAN GRIFFON: What is a practice exam at Mound? Were they practicing their technique, or what were they --

DR. ULSH: I really don't know off the top of my head.

MEMBER GIBSON: For the record, I worked there, too, and I was involved with a lot of people, but I've never heard that term

at all. Ever.

CHAIRMAN GRIFFON: They never practiced on you, right?

MEMBER GIBSON: No.

DR. ULSH: I mean, if you want follow-up action I can --

CHAIRMAN GRIFFON: No, I'm just curious what that means.

MR. HINNEFELD: Well, I don't have any idea what it was.

MEMBER GIBSON: What year was that?

DR. ULSH: Ninety-two.

MR. FARVER: Someone asked what occupation it was. Laboratory technicians, foreman, and then manager.

CHAIRMAN GRIFFON: Lab tech, foreman and manager?

MEMBER MUNN: Who would have probably been more than happy to be a part of a practice exam.

CHAIRMAN GRIFFON: Right. So they

could have been involved in something called, whatever that is.

DR. ULSH: In our response, we give where you can find that in the DOE response.

CHAIRMAN GRIFFON: Okay.

MR. FARVER: I'll review it.

CHAIRMAN GRIFFON: Right. I think we'll have to just --

MEMBER MUNN: Especially if you had new equipment and were setting it up. Makes sense to me.

MEMBER RICHARDSON: It raises a question about the validity of the exam result, would be one counterpoint to it. If, in fact, it's a new piece of equipment and they're trying to figure out how to use it, do you trust something flagged as a practice exam as opposed to -- I don't know. Just putting that out there. Given that we don't know what it is and we're speculating about what it means.

MR. FARVER: My experience is those type of like lung counts or chest counts or anything, whole body counts never made it to employee's file. It would go to your test records, equipment records, calibration records, that type of thing.

CHAIRMAN GRIFFON: That's why I'm surprised it's shown up in the record.

DR. ULSH: Well, to add to the speculation, around 1992 I know that at Mound they switched. Prior to that or around there, they recorded the results on a tape, like a paper punch tape. And I know that around '92, new persons in a whole-body counter and they changed that where it was being electronically reported. I don't know if that is related to this being a practice exam or not. It could just be coincidence that the time frame is the same.

CHAIRMAN GRIFFON: Okay. Well, you can pull the source document. Okay.

MEMBER MUNN: And you have a

termination bioassay.

MEMBER RICHARDSON: So the issue that was in here was that the person had named coworkers and supervisors that were supporting their contention?

CHAIRMAN GRIFFON: That was part of it, yes. Or not supporting it. I think they just referenced people that would know of their work, right? That's usually what's in your questionnaire. Do you have anyone that knows of your work or exposures --

MEMBER MUNN: It's to verify the statements of building conditions.

CHAIRMAN GRIFFON: Yes, of building conditions. That's right, that's right.

DR. ULSH: Well, and I think maybe the issue with this practice exam, it's marked a practice exam is perhaps that's being interpreted as evidence of plutonium exposure but, in fact, we're saying that you shouldn't interpret it that way.

MR. SIEBERT: This is Scott. Additionally, the termination, the yard sample is also a termination sample. There is no indication of any other sampling for this individual for plutonium during their employment.

MEMBER MUNN: One would think if they were a laboratory person or a manager, they would be aware of potential exposure.

MR. FARVER: I just glanced at his CATI, and there was nothing that really stood out. So like I said, I'll review in detail.

CHAIRMAN GRIFFON: Yes, okay. Yes, we can stop speculating. So 169.1, are we on that one?

DR. ULSH: I think we are.

CHAIRMAN GRIFFON: Oh, this is the same thing, to redo Section 3.5 of the medical section. Is this the same action?

DR. ULSH: Medical dose not properly documented is the summary of the finding.

CHAIRMAN GRIFFON: And the action was to update.

DR. ULSH: Yes.

CHAIRMAN GRIFFON: So it's the same as before.

DR. ULSH: Yes.

CHAIRMAN GRIFFON: Let me just find what one that was before. Does anyone know offhand?

MEMBER MUNN: What was your question?

CHAIRMAN GRIFFON: This is a repeat, and I'm trying to find out where it was before.

MS. BEHLING: 168.4?

CHAIRMAN GRIFFON: 168.4? Yes, that's it. That's it. So I'm just going to cut and -- that will close that out, right? It's the same issue; is that correct?

DR. ULSH: Well, we closed 168.4.

CHAIRMAN GRIFFON: But I mean I'm going to close this --

DR. ULSH: 169.1?

CHAIRMAN GRIFFON: Exactly. Unless there's something else to that finding. Doug, Kathy, is that okay?

MR. FARVER: I think it's okay, as long as, you know, they're consistent with their PROC 61 and under guidance. I mean, that was what came out of this is that there were two different sets of guidance.

CHAIRMAN GRIFFON: So what about the PROC 61 part of that response?

MR. FARVER: Yes, that's the same as they had for the previous.

CHAIRMAN GRIFFON: Were you requesting update to that, as well, or no?

MR. FARVER: I believe it was just modifying the Mound TBD.

CHAIRMAN GRIFFON: Okay. To be consistent with PROC 61?

MR. FARVER: Yes.

CHAIRMAN GRIFFON: Okay. So I think we have that, right?

MR. FARVER: Yes.

CHAIRMAN GRIFFON: Alright. Moving on.

DR. ULSH: Yes. I think the next one is 171.2.

CHAIRMAN GRIFFON: 170.2?

DR. ULSH: 171.2.

CHAIRMAN GRIFFON: Oh, I see. There's some yellow on --

MR. SIEBERT: There's a 170.2.

CHAIRMAN GRIFFON: Yes. I don't know if you have a response for that, but there is.

DR. ULSH: Well, in this document I'm looking at here, I don't see a response.

MR. SIEBERT: It's not in the matrix. It's a side one.

DR. ULSH: Thank you. Oh, here it is. Okay. Alright. This looks like another fairly lengthy response. Let me read the finding for you. The original finding is failed to consider and assign unmonitored and

missed neutron dose for 1947 through '51 and 1962 through '88. We've had a couple of iterations here. Scott, do you want to go through our latest response?

MR. SIEBERT: Sure. This is going to be something they're going to want to spend some time reviewing. But this comes down to, once again, the assignment of neutrons or not based on likelihood of exposure. Basically, these six paragraphs say we don't think they should be exposed to neutrons. There's early employment period from '47 through '51, they worked in a lab setting. There's incident reports. And in 1950, they have a personnel exposure questionnaire that says the employee didn't work regularly with radioactive material, doesn't appear that they were working in any neutron areas.

Sixty-two to '88, the individual was not monitored for neutron exposure. The external TBD, and this is Oak Ridge National Lab, states that neutron monitoring was

available for those workers who had potential for neutron exposures. For those workers without monitoring, neutron exposures would be expected to be incidental or zero, so not assigned. The records indicate visited Y-12 during a couple of years. Neither of these bore out the fact of any neutron exposure to be assessed during that time frame.

What that leaves is the time frame from '52 through '61. And then as I said, the rest of the response really is a defense as to why we don't believe there were neutron exposures during that time frame, and I'm guessing that's just, rather than read through it, something that SC&A is going to want to spend some time considering.

CHAIRMAN GRIFFON: Can you answer, the one part of the previous action was that NIOSH, not only for this case, but include a response of where the guidance for how to make these judgments is located or is documented? Do we have that? You made that one statement

from the TBD. Is there, I think that was part of what we were asking. Is there any more explanation of which building --

MR. SIEBERT: Neutron dose is provided in ORAU TIB-23 for the assignment of incidental neutron dose, and that's -- the fourth paragraph discusses that and gives as quote from Section 6 of that OTIB considering discussing missed neutron doses.

CHAIRMAN GRIFFON: And this OTIB was available at the time of the dose reconstruction, I assume.

MR. SIEBERT: I believe so.

CHAIRMAN GRIFFON: Okay.

MEMBER MUNN: What OTIB was it?

CHAIRMAN GRIFFON: Twenty-three.

MR. SIEBERT: Correct.

CHAIRMAN GRIFFON: Okay. I don't think we need to spend much time on it since I think, clearly, Doug will have to look into this.

DR. ULSH: Well, I think the next

one I have is 171.2, unless I've missed another one. These look pretty lengthy, as well.

CHAIRMAN GRIFFON: These are new responses by you, right? 171.2?

DR. ULSH: Yes, yes. 171.2, the issue summary is NIOSH failed to assign and unmonitored and missed neutron dose for 1965 through '89. Scott, can you give us a quick summary?

MR. SIEBERT: Give me a second here. Well, the first thing, I want to note that the finding indicates that neutron assignment ended in '64 when they actually ended it in '74, just to point that out. And the claim was assessed and written as an overestimate, not a best estimate. I want to get those things out there. The DR judgment, determine the application of unmonitored and missed dose was based on overestimating assumptions. More realistic assumptions could have been, once again, based on the OTIB.

This is very much like the previous one, based on the X-10 external dosimetry Technical Basis Document and OTIB-23 and the claimant interview.

Based on the job descriptions and the fact he was not monitored for neutrons at any time during his employment, it's unlikely we would probably assign neutrons in the best estimate assumption. However, once again, as I said, this was an overestimate. Based on -- let's see what this is. There were no positive photon doses at all past '75, so the dose reconstructor determined it was entirely incidental neutron, if there were any at all, and assigned no neutron whatsoever from that point forward. And rather than get into the specifics prior to '75, he went with the assumption of, well, let's go ahead and give him neutrons because we were overestimating at that point.

So, once again, this is a mixture. Pre-75, it's just very claimant-favorable

overestimating assumptions because we couldn't really, didn't specifically need to get into specifics beyond that. But from '75 on, they determined not to because of job locations and the fact that there just was no photon positive dosimetry at all. So that's where we are.

MEMBER MUNN: So were those responses sent separately from all the others?

DR. ULSH: I would direct you to the DR Subcommittee folder on the O: drive because that's where I placed everything.

MEMBER MUNN: Okay, okay.

DR. ULSH: But they're spread out, kind of depending on the length.

MEMBER MUNN: Okay.

CHAIRMAN GRIFFON: I think pretty clearly that you're going to have to look at this one, right?

MR. FARVER: Which one was that?

CHAIRMAN GRIFFON: 171.2.

MEMBER MUNN: 171.2 and 171.3.

MR. FARVER: Did you say the responses are on the O: drive, right?

DR. ULSH: Yes.

MR. FARVER: Okay. I'll find them.

DR. ULSH: And we've actually got responses for 171.2 through .6 in the same document.

CHAIRMAN GRIFFON: Yes, SC&A will review.

DR. ULSH: Can we move on?

CHAIRMAN GRIFFON: Yes.

DR. ULSH: Alright. 171.3 is the next one. Occupational medical x-ray dose not assigned for the pancreas for 1984 through '89. This is a fairly short one. Our response here is that, the 1984 through '89 medical x-ray dose for the pancreas were inadvertently left out of the IREP input. This was probably due to a copying and pasting the internal dose into the IREP sheet, not realizing that the '84 to '89 x-ray doses were

overwritten. The X-10 workbook used to calculate the doses had the 1984 to '89 doses included, and this should have been identified during the peer review. A new IREP sheet was created with the x-ray doses applied through '89, and the PoC for the pancreas increased from 7.84 percent to 8.13 percent. The combined PoC including all three cancers increased from 46.69 percent to 46.86 percent, so the claim determination would not have changed. The latest revision to the dose reconstruction in 2010 rectified this problem, and the annual x-ray doses to pancreas were applied.

CHAIRMAN GRIFFON: And I have a Kathy Behling question, which is when you recalculate it, since this is pretty close, did you account for the rest of these findings in 171?

DR. ULSH: Do you know the details of the latest revision in 2010, Scott?

MR. SIEBERT: I know it corrected

the pancreas x-ray issue. For time savings, I believe the neutrons were assessed identically to the previous version, so they would have been overestimated.

CHAIRMAN GRIFFON: Or at least half of them are overestimated or something like that, right? Prior to '75, yes.

MR. SIEBERT: I believe it was done pretty much the same way. And then for the rest of the findings, I can't speak to that off the top of my head.

CHAIRMAN GRIFFON: Just something for us to keep in mind as we go through this whole case, I think.

MEMBER RICHARDSON: Can I -- as an observation, like what we're doing is, I guess, this is right now a one percent sample of the cases, and today we've heard two or three examples of cut and paste errors as one source of the generation of errors that go through to kind of processing the claims. I'm not quite sure, this is the first time I've

been to this Work Group, but if we would multiply this by -- we've only reviewed 20 or 30 cases, it suggests that cut and paste is one mechanism which should be an easily resolvable mechanism for dealing with data entry problems. And I wonder if there's not kind of an engineering fix to that source of error. I mean, I know when I work with data I hate doing cut and pasting because I always make that mistake, and I wonder if there's not a way of exporting the spreadsheet and importing it into IREP.

MR. SIEBERT: This is Scott. Again, I want to point out that these claims that we're discussing were done anywhere between 2003 and 2006. And you are correct. We have made many automation and exporting changes to the tools to avoid these types of situations in the last five years.

CHAIRMAN GRIFFON: I think that would be good for us to understand a little better. Maybe, you know --

MEMBER RICHARDSON: So does that not occur anymore?

DR. ULSH: You know, I wonder if this should be a topic that comes up at QA.

CHAIRMAN GRIFFON: That's what I was just going to say because I think, you know, along with documenting the trends and findings, we'd like to document changes that have occurred over the program history.

DR. MAURO: That's a good question. The current QA report, does it look at these kinds of questions? That is, I guess --

MEMBER RICHARDSON: The ten-year report, you mean?

DR. MAURO: No, the work that you've been working on.

CHAIRMAN GRIFFON: Yes, the 100 cases.

DR. MAURO: The first 100 cases, whether or not they could be binned that way to see what the number in the first decade,

second decade of, you know, that kind of thing.

CHAIRMAN GRIFFON: I don't think we have that kind of granularity right now. We probably could get it. I mean, a lot of those first 100 you remember were all from the early years, obviously.

DR. MAURO: Well, it would be, you know, cases that was done from 2001 to 2003 because I don't know how far off we are on that one.

CHAIRMAN GRIFFON: Right.

DR. ULSH: I've made a note that we'll include that.

CHAIRMAN GRIFFON: Okay. That's good.

MR. FARVER: Scott, on that case, you said they cut and pasted, overlapping the medical dose on the pancreas, correct?

MR. SIEBERT: Yes.

MR. FARVER: Okay. What doses did they cut and paste?

MR. SIEBERT: If I remember correctly, it appeared that the internal doses that were pasted into it went over the pancreas x-ray doses.

MR. FARVER: Okay.

MR. SIEBERT: Yes, that's in the response for 171.3.

MR. FARVER: Okay. Just curious, why did they paste in the -- well, I guess they pasted in the internal doses because they're coming from someplace else.

MR. SIEBERT: Yes. Remember, external doses and internal doses have to be done in separate tools. There's not this one single tool that you can deal with those things, so you have to combine them at some point. And, actually, that's one thing that's being worked on in the present tools is a better way to do that.

MR. FARVER: Okay.

DR. MAURO: It would seem to me when you're assembling your IREP input from

all your reconstructed doses, and let's say you have to do it by piece, let's say, you know, whatever it is, external, internal, neutron, and you're layering in, you know, line numbers 1 through 27 and 28 through 50, whatever, if that's how it's done, I don't know how it's done, but it seems to me if you crash in, in other words if there's an overlap, I could see software being written. When you're layering in the different lines for your IREP input, if you leave a blank or you overlap, it's almost like one of these little software things that will alert you that there was this error made. It seems to be like a pretty easy fix by building that into the process of assembling your IREP input. Am I looking at this in a naive way, or is that something that could be a way to fix this?

MEMBER RICHARDSON: I think maybe when we, if we get the kind of QA thing. I'd be curious what the resolution has been or is

--

DR. MAURO: Sort of like when you're working in Word and you make a mistake, it reminds you you've done something, you know, a syntax error or a spelling error.

MR. FARVER: I was just trying to think. The only way you're going to catch that through peer review is if you happen to look at the dates of the medical doses and realize that you've left out five years because even some of your doses you're not going to know what the correct doses are if you believe the IREP table doses are correct.

CHAIRMAN GRIFFON: Okay.

DR. ULSH: The status on 171.3 is SC&A review? Is that --

CHAIRMAN GRIFFON: The status is SC&A review. No, the status is --

MR. FARVER: Well, I'm going to review all those, the 171.2 to 6.

CHAIRMAN GRIFFON: Yes. But I thought for this the status was -- the only

tickler I'd put in there was that NIOSH will determine if all modifications from the case findings affect the outcome of the PoC.

DR. ULSH: I do have that for all of 171.

CHAIRMAN GRIFFON: Yes, yes, right.

MR. FARVER: Okay.

CHAIRMAN GRIFFON: So I think this finding in particular is kind of closed, right? Or you want to look at them all and --

MR. FARVER: I'm going to check them, but, I mean, I'm not sure what I'll --

CHAIRMAN GRIFFON: I've got it yellow more for the overall question of did it affect, you know.

DR. ULSH: Alright. So we'll move on to 171.4?

MR. SIEBERT: This is Scott. Can I point one thing out? We can't actually do that comparison to see if the rework addressed all the situations until we determine what the

appropriate path forward is, which I know we haven't done on at least .2.

CHAIRMAN GRIFFON: That's why I said it's kind of on hold because we've got to resolve that neutron one before we -- yes, I agree.

MR. SIEBERT: Thanks. I just want to make sure of that. Thank you.

DR. ULSH: He's already thinking about the action items coming out of this.

CHAIRMAN GRIFFON: Yes.

DR. ULSH: Okay. 171.4. Let me read you the finding. NIOSH failed to correctly assign coworker doses for unmonitored years. Basically, our response comes down to OTIB-34, the procedure that was used to allow us some flexibility in terms of determining whether or not we're going to apply coworker intakes, and the meat of our response is that, based on this employee's job description, it's unlikely that the employee had more than a low potential for exposure to

airborne radionuclides in the workplace. The DR made a decision to apply internal dose based on the employee's exposure potential, not a gross overestimate of intake for the entire employment period. It would be unlikely that this employee would be considered a radiation worker by site standards. A draftsman, senior engineer, and design technologist would only have brief periods of exposure potential, which is indicated in the employee's bioassay records and external dosimetry records. So, basically, for this claim, the DR used a combination of bioassay results, coworker intakes, and environmental intakes to provide a more realistic internal dose estimate than a gross overestimate.

CHAIRMAN GRIFFON: I think this is going to go into the category of you need to review.

MR. FARVER: Yes.

DR. ULSH: 171.5 is fairly long.

Let me read you the issue as soon as I find it.

MR. SIEBERT: Actually, Brant, this is a relatively straightforward one, if you want me to handle it.

DR. ULSH: Okay. Go ahead.

MR. SIEBERT: This is one where SC&A was questioning whether all solubility types were accounted for in the assessment before we assigned the most claimant-favorable one. That falls into two categories. First of all, type S and super type S plutonium, obviously, Super S was added, I shouldn't say obviously but Super S methodology was added after this assessment was first done, so that means Super S could not be considered at the time because we were not assessing it. Also, at the same time, the OTIB-34, which was in effect at the time, also stated that type S plutonium did not need to be assessed for systemic organs in intake periods. So the dose reconstructor followed the method that

was in place at the time. That has since been updated to include looking at type M, type S, and type Super S, which I can tell you that, in the 2001 claim that was done, this was rectified and all three of them were assessed.

When it comes to strontium and uranium-234, actually all the solubility types were considered. It's just not an easy place to show where they were considered and where that outcome is. One of the tools, I included an opened up tool there's hidden tabs in the tools where a lot of this work is done and pulled out, opened up the tools. And I included, and Doug can take a look at this, there's a file called chronic annual dose workbooks strontium and uranium evaluation XXX, which if you want to pull it up, the pancreas is the one that I made a copy of. I opened up all the tabs, and I specified specifically where in all the tabs it's shown. I've done the intake tab in this range where

all the solubility types were actually calculated and the most claimant-favorable one was selected, which was type S for both strontium and uranium in this case. And it just clearly shows that we did assess all three, all the solubility types and selected the most claimant-favorable one. It was in the tool. It's just not easy to get at within the tool.

CHAIRMAN GRIFFON: Okay. This becomes your action. Analysis file, yes.

DR. ULSH: 171.6. Finding is that NIOSH failed to completely address the contamination incident reported in the CATI. This is another long one. Scott, can you give us the condensed version?

MR. SIEBERT: Yes. The condensed version is we do have plutonium sampling later on for this individual. SC&A went back through records and found what they believe would be a likely intake scenario as to when this explosion occurred and this guy worked in

an adjacent building and had to clean up his office later on. I just took at face value the 1959 incident being the incident of interest and used the urinalysis data from '65, '70, and '71 to limit what a potential bounding intake would be from that and compared it to the assessment of what we actually already assigned. Well, the basic point is what we assigned is larger than if we assigned it as an incident on that date. So even if we assigned an incident during that time frame in 1959, what we already assessed is higher dose than actually assessing it at intake during that incident, obviously assuming that actually is the incident for the individual.

DR. ULSH: The same status?

MR. FARVER: Yes, I'll look at it.

DR. ULSH: Alright. That, I believe, is the end of the 171s with one caveat. I see here that we have a tab 171 observation, and we had it highlighted in blue

for some reason. But it says no further action, so that highlighting may be --

CHAIRMAN GRIFFON: I don't recall. Yes, let me look at it. It's probably just because I moved it from somewhere else. I tend to use yellow. Yes, I think it's no further action.

MR. SIEBERT: Are you referring to the observation?

CHAIRMAN GRIFFON: Yes.

MR. SIEBERT: Yes, the observation was just that it was re-evaluated to Super S and still stayed non-compensable.

CHAIRMAN GRIFFON: Right.

MR. SIEBERT: That's all there is to it, so, yes, I believe it's closed out.

CHAIRMAN GRIFFON: Yes. For some reason, I can't remove the blue on this one. Anyway, I'll get John on it. He's an Excel expert.

DR. ULSH: I think there are still a number of findings left, Mark. Do you want

to keep going?

CHAIRMAN GRIFFON: Well, where do we stand with people's flights? I think David is okay and everyone else is staying, I think. Doug, are you flying tonight?

MR. FARVER: Late, late, like usual.

CHAIRMAN GRIFFON: I mean, I think we can probably go for another half hour or so anyway. I think people are going to start to fade.

DR. ULSH: Okay. Well, the next one I think is 173.2. The issue here, the summary says that greater than 250 keV missed photon dose was improperly calculated. And the NIOSH action here was NIOSH will check to see if this affected compensability, and our response here is that IREP re-run with changes based on findings one, two, three. PoC was reduced from 47.12 percent to 46.93 percent, and there is no effect on compensability.

CHAIRMAN GRIFFON: Is this another

example of adding dose and reducing the PoC?

DR. ULSH: I don't know if this was added or not.

MR. FARVER: I know for this finding, this is where they multiplied twice by the percentage of the energy distribution. So instead of 0.95, it was 0.95 times 0.95. So it reduced it.

CHAIRMAN GRIFFON: Oh, okay.

MR. FARVER: And this was in the workbook, so this would be something that I don't know if it could happen again.

CHAIRMAN GRIFFON: Which site is this?

MR. FARVER: Los Alamos.

DR. ULSH: I do note that we have some supporting IREP files here, so if you guys want to look at those, we can.

CHAIRMAN GRIFFON: Yes, I guess that would be okay. I think the bigger question that Doug raised on this is that if it's a carry-through error in the workbook, is

it potentially affecting other cases? And I don't know that you examined that.

DR. ULSH: I don't know that we did. We just did the action items.

CHAIRMAN GRIFFON: Yes, I know, right. We probably missed it in our little summary. I mean, Scott do you have any sense whether this was, these were workbook errors or whether they were input errors to the workbook, going back to that same kind of --

MR. SIEBERT: Let me see. This is LANL in 2005. I'm not sure if there was even a specific LANL workbook in 2005. I can't answer off the top of my head. I apologize.

MEMBER RICHARDSON: It might be worth having one more action item before closing that one.

CHAIRMAN GRIFFON: I think SC&A should review the NIOSH response, and NIOSH should check on, although this is potentially a carry-through error, you know, a workbook error.

MR. FARVER: Yes, there was a workbook. It looks like it's, it doesn't look like it's specific to Los Alamos. I'll go back and find out exactly where the calculation is.

CHAIRMAN GRIFFON: So NIOSH will review the workbook used, I guess, or the tool used, right? It may have been a generic tool. Is that okay, Scott?

MR. SIEBERT: Anything you say.

DR. ULSH: Alright. The next one is 173.3.

CHAIRMAN GRIFFON: He must be getting tired, too.

DR. ULSH: The summary of that issue is failed to properly account for all reported neutron doses. The NIOSH action item was to check to see if this affected compensability. Well, I think the response is the same.

MR. SIEBERT: Yes, the identical response because both of those were just check

the issue of compensability.

DR. MAURO: So SC&A reviewed the procedure where those three criteria of neutron-no neutron. A lot of the answers to whether or not neutron should have been included or not in a given year go back to this. I just don't remember that, those three steps.

MR. SIEBERT: This specific one, this is not whether we should have assigned neutron at all. There was a reported neutron badge result that got overlooked and should have been included. That's what the issue was on this finding.

MR. FARVER: And it looks like they, another cut and paste where it may have been pasted in and that one year omitted. And the one before that, which was the photon dose where they multiplied twice by 0.95, it looks like the workbook multiplied it by 0.95 and then they copied that and again multiplied it by 0.95.

CHAIRMAN GRIFFON: So the workbook could have been okay probably, but it's worth checking.

MR. FARVER: Yes. It just looks more like human error than workbook error.

CHAIRMAN GRIFFON: Okay. We'll put the same basic action. 173.5 are we on?

MEMBER RICHARDSON: So when somebody is entering in these neutron dose values into the spreadsheet to work with, does that happen at NIOSH or does that happen before the case gets to NIOSH?

MR. HINNEFELD: Are you talking about in a dose reconstruction? Most of those are put together by our contractor.

MEMBER RICHARDSON: Okay. So they get all the source documents. They re-key the information into a spreadsheet?

MR. HINNEFELD: Yes. They have quite an extensive data entry re-keying group, or at least it was extensive.

DR. ULSH: 173.5?

CHAIRMAN GRIFFON: Yes.

DR. ULSH: Okay. The summary of the finding is inappropriate method, slash, justification for not assigning ambient doses. The action item was NIOSH will review their own response. It sounds like maybe we were less than clear on that. Well, I'll just read this one. It's not that long. ORAU PROC 60 was not published until approximately nine months after this claim was assessed. Although the TBD does not specifically state that ambient doses were not subtracted from the dosimetry results, in parentheses, in other words, part of the dose of record, close parentheses, the method understood at the time by the dose reconstructor was that the ambient dose would be assigned in addition to dose of record only if the TBD stated to do so. Again, it was the more unusual situations. For the 20 sites in the latest version of PROC 60, Attachment A, only a single site applies ambient to monitored workers for all years and

five others where it depends on the year of interest, but that is spelled out specifically in the TBD. So the bottom line is this claim was done correctly per the version of PROC 60 now available.

MR. SIEBERT: The basis for this question came down to the TBD did not specify one way or another whether ambient doses were subtracted out of the badge result, the recorded badge result or not. And SC&A's position in the initial finding was stating that, in the case of it not stating it one way or another, you should assign it to be claimant-favorable. Our position is it's very unusual for us to have found a site where we do have to assign ambient doses along with monitored doses, and this individual was monitored. So the dose reconstructor's thought process was, it's an unusual circumstance, so we do not assign it unless told specifically in the TBD. And, per additional review into the situation, it's

exactly correct. The latest version of PROC 60 shows that, for this site you do not have ambient for monitored individuals. So it comes down to the TBD did not specify one way or the other.

MEMBER RICHARDSON: So with the film badge, a film badge would have been left exposed -- well, tell me if this is right. It would have been left outside, but you would have had a referent film badge kept in an office.

DR. MAURO: My understanding is that the person is issued a film badge. He might work outside, he might work inside. And he has his film badge on during the eight-hour or ten-hour day he's working and whatever exposure is recorded there is what's on his record. Now, if he was, I guess if he was outside, I'm working my way through this, you wouldn't subtract.

MR. HINNEFELD: It has to do with the storage location when the dosimeter was

not being worn and of the background subtraction --

MEMBER RICHARDSON: Background subtraction.

MR. HINNEFELD: If you have a badge rack film badge for instance, if you store your badge on a badge rack and you have background badges to the racks and you subtract off that background from those dosimeters, then you have essentially subtracted off the ambient dose that a person would have received. So in that case, you would want to add it back in in the dose reconstruction. If the background subtraction is based on badges that are stored in a shielded location in the bioassay laboratory, then you are not collecting the ambient dose on your background badge. And so by subtracting those laboratory backgrounds, the ambient dose captured by the person's badge is still reported on the badge and is included in his dose. And so if there's ambient dose

overnight, you've actually added a little extra, you know, if he stored it in the badge rack or if he took the badge home. So that's the basis for whether you have a monitored dose plus ambient or not depends upon the background subtraction.

DR. ULSH: So what do you want to do with this one?

MR. FARVER: My only question was I didn't find anything that talks about Los Alamos in PROC 60. So I didn't see where that really provided any guidance for whether to use ambient dose or not. Basically, I just didn't see anything in there for Los Alamos.

MR. SIEBERT: It's in Attachment A. Just a second. I've got to pull it out.

DR. ULSH: Well, the response says Attachment A.

MR. SIEBERT: I'll give you a page number in a second here. Page 14, Attachment A, external on-site ambient dose assignment for monitored site employees, and one of the

sites is LANL. And the question is assign external on-site ambient doses for monitored employees, and the answer is no.

MR. FARVER: Okay. What revision number is that?

MR. SIEBERT: That is Rev 1, effective 6/28/06.

MR. FARVER: Yes, see, that's a different rev than was used to do the dose reconstruction. They used Rev 0 which has no guidance for Los Alamos.

MR. SIEBERT: I agree wholeheartedly. What I'm saying is, if the TBD and PROC 60 were silent on the issue at the time, the dose reconstructor went back and looked at this was before we used DR guidance documents in a documented way. I would guess it was either in something like that or it was known by the dose reconstructors you do not include ambient, and then this next version of the PROC 60 came out and we made sure it was in there for clarification.

MR. FARVER: I would have defaulted to the guidance under Section 6.1 that says that, you know, you should, as described in OCAS ID 001 on-site ambient doses apply for both unmonitored employees who were not likely to have been exposed to workplace radiation and to monitored employees whose monitoring results may have reflected a subtraction of elevated on-site ambient radiation doses. It's a toss-up. I mean, okay, it's a toss-up. It just really didn't mention it either place.

CHAIRMAN GRIFFON: I mean, is there any question about the latest revision? Do you agree with that?

MR. FARVER: I haven't reviewed it, so I'm not going to question it.

CHAIRMAN GRIFFON: Yes. But I wonder if that's, that might be more of a Site Profile issue, though.

MR. FARVER: Yes.

CHAIRMAN GRIFFON: If LANL had the

circumstances where this should be done, that's a different issue than dose reconstruction.

MR. HINNEFELD: Right.

MR. FARVER: Well, in any case, it's been corrected now.

CHAIRMAN GRIFFON: Yes, it's corrected now, so I'd say no further action for this case.

MR. FARVER: Alright. Close it.

CHAIRMAN GRIFFON: Yes. Do we have something short left, or we might want to wrap up otherwise. I don't want to open up a whole new case if there's a bunch of -- 174 has several of them?

MR. SIEBERT: I believe there's only a single one for 174.

MEMBER MUNN: It looks like it. 174.1.

CHAIRMAN GRIFFON: Yes, let's just rip that up, I guess.

DR. ULSH: 174.1. The summary of

the finding is DR overestimates the reported prostate dose. Let's see if there's anything of note here. NIOSH will check to assure that workbook was corrected. Why was K-25 workbook used and not Portsmouth? The response is that, the K-25 error calculation workbook was used because a specific tool to calculate error for Portsmouth did not and does not currently exist. This tool simply calculates the error for best estimate cases. Any site's tool could be used for error calculation as long as the site-specific parameters for correction factors are changed within the tool. In this particular case, the site-specific parameters were not entered in the K-25 tool. Instead, the doses were multiplied by a factor of two which resulted in a higher dose and associated error. The generated errors were then used in a complex-wide best estimate tool for prostate cancer only.

MR. FARVER: I guess the only question I have is: Is something like this

likely to happen again, or have we moved beyond this tool that they've used and into something else?

DR. ULSH: Do you have a quick answer to that, Scott?

MR. SIEBERT: Well, I would tend to say I don't see an error here. I can see an efficiency methodology that the dose reconstructor used to get the claim done in an expedited manner. I don't think anybody is arguing that they what they assessed is not claimant-favorable or overestimating in a non-compensable claim. The question was just a QC question as to why the K-25 workbook was used versus Portsmouth, and the answer is there is no Portsmouth tool for calculating those errors. There's no reason to. You can use any of those error calculators for the tool just as long as you put in either the site-specific numbers or an overestimate.

CHAIRMAN GRIFFON: I guess the question is, does it open you up for errors in

the future. I mean, has that been changed? Because it seems like the whole idea for the tools would be that you don't have to re-enter the site-specific parameters each time or cut and paste in new values. If you had a Portsmouth tool available, even though they're very similar tools -- I understand what you're saying -- it just would make it less likely for any kind of cut-and-paste type errors. Does a Portsmouth tool exist now for that function?

MEMBER MUNN: No, it did not and does not.

CHAIRMAN GRIFFON: And does not. Right.

MEMBER RICHARDSON: And what's the doubling? I'm not quite following what the doubling was. What was doubled?

MR. SIEBERT: Rather than use specific correction factors from the site, they just used a factor of two to double the dose as an overestimating assumption.

MR. HINNEFELD: So I think this is actually sort of an old legacy approach. I think if there were certain biases that were assumed about early dosimetry, they're low biases, but you didn't have the site-specific information at hand of those dosimeters, they were at least half as good as they should have been. So the true dose wouldn't have been any more than twice the reported dose on those film badges, and so it was kind of a legacy expedience that came in like --

DR. MAURO: Was that part of the original OCAS IG-001 as being an option?

MR. HINNEFELD: It may be. It may be.

MEMBER MUNN: It goes way back.

CHAIRMAN GRIFFON: I think this one at least warrants SC&A to look at it a little closer, especially for the question of could this result in further QA problems.

MEMBER MUNN: Well, I guess that is this is such a legacy case that --

CHAIRMAN GRIFFON: Well, they still haven't updated the tool, though. They still use the same process.

MEMBER MUNN: Yes, but --

CHAIRMAN GRIFFON: Maybe there's no reason. I don't know.

MR. HINNEFELD: But could you use that same tool if you have site-specific? You now know the site-specific parameters and you just have this tool and the tool allows you to put in the site-specific parameters, it's essentially going to be a multi-site tool as opposed to the --

CHAIRMAN GRIFFON: Yes, yes.

MR. HINNEFELD: If that's the case, then that might, that would be a situation you'd probably let go on rather than write a whole new tool just to put in a few different site-specific parameters when you have a tool that allows you to put in site-specific parameters. That would be a possibility.

CHAIRMAN GRIFFON: I guess I could argue both sides of that, that if you had the Portsmouth tool, if you need ten of those, they're the same tool with different parameters. If I'm going to use them a lot, I might as well have one that has Portsmouth in all the time and I don't have to enter in those values.

MR. HINNEFELD: We'll just --

CHAIRMAN GRIFFON: Yes, yes. Well, I think this is a good place to -- because I know I've kind of had enough. I think it's a good break point.

DR. ULSH: We've got more.

CHAIRMAN GRIFFON: I know, I know. Wanda wants to keep going.

MEMBER MUNN: Oh, yes.

CHAIRMAN GRIFFON: She's just getting warmed up, you know.

MEMBER MUNN: PER-12 is now on the deck.

MR. SIEBERT: Well, honestly,

there are only two findings in the 9th set that we have responses for, and they're very straightforward.

DR. ULSH: You're breaking up, Scott. We can't hear you.

CHAIRMAN GRIFFON: Yes, I think we'll call it because we have a lot of SC&A responses on the 9th set, as well, don't we?

MR. FARVER: Yes.

CHAIRMAN GRIFFON: And we have this site visit scheduled for May. I forget the date now. May 6th. Thank you. And then we'll schedule another Subcommittee. I'll get these matrices out. I'm only going to send the 7th and 8th since we didn't do any work on the 9th, right? But I'll send updated matrices for the 7th and 8th, and we'll reconvene at Subcommittee meeting shortly after the full Board meeting, I would say. Maybe three weeks after that, somewhere in there. Do we want to pick a time for that?

MR. KATZ: We can. Do you want to

talk about where we are with selecting the PER cases and what needs to be done to wrap that up?

MR. HINNEFELD: Yes. Well, it might be worth a little bit of discussion. As I understand it, and I haven't looked back at the PER review specifically, but based on emails I've found, email traffic I found, there's essentially a four-by-four matrix of cases, you know, 16 blocks to look at of cases that fit all of these categories and four different target organs or target organ categories by four different possible ways of assessing the internal dose, so it would be about five, I'd say.

CHAIRMAN GRIFFON: Okay.

MR. HINNEFELD: The four target organs were lung, extraterrestrial -- extra thoracic, GI tract, and there's something called systemic which I believe would be organs like bone, liver, maybe a couple of others where plutonium in the bloodstream was

in the dose. And so systemic gives you several target organs. It gives you leukemia. It gives you bone cancer. It gives you liver cancer and things like that. So we could talk a little bit about, you just want to go, like, how many of you want to --

CHAIRMAN GRIFFON: Yes.

MR. HINNEFELD: -- and do you want to go with leukemia and the liver or just leukemia's, or how do you want to do that systemically for that? And then lungs will be lungs. LMPH would be for lymphomas. So, I mean, there's kind of a broad, because there were like 1700 claims. Our original list that we pulled for PER was 1700 claims. I think that all the claims that we re-did for PER-12 and not necessarily the ones that fit into the binned target organs. So we can do a little more culling down automatically, but we want to start with a manageable number of claims that we can put in the bins based on target organs because once we get to how was the dose

assigned, in many cases, we're going to have to open up that claim to see, you know, actually look at the individual information in the claim to see how was the dose assigned, the urine ones, air sampling, overestimate.

So if you would like to just let us do what we want, you know. We'll hit all the stuff in all the cells. Then we may decide, well, we have quite a few leukemia's and not very many livers. I kind of get that feeling liver is not very common in our claimant population, although I'm not 100 percent sure that's true. Of course, leukemia is not terribly common. We can decide ourselves how many we're going to start with in each cell and then start looking for cases that match the four different intake regimes and then just keep adding a few more cases, if we don't get any in any of these, we'll add a few more cases and look at those. So it might be easiest. I mean, it's going to take a fair amount of work on ORAU's part to review enough

claims to fill in all the squares.

CHAIRMAN GRIFFON: And then we'll want to have at least a representation across sites, or does that matter as much?

MR. HINNEFELD: It's going to be a little tough because you're going to run out the depth of the claims --

MEMBER MUNN: Sites --

MR. HINNEFELD: -- for a lot of these sites. I mean, you're going to have the big ones, like probably Rocky and Savannah River and Hanford. But there are a lot of other sites in there. I think Oak Ridge is probably in there.

DR. MAURO: I mean, the protocol for PER has crossed all boundaries.

MR. HINNEFELD: Yes.

DR. MAURO: And then like you said, you bin them by the endpoint and then there's a basic pathway. So in other words, you tier down. I have to say there's probably no one in a better position than you to make

the judgment. I mean, if you were doing it yourself and said, listen, I'd like to find out for myself how well we did on capturing a good cross-section, I mean there really is no one else --

MR. HINNEFELD: I'd be interested in leukemia. I'm a little surprised leukemia's were not the best one to start with, you know. It doesn't take a lot of dose to get a leukemia PoC above 50 percent. So I'm a little curious about leukemia. I'd weight my selection toward leukemias rather than the liver.

DR. MAURO: Why couldn't we just, you know, you bring forward what you think you would do if you were asking the question and serve it up, you know, to the Work Group.

CHAIRMAN GRIFFON: Yes, I think that's probably the best way.

MR. HINNEFELD: Sure.

CHAIRMAN GRIFFON: And bring the cases but also describe the methodology, like

why we weighted it the way we did or whatever.

MR. HINNEFELD: Why we picked these cases and what were our selection, yes.

CHAIRMAN GRIFFON: And then if we agree, then we can just pass them on to SC&A --

MR. HINNEFELD: I think, you know, we might even get the four big areas for this, but I'm not so sure we can really spread the locations, the site records --

CHAIRMAN GRIFFON: Yes, right. I'm pretty sure you can but at least not to have them all from one site.

MR. HINNEFELD: Okay.

MR. KATZ: Yes. And then it would probably be good to have Hans and --

DR. MAURO: Absolutely.

MR. KATZ: -- listen in for that --

DR. MAURO: We need Hans in at the back end of this process, yes.

MEMBER MUNN: If they let him back

in the country.

DR. MAURO: He'll be back at the end of this month.

MR. KATZ: Yes, for the next meeting.

CHAIRMAN GRIFFON: Okay. That sounds good. And then how about a date for the next meeting? We're going to have a NIOSH site visit for the QA stuff May 6th, and then after the May 24th meeting, I would say, let's go at least three weeks out from there, right? So we have some work done, you know.

MR. HINNEFELD: Well, we want to go after the in-person meeting, right after the face to face --

CHAIRMAN GRIFFON: Yes. I'm talking like June or July. Maybe toward the end of June. A lot of vacations go July and August, right?

MR. SIEBERT: It's the last week of June.

MR. HINNEFELD: The Health Physics

Society is around then. It's the 26th. It always starts on Sunday and will run through Thursday. The week of the 27th of June.

CHAIRMAN GRIFFON: What about June 20th?

MR. SIEBERT: It's up to you, but I am in Florida from the 14th until the HPS meeting.

CHAIRMAN GRIFFON: Oh, okay. Then why don't we do July.

MR. KATZ: Now, July, the first week, the week of July 4th is already --

CHAIRMAN GRIFFON: Yes, I wouldn't use that. How about July 11th?

MR. KATZ: July 11th is the Board teleconference.

CHAIRMAN GRIFFON: Okay.

MEMBER MUNN: We have Procedures on the 14th.

CHAIRMAN GRIFFON: Oh, Procedures on the 14th?

MEMBER MUNN: Yes.

MR. KATZ: So why not do it the 13th and pair up travel?

CHAIRMAN GRIFFON: Or the 15th.

MR. KATZ: Yes, or the 15th.

CHAIRMAN GRIFFON: I'd rather the 15th for my travel schedule.

MR. KATZ: Okay. Well, 15th is open right now. If that works for --

CHAIRMAN GRIFFON: Alright. Let's take it.

MR. KATZ: July 15th.

CHAIRMAN GRIFFON: Okay, great. On that note, any more, anything else for the order? Anything else out of order? Alright. I think we'll adjourn, then. Meeting adjourned.

(Whereupon, the above-entitled matter went off the record at 4:48 p.m.)