U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

CENTERS FOR DISEASE CONTROL

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NATIONAL INSTITUTE FOR
OCCUPATIONAL SAFETY AND HEALTH

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ADVISORY BOARD ON
RADIATION AND WORKER HEALTH

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SUBCOMMITTEE ON DOSE RECONSTRUCTION REVIEWS

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TUESDAY,
APRIL 14, 2015

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The Work Group convened telephonically at 10:30 a.m. Eastern Daylight Time, David Kotelchuck, Chairperson, presiding.

MEMBERS PRESENT:

DAVID KOTELCHUCK, Chairperson
BRADLEY P. CLAWSON
JAMES M. MELIUS
WANDA I. MUNN
JOHN W. POSTON, SR.
DAVID B. RICHARDSON

ALSO PRESENT:

TED KATZ, Designated Federal Official
BOB BARTON, SC&A
HANS BEHLING, SC&A
KATHY BEHLING, SC&A
LIZ BRACKETT, ORAU Team
NICOLE BRIGGS, SC&A
RON BUCHANAN, SC&A
GRADY CALHOUN, DCAS
DOUG FARVER, SC&A
MARK FISHBURN, ORAU Team
ROSE GOGLIOTTI, SC&A
JENNY LIN, HHS
JOHN MAURO, SC&A
BETH ROLFES, DCAS
MUTTY SHARFI, ORAU Team
SCOTT SIEBERT, ORAU Team
MATTHEW SMITH, ORAU Team
JOHN STIVER, SC&A
ROB WINSLOW, ORAU Team

T-A-B-L-E O-F C-O-N-T-E-N-T-S

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

10:30 a.m.

MR. KATZ: Welcome. This is the Advisory Board on Radiation Worker Health, the Subcommittee on Dose Reconstruction Review.

For everyone on the line, who might be on the line, the agenda for this meeting is posted on the NIOSH website under the Board section, under meeting, today's date. So you can follow along with the agenda there. Basically all of the materials that you have here, most are privacy protected. There are some that have been cleared, but they're not that helpful without all the privacy information, so I don't believe there are any documents that are posted for the public to follow along in that respect, but you can follow along with the conversation.

So let me also as a prerequisite run through -- I don't need to do roll call, but I'm going to address conflict of interest myself because it's easier to do it that way. For the Board Members who are on the line, we have the

Chair, Dr. Kotelchuck, Brad Clawson, Wanda Munn and Dr. Poston, John Poston.

Do we have any other Board Members on the line?

CHAIRMAN KOTELCHUCK: Yes, it's Jim Melius.

MR. KATZ: Oh, welcome. And Dr. Melius, Chair of the main committee.

Any others? Do we have David Richardson on the line?

(No response.)

MR. KATZ: Okay. So let me just cover then conflicts of interest for the Board Members we have on here, because I know at least one case we're discussing, or may be discussing, a case where a conflict comes into play, and that's Wanda is conflicted at Hanford. And we have a blind Dose Reconstruction case for Hanford.

So for other conflicts that may arise, I don't believe they will, but they may because they may be in the set, Brad Clawson has a conflict with INL. Dr. Melius has a conflict with NUMEC sites.

I'm not sure if we're going to discuss any specifically today. And Dr. Poston has conflicts for ANL, BWXT, ORNL, which is X-10, Sandia, LANL, Y-12, Lawrence Livermore and West Valley. So that's on the record and those Members will recuse themselves if we discuss sites for which they have conflicts.

And with that, that covers my issues. Please, everybody who's not speaking, when you're not speaking, mute your phone for audio quality. If you don't have a mute button, press *6 to mute your phone and then press *6 again to take your phone off of mute. And, please, no one put the phone on hold at any point, but hang up and dial back in if you need to leave the meeting at any point for quality of phone.

And, Dr. Kotelchuck, it's your meeting.

CHAIRMAN KOTELCHUCK: Okay. So, folks, first, are there any additions to the agenda or issues that people want to raise later?

MEMBER RICHARDSON: Just for the record, this is David Richardson.

CHAIRMAN KOTELCHUCK: David, welcome.

MR. KATZ: Okay. Welcome, David. And David has no conflicts whatsoever.

CHAIRMAN KOTELCHUCK: Good. Good.

MR. STIVER: This is John Stiver. I just got on, too, a couple minutes ago.

MR. KATZ: Oh, I'm sorry. I ran through the Board Members and I left everybody else out. Let's get the attendance for NIOSH/ORAU. Sorry.

(Roll call.)

MR. KATZ: Okay. And sorry for doing that in two parts, but it's back to you, Dave.

CHAIRMAN KOTELCHUCK: Okay. Very good. So let's go ahead with the agenda, unless I hear anything.

MS. K. BEHLING: Dr. Kotelchuck?

CHAIRMAN KOTELCHUCK: Yes?

MS. K. BEHLING: This is Kathy Behling and I was just wondering if I can briefly just touch on one relevant topic before we begin the agenda.

CHAIRMAN KOTELCHUCK: Surely.

MS. K. BEHLING: Okay. Thank you. I just want to mention that I'm a little bit concerned that we may not have clearly presented our strategy for clearing the backlog of outstanding findings. And I wanted to explain that nothing that we were recommending is really much different than what we're doing, with one exception, and that is we would really like to work with NIOSH to expedite generating a completed matrix well before these meetings.

We realize that often, for various reasons, the matrix was only available maybe a day or two prior to the meetings. And we also realized that this has handicapped the Subcommittee Members by putting them in a position that they have to make decisions, shall I say real-time. You haven't had a chance to look over that matrix prior to the meetings.

And therefore, if we could get a completed matrix into your hands to provide you with sufficient time to review the findings, NIOSH's responses and our recommendations, then

during the meeting perhaps the findings closeout process could be done in -- could proceed much quicker than it has in the past.

In fact, I would actually like to see -- I think it would benefit the Subcommittee if we were to highlight or even group those findings in the matrix in a fashion that would draw to your attention those that appear that they could be resolved with maybe little or no discussion such as QA-type findings and observations.

And it also appears to me that this is pretty much or similar to the approach that is consistent with the manner in which Wanda handles the Procedure Subcommittee meetings with regard to issues such as PERs. Prior to the meeting, SC&A reviews and summarizes the salient elements of a PER and provides a memo with our recommendations as to whether we believe it's necessary to conduct a review. And then during the meeting all the Members are aware of the recommendations. Wanda queries the Subcommittee Members and determines if they agree, and the appropriate tasking decisions

can be made quickly.

And I believe that's what we were trying to suggest for the Dose Reconstruction Subcommittee. And I'm not sure if we clearly made our point.

CHAIRMAN KOTELCHUCK: Now, we have the findings matrix, for example, for Sets 14 to 18. And what you're saying is that you would like to fill in the column NIOSH agrees or disagrees in advance? Is that it? We have the finding matrix, which always has a last blank column until we talk about it. Is that what you're suggesting?

MS. K. BEHLING: What I'm trying to suggest is that I would like for us to have the NIOSH responses, SC&A's recommendations and as complete a matrix as possible with sufficient time for the Subcommittee Members to be able to look that over and be familiar with the findings and our recommendations so that during the meeting you're not just -- because sometimes I realize that in the past we haven't gotten the matrices into your hands with sufficient time for you to maybe look over

everything that we're --

(Simultaneous speaking.)

CHAIRMAN KOTELCHUCK: Right. Right. First, NIOSH folks, I mean, what's your response first?

MR. CALHOUN: Well, we can certainly -- we'll respond. As we get the matrices in our hands, we'll respond. As far as getting more, a greater number done, then we got to think of what we're not going to do over here. But as far as getting the same number done in a -- more timely between meetings, that seems like something we could look at, and we'll certainly try. The sooner we get them, the sooner you can get them.

CHAIRMAN KOTELCHUCK: Right. How about other Board Members? Other Subcommittee Members, I should say.

MEMBER CLAWSON: Well, Dave, this is Brad. I'm looking at this as -- basically this is just getting the information to all of us, because no matter if it's SC&A or if it's NIOSH, when we leave the last meeting, each side has certain

responses that they're supposed to get back with.

CHAIRMAN KOTELCHUCK: Right.

MEMBER CLAWSON: The sooner they get them to us, the more time we have to be able to better understand them, the better off we're going to be.

CHAIRMAN KOTELCHUCK: Right. Right.

MEMBER MUNN: Well, the further down the road that we've gotten in terms of numbers of cases we're looking at, the more complex the business of the matrix has become. We're in a position now where we have so many sets and so much of a backlog that I certainly appreciate what Kathy is saying in terms of trying to group our action items a little bit more effectively. We do spend a lot of airtime during our meetings just getting to the next item on our action agenda.

CHAIRMAN KOTELCHUCK: Yes.

MEMBER MUNN: And it would really be extremely helpful, I think, if we could pull those action items that we know we're going to address forward in some way so that it was a little easier

for everybody concerned to get to them quickly. And it's enormously frustrating to know the week before we're going to have a meeting that we can't tell whether anything has transpired in terms of updating the matrix or not.

CHAIRMAN KOTELCHUCK: Right.

MEMBER MUNN: So, yes, I certainly think there are some mechanical things that we could do to make the material that we're going to deal with in each meeting more easily identifiable to us. Yes.

CHAIRMAN KOTELCHUCK: Right. And certainly having a deadline of a week in advance gives all of us on the Subcommittee a chance to digest and consider what's happening and what should be happening and what the agreement or disagreement is.

MR. CALHOUN: Something that might be helpful, and she touched on this, is that, really define what we want to do in regards to observations. When we started out observations were observations, but now we treat observations

no differently than we treat findings and whether we want to say that we've got truly a procedural non-compliance or not. That's just something to think about.

And the other thing that seems to take a lot of time is when we get into basically TBD reviews for a DR. I don't know if we could become more focused on actually reviewing just the DRs and if need be push the TBD-type reviews into the Procedures Subcommittee. Sorry about that, Wanda.

MEMBER MUNN: Oh, thanks a whole bunch, yes.

CHAIRMAN KOTELCHUCK: Right.

(Simultaneous speaking.)

MR. CALHOUN: -- get more focus.

MR. KATZ: This is Ted. I mean, I think this is just a scheduling matter. I mean, so long as we know and are clear about what's to come for the agenda for the next meeting and we schedule ourselves appropriately, I don't -- it's just a scheduling -- in terms of setting that

meeting out far enough that people can get their work done according to the resources they have. I just think it's -- it would probably be helpful to have clear deadlines. When are we going to have the NIOSH response and then when are we going to have the SC&A response to the NIOSH response ready, which is usually how we button up the matrix for the next meeting.

CHAIRMAN KOTELCHUCK: Right.

MR. KATZ: So if we have clear deadlines that are agreed upon, and everybody gets their work done in time and we'll have these in advance.

I mean, Grady, your suggestion about the sort of mini-TBD reviews that occur for some of these, I mean, those are related to sites for which there isn't already a Work Group that's relevant, the site is very small, the circumstances are special. And I think they are really actually appropriate here in this Subcommittee. But I mean, obviously they could go to the Procedures review, but adding another sort of body,

organization into the mix, if anything, is just going to slow things down, I think.

MR. CALHOUN: Typically what happens though is that you get this stuff earlier, but it's been a long time since we've quit a meeting because we haven't had enough responses from either side.

MR. KATZ: Oh, yes, I don't think we have done that any time in recent memory for that matter.

CHAIRMAN KOTELCHUCK: Not while I've been Chair.

MR. KATZ: So it's not that we don't have enough work to do during the meeting. I am sympathetic to Kathy's comment basically, and I imagine the Board Members are, that really the matrices are coming in a just-in-time mode, and really they should be coming in at least a week in advance so that people can digest --

CHAIRMAN KOTELCHUCK: Right. Right.

MR. KATZ: -- and think about it. I think that's a good point.

CHAIRMAN KOTELCHUCK: Right.

MR. KATZ: I think we should schedule to accommodate that.

CHAIRMAN KOTELCHUCK: Right.

MEMBER MUNN: There are two additional points that have been made, though, that do need to -- they really need our consideration, I think, one being the possibility of clustering the data that we're going to address in a more quickly accessible manner so that we can see at a glance exactly what we're going to be addressing.

And the second item has to do with our consideration of observations. I'm certainly sympathetic to the fact that we've changed our horse in the middle of the stream with respect to how we look at observations. And if we decide that we are going to give them the same consideration that we do a finding, then that's I suppose acceptable, although in point of fact there was a reason why we made that decision early on, and those reasons, more than one reason actually -- and those reasons are as sound today as they were at the time we made them.

CHAIRMAN KOTELCHUCK: I feel that I was looking forward to having a discussion about observations in the special Work Group that was set up at our last Board meeting, which I volunteered to be on, among others, and among other folks here. So I think I would recommend that we hold the discussion of observations and how we handle them to that group. And that group was supposed to report at the Idaho Falls Board meeting.

However, having the week in advance seems very useful. And perhaps the clustering -- I'm not as clear how much that will help, but I'm open to the NIOSH and SC&A people trying to do that, say, for our next meeting, for example.

But I would say that getting the materials one week in advance is definitely a plus. And apparently it's used elsewhere and works well. So would folks be agreeable to just saying that we have decided this?

MEMBER POSTON: Yes. We've always wanted that. The sooner we get that information, the more time we have to be able to digest what's

actually there.

CHAIRMAN KOTELCHUCK: Good. Any objections, maybe I should ask, from Subcommittee Members?

(No response.)

CHAIRMAN KOTELCHUCK: Okay. Then why don't we consider that done? That is to say that whenever we set the next meeting, a week in advance, we will expect to have the materials available to us.

MS. GOGLIOTTI: Now, this seems like a good time to segue that we do have the BRS up and running now for the DR Subcommittee. And that should greatly expedite the way we are able to interact with NIOSH, because they can instantly see our finding responses once we upload them.

CHAIRMAN KOTELCHUCK: Yes.

MS. GOGLIOTTI: I have it uploaded here on the screen and you can see --

CHAIRMAN KOTELCHUCK: Yes.

MS. GOGLIOTTI: -- it's ordered in a fairly easy-to-follow manner.

CHAIRMAN KOTELCHUCK: Yes.

MEMBER GOGLIOTTI: So I do have the first matrix set up already in the system and this is how it works. We can go forward using this from now on.

MR. KATZ: Rose, and another thing that I think would expedite and make it easier for NIOSH to respond is if you upload as you go and not really in big batches. But I don't see any reason why you couldn't upload sort of as you make progress and then they would have those cases in hand to respond to as soon as possible. That would expedite their work and the ease of their managing their resources to get their responses done.

MS. GOGLIOTTI: Absolutely. I think that's going to be a source of --

(Simultaneous speaking.)

CHAIRMAN KOTELCHUCK: Another aspect of getting things done in advance is, I would like the group to consider the possibility that we have scheduled meetings for the next year, scheduled meetings at a regular time. We basically have them

quarterly, but we've had problems. We've set up dates when we had people not able to make it. And I know things come up, as they have for me, but that's something that if we had scheduled long in advance, often it will help us in setting up our schedules.

And I want to consider that because we're always backlogged. I mean, at least as far as the time I've been on the Subcommittee, there's never been a time when we're not the problem that's causing the delay in -- that is, we have a backlog, I should say. We always have a backlog and hopefully we always will. I mean, we are the last step before final decisions are made.

So I would like to think about that. I don't think we need to decide this now, but I want to throw this out so that maybe people will consider this for the next meeting.

Are there any thoughts on that? I know that we do not have an annual schedule for our Board meetings, but --

MR. KATZ: Well, we do actually, Dave.

We do have an annual schedule for the Board meetings, and so that's how far we've scheduled out for the Board meetings. And I think it's perfectly fine if the Board Members feel like they can do that and commit to dates further out to not just the next meeting. I'm happy to do that kind of scheduling.

CHAIRMAN KOTELCHUCK: What do our Subcommittee Members think? You think we could do that?

MEMBER MUNN: This is Wanda. Yes, I do believe so. And I have two comments to make --

CHAIRMAN KOTELCHUCK: Sure.

MEMBER MUNN: -- with respect to having the BRS up and running for the Dose Reconstruction Subcommittee. The first comment is hallelujah. And the second comment is thank you so much to Rose and anyone else who had an active part in getting us there. It will make a big difference in how we approach our work.

CHAIRMAN KOTELCHUCK: Agreed.

MS. GOGLIOTTI: Thank you.

CHAIRMAN KOTELCHUCK: Other thoughts

about future scheduling? Go ahead.

MEMBER CLAWSON: I think that's great. I think that's good. Move them far enough in advance. Some of us may not have that big of a load that -- so, it's nice to be able to have those dates picked out and know that we've got something out there.

MR. KATZ: David Richardson, is that workable for you, or does it get very unpredictable for you further out?

(No response.)

MR. KATZ: Maybe we lost David. Or you're on mute.

CHAIRMAN KOTELCHUCK: We'll wait a second.

MR. KATZ: I'm just thinking I know his academic -- is that him?

(No response.)

MR. KATZ: I know his academic, anyway, sort of, duties are hard to manage at times, so I don't know whether he's in a pinch compared to others on this one.

CHAIRMAN KOTELCHUCK: Well, let's just -- I don't want to spend too long on the discussion because we have cases to review.

So can I suggest to Board Members -- and there seems to be general approval.

MEMBER RICHARDSON: Hi. Can you hear me?

CHAIRMAN KOTELCHUCK: Yes, David?

MEMBER RICHARDSON: Yes, I'm sorry. I --

CHAIRMAN KOTELCHUCK: David, we couldn't hear you, no.

MEMBER RICHARDSON: Yes, I said, yes, in general it helps for me to try and block it off. I mean, things certainly come up, but it's better to have it on the calendar than not.

CHAIRMAN KOTELCHUCK: Okay. Excellent. So we're in agreement on that. I will ask people to look over their calendars for the next Subcommittee meeting and be ready to give us some thoughts about what would be good dates, or probably first months and day of the week,

something like that.

And, Ted, maybe you and I can talk and we'll see about sending out some emails in advance of that meeting to try to get a sense from the various Subcommittee Members.

MR. KATZ: Oh, let me just do this the way I normally do it. And I will send out sort of date ranges for folks for quarterly, a year out, and then they can respond to me. We don't need to --

CHAIRMAN KOTELCHUCK: Okay. Alright.

(Simultaneous speaking.)

MR. KATZ: -- for me to do.

CHAIRMAN KOTELCHUCK: Alright. I guess I was thinking more of the second Monday of the third month, or something like that. But that's right. We can just do on specific dates as we do for the Board meetings. So, Ted, you'll do that?

MR. KATZ: I'll handle that after the meeting.

CHAIRMAN KOTELCHUCK: That would be

fine.

MR. KATZ: Sure.

CHAIRMAN KOTELCHUCK: Okay.

MEMBER MUNN: This is Wanda. I'd have one request with respect to your doing that.

MR. KATZ: Sure.

MEMBER MUNN: If at all possible and it's agreeable with the other Members of the Subcommittee, I would appreciate your looking at the dates toward the end of the month rather than toward the beginning of the month. I don't know about other people's calendars, but it seems to me that so many of the meetings that I have routinely are scheduled the first or second week of each month and that clutters up the calendar very badly. The tail end of the month and especially on Tuesdays for some reason seem to be more open for me --

(Simultaneous speaking)

CHAIRMAN KOTELCHUCK: Okay. Very good. Yes, that's agreeable. And let's see what we can do then, Ted.

MR. KATZ: Okay.

CHAIRMAN KOTELCHUCK: Okay. Let's move ahead, folks, on the case reviews issue resolution. And we have in front of us the DuPont Deepwater Works. Who would like to speak to this? There was a meeting of the AWE Work Group. Actually there was one in --

MR. KATZ: January.

CHAIRMAN KOTELCHUCK: -- January.

MR. KATZ: Right.

CHAIRMAN KOTELCHUCK: And we resolved this.

MEMBER STIVER: Dave, John Mauro is probably the closest to this in SC&A. Maybe he might want to say a few words. But, yes, it was the January 22nd meeting that all these issues were closed out.

But, John, if you have anything else you want to add?

DR. MAURO: Yes, this is John. Real quick. Yes, during that meeting -- I went through the transcript and everything was resolved. But even more importantly during the Richland meeting

on March 25th, Dr. Anderson gave a summary of the issues and they in fact all have been resolved. They have all been closed. In the slide presentation itself each issue was identified and how it was -- the finding and also how it was resolved.

And I went back and looked at the matrix. I have it in front of me, and I went through each one of the items that we have in yellow, which are open, and every one of those have been closed because the Site Profile issues have all been closed.

So I'd like to say that we're in very good shape here and I know SC&A could recommend that all of these items are closed as a result of the January meeting, and more explicitly as a result of the March 25th meeting in Richland where that was formally presented to the Board.

CHAIRMAN KOTELCHUCK: So this is closed, right, folks? Well, it is up to our group to say it is closed. All the outstanding issues are closed. Is there any comment from a

Subcommittee Member who wants to say anything further about that? Otherwise, it is closed.

MR. KATZ: Well, can I just --

CHAIRMAN KOTELCHUCK: Yes.

MR. KATZ: This is Ted. Let me just -- a process matter. I mean, what you're trying to do here is close your Dose Reconstruction cases now that that's done. And I think you just have to address for the Site Profile resolution, which of those applied to findings on the cases. Right, John?

DR. MAURO: Yes, I'd be glad to do that.

MR. KATZ: I mean, I think that's the critical issue because you're going to have to characterize, right, for the Secretary's report, the findings, how they came out, right? And so you're going to have to characterize the findings for these cases and those should relate where they do or where they might to those Site Profile resolutions.

DR. MAURO: I'd be glad to do that and move through them with you, if you'd like to move

through each one of the items that are in yellow on the matrix that's before everyone, and we'll go through each one, one by one.

CHAIRMAN KOTELCHUCK: Okay.

DR. MAURO: If you'd like to proceed, I will do that.

CHAIRMAN KOTELCHUCK: Go ahead.

DR. MAURO: The first one and the second one, which I guess is called 1A and 1B, have to do with the -- this goes back a ways, that there was at one time TBD-6000 to TBD-6001 whereby the reference was made back to a number of tables in TBD-6001, and whereby we had some problems with that. That was the umbrella document that covered all of these uranium works facilities. And that TBD-6001 was withdrawn. The TBD for DuPont was subsequently completely revised and all of the tables that were at issue that were in the umbrella document, TBD-6001. And you could notice that the first three actually speak to that on the matrix. With the elimination of TBD-6001 and the replacement of that with a stand-alone DuPont

Deepwater Site Profile that issue goes away.

MR. KATZ: Okay. John, I'm sort of handicapped because I can't see Live Meeting, but can I just explain? I mean, what we need to do here is apply findings that were relevant to the case review findings. And that's what we need to discuss, right? If there was a finding on resolving DuPont --

DR. MAURO: Yes.

MR. KATZ: -- the Site Profile, that actually came up in the case.

DR. MAURO: I got you.

MR. KATZ: That's what we need to address --

DR. MAURO: Yes.

MR. KATZ: -- so that that case, any issues with that case are resolved.

DR. MAURO: Yes, and let's go --

CHAIRMAN KOTELCHUCK: Let's scroll down on Live Meeting.

DR. MAURO: Yes. I'm looking at it in front of me right now, and I'm just looking at the

yellow items.

CHAIRMAN KOTELCHUCK: Sure.

DR. MAURO: And what I want to try to point out is that; you're right, the first three actually were not even addressed as findings in the last Work Group meeting because they were issues that were resolved long ago because TBD-6001 was eliminated. But there are some findings here that have specificity. For example, I'm looking at -- there is one here, F3 --

CHAIRMAN KOTELCHUCK: Yes.

DR. MAURO: -- and F3 is a very specific issue that remained with us. And it had to do with when the air sampling data were collected and whether or not the surrogate data that was used in the Site Profile which was collected in later years, the late 1940s -- whether or not that data could be applied and used as surrogate data for the early 1940s.

And this is one of the issues that was alive and well up until its recent resolution whereby NIOSH explained that the reason why they

felt the late 1940 data can be applied to airborne dust loadings for the early 1940 time period was the early 1940 time period -- and we confirmed this -- was really a matter of a shakedown period where there was some very limited amount of work done. And the more intensive uranium work was done later when there was good data basically from airborne dust loadings from later research done. So NIOSH made the case. And this would be -- I think it was item F3.

CHAIRMAN KOTELCHUCK: Yes.

DR. MAURO: And item F3. And because of that, there have been circumstances in the past where there were problems, where we had good information for the late 1940s, but we did not have good information for the early 1940s and SECs were granted up to certain dates like 1944. But in this case a demonstration was made that there was good reason to believe that the kinds of things that were going on in the early 1940s at DuPont really did not have a very significant potential for generating airborne uranium. And as a result, the

surrogate data in the late 1940s was prudently conservative or bounding as applied to the early 1940s.

And this is one of the issues -- if we go back to the slide presentation in fact that Dr. Anderson gave -- mentioned. I don't have the exact number here, but I read it earlier. So that's the reason why we believe F3 can be closed.

MR. KATZ: Yes, so does that apply to a specific -- again, I'm flying blind here. Are you looking at a specific Dose Reconstruction case and saying that --

(Simultaneous speaking.)

DR. MAURO: Oh, yes.

MR. KATZ: -- was applicable to this case?

DR. MAURO: Oh, yes, yes.

MR. KATZ: Yes? Okay. Thanks.

DR. MAURO: I'm sorry. Bear with me. I'm looking at the matrix. It's 260.

MR. KATZ: Okay. Thank you.

DR. MAURO: Oh, yes.

MR. KATZ: For the record.

DR. MAURO: Yes, I have the matrix in front of me. It's case Number 260. And the normal numbering system is here. In effect, what I just covered fairly quickly was the first three, which was 1A, 1B. 1A and 1B were really closed long ago because TBD-6001 was resolved. And it wasn't even something that was on the agenda for issues resolution.

CHAIRMAN KOTELCHUCK: Right.

DR. MAURO: But then when we get to F3, which is the next item, we actually talk about an issue that had technical teeth, so to speak --

CHAIRMAN KOTELCHUCK: Yes.

DR. MAURO: -- whereby as I mentioned had to do with whether you could use later data, late 1940s data, as a surrogate for earlier data.

CHAIRMAN KOTELCHUCK: Right.

DR. MAURO: And that has been resolved in that yes you can. So that's the reason that item was closed.

Let me see, there's one more. There's

a last one, B4. Let's see what we have here.

CHAIRMAN KOTELCHUCK: Let's scroll up to that. Thank you.

DR. MAURO: Yes, and that's the very last item on the list for DuPont.

MS. GOGLIOTTI: John, this one's already closed.

DR. MAURO: Oh, that has already been closed. There you go.

MS. GOGLIOTTI: Correct.

DR. MAURO: Okay. Yes, I'm looking at it right now. So that's not even on the agenda.

CHAIRMAN KOTELCHUCK: Right. So we have closure on all of them. Thank you for addressing those.

And is there anything further that we need to do for the Work Group, or any concerns that Work Group Members, Subcommittee Members want to raise?

(No response.)

CHAIRMAN KOTELCHUCK: Okay. So all of those four are closed. Hearing no objection,

that's done.

And in terms of the remaining cases, we're ready to go to Pacific Proving Grounds, which had a meeting in January of this year to try and resolve some issues that we gave to them.

DR. H. BEHLING: I believe that's going to be my case and it's going to be relatively quickly resolved hopefully. The case --

(Simultaneous speaking.)

CHAIRMAN KOTELCHUCK: Oh, who is speaking? Excuse me.

DR. H. BEHLING: This is Hans Behling.

CHAIRMAN KOTELCHUCK: Hans, how are you? Okay.

DR. H. BEHLING: This particular case was given to us back in 2011. And when I reviewed that, I submitted my audit findings and I believe there were a total of seven findings. And just as a quick review, the individual at the time was in the station at the Pacific Proving Grounds at the Enewetak Atoll in the early years of the 1950s and then a second time back in 1958. And our audit of

this particular case identified seven findings, and most of these issues were based on insufficient data and the use of surrogate data. And one of the more important significant findings that I was able to identify was the beta to photon ratio that was used.

Anyway, we did in fact discuss this particular case in a one-to-one meeting way back in that time frame, probably still in 2011. And then it was subsequently discussed in the Subcommittee.

But one of the key problems that we had with this particular case involving PPG was the fact that we had never been asked to review the PPG Site Profile which occurred subsequent to this particular audit. And when I looked at the PPG Site Profile, I realized that there were a number of findings that were directly related to this particular case.

And as you mentioned, we had previously discussed the PPG Site Profile audit that SC&A did, and we also had discussions about some of these

findings that we had identified, and NIOSH responded to our findings. And subsequently what happened was that the Subcommittee was asked to go backwards in time and establish a committee for the PPG Site Profile that would then provide some oversight in the revision of the PPG Site Profile and the findings that were identified.

At this point I believe the revision of the PPG Site Profile is still undergoing some changes. And so SC&A at this point has not seen the revisions to the Site Profile and therefore I believe the idea of resolving many of these findings that involved this particular case in question is really academic because many of the findings I identified on behalf of our audit of the PPG Site Profile directly affect this particular individual's case because of the fact that he was there early on when there were such things as cohort badging and missing badges and incomplete monitoring. And some of the additional data that became available in the DNA report that would allow us to assess more accurately the actual exposures

that would be considered occupational exposure when in fact it was really fallout that might in other instances be considered as environmental exposures.

So at this point I believe we had discussed previously this particular case, but I believe what is going to happen is that when we finally get to the point where the revisions of the PPG Site Profile become available to us, we will be in a position to look at the revisions, assess the issues that we had identified in our findings of the original Site Profile, determine whether or not these revisions accommodate the issues that we raised, and then in context with that, there is possibly going to be -- and I'm speculating -- an issue of a PER, which then we'd obviously include revising many of the affected Dose Reconstructions that occurred.

So at this point my recommendation is to put this particular case in abeyance because the issue will probably be resolved at some later time when a PER is issued. And many of these cases,

including this one, may have to be revisited and reevaluated, and there's at this point no real reason to spend a lot of time on something that's subject to revision at a later time.

MR. KATZ: Hans, this is Ted. Can I just engage you a little bit on this, because I think it's a little bit different -- I mean, all the findings at PPG are in abeyance, and I agree with that. But having gotten them to abeyance in that Work Group there were agreements made. I mean, that's why they're in abeyance. Essentially they're resolved, but we need to see the new product. But the issues were resolved. And there was agreement about some of your findings in getting to that abeyance and those findings, I believe, like you were saying, pertain to this case, or these cases.

So I think the Subcommittee can, even though they don't have a new Site Profile for PPG, since there was agreement between NIOSH and SC&A and the Work Group about those findings that got them to abeyance -- I think those findings

already -- you already know the outcome as far as this case is concerned, right? Because like Findings 2, 3 and 4, those all apply because they agreed with you about your findings and how they need to be resolved. And you know then what is right or wrong about these cases. Not correct?

DR. H. BEHLING: Yes. I'm not sure we went to the level of detail that we subsequently went to in our review of the Site Profile. Like I said, one of the most important aspects of that is the beta to photon ratio, which I'm not sure was probably discussed at the time. One of the things that occurred during this particular Dose Reconstruction case in question was the assignment of a one to one ratio, which I think was only during the discussion with the PPG Site Profile personnel, that they recognized that that particular ratio could not be applied here because it applied to a value that was purely derived from data that was NTS data between 1963 and '87. And we realized those things did not apply.

But it's a little complex. And I would

say at this point we can probably assume that most of the issues can be -- if we feel abeyance is not correct -- we can say they're resolved, but they will ultimately be resurrected when we --

MR. KATZ: Let me explain, Hans. So for example, Finding 3 from the PPG review, NIOSH agreed that they would use the 95th percentile.

DR. H. BEHLING: Yes.

MR. KATZ: And that was the resolution for skin contamination.

DR. H. BEHLING: Yes.

MR. KATZ: So I think the issue is, for the cases you have before you, these Dose Reconstruction cases, did they use the 95th percentile? If they didn't, then that's the resolution; they should have, and you can close out that finding.

DR. H. BEHLING: Well, they used the 50th percentile because --

MR. KATZ: Right.

DR. H. BEHLING: -- that's really what the PPG Site Profile at the time specified. And

it was only our review of that that they --

MR. KATZ: No, I understand. So what I'm trying to say is that that's then -- to resolve that finding in these cases where that applies, that's the finding. They used the 50th. In reality after scientific review, they should have used the 95th. I'm not saying they didn't follow their prescription, their form or procedures, but they really should have been using the 95th because they've agreed that they should have used the 95th. And that's the finding. That's how you resolve and close out that finding for this case.

MEMBER MUNN: That's correct.

MR. KATZ: Right. That's all I'm saying is that I think you can put them to bed in these cases even though you don't have the new product from NIOSH because they have clear agreements about that. Same, Finding 4. They said they should have used the 95th percentile for un-monitored doses for Finding 4. If that applies to any of these cases, then you can close out the finding in these cases. And maybe then you can

close out all the findings in these cases even though you don't have a new NIOSH Site Profile document yet.

DR. H. BEHLING: Ted, if this is what is the expedient thing to do here, let's just close them all out.

(Simultaneous speaking.)

CHAIRMAN KOTELCHUCK: Well, that --

DR. H. BEHLING: -- the need for discussion if in fact those cases would ultimately be reevaluated anyway.

CHAIRMAN KOTELCHUCK: Well, we would very much like to resolve this. This is the single outstanding case for Sets 10 through 13. We have to get a report in. So we want very badly to get a report in to the Secretary. So if you're saying, Hans, that can we can resolve it here and now, then let us do so.

DR. H. BEHLING: Yes.

CHAIRMAN KOTELCHUCK: And the group has met. I certainly looked over the transcript of the group meeting and it seemed to me that issues

were all resolved. There are things you're waiting for, but they're not relevant to this case, as I understand it.

MEMBER MUNN: It appears that all we need to do is actually look at each one of these findings just momentarily. Yes, this applies. Yes, this applies. Yes, this applies. And in each case simply make the notation to that effect on the matrix and move on from there.

CHAIRMAN KOTELCHUCK: Right. I agree. Let's do that. So let's look at 325.1 that's up on our screen.

DR. H. BEHLING: Okay. As I said, I didn't really expect to do this, but if you choose to, we will have to do it obviously at this point.

MEMBER MUNN: It appears to me that that applies.

DR. H. BEHLING: Yes. During the time of greenhouses is one of the key events that I discussed during my review of the Site Profile. There was a tremendous amount of fallout at various locations. If you recall, I showed fallout maps

in the time frame for each and none of these were ever applied here. I think this individual was issued a 60-millirem dose, environmental dose from fallout that turned out to be based on more recent DNA data to be somewhere in the range of anywhere between 1 and 4 rem depending on the duration and location where the individual was. So clearly that would have to be revised. And I believe NIOSH has accepted the fact that the assignments of fallout doses were inadequate.

MEMBER MUNN: All we need to say I believe is that the Work Group's finding and closure are applicable.

DR. H. BEHLING: Yes, I mean, on my matrix it says finding remains open and in process depending on completion of the Work Group review of the TBD.

MEMBER MUNN: Yes.

DR. H. BEHLING: I don't know what that means, but as I said, this predates the whole issue of the PPG Site Profile review.

CHAIRMAN KOTELCHUCK: Right. Well, I

mean, we are looking at the process. And if NIOSH agrees to do what you folks have recommended, then it is closed, and NIOSH will do it.

DR. H. BEHLING: And I don't believe that this particular matrix really addresses the concessions that NIOSH made with regard to review of the Site Profile. In particular, this particular first finding is addressed in much more greater detail in our audit of the Site Profile. In NIOSH's response it says, yes, we need to make that change. So that the action and the response of NIOSH for this particular case really predates the PPG Site Profile where certain concessions have been made in a more definitive --

CHAIRMAN KOTELCHUCK: Yes.

DR. H. BEHLING: -- manner than it is right here. And this is why I didn't think it was really that important to go through this.

MR. KATZ: Oh, but, Hans, it is. That's the point.

DR. H. BEHLING: Oh, okay.

MR. KATZ: I mean this is how you're

putting them to bed. And that's all good. So I think Wanda's right. And you're good, Hans, with your finding. Your finding did apply. It was correct. And that finding can be closed.

MEMBER MUNN: All that appears to be necessary for us to do is to identify the correct wording here. It appears that the wording needs to say something to the effect that the Work Group has resolved this issue by agreeing that the 95th percentile is applicable in all these cases.

CHAIRMAN KOTELCHUCK: Good.

MEMBER MUNN: And the change will be made, period. The change will be made. This case is now -- our finding is in abeyance.

MR. KATZ: It's closed.

CHAIRMAN KOTELCHUCK: Closed.

MEMBER MUNN: Well, yes, it's closed. Yes, or else it's in abeyance for the Work Group.

CHAIRMAN KOTELCHUCK: Okay. So, folks, this is up on the screen. And I agree. And unless there is any further comment by a Subcommittee Member, then we're closed.

(No response.)

CHAIRMAN KOTELCHUCK: Let's go on to 325.2.

DR. H. BEHLING: Yes, the second one again involves a very critical issue regarding the beta to photon dose. And as I said, the most significant deficiency I identified in review of this Dose Reconstruction report really involved the assignment of a one to one ratio. As I said, that particular approach is based on empirical data at the NTS site that post-dates the Atmospheric Testing Program and involves empirical dosimeters that were available between '63 and '87 and on the assumption that those values -- the beta to photon ratio is not really applicable to fresh fallout for the people who were stationed on Enewetak. NIOSH obviously rescinded that issue.

But along with that there were tables in the NTS Site Profile, both in the body of the Site Profile as well as in the appendices, that provide a very different beta to photon ratio that in the lowest ratio of 10 to one extends all the

way to 60 to 1 based on the age of the fallout.

And for case No. 2, that was again a statement that involved an assigned number, because there are no empirical data on behalf of this that was issued for this individual. And if we take the actual proposed information that was contained in the Site Profile that says you may use that ratio as a minimum of ten to one and as high as sixty to one depending on the age of the fallout, then the value that was assigned initially for this individual would have been significantly greater.

But again, these were by and large guesstimates and assumed values that, as I said, [were] modified based on the age of the most previous tests that would have had a much higher beta to photon ratio. Again, when this particular DR is reevaluated, they may completely change this whole issue. It was one of those things that it seemed claimant-favorable by assigning, but it was still the wrong assignment based on the duration of time that had elapsed between the most recent detonation and the potential assumed exposures,

that was not necessarily monitored, and the assignment of a beta to photon ratio that would have been more appropriate had the actual data been confirmed.

So it's hard for me to say whether we can resolve this issue other than if they followed their own protocol, they might have ended up with a higher dose estimate for that particular --

CHAIRMAN KOTELCHUCK: What did the NIOSH people say in response to the concern that was raised?

DR. H. BEHLING: Well --

CHAIRMAN KOTELCHUCK: Maybe the NIOSH -- Grady, or somebody might --

MR. CALHOUN: I wasn't at the Work Group meeting. I wasn't involved in that one for the actual Procedures Work Group meeting.

CHAIRMAN KOTELCHUCK: Yes.

MR. CALHOUN: So I don't know what was discussed there.

CHAIRMAN KOTELCHUCK: And --

DR. MAURO: This is John Mauro. Maybe

I can help a little bit. And this is more of a process question. Since they were all placed in abeyance, the implications are that there was agreement that in fact, yes, there is a need for a revision to the Site Profile to address that particular issue, and there was agreement on how that issue would be resolved. And given that, in effect -- and as described by Hans what the issue was -- and clearly there Hans and NIOSH came to agreement on the best way to resolve that issue, and that's why it's in abeyance. So I guess I would argue that on that basis the item could be closed.

What would be interesting I guess, as a quick aside, is to close the circle it certainly sounds like -- and this for PPG -- it sounds like there's going to be a revision to the Site Profile to address these various issues. And of course there would be a PER and that this case may or may not be picked up and have to be redone. There's a process there.

CHAIRMAN KOTELCHUCK: Right.

DR. MAURO: Interestingly enough, by

the way, as a quick aside, under DuPont I'd like to hear -- maybe NIOSH would say something to this. The issues were of such a manner that there was very little that needed to change except for where we agree there was a -- I'm bringing this up. You'll see why.

CHAIRMAN KOTELCHUCK: I hope so. Because right now we've closed --

DR. MAURO: Yes, you know what it is? It's something I call it closing the circle. In the case of PPG, it's self-evident that there's going to be a need for a PER. In the case of DuPont it's not self-evident because of the nature of the issues and how they were closed. And I would like to get a sense of how are we going to close the circle on these things.

CHAIRMAN KOTELCHUCK: Right.

DR. MAURO: And once we're done with going through to closure, there are places where it's clear that there is a need to revise the Site Profile, perhaps substantially. In other cases there really is no need. We've come to agreement

what the issue was.

And I guess I just have a question for NIOSH. Is there any plan to reissue the Site Profile for DuPont? I'm sorry I'm bringing that up again. I know we closed it all, but --

MR. KATZ: But that's not Grady's charge, because --

DR. MAURO: Oh, I understand.

MR. KATZ: But let me cut to the chase. What does matter that's sort of tangential to what you said, John, is SC&A is going to have to -- when they write up the report, right, the findings, they're going to have to characterize each finding in terms of its significance, right? So in effect, I think what John is saying that's relevant here is, when SC&A does it for the DuPont case, it may not have much dose-significance. And that affects how they characterize the finding for the DuPont case. And with PPG they're going to have to do the same thing. They're going to have to characterize for each of these findings -- you know, we have these qualifiers on each finding. They're going

to have to put the correct qualifier depending on its significance for -- potential significance for dose.

CHAIRMAN KOTELCHUCK: Right.

MR. KATZ: So that's the only thing I think that really matters for this now.

DR. MAURO: Yes, that's why I raise it.

MR. KATZ: Yes. No, I understand that. So I think, Hans, you'll have to interact with Rose to -- or -- and actually it would be helpful if you -- but, yes, to get the right characterization on that. And NIOSH probably needs to see that characterization, too.

CHAIRMAN KOTELCHUCK: Right.

MS. K. BEHLING: This is Kathy Behling.

CHAIRMAN KOTELCHUCK: Go ahead.

MS. K. BEHLING: And I think we can also state NIOSH has agreed that, with this PPG case, they're going to have to rework this. And so, each one of these findings will be addressed.

And I do like John's idea that there's obviously going to be a PER that comes out as a

result of the revision to the PPG because it's a major revision. And then it would be nice during our, maybe, sub-task portion of that where we look at some cases. Maybe this could be a case we look at.

But I think we can assure ourselves this case will be reworked and each of these findings, whatever wording we want to put in there, will be addressed under the revised PPG Site Profile. So in my mind that means we can close all of these at this Subcommittee meeting.

MR. KATZ: Right.

CHAIRMAN KOTELCHUCK: And it seems to me we can, yes.

DR. H. BEHLING: Yes, and I had made that assumption, and I accept Ted's concerns here about going through each and every one of them, but at the point when we were trying to obviously expedite issues, I didn't think we should take this much time as will probably be needed to go through each of the seven findings when in fact we've pretty much come to the conclusion that they will be

resolved when the PPG Site Profile becomes available in each of --

MR. KATZ: I think you need -- for the record you need to go through the findings. I mean, you can do it in a cursory way. And again, you're going to have to characterize each of those findings in terms of its importance for the dose estimates.

CHAIRMAN KOTELCHUCK: Yes, I think we are, I would say, under administrative -- I don't want to say pressure. That's not the right word. But we're under -- we feel a mandate to try to close what we can close now even understanding that at some point when there is a revised PER, we'll --

MR. KATZ: Yes, that's a separate matter. It just doesn't have a bearing on this case review.

CHAIRMAN KOTELCHUCK: So I believe we can close this --

MR. KATZ: Yes.

CHAIRMAN KOTELCHUCK: -- on Finding 2.

MEMBER MELIUS: Yes, Dave, this is Jim

Melius. You are under pressure.

CHAIRMAN KOTELCHUCK: Yes. Okay. Fine.

MEMBER MELIUS: Don't have to dance around it.

CHAIRMAN KOTELCHUCK: Okay. Very good. Fine. That sounds good.

So let's close this, unless I hear other concerns or objections from other Members of the Subcommittee.

MEMBER MUNN: No, that's what we need to do.

CHAIRMAN KOTELCHUCK: Okay.

MEMBER CLAWSON: This is Brad. I'm supportive.

MEMBER MUNN: It appears the only real concern is the wording identifying where the closure occurred, since it didn't occur here.

CHAIRMAN KOTELCHUCK: Right. Could you suggest some wording?

MEMBER MUNN: The wording that we had for the previous one was ideal I think with respect

to the things that are closed in the Work Group.

MR. KATZ: Well, it's closed for the case here.

MEMBER MUNN: Exactly. And as long as we identify where --

MR. KATZ: The Subcommittee closes it based on the review that was done by the Work Group.

MEMBER MUNN: Exactly. Exactly.

CHAIRMAN KOTELCHUCK: Okay.

MEMBER MUNN: But the review that was done by the Work Group identifies where this issue was discussed and closed.

CHAIRMAN KOTELCHUCK: Very good. Okay. That's going up now, and that's fine.

Let's go to 3. I don't have this right in front of me. How many findings do we have here, by the way? We're on 3. Is this the last finding --

DR. H. BEHLING: No.

CHAIRMAN KOTELCHUCK: -- for this case?

DR. H. BEHLING: This one was the

failure to identify a dose that was in the record. And I believe the response from NIOSH was one that it is not a failed dose, but it may be a missed dose. And I'm not sure. This is an area -- this is one particular finding I'm not going to stand hard on. It's a very minor dose that was identified as a missed dose, meaning that we would assign a dose of -- for a zero dose of LOD over two. So we're talking about 20 millirem.

But then again, the question arises if it is a truly missed dose, and that's a photon dose, a potential dose of 200 millirem could be or even greater assigned for the beta component. And since this is a skin cancer, the real critical issue is: I come back over and over again, for all the different things that were identified as findings, it's open that the question of identifying the correct beta dose which is a driver for the potential dose of the skin cancer that will either make or break this case.

So Finding Number 3 may be an issue that has limited value, but if it turns out to be -- from

what I gather, I had identified one of the earlier records and it was another missed dose that was not recognized. And it would only be a question of a 20-millirem photon dose. But when converted into a skin dose, it could potentially be, as a minimum, a factor of 10 higher.

CHAIRMAN KOTELCHUCK: And am I understanding that you're suggesting that this will change when we get the new PER?

DR. H. BEHLING: Well, it probably will be changed because of the fact that among the key elements is the issue of using the right beta to photon ratio that applies not only to --

CHAIRMAN KOTELCHUCK: Right.

DR. H. BEHLING: -- the empirical dose data, but also assumed exposures, as well as missed doses. Each time you have a photon dose assignment, you also have to convert that to a beta component --

CHAIRMAN KOTELCHUCK: Yes.

DR. H. BEHLING: -- that is, a minimum factor of 10 or more greater.

CHAIRMAN KOTELCHUCK: Right.

MS. K. BEHLING: But I also think -- this is Kathy -- that based on what I'm reading here on NIOSH's response that NIOSH I guess looked pretty closely at the detail of records and is wondering if our interpretation of those records -- I mean, sometimes looking at this data, it's difficult. And I believe what I'm reading; and maybe Scott can -- I'm not sure if it's Scott -- can correct me here, if I'm wrong, but that perhaps when we look closer at the data maybe there was not a missed dose.

DR. H. BEHLING: Yes, it's subject to interpretation.

MR. SIEBERT: Kathy, this is Scott. You are correct. That's our response, that we addressed the number of zeros for this specific portion accurately based on the records as they exist. And we gave more detail as to how to read the records.

CHAIRMAN KOTELCHUCK: Then that should resolve it.

MS. K. BEHLING: I think so.

CHAIRMAN KOTELCHUCK: I move for closure.

MS. K. BEHLING: Yes, this is not necessarily -- this particular finding is not necessarily something that will be discussed with the Work Group, but I do think it's looking at the records a little closer.

CHAIRMAN KOTELCHUCK: Yes. Okay. Any objection to closure on this?

MEMBER MUNN: No.

CHAIRMAN KOTELCHUCK: Okay. Subcommittee Members, let's close it. We can use the wording that we used above.

MR. KATZ: Well, Dave, it doesn't sound like the wording from another is appropriate here. Here NIOSH contested the reading and you just concurred with NIOSH.

MS. K. BEHLING: That's correct.

CHAIRMAN KOTELCHUCK: Okay. You're right.

MR. KATZ: This is a different

situation.

CHAIRMAN KOTELCHUCK: You're right. Okay.

MEMBER MUNN: In which case, the wording simply says NIOSH concurs with --

CHAIRMAN KOTELCHUCK: SC&A.

MEMBER MUNN: SC&A concurs with the NIOSH position?

CHAIRMAN KOTELCHUCK: Right. Right.

MEMBER MUNN: The Subcommittee has closed the -- just the Subcommittee closes.

CHAIRMAN KOTELCHUCK: Thank you.

MEMBER MUNN: Yes.

CHAIRMAN KOTELCHUCK: Good. Any further comments by Subcommittee Members?

(No response.)

CHAIRMAN KOTELCHUCK: Okay. Good. Is that the last one? Again, I don't have --

DR. H. BEHLING: No.

CHAIRMAN KOTELCHUCK: Okay.

DR. H. BEHLING: The next one is really the nature issue here, and that goes to the issue

of the one to one beta to photon ratio.

CHAIRMAN KOTELCHUCK: Yes.

DR. H. BEHLING: And that was --

MR. KATZ: What number?

CHAIRMAN KOTELCHUCK: 325.4.

MR. KATZ: Okay. Thanks.

DR. H. BEHLING: And for this particular case there were multiple options that could have been used inclusive of a table that was identified in the body of the NTS Site Profile and more definitive values that could have been used that were defined in one of the appendices, including the Niels Bohr data, which is a much more defined approach where you actually -- in addition to a ratio at one meter, you define it in terms of the actual height above the contaminated ground. So there were multiple options. And that was accepted by NIOSH and will be revised in the future revision of the Site Profile.

CHAIRMAN KOTELCHUCK: Okay. So it's accepted by NIOSH. Then that resolves the conflict. And that indeed is what we had

previously.

MEMBER MUNN: Exactly. Yes, the wording for the previous --

CHAIRMAN KOTELCHUCK: Actually it's NIOSH accepts in this case --

MR. KATZ: Right. Right.

CHAIRMAN KOTELCHUCK: -- SC&A's recommendation --

MEMBER MUNN: Exactly.

CHAIRMAN KOTELCHUCK: -- as opposed to SC&A findings.

MEMBER MUNN: Yes.

CHAIRMAN KOTELCHUCK: But there is agreement. Good. Thank you. Putting that up now. Good.

Okay. Let's go on.

DR. H. BEHLING: Yes, the next one is 325.5. And again, it goes back to the same thing. They used ORAU's OTIB-0017 when in fact the ratio of beta to photon dose should be defined, that it's uniquely limited to fresh fallout rather than OTIB-0017.

CHAIRMAN KOTELCHUCK: Right.

DR. H. BEHLING: And so I assume that NIOSH agrees with that, too.

CHAIRMAN KOTELCHUCK: Let's see. Missed doses. Right. Right. I'm not quite clear.

And how was this --

DR. H. BEHLING: Well, I think that this one -- and you might as well incorporate the next one, 325.6, because they address the same issue, the use of ORAU OTIB-0017.

CHAIRMAN KOTELCHUCK: Right.

MS. K. BEHLING: I believe the Work Group -- this is Kathy -- the Work Group has indicated that they are going to be more specific in the PPG Site Profile in getting direction or guidance for how to calculate these shallow doses and --

(Simultaneous speaking.)

CHAIRMAN KOTELCHUCK: Right.

MS. K. BEHLING: -- doses.

CHAIRMAN KOTELCHUCK: So we've got --

MS. K. BEHLING: They'll be resolved through the revision of the Site Profile.

CHAIRMAN KOTELCHUCK: For all purposes, this is a closure in terms of process.

MEMBER MUNN: And essentially the wording appears to be the same as the first one where we said this was resolved in the Work Group --

CHAIRMAN KOTELCHUCK: Right.

MEMBER MUNN: -- and closed for our purposes.

CHAIRMAN KOTELCHUCK: Okay.

MS. K. BEHLING: And the same with the next one, Number 6.

CHAIRMAN KOTELCHUCK: Yes. Right. Good.

MS. K. BEHLING: Same type of issue.

CHAIRMAN KOTELCHUCK: Yes. So let's go ahead with that. And last?

DR. H. BEHLING: The next one is, I think -- I'm only looking at the matrix. I wasn't really prepared to look at the original folders in

the Dose Reconstruction, but I believe that refers to the CATI report --

MR. KATZ: Sorry. What number?

MEMBER MUNN: Yes, again the number.

CHAIRMAN KOTELCHUCK: 325.7.

DR. H. BEHLING: Yes. That the Work Group identified a second melanoma in the CATI report that was addressed. If it turns out -- and again, there should be a record in the file, in the DOL file that would potentially verify the diagnosis of the second melanoma. And right now the box that I have where all this data are stored -- I didn't really prepare to see if in fact I actually had a record or made even an attempt to get that record. But it's strictly since item that was identified in a CATI report that was not acknowledged in the DR.

CHAIRMAN KOTELCHUCK: A-ha. Is that something you could look up during the break? Is that something that's available to you to take a look at and report back to us?

MR. KATZ: Or can NIOSH respond to

this?

MS. K. BEHLING: This is Kathy. I actually think that this goes back to DOL. I'm not sure that this was in the CATI report. It may have been in the DOL files. However, as NIOSH is correctly responding, they only can address cancers that the DOL indicate are --

(Simultaneous speaking.)

DR. H. BEHLING: Well, apparently the DOL actually regarded the second cancer as a metastatic cancer, which to [my] mind of thinking is very difficult. It's like saying if you're exposed to radiation exposure involving the whole body skin or to sunlight the potential exists, as we've observed over the past, that an individual may end up having multiple skin cancers, a squamous cell carcinoma, et cetera, that are not going to have metastatic cancers but potentially two independent cancers that just happen to be the same type of cancer. So I wasn't really sure how that was resolved.

When you have a solid cancer and then

you have a subsequent cancer and you find out that a secondary metastatic cancer identifies the same cell line, which is easily done, you can easily then quantify the -- or qualify the second cancer as a metastatic cancer. But when you have two melanomas, they could easily occur independent. So the question is, were they independent or do melanomas -- when a melanoma cancer metastasizes, the second cancer is usually a bone cancer someplace in another location as opposed to the skin.

MR. KATZ: But, Hans, the important matter here is NIOSH has to live with the DOL's determinations on these. So the case is done correctly if they apply the DOL determinations here. Now they can raise issues about that. That's independent of this, though. But you can't find them wrong for having applied the DOL determinations.

DR. H. BEHLING: Okay. And, Ted, you're right. I didn't have that information at the time I wrote my findings. All I really

identified initially, just go back to the initial record, is that there was a CATI report that identified second melanomas that were not even identified in the DR report. Whether or not they are in truth metastatic cancer based on DOL assessment was not really the issue for identifying it as a finding. It was strictly --

MR. KATZ: I think in the future the thing to do with these is to specify them as observations, because you can't have a finding where they've done it correctly. But you can have an observation and we can follow up on this with DOL in cases like this.

DR. H. BEHLING: Okay. I mean that's okay. I mean, strictly sometimes we identify a finding when a CATI report was either -- is in conflict with what was stated in the Dose Reconstruction report or is even just simply ignored as an issue. So if you want to convert such cases, such instances to an observation, that's fine, too.

CHAIRMAN KOTELCHUCK: We are looking

at our process. DOL may report things correctly or, in our judgment, not correctly, and may be revised, but if we're asking are NIOSH and SC&A in agreement, then -- and then NIOSH has done what they were supposed to do based on that diagnosis.

DR. H. BEHLING: Yes, I'm not even contesting you. You're correct. My original finding simply stated that there was no reference to the CATI report where the individual claimant had identified other melanomas. And it was strictly whether or not they were metastatic or whether they were two independent melanomas was not the issue.

MEMBER MUNN: These things do fall in the same category, I think, it’s our problem with ICD-9. That designation is often -- is they appear to be wrong, but it's not our job. It appears that all we can do in cases like this is to identify that these -- that it would appear wise for us to call it to DOL's attention. But as far as our activity here in the Subcommittee is concerned, this is not an issue that we can address.

MR. SIEBERT: This is Scott. I just also want to point out that during the CATI, if the claimant brings up additional cancers or things like that, we do instruct them at that time to contact DOL with that additional information, since they are the correct authority for dealing with that issue.

CHAIRMAN KOTELCHUCK: So to my mind this could be closed because NIOSH carried out its responsibilities based on the diagnosis of that it was given.

MEMBER MUNN: Yes, the only question is whether it should be called to the attention of DOL, just pointed out to them our --

CHAIRMAN KOTELCHUCK: Yes. Ted, you were at the PPG meeting. I thought that they did say that they were going to bring it to DOL at the end of the meeting. I just happened to look at the transcript before this meeting.

MR. KATZ: Yes, whatever -- the follow-up with the DOL, I did that.

CHAIRMAN KOTELCHUCK: Okay. Alright.

DR. MAURO: Dr. Kotelchuck, this is John Mauro.

CHAIRMAN KOTELCHUCK: Yes.

DR. MAURO: Just real quick. I noticed something interesting here. We just went through a number of findings and observations for DuPont and for PPG. This is a perfect example of if we could have had this information in the Subcommittee's hands a week ago or so where these were described just the way they were described here, I think that that would have expedited the issues resolution. Because these are exactly the kinds of things that if we could have before the Board -- before the Subcommittee in writing well before the meeting, I think there's where we get a little bit more expedient. Because we spent about an hour or so --

CHAIRMAN KOTELCHUCK: That's right.

DR. MAURO: -- doing this. So I'm just raising this to say I think this is where we're going to buy some time --

CHAIRMAN KOTELCHUCK: Great, and --

(Simultaneous speaking.)

DR. MAURO: -- [with] the new method.

CHAIRMAN KOTELCHUCK: Very good. And that's appreciated. Let's buy some time by closing this out --

(Laughter.)

CHAIRMAN KOTELCHUCK: -- and getting on to our blind reviews, folks.

It's a question of what's the wording for the closure? I'm open to suggestions.

MEMBER MUNN: This is another one of those situations where it was addressed in the Work Group, and for our purposes closed.

CHAIRMAN KOTELCHUCK: Yes.

MR. KATZ: Well, I think the wording here is -- I mean, the specification of the melanoma doesn't need to be addressed in the DR report. So that's how you close this. It didn't need to be in the DR report, and it wasn't, and that's fine.

MR. BARTON: Ted, could I make a comment here? This is Bob Barton.

MR. KATZ: Yes.

MS. BARTON: Because I think we all agree that the dose reconstruction was done correctly in that correct cancers were reconstructed. I think really what Hans was saying is that all the information that you gather in the CATI report, it would be nice if that was all reflected in the actual DR write-up so that from the claimant's perspective they know that all the information that they're providing is --

(Simultaneous speaking.)

MR. KATZ: Well, I understand that in general and I agree totally in general. In this matter, though, which is not a dose exposure matter, but their cancer. If they're told in their interview if you have another cancer, go -- that doesn't have to be reflected in the Dose Reconstruction, that they should go to DOL for another cancer. So I mean, I don't think that belongs in the Dose Reconstruction report. I totally agree with you when it comes to where they discussed exposures, other exposures they had and all that, but this is something where they get told

if you have another cancer, go to DOL. They don't have to write that up in the report.

MR. BARTON: Okay.

CHAIRMAN KOTELCHUCK: It was properly evaluated according to DOL report. Closed.

MR. KATZ: Yes.

CHAIRMAN KOTELCHUCK: Okay.

MR. KATZ: Okay. Good. Okay. Confirmed cancer. Closed.

Folks, this closes it out and this closes out Sets 10 through 13. We spent --

MEMBER MUNN: Who has the champagne?

CHAIRMAN KOTELCHUCK: Right. Not quite. We have -- Kathy, did you want to say something?

MS. K. BEHLING: There are actually several DCAS cases that are still open in that matrix.

CHAIRMAN KOTELCHUCK: A-ha.

MS. K. BEHLING: We have two for Hooker that are awaiting Work Group action and --

(Simultaneous speaking.)

CHAIRMAN KOTELCHUCK: Okay.

MS. K. BEHLING: -- two for IMC Corp. and two for Koppers that are --

(Simultaneous speaking.)

CHAIRMAN KOTELCHUCK: Two for -- would you please repeat that? I just want to take it down. Two for Hooker.

MS. K. BEHLING: IMC Corp.

CHAIRMAN KOTELCHUCK: Pardon?

MS. K. BEHLING: Two open findings and four observations for Hooker.

CHAIRMAN KOTELCHUCK: Yes.

MS. K. BEHLING: As well as two open findings for Koppers Co.

CHAIRMAN KOTELCHUCK: Yes.

MS. K. BEHLING: And two for IMC Corp.

CHAIRMAN KOTELCHUCK: Two for IMC Corp. Okay. Thank you.

Now, folks, it's 11:50 East Coast time. We would normally work until around 1:00 unless there's a call for a comfort break. We could take a comfort break if people want for a couple of a

minutes, or we can --

MR. CALHOUN: I'll speak up and say a comfort break would be nice.

CHAIRMAN KOTELCHUCK: Okay. That's all that's needed. We will take six minutes, folks, and get back at 12:00 and we'll work through 1:00 on the blind reviews. Okay? And then we'll stop for lunch. How does that sound?

MEMBER MUNN: Good.

CHAIRMAN KOTELCHUCK: Good. Okay. Closed until noon.

MR. KATZ: That's sounds good.

CHAIRMAN KOTELCHUCK: Thank you, folks.

(Whereupon, the above-entitled matter went off the record at 11:54 a.m. and resumed at 12:02 p.m.)

MR. KATZ: Okay. Well, why don't we just move on. I'll get to that question. I mean, that's separate, really.

CHAIRMAN KOTELCHUCK: Well, I know I really --

MR. CALHOUN: Grady is on the line.

MR. KATZ: Okay. I was just trying to follow up with this issue that Rose raised that there was --- Hooker I can understand. For some reason, my thinking is, is that the Work Group can't meet on Hooker, because they don't have --- materials aren't ready for Hooker.

THE COURT REPORTER: I'm sorry. Do you want this transcribed?

MR. KATZ: I'm sorry, yeah. You're on the record again. Sorry, Charles.

THE COURT REPORTER: Thank you.

MR. KATZ: Thanks. But then these other cases that Rose raised, two for Koppers Co. and one -- two for IMC, Grady, do you have those on the list to get responses for?

MR. CALHOUN: I do.

MR. KATZ: What happened there?

MR. CALHOUN: I'll do the IMC one, because that one is easy.

MR. KATZ: Okay. Carry on.

MR. CALHOUN: First of all, I'm not

sure that --- well, let's just say it's like DOL. The operational period is the operational period. Okay.

If you look at the DOE website, it goes to 1961. Okay. And the finding is that we assigned dose through 1961 and that we shouldn't have. We should have stopped in 1959.

First of all, I'm not --- I don't believe that that's very questionable, but I'll explain this further.

The point was made that the pilot plant stopped operations in 1959. And I've got the DOE website open right now. And, in fact, it did. But what happened is after 1959, commercial extraction process moved into there.

And what we do with the residual contamination study, which again I'll say I don't believe is subject to the review of this Subcommittee, is that when we can't determine that commercial contamination or radiation dose is --- if we cannot determine that the contamination is distinguishable from AEC contamination, we have to

assume that the dose is required to be assigned for that whole purpose.

So the residual contamination, in fact, the period starts in 1962. We assign dose through 1961, because there was dose through 1961. So that's the end of the story, really.

Do you understand that?

MR. KATZ: Yeah.

CHAIRMAN KOTELCHUCK: Yes.

MR. KATZ: That's absolutely correct as far as I know --

MR. CALHOUN: Yes.

MR. KATZ: -- in terms of policy and regulation. Right.

MR. CALHOUN: I mean, really, if you just look at the DOE website, it says that it's an AWE through '61.

Now we can assign less dose based on what they were doing in 1961, but we can't assign no dose because we say that we think that the operations stopped.

The only way that can happen is if we

change the residual contamination period.

MR. KATZ: Right.

CHAIRMAN KOTELCHUCK: This should be dealt with. We don't know if this is the right time in the meeting to try to deal with this, but ---

MR. CALHOUN: There's nothing to deal with it.

MR. KATZ: Well, you can close this finding, Dave. What Grady is saying is correct and I think SC&A ---

CHAIRMAN KOTELCHUCK: It does sound correct, but I --- fine.

MR. CALHOUN: It doesn't seem that this should be open anymore.

CHAIRMAN KOTELCHUCK: Okay. What case is that? What case number?

MS. ROLFES: 281, Finding 1.

CHAIRMAN KOTELCHUCK: Pardon? 281.1.

MS. ROLFES: One.

CHAIRMAN KOTELCHUCK: Okay. And I --- okay. Do we close that, folks?

MEMBER MUNN: Yes.

CHAIRMAN KOTELCHUCK: Okay. Fine.

MEMBER MUNN: As long as we have agreement from SC&A. That's all we have to do ---

CHAIRMAN KOTELCHUCK: Yes.

MS. K. BEHLING: I think that sounds reasonable.

MEMBER MUNN: -- as long as SC&A says that's correct.

CHAIRMAN KOTELCHUCK: Yes, it does.

MS. K. BEHLING: And, in fact, it would be claimant-favorable either way to assign more dose.

CHAIRMAN KOTELCHUCK: Right. Right.

And for the others, let's handle them ---

MR. KATZ: Well, I thought Rose said there was a second finding for IMC.

MS. GOGLIOTTI: I believe there is.

MR. CALHOUN: They're the same, I think.

CHAIRMAN KOTELCHUCK: Okay. Go ahead.

MR. CALHOUN: Yeah, the findings are both the same for IMC, basically. It's just that we didn't use dates that matched the residual history of the facility, but, in fact, we did.

MR. KATZ: So, what is the number of the next finding?

MR. CALHOUN: 281.2-G3.

MR. KATZ: Okay.

MR. CALHOUN: The first one was 281.2-F3, is what I have.

CHAIRMAN KOTELCHUCK: Wait a minute. Both of those Hooker cases ---

(Simultaneous speaking.)

MR. CALHOUN: IMC.

CHAIRMAN KOTELCHUCK: No, we're on IMC, but 281 was Hooker, I thought. The first 281.1 we just finished.

MR. CALHOUN: No, that's IMC. 281 is International Minerals Corporation.

CHAIRMAN KOTELCHUCK: IMC, okay. We've raised a whole new item on the agenda and I would like to get back to the agenda.

MR. KATZ: Our position is closing out your sets 10 through 13, no?

MEMBER MUNN: We can close it.

CHAIRMAN KOTELCHUCK: Okay.

MR. KATZ: I mean, if you want to get to the Secretary's report, I would close it.

MEMBER CLAWSON: Dave, this is Brad. I think these right here we can take care of relatively fast and close out this whole set.

CHAIRMAN KOTELCHUCK: Okay. That's the case and I'll --- so be it. Then could someone summarize for me then what cases we have closed?

The 281.1 that we talked about a few minutes ago, I thought that was Hooker.

MEMBER MUNN: No.

CHAIRMAN KOTELCHUCK: That was the extension of Hooker. I'm wrong. It was IMC.

MEMBER MUNN: I think IMC.

CHAIRMAN KOTELCHUCK: Okay. And the next one we talked about or were talking about?

MS. GOGLIOTTI: We are still talking about IMC.

CHAIRMAN KOTELCHUCK: Okay.

MR. KATZ: And it's exactly the same situation, it sounds like.

CHAIRMAN KOTELCHUCK: Right. And that's 281 point ---

MS. GOGLIOTTI: Two.

CHAIRMAN KOTELCHUCK: Okay. Go ahead with the next one.

MS. GOGLIOTTI: There also are two remaining open in Koppers.

CHAIRMAN KOTELCHUCK: Right.

MR. CALHOUN: Yeah, the ones with Koppers I don't know. Those are kind of weird. I don't know how we close those out, because basically there's not a TBD for those. And the comment basically is that you couldn't --- we couldn't figure out how we did the DR.

So I don't know if you want us to give you a step by step of how the DR was done, or what to do.

MEMBER MUNN: Apparently more detail was needed.

MR. KATZ: Yeah, I think that the course forward would be for SC&A to get the procedure that was applied for the DR.

MR. CALHOUN: There wasn't one.

MR. KATZ: No, but there must be --- you did a DR. You must have followed some methods.

I'm not saying you have a published procedure, but they need obviously the details of the methods so that they can consider and resolve them.

DR. MAURO: This is John Mauro. Yeah, I was involved in Koppers. I think this goes back to the TBD-6001 issue.

And of course they withdrew TBD-6001 and they did this case. And I believe as just was pointed out, there was no Site Profile for Koppers. And I don't think that we were in the position to be able to review what was done.

I didn't, quite frankly, I did not research this in preparation of the meeting, but I believe that we left it off that in light of that circumstance that there was no --- unlike DuPont

that had a new Site Profile after they withdrew TBD-6001, I don't believe Koppers did.

And as a result, SC&A was at a loss to be able to review it. And I see by my notes here that NIOSH indicated that they would take a look at this to see if they could explain this for the case.

So, I mean, that's all I can offer at this time.

MR. KATZ: Right. No, so all I'm saying is as to proceed, but we don't need to spend more time on this, but, Grady, if you folks can provide ---

MR. CALHOUN: Yeah, we'll get something out there.

MR. KATZ: -- information to them so they can do that review, then we can get that done.

MR. CALHOUN: And how we failed in this one is that when we do these, we intend to make the DR itself detailed enough so that you can tell exactly what we did, but obviously we did not do that very well.

MR. KATZ: Right. Right.

CHAIRMAN KOTELCHUCK: Okay. So you'll talk with each other.

MR. CALHOUN: Yes, I will.

CHAIRMAN KOTELCHUCK: Okay. And there were two more?

MS. GOGLIOTTI: Yes, there was another Koppers here.

THE COURT REPORTER: Speaker, please identify yourself.

MR. CALHOUN: Same thing, I think.

MS. GOGLIOTTI: Is it more of what did you do?

MR. CALHOUN: Pretty much.

MEMBER CLAWSON: Rose, I think Charles may need you to identify yourself to make sure we have the right person.

MS. GOGLIOTTI: This is Rose Gogliotti with SC&A.

MR. CALHOUN: Yes, both of these basically are the same thing. That would be 282.1-C21 --- this is Grady, by the way -- and

282.2-F3. Both of them are basically saying that it's lacking -- at a loss for evaluating NIOSH's response.

MEMBER MUNN: And we don't have the exposure matrix that -- for Koppers that was available in TBD-6001.

MR. KATZ: Okay. So we're good, Dave.

CHAIRMAN KOTELCHUCK: Okay. I thought there were a total of six.

MS. GOGLIOTTI: There is also one observation open here. 314, Observation 2. And then the two open Hooker and four observations for Hooker.

MS. K. BEHLING: This is Kathy. 314, what facility? What site is that?

MS. GOGLIOTTI: This is ---

MR. CALHOUN: What is it? I can't see that either.

MS. GOGLIOTTI: I believe it is Bridgeport.

MEMBER MUNN: Bridgeport Brass. That's what it says.

MR. SIEBERT: I'm sorry. This is Scott. 314 is the uranium mill in Monticello.

MS. GOGLIOTTI: Okay.

MEMBER MUNN: Oh, it says right above, yeah.

MR. CALHOUN: I remember this one. I got to get back with you on that one. That's that crazy radon one.

CHAIRMAN KOTELCHUCK: Alright.

MEMBER MUNN: And, again, observation, not finding.

MR. CALHOUN: Right.

MEMBER MUNN: Keep in mind.

MR. KATZ: Right. So we don't have to put that to bed, but we do need to put the Hooker --- so, Dave, what's remaining there now is the procedure for finishing out Koppers. So we can't get those two cases.

And then Hooker, and I'm not certain about this, but I think the Work Group can't proceed because the Site Profile work hasn't been completed yet related to Hooker or something.

I'm not sure about that, but I'll follow up on that.

CHAIRMAN KOTELCHUCK: If you would.

MR. KATZ: Yeah.

CHAIRMAN KOTELCHUCK: Okay. Then let's go to the blind reviews. We have resolved some of them. We've resolved the two IMC.

We have something ongoing for Koppers that SC&A and NIOSH will talk. And we're waiting for the Site Profile on Hooker, which Ted will follow up on.

On the blind reviews, we're coming back to it after a long time. Kathy was kind enough to talk about summarizing where we have been and where we are on that.

Kathy.

MS. K. BEHLING: Yes. Rose does have the summary table that I compiled, on the screen. And I'll just briefly go through where we are to date.

We have been assigned since the beginning of this project, 14 blind cases. The

first two that I have listed there, I think it was under the first contract period, the blinds were actually assigned in 2009 and 2010. And we had submitted the comparison report of those blinds.

The first one there, Portsmouth, was submitted in November of 2012. And actually during the November 27th, 2012 Dose Reconstruction Subcommittee meeting, we did have an opportunity to present our findings or just to present the comparison report.

However, we thought that since that was a fairly long time ago and not all of the current Board Members were probably part of the Subcommittee at that time ---

CHAIRMAN KOTELCHUCK: Correct.

MS. K. BEHLING: -- we would give you just a sort of brief overview or summary of that today.

The second blind during that period was X-10. We have not discussed that comparison report, which was sent out to you in January of 2013.

And thereafter as part of the 17th set, we were assigned six blinds as you see on this list.

And I do have to apologize. I recognized today, actually this morning, I put in some incorrect PoC values under the Savannah River Site, the very last one there on the first page.

All of those PoCs were greater than 50 percent. And I'll discuss that in further detail once we get to that, but they were all greater than 50 percent. All three methods determined that that would have been a compensable case.

And I also will go back --- the original two blinds that we were assigned at that time, NIOSH --- or SC&A was asked not to assess a PoC value. So, that's why you see NC, not calculated, for those first two blinds, but thereafter we have done our doses and then followed up with a resultant PoC.

Then finally this 20th set, again under the 20th set, we were assigned six blinds. To date, we have --- and some of these were just recently like yesterday we got the comparison reports.

And there are two blind comparisons. We've completed all of the blinds in the 20th set. We have changed our methodology a little bit on this 20th set where in the first eight cases we did a Method A --- SC&A did a Method A, which is trying to duplicate what NIOSH does using all the same tools and guidance documents.

And we also did what we call a more --- I don't want to say practical health physics approach where -- a Method B where we don't use the workbooks and we make a comparison.

Then on this last set, the 20th set, we were instructed only to do the Method A, which is more of a direct comparison to what NIOSH does in their adjudicated cases. And that's what you see there on the second page.

We have completed all of the blinds. And what we have been instructed to do is once we complete those blinds, we send out a memo.

Prior to this 20th set, we used to actually send out a formal blind report. But as was mentioned, it doesn't really say a lot to you

if you don't know what --- we don't make a comparison.

So with this 20th set and I assume in going forward if we're assigned any additional blinds, we'll simply inform you via a memo saying these were our total doses, this is our resultant PoC.

And then once you get that memo and you are convinced that we've done our blind, we will go ahead and start the comparison to our blind compared to NIOSH's blind --- or NIOSH's adjudicated case. And that's what we have done for the 20th set.

We're still working on the comparison report for two of these six blinds under the 20th set.

Now, what we thought we would do today if you're in agreement with this, is go through --- and I will try to prepare you. When we go through these blinds, it's a fairly detailed explanation that we have to provide in order --- especially when we see that there are significant differences in

dose and perhaps in PoCs.

So it's going to be like almost a one-on-one process for the dose reconstructions where we're going to walk you through step by step what we did and between, you know, our two methods initially and then what NIOSH did, where there were similarities, where there was differences and why those differences existed, if you're prepared to hear all that today.

Are we okay with that? We will try --- we understand that we have a lot to go through. And what we were planning on doing between Doug Farver and Ron Buchanan and myself, we were going to take turns going back and forth and walking you through these various cases.

CHAIRMAN KOTELCHUCK: Okay.

MS. K. BEHLING: If you're in agreement.

MEMBER MUNN: Dr. Kotelchuck, this is Wanda.

CHAIRMAN KOTELCHUCK: Go ahead.

MEMBER MUNN: I'd like to before we

even start talking about this, I really want to thank SC&A and I suspect that this is Kathy's work we're looking at, for getting this table of metrics to us.

This is the crystal clear difference comparison that I personally, me, can see. And it was great.

I was astonished when I first saw it, but as I started going through it item by item I realized what an excellent comparison it is.

My suggestion would be that before the Subcommittee begins going through this in a case-by-case fashion, and I don't see any other way to get through it, personally, it appears to me that it would be wise for us to consider establishing what we consider a significant enough difference in the metrics that we see to pursue.

In other words, we are going to be looking at total doses as viewed by each of the methods that were used.

And do we consider less than a hundred millirem worthy of consideration, or are we talking

about doses of one rem and above as being worthy of our time to discuss the differences?

If we don't make some distinction here as to how large a variation we want to spend time looking at, then we can spend a lot of unnecessary time thinking about each of these.

CHAIRMAN KOTELCHUCK: Well taken. Thoughts, folks?

MEMBER CLAWSON: Well, this is Brad. You know, I understand the dose of it. But when we start taking a look at dose, a little dose here, a little dose there, it all adds up, or do we need to take a look at the end process what the PoC comes out?

You know, to me, that's the end result is what the PoC comes out. We can have a lot of little doses and they can add up, or do we want to take a look at the end?

But it's just my opinion, Wanda, but, you know, I guess my thing is looking at the end process, what got us to that.

CHAIRMAN KOTELCHUCK: I really concur

with you, Brad, that I think first let's look where the PoCs differ -- or where the decision differs, in fact, not even the PoCs. The decision differs.

MEMBER CLAWSON: Right. And I agree wholeheartedly with Wanda that, you know, the little doses, you know, what a big difference.

But what I am saying is, yeah, we can have -- well, they can be off a little bit here and there on doses, but it seems like, you know, it goes back and forth who has it and what I am just saying is I wanted to take a look at the end result.

Wanda is absolutely right. We can argue all day about how they come up with that, but the end result is what I'm more focused on.

And maybe that's wrong, but, you know, that's kind of how I ---

CHAIRMAN KOTELCHUCK: Yeah.

MS. K. BEHLING: Excuse me. This is Kathy and I'll just throw this out for consideration.

When I went through these comparison reports, I found it very interesting and it's

something that I did try to point out in the report.

There were times that the doses were very close, but the methodology to get there was different.

I saw cases where each method used the same table from the same TBD and came out with very different doses because of professional judgments regarding should you use the 50th percentile, how do you classify this worker? Is he an admin worker? Is he a laborer? Is he a supervisor?

So it was interesting to me to see those types of differences. And so you might see doses that look almost identical, but the approach to getting there in some instances was very different.

If I can just --- and, you know, one of the things as we were preparing to have this discussion today, Rose had made a comment that perhaps going forward we would want to deal with these blinds on --- as we do with the one-on-ones because they are complex.

And from my perspective now especially, like I said, since I've gone through most of these,

I've done most of these comparisons, it's very interesting to see what you --- the outcome.

And, like I said, it's not always just the dose. It's just the approach and how we get there.

Now what we were trying to do today was keep it --- even though we have to work through it all -- keep it as clear and simple and only point out to you when there are significant differences either in methodologies or in doses.

And sometimes doses can be fairly similar. But because of uncertainty factors as how these data were entered into IREP, the PoCs will be very different even though doses are the same.

So I would just caution you a little bit for not letting us walk through these.

Now, perhaps that's not something you're willing to do today and maybe we do want to think about doing our one-on-one-type thing in the next week. I don't know.

MR. KATZ: This is Ted, Kathy. I mean, I agree. I'm not sure about the one-on-one even

what you're meaning, because I don't think doing this just with an individual Board Member or two is really the way to go at all. It's not really informative for the larger --

MS. K. BEHLING: Okay.

MR. KATZ: I do think we invest a lot, Dave, and the rest of you Subcommittee Members, in doing these blind reviews. We've invested a lot of resources, effort, and I think that there is a lot of insight to be gained by going through these sort of the way Kathy is saying, irrespective of where the PoC comes out or what have you.

So I would really hate for the Subcommittee to give short shrift to this sort of pretty major effort that I think has the possibility of, you know, at least raising some useful discussion, insight and understanding of how dose reconstructions are done currently and differences and how to think about what's needed down the road in terms of case reviews. So that's my pitch.

CHAIRMAN KOTELCHUCK: Well, I respect

that that would be very interesting. But if I may comment overall with it, I am impressed at how close the PoCs are. They're all within about two percent with one exception on the 20th set.

That's the one I certainly want to focus in on, or put it this way: I want to find out when there is a difference of decision or if those are the things that we need to look at most actively. That's to say those are my --- I would say that's a priority issue.

I'm also wondering --- I received --- Ted, you sent me Kathy's report from February 2015 on Rocky Flats blind dose reconstruction. I didn't see that here.

Kathy, did you mention that or did we hold on that before? Did I miss it?

MR. KATZ: It's covered in the report I saw.

MS. K. BEHLING: I believe you're talking about under the 20th set lines on the second page of my summary table. There is the third -- fourth case down is at Rocky Flats plant.

CHAIRMAN KOTELCHUCK: Is that -- that's a different number than I have. I have [identifying information redacted].

There it is. There it is. Okay. We hadn't scrolled down enough.

MS. K. BEHLING: Okay.

CHAIRMAN KOTELCHUCK: I'm sorry. It's the 17th set. We were looking at the 20th.

That was another one that was very concerning, because the decision was fundamentally changed depending on which approach [was taken].

I would only say that those represent priorities, in my mind, for the first ones I want to go over.

MR. KATZ: Yeah, I'm not disagreeing with you at all, Dave, on that.

CHAIRMAN KOTELCHUCK: Yeah.

MR. KATZ: I just was, again, pitching that we really give consideration at the end of the day to all of them.

CHAIRMAN KOTELCHUCK: Sure.

MR. KATZ: Yeah, that's all.

MR. CALHOUN: This is Grady. I think, yeah, I think that's alright. I think that maybe we need to make sure we go into this with a very open mind, because the -- I've got this feeling that we're not going to close any of these out with this method.

And although I hate to volunteer it up, I mean, maybe we need to -- maybe we're going to ultimately need to provide written response back on all these so that that can be reviewed before the meeting.

I'm all for trying to do it the way you want to do it. I just -- I have a tendency to believe that this is going to be very, very complicated and very long and cumbersome, but I'll be open-minded and see how it goes.

CHAIRMAN KOTELCHUCK: Yeah.

MS. K. BEHLING: And I'll also point out, this is Kathy again, that we did not make any findings as you are used to seeing in our dose reconstruction reviews.

We simply laid out the three

methodologies that were used at least prior to the 20th set, and then the two methodologies, the SC&A and NIOSH.

We didn't really identify any specific findings. We just laid out this is how one reviewer -- the approaches that they took, the decisions that they made, and this is how another dose reconstruction auditor viewed that same data.

CHAIRMAN KOTELCHUCK: Right.

MS. K. BEHLING: So there's no specific findings that can be addressed. Now, as Grady is saying, there will be -- and one of the things that I tried to do when I was writing up these comparison reports and, in fact, the Allied Chemical is a very good example, I tried to explain why if there was certain data that was used or there was percentages, in fact, in that particular case, NIOSH used a percentage of data in a generic TBD --- or, no, OTIB, their justification for doing that and that will become a discussion point during that particular blind.

CHAIRMAN KOTELCHUCK: Right.

MS. K. BEHLING: I did try to explain, you know, their justification for doing what they did and why SC&A maybe did not make that decision.

CHAIRMAN KOTELCHUCK: Okay. Right. And I ---

MS. K. BEHLING: The other thing that I will make mention of is one of the other things --- and, again, here we do have to apologize because we didn't get all of these comparison reports into your hands.

Some of them from the 20th set especially just came in within the last few days, although you have had the other eight comparisons for some time.

One of the things I really tried to do was make it very, very clear, lay out the report in a very clear fashion.

And if there are any changes that you would like to see in this comparison report, let us know, but I think that the approach that we took in writing this up, I tried very hard to make it very concise and clear so that you could compare

apples to apples.

CHAIRMAN KOTELCHUCK: I'm going to repeat what Wanda said before, which is to say I really appreciate the clarity of these tables.

And although you stated that we all had these before, I do not feel that I had those before. And I must say I was -- I spent part of the day yesterday trying to look up what we had done under the 17th set. And even going into the transcript, I could not follow it with any clarity.

So this is, in a way, other than two that we discussed in our Subcommittee meetings, this is the first time, if you will, I've seen them in a set.

MS. K. BEHLING: Okay. You're correct. The 17th set were all -- comparison reports were all sent out by the end of February. They came in, in the December, January, February time period of this, you know, 2014-2015.

CHAIRMAN KOTELCHUCK: Yes.

MS. K. BEHLING: So, you're correct there. And, again, my apologies with that.

CHAIRMAN KOTELCHUCK: Well, I appreciate going -- we're going forward now and I appreciate having clarity now to move forward.

How should we -- let me, perhaps, may I hear from other Subcommittee Members about how -- their sense of how we should proceed?

Brad and I and Wanda have spoken. John or David, might you have some comments for us about what's your sense to how we might go forward?

MEMBER POSTON: Well, I've been sitting here listening. And since I didn't have anything to disagree with, I didn't think it was necessary to repeat anything. I agree with what's been said so far.

CHAIRMAN KOTELCHUCK: Okay. Which is to say focus in on -- I don't want to put words in --

MEMBER CLAWSON: David, this is Brad. I'm going to tell you the truth. I think we've got to first get into them and see what -- be able to figure out a path forward for what's relevant and what isn't.

I think we've got to be able to start

into them and start evaluating them. And to tell you the truth, I've been sitting back looking at all this information, what it's given me, you know.

CHAIRMAN KOTELCHUCK: Yeah. Well, I think that sounds like a sensible approach unless, David, did you want to say something? Did I cut you off?

MEMBER RICHARDSON: No, you didn't cut me off. Yeah, and I think Grady's concern is possibly well founded. I think we'll have to get into it and see, but potentially [it] could be pretty complicated.

CHAIRMAN KOTELCHUCK: Yeah, that's what I'm worried about, too. On the other hand, maybe we should do one, as Brad suggested, in detail. And then after that, see how, based on that discussion, how we might move ahead more rapidly.

I would just say as a priority, I would take one where the PoC, the decision was flipped.

MS. K. BEHLING: Okay. In fact --- this is Kathy again. I was going to suggest the

same thing.

Can we perhaps start with the Allied Chemical from the 17th set, the first one listed under the 17th set? I'm prepared to discuss that and I'll try to keep it brief enough that we can get that done before lunch.

CHAIRMAN KOTELCHUCK: Oh, my goodness. Oh, yes. Fine. I'm impressed that you think we can finish it before lunch.

MS. K. BEHLING: Well ---

CHAIRMAN KOTELCHUCK: But be that as it may, I think that's a good --- I concur. How do others feel? Good? Shall we go ahead with that one?

You're ready to talk about it and --

MS. K. BEHLING: Yes, I am. And, in fact, I believe it was Doug and John Mauro who they initially did --- Doug, I believe, did SC&A's Method A, and John Mauro did Method B.

And then I as an independent, I reviewed everything, peer reviewed and then put together the comparison report.

So if during my discussion John and Doug want to jump in, please don't hesitate. And I see Rose has this particular case up on LiveMeeting.

CHAIRMAN KOTELCHUCK: Yes.

MS. K. BEHLING: I'll start as we do with our dose reconstruction audits. This particular case was obviously an individual that worked at Allied Chemical.

If we go to Page 7 of the report, we put together on Table 1.1 a comparison of Method A's dose, Method B's dose as I did similar in our overview ---

CHAIRMAN KOTELCHUCK: Right.

MS. K. BEHLING: -- and NIOSH. And as you can see, there are significant differences in dose primarily in the internal dose.

And the other thing that was interesting with this is that SC&A's Method B did a partial dose reconstruction and only considered the radon component. And we'll talk about that in a little bit more detail.

MR. SIEBERT: Hey, Kathy. I'm sorry.

This is Scott Siebert. I just want to clarify for some that there are multiple Allied Chemicals out in the complex.

This specific claim is dealing with Allied Chemical and Die Corporation in Delaware.

MS. K. BEHLING: Yes.

MR. SIEBERT: Probably not the Allied Chemical that most people think of when we say Allied Chemical.

MS. K. BEHLING: Thank you. And I should have clarified that. But if we go now to Page 8, this is Allied Chemical and Die of North Claymont, Delaware.

This individual worked at that facility from [identifying information redacted] through [identifying information redacted]. And then there was a year break and started again in [identifying information redacted] through [identifying information redacted].

The individual was a [identifying information redacted]. There were no monitoring records. And there is no Site Profile or survey

data or Technical Basis Document for this Allied Chemical site. The individual was diagnosed with a [identifying information redacted] cancer in [identifying information redacted].

Now, since there was no monitoring data and there's no TBD, I've listed there the various guidance documents that were used by the three different methods.

CHAIRMAN KOTELCHUCK: Kathy, pardon me for interrupting. Could somebody scroll to that page you're talking about, Page 8?

MS. K. BEHLING: Page 8.

CHAIRMAN KOTELCHUCK: Thank you.

MS. K. BEHLING: Okay. Yeah, there we go. And if we scroll down a little bit further, we can see that the type of documents were used, there is a generic OTIB out there, OTIB-43, that seemed appropriate for this particular case.

Also, they used Battelle TBD-6000 for portions of the doses. OTIB-70, residual radioactivity at the AWE sites was used. And for one of the methods, they used surrogate data from

the Blockson Chemical Company, which is the TKBS-0002 that you see.

And then finally for the radon data, they used the Florida Institute of Phosphate Research report for assigning the radon dose, which we'll discuss in just a brief time.

If we move on to Page 9, Table 2.1, this is where I try to lay out a comparison of the data and assumptions used by the different methods.

As you can see, I'm not going to go into detail on this, because we'll go into detail as we go through the report, but I try to summarize the different, like I said, approaches that were --- and data that were used for each of the dose elements, but we'll get into more detail as we go through this.

If we can move on to Page 10 and we'll discuss the external dose and how photon doses during the operational period were calculated.

Now, NIOSH and SC&A's Method A used OTIB-43 for assessing this particular dose. The only thing is, their approach to doing this was a

little bit different.

There is a Table 4.1 --- yeah, 4.1 in OTIB-43 that provides upper bound doses and also a geometric mean exposure rate.

What NIOSH determined they would do is take 10 percent, use 10 percent of that upper bound external exposure of 220 millirem per year from Table 4.1 to calculate the 30 to 50 and greater than 250 doses.

And I'll explain a little bit later why they did that once we get into the internal dose at least based on communications that I had with David Allen from NIOSH, because it wasn't clear to me in the dose reconstruction report why that was done.

They also used a DCF value. They used the exposure to organ DCF value. And you can see if you scroll down a little bit, I actually did a calculation. I did one of the calculations for one of the years for you as an example.

Now, Method A, this method used the geometric mean value from OTIB-43. Same table,

but different decisions being made here. This is what I wanted to point out.

And, like I said, this 10 percent issue was something that NIOSH looked at the maximum value applied at 10 percent where we -- where SC&A's Method A just used this geometric mean value.

As I indicated up front, so you're not confused by the fact that I'm not talking about SC&A's Method B, that method only looked at the radon dose and felt that that was enough --- the radon exposure was enough to put this individual over the 50 percent. So they did a partial.

If we go on then to Section 2.1.2, which is on Page 11, this is photon dose during the residual period which begins in 1970. And this individual obviously worked throughout the operational period.

And at least up until 1975 of the residual period, I think the residual period goes out to '77, again NIOSH used the same methodology. They calculated based on a 10 percent of this maximum value.

SC&A, now is where SC&A picked up OTIB-70 and looked at the adjustment factors to account for depletion of the source term based on methodology in OTIB-70.

And if you scroll down a little bit, our Table 2.2 shows residual doses and based on the adjustment factors that were pulled out of OTIB-70 for calculating the photon doses during the residual period.

We'll go on and I do provide a little comparison table there, Table 2.3 of the photon doses calculated by each of the methods. And you can see in this particular case with the externals, the differences are not real significant. They get much more significant when we start talking about internal doses.

Occupational medical, again, Method B did not consider occupational medical. Both NIOSH and SC&A's Method A calculated occupational medical doses.

They assigned annual doses for the operational --- yeah, here was the difference.

They both used same documents. The only thing is that NIOSH signed the occupational medical only for the operational period while SC&A's Method A assigned annual occupational medical dose for both the operational and residual period.

So, that's why you'll see in Table 2.4 a little bit of a difference there in dose. That's why the SC&A dose is a little bit higher.

Okay. Going on to the internal doses now, Page 13. Now here is where I'll try to explain NIOSH's rationale for, again, they calculated internal doses during the operational period using 10 percent of a maximizing intake value from Table 4.3 of OTIB-43.

And they based that on the fact that they said due to the fact that this was a bench scale operation going on at the Allied Chemical and OTIB-43 is based on a large scale production, they felt that the assumption of 10 percent was appropriate. So that's why they made that decision.

While we're at this point, and I'm going

out on a limb here a little bit, but the only question that I did have in my mind that I'll just put out there is do --- and I didn't go back to verify this. I'm wondering with this particular case or with this particular site, do all dose reconstructors use this 10 percent value?

And just as I was working through this, I wondered if there might even be, and NIOSH could probably answer this for us, they often have these guidelines or notes, as we used to call them, that help to guide the dose reconstructors to all make similar decisions.

And in this particular case it just struck me, was this a professional judgment that was used just by this dose reconstructor, or do all dose reconstructors maybe know that this is an option they should consider using this 10 percent?

And we can go on, and then, NIOSH, I don't think they're probably in a position to necessarily answer that question today, but I go through some calculations here as to how they went about doing their internal dose calculations.

Now SC&A in this case for the operational internal dose, this is where we decided, well, we're going to use surrogate data.

And so, we went into the Blockson Chemical site TBD and made a list of assumptions. I think Doug has about eight different assumptions here -- if we scroll down between Page 13 and 14 -- as to what went into calculating the internal doses. And I summarize those for him in Table 2.5 at the bottom of that page.

So, again, two different methodologies and approaches to calculating internal dose for the operational period.

As you can see, NIOSH used the OTIB-43 and Doug used a combination of Blockson and OTIB-43 in his assumptions.

If we move on to inhalation doses during --- oh, and as you can see, okay, one other thing I wanted to point out -- let me see if I did this right.

CHAIRMAN KOTELCHUCK: Pardon me.

MS. K. BEHLING: Yes, I'm sorry.

CHAIRMAN KOTELCHUCK: What is Blockson?

MS. K. BEHLING: Blockson Chemical is another Site Profile that deals with phosphogypsum. So it's a similar ---

CHAIRMAN KOTELCHUCK: Okay. I hadn't been aware of the existence of ---

MEMBER MUNN: Yeah, a very similar process and almost identical. We dealt with it at great lengths prior to your arrival on the Board.

CHAIRMAN KOTELCHUCK: Very good.

MEMBER MUNN: Several years ago.

CHAIRMAN KOTELCHUCK: Very good. Okay. Well, thank you.

MS. K. BEHLING: And I just want to point out I'm trying to go through this quickly. So I'm missing some of my notes here.

The inhalation dose that was assigned for the operational period by NIOSH was a little bit over 15 rem. And then based on SC&A's approach we determined the inhalation dose to be 93 rem. So you can see the obviously significant difference

there.

The inhalation dose then for the residual period, again NIOSH based this on the operational period. I give you an example of a calculation and they applied settling and resuspension factors shown on Page 15.

Are we there?

CHAIRMAN KOTELCHUCK: Yes.

MS. K. BEHLING: Okay. And the doses associated with the residual period as calculated by NIOSH ended up being 88 millirem.

They looked at the uranium and thorium. They compared the different solubility types and rem. CADW to come up with that 88 millirem where SC&A's Method A for the residual inhalation dose, they used again the OTIB-70 average depletion values as is shown in Table 2.6.

And that dose ended up being calculated as 24.6 rem for the residual period. So, again, significant difference between the two methods and their doses.

If we move on to Page 16, the inhalation

dose, only NIOSH calculated a dose associated with the inhalation pathway. They used guidance in their OCAS-TIB-009 TIB and again used a 10 percent value of the OTIB-43 values, as I describe there.

And I provide you with an example of the calculation that they used for the operations and the residual period. And as I said, neither of SC&A's methods calculated an ingestion dose.

Now, we'll go on to the radon and here to do the radon exposures, again NIOSH used a 10 percent of the maximum OTIB-43 values that were cited in Table 4.4 of OTIB-43.

Again, as we described, they assumed that because of the difference in --- the differences between how OTIB-43 was designed and what was going on at Allied Chemical, they felt that that 10 percent was appropriate.

SC&A used best estimate value from Table 4.4 here again using same tables, same OTIBs, but selecting different values. They pulled out -- or we used the best estimate value of 0.036 working levels per year for that table.

And then lastly this is where Method B came in and they used EPA guidance and, again, as I mentioned, the Florida Institute of Phosphate Research data to assign exposures to radon based on a four picocurie per liter limit, which, as we showed here, translates to a 0.235 working level months per year at a 50th percent equilibrium.

This method also only assigned that exposure for nine years of the employment rather than throughout the entire employment. And I think I've summarized then the comparison of internal doses in Table 2.7, as you can see.

And the summary conclusions on Page 18, again you can see the total doses, you can see the total radon exposures. And in both the SC&A cases --- the SC&A's methodology resulted in a PoC of greater than 50. And with NIOSH, the PoC was 45.9 percent.

So there it is in a nutshell and all before one o'clock.

CHAIRMAN KOTELCHUCK: Well, very good. We need to chew on this over lunch.

MR. CALHOUN: Well, let me add my little two cents before we chew on it.

CHAIRMAN KOTELCHUCK: Please do.

MR. CALHOUN: Okay. Because mine is short and sweet and it's exactly what she said is that TIB-43 is based on an operational production level uranium extraction phosphate plant.

Allied Chemical and Die, which Scott pointed out, which should not be confused with Allied Chemical, was a very small pilot scale operation that only processed a few pounds of material and assigning somebody a dose consistent with a production level facility is just not appropriate.

And we believe that a 10 percent assigning of that dose of internal and external was certainly claimant-favorable based on the type of facility, and even the job classification of the individual, that one really didn't come into a whole lot of play, but you can't imagine that given the fact that this was a pilot scale operation that a [identifying information redacted] would be

involved in.

So that's really the crux of the difference with the whole dose reconstruction. And that's our explanation as to why they were different.

MEMBER MUNN: There is one piece of information that no one mentioned. A question in my mind, because I have not gone back and read everything there is to read about this particular small operation, this was, I believe, a wet process, correct?

MR. CALHOUN: Yes.

MEMBER MUNN: It is the same wet process that we're accustomed to seeing in these phosphate extraction plants. Minor differences, but for all intents and purposes it's a wet, small laboratory almost --- just beyond laboratory production of a very small amount of radioactive material over a long period of time in a wet extraction process. Just wanted to make sure that I have that correctly.

MR. CALHOUN: Right.

MEMBER MUNN: Because that's my personal reality check about these.

MS. K. BEHLING: The only other thing that as I mentioned earlier --- Kathy again --- is there any --- since there is no TBD and no specific information associated with the Allied Chemical and Die Company in doing the dose reconstruction, is there some instruction out there that would tell all dose reconstructors who are going to do these types of cases to use that 10 percent?

MR. CALHOUN: I don't know that and you're right that I wouldn't be prepared to talk of that one. I just looked quickly and we haven't comped a single case from that site.

MS. K. BEHLING: Okay. And I'm not disagreeing with using the 10 percent. That sounds reasonable to me. However ---

MR. CALHOUN: I'm going to check on that, though.

MS. K. BEHLING: Okay.

MR. CALHOUN: There's 18 cases total. I wouldn't be concerned at all if they didn't use

a fraction of that for something like a prostate cancer, but I'm interested in determining if 10 percent was consistently used for the metabolic cancers.

And I also agree that there should have probably been more discussion in the body of the DR as to using a fraction of it and why. I think that could have been clearer.

MS. K. BEHLING: Yes, it was not explained in there and I had to actually contact David Allen, as I mentioned. And I've included the memo in our references in order to determine why that was done.

But, like I said, what really stands out in my mind is a consistency issue and to ensure --- because as you can see, I mean, SC&A, we've reviewed a lot of cases and we used data that was available to us, as you did.

And if the dose reconstructors, the ORAU and NIOSH dose reconstructors aren't all given consistent data, are they aware that 10 percent is appropriate in this particular case?

And I agree with that. I'm just saying they all need to be aware of that.

MR. CALHOUN: Right.

CHAIRMAN KOTELCHUCK: By the way, it is just after --- I may --- could we perhaps go on, if people would agree, until 1:15 so that Board Members can ask questions when this is fresh in front of them?

So, unless I --- do I hear some objection to going for another --- until 1:15?

MEMBER MUNN: Well, not if people have questions.

CHAIRMAN KOTELCHUCK: Yeah.

MEMBER MUNN: I think we ought to postpone discussion, but, yeah, questions should ---

MEMBER POSTON: Dave, I've got another meeting at 12:30. 1:30 your time, but I'll stay as long as I can.

CHAIRMAN KOTELCHUCK: You have a meeting at 12:30. 1:30 our time.

MEMBER POSTON: Yeah, it's about a

15-minute drive.

CHAIRMAN KOTELCHUCK: Yeah. So you will come back later after the meeting -- actually, John, no need, I mean, you need not in terms of a quorum. We have a quorum even if you were to leave.

So you will leave ---

MEMBER POSTON: In about five minutes.

CHAIRMAN KOTELCHUCK: Okay. Then in which case --

MS. K. BEHLING: This is Kathy again. I'm sorry.

CHAIRMAN KOTELCHUCK: Yes.

MS. K. BEHLING: Can I just be sure that, if you don't mind, asking Doug and John Mauro, did I explain things to your satisfaction? Is there anything that you would like to add?

DR. MAURO: Yeah, this is John. I'd like to add just one point that's really fundamental. No one talked to each other.

In other words, when I worked on Method B, I did not communicate with the folks at SC&A doing Method A. And of course we never saw NIOSH.

So this whole process is extremely interesting, because what we really have is three -- truly blind. How would you come at the problem?

And even within SC&A we did not talk to each other. And so it's very revealing. And what I would like to bring to the attention of everyone concerned is that what's really interesting here is the judgment calls that are --- and it's truly appropriate to leave a degree of discretion, you know.

You can't turn a crank. So you have to leave a degree of discretion to the dose reconstructor on how he's going to come at the problem.

And the differences that we see here in many respects have to do with these kinds of judgments.

And in this case it's particularly interesting, because the judgments made actually make a difference between compensation and not compensation.

CHAIRMAN KOTELCHUCK: Well, there --

MEMBER MUNN: Not just compensation.

CHAIRMAN KOTELCHUCK: There are a hundred rems of difference. This is huge.

DR. MAURO: Yeah, this is ---

CHAIRMAN KOTELCHUCK: And upsetting, in fact.

DR. MAURO: This is an astounding case and this is one that I think that's really worthy of ---

CHAIRMAN KOTELCHUCK: Well, since John has to leave in a couple of minutes --- that's Poston --- we will have to come back to this later.

And maybe can I give the last word? John Mauro, you spoke. I hope you finished, or do you need a little bit more time to finish, and John Stiver? Did you want to comment, either of you, on Kathy's presentation?

MR. STIVER: This is John Stiver. I just kind of ---

CHAIRMAN KOTELCHUCK: Oh, it was Doug Farver. Excuse me. It was Doug who I should have asked because --

MR. STIVER: I'd just like to say that, you know, I think the main value for these is that, you know, we can see where these decision points are where professional judgment comes in. And that's, I think, probably the most valuable aspect of these blinds especially in a situation where you can actually flip the decision, the compensation decision.

Anyway, Doug wants to go ahead and add something.

CHAIRMAN KOTELCHUCK: Please do, yeah.

MR. FARVER: Yeah, this is Doug Farver. I just wanted to point out I think it's very interesting if you look at the big difference in the internal dose that NIOSH started with assuming 10 percent of the value.

So, if you multiply theirs by 10 or the SC&A divide by 10, you come up with something much closer, but the methods were just entirely different, the whole process, and I find that interesting.

It's probably not 10 percent, it's not

a hundred percent, and there's probably some percentage here in the middle where it really is. Maybe it's five percent. I don't know, and that's the tricky part. What percentage do you pick?

At some point their 45 percent is going to go over 50. And our 85 percent is going to come under 50. Now, what percentage is that? I don't know.

MEMBER MUNN: But common sense tells you in a wet process with a source term that small, it's not going to be over a hundred rem. Common sense would tell you that.

You couldn't get a hundred rem if you were drinking the mix.

CHAIRMAN KOTELCHUCK: Let's not go there.

MEMBER MUNN: Let's not.

MR. KATZ: Can I just check, Dr. Poston, are you coming back after your meeting or whatever it was?

MEMBER POSTON: I can't. It's a two-hour meeting.

MR. KATZ: Okay.

CHAIRMAN KOTELCHUCK: Okay. Alright. David, you'll be back?

MR. KATZ: That's David Richardson.

CHAIRMAN KOTELCHUCK: David Richardson. Correct. I just want to assure that we have a quorum.

MR. KATZ: Exactly. Maybe you're on mute again, David.

(Pause.)

MR. KATZ: Okay, you know what? I'll send David an email right after we break just to make sure he's going to rejoin us.

CHAIRMAN KOTELCHUCK: John, also I'm sorry to say this as the last word, but I had understood that this was a day that you were entirely free. And I thought that that was part of setting the date as we did.

I do hope we can set a date where we are all --- where we are free.

MEMBER POSTON: No, I tried to, but, you know, I have a real job.

CHAIRMAN KOTELCHUCK: No, I understand and I'm not --- yes, alright. Let's leave it at that. Alright. Folks, it's 10 after 1:00.

And, look, John, thank you for being here as long as you have been. And we do have a quorum. We will continue.

I also hope we'll get another Member soon and we'll be -- it will be easier to achieve our quorum.

MEMBER POSTON: Alright.

CHAIRMAN KOTELCHUCK: So it's now 10 after 1:00 eastern time. Let's take an hour and see you all at 10 after 2:00 Eastern time.

MEMBER MUNN: Okay.

CHAIRMAN KOTELCHUCK: Okay. And we will continue discussion of this.

MR. KATZ: Thank you, everybody.

CHAIRMAN KOTELCHUCK: Thank you, all. Bye-bye.

MEMBER MUNN: Bye-bye.

(Whereupon, the above-entitled matter went off the record at 1:09 p.m. and resumed at 2:16

p.m.)

MR. KATZ: Okay. Dave?

CHAIRMAN KOTELCHUCK: Alright, folks. Well, we really are now going to start discussion on 0370690, Allied Chemical and Die case. Hopefully, why don't we put up -- there we go -- the comparison. And let's see. Let's see. There we go, Table 1-1.

Well, I mean, well, first, I have a few questions. I wondered how, if we knew how sensitive the choice was to taking 10 percent due to the lab work, [why not] 15 percent, 5 percent? In other words, it seems as if that may -- I looked through it, and I just feel like, as a number it's arbitrary. I recognize that if it's a wet process like that, of course it's much lower than, the exposure is much lower than if they were working in a plant for which the original document the TBDs were made. But I just am -- but it just seems like a number pulled out of a hat. And given the vast difference that the results have, they're disturbing to me.

DR. MAURO: Dr. Kotelchuck, this is John Mauro. It's even more disconcerting. I certainly agree with Wanda regarding, you know, if it's a low-exposure circumstance. But we're getting working-level months alone that are at four picocuries per liter.

In other words, I use what they call Method B, which I didn't look at anything. I just looked at the case, and I said, listen, I'm going to put a lower bound concentration of radon this guy might have been exposed to, looking at some literature. And the lowest number reported was around four picocuries per liter. And for those of you in the radon world, you're probably sitting in your home right now, and you're probably at around one picocurie per liter or two picocuries per liter. Yes, that's where it comes in. The EPA standard guideline is four, but I know in my basement I'm at one and that's where I am right now.

Now all I assumed was that the person was at four picocuries per liter, and you're going to be very surprised. You do get, over a nine-year

period, if you're working 2,000 hours per year at four picocuries per liter, you get 2 working-level months. Now I'm coming in a factor of 10 higher than NIOSH, and I'm only assuming four picocuries per liter.

So what I'm getting at is that this is a perfect example of you get into your protocols, your procedures, workbooks, and assumptions, and you all step back and think about it, and I didn't do that. I mean, I'm the guy that used to do these Method B things. And I just asked myself, listen, yes, the lowest number they could assign is four picocuries per liter. I think everyone agrees that's a fairly low -- and that's the guys working outdoors. I'd be the first to admit if he was working outdoors, you know, it's 3.1 picocuries per liter or even lower. But assuming he's indoors, four picocuries per liter is a very low number, and I come up with, you know, about 2 working-level months' time-integrated exposure to a radon progeny, and NIOSH comes in at 0.2. There's something wrong here.

CHAIRMAN KOTELCHUCK: Yes, yes. Well I'm even concerned that if we use, if when you use Method A that you came in at 0.8 --

DR. MAURO: I agree.

CHAIRMAN KOTELCHUCK: -- working-level months.

DR. MAURO: I agree.

CHAIRMAN KOTELCHUCK: And that's a factor of four. I will also note that the one that we're going to eventually get to, one of those that we're going to eventually get to where there was a change in compensation or potential change in compensation from Rocky Flats also had the problem in the internal dose.

Now I'm keeping my mind, I mean I'll keep open what specifically was the problem. But at least two of them where there is a serious difference or a serious concern, we have internal dose, although the other one, I have to say, is plutonium. So that's even further upsetting.

But beyond upsetting, it is, I mean, we're trying to learn, we hope that the blind

results, the NIOSH and SC&A are together. But if they're not, then it is our duty to understand why and try to figure out what could be done in the future so that we do not have differences like this.

MEMBER MUNN: Yes, these blind reviews, especially this one that we're discussing now and the other one that you made reference to, are extremely informative because they are illustrative of a position that I've taken repeatedly, and not very popularly I might add, with respect to what we have done here deliberately in our actions as a Board. We have gone out of our way to try to be as generous in our compensation attitudes as possible, and this, if we have a single issue and only one issue to look at, makes sense.

We have, as these cases demonstrate, a very large number of aspects of the issue that we must look at. And in every case, we are permitted to go to abstract extremes. We're urged to do so often, even though, in this case, as John pointed out, he didn't really feel he was going to an extreme and was just taking what he felt was a

rational number. But the end result of that stack-up of decision points causes knowledgeable people with high humanitarian intent to come out with results that just simply don't make sense.

This is what I meant earlier when I said you can look at that 118 rem and say this does not make sense. I find myself thinking I wish I knew less about human biological effects and a little bit less about dose rates and what they meant because, if I did, I would just say, boy, look at that, that's a big difference. But instead I look at that and I say that's so far off the realm of possibility that it has to be, it has to be discarded on the face of it. But that doesn't help us in our deliberations here about is this okay and what, if anything, should we be doing something about it and, if so, what?

CHAIRMAN KOTELCHUCK: Right. And, yes, and I recognize that that is an unpopular opinion, and it is. On the other hand, the concept behind workers' compensation is, as we know, not precise scientific knowledge, but likelihood that

the problem, if likely to have come from the work that people do. And we have to make decisions and do all the time in all kinds of workers' compensation on the basis of is it likely to have done something. And even within that context, we are flexible. And it's [as] true for a person getting ill from working in a dusty trade as it is for radiation, that, at a certain point, you just say, well, if there's any doubt, if there is concern or if there's some evidence that we have to act generously on behalf of the person who is ill.

So it's a clash. Nevertheless, I fully agree with you in this case. I mean, 120 rems, 93 of which are from uranium thorium, it doesn't sound right.

MEMBER MUNN: There wasn't much uranium thorium there.

DR. MAURO: But the irony of this is the radon progeny alone is the driver. I'd like to say that this particular case, I believe, is an aberration in that I've never seen differences on this scale. When we get into the others, the other

blinds, we're going to get a lot more comfortable because we're going to see the differences are subtle in most cases. But if we just have to pick the first one, we'd want it to be the one that I've never seen such an extreme divergence amongst the three people because you remember SC&A had the Method A and Method B, and I did not talk to a Method A guy and I just did my thing. And this was, of all of the cases that we were involved in by way of lines, this is the one that is the most astonishing.

MEMBER MUNN: One has to make some common sense judgments, as well as the possibility judgments. And when you're speaking of, in a case like this, you know you do not have the kind of radon emissions that you would get in other kinds of situations. First of all, you know that this is a wet process and that any materials that you have, which are only slightly radioactive to begin with, are in solution. Then you have to know that this is, after all, an industrial building and you know that there is air exchange going on there. They're

not working in a closed, shuttered facility. And these things are the kinds of things that we encountered when we were dealing with the Blockson plant and similar phosphate plants since that time.

They are mechanical realities that affect how one can even approach the real science of this properly. It's just something you have to take into consideration.

MEMBER MELIUS: This is Jim Melius.

CHAIRMAN KOTELCHUCK: Jim.

MEMBER MELIUS: Yes, I'm not disagreeing with what Wanda is saying or what may be the, you know, sort of the real Probability of Causation here. But I think, again, we are getting dose reconstructions that speak of what extent and are we able or can we come up, you know, with the kind of guidance that's being provided to the dose reconstructor, to the available information to them is sufficient for them to come up with consistent findings. And clearly something is missing here. I don't believe it's, you know, necessarily, with these kind of differences, that

we can leave it all up to judgment. There should be some way of reaching a consensus on what's a proper approach to provide guidance for that. You may not narrow it down to the plus or minus, you know, 0.001, whatever, but we ought to be able to do that.

And that's really the purpose of these audits. It's not the final answer, but are we providing the kind of information available that people can come up with, you know, scientifically valid but also consistent approaches for evaluating these cases.

CHAIRMAN KOTELCHUCK: Well and, in particular, I would say to John Mauro's thought that it's an aberration. How would we explain to the Secretary, not to speak of to the families of the people who are ill, how this could happen and why, given the way that we're working, it is not going to happen again, or we can't call it an aberration without some rationale as to why this has occurred and if it isn't -- well, it is our obligation to try very hard to do this.

MEMBER MELIUS: We have to carry it beyond what's been talked about so far and see where did the differences come about and what is the information that, you know, either the information or the methodology, what led to these disparate findings and --

MR. CALHOUN: This is Grady, and I'm going to try to --

CHAIRMAN KOTELCHUCK: Grady, yes. Could you speak a little louder, please, Grady?

MR. CALHOUN: TBD-6000 actually, which can't be completely related to this, actually does have some sections that talk about the differences, and they do use a number of six percent, or ten percent, I'm sorry, for differences between, say, even a supervisor and operator. And this guy was a [identifying information redacted].

And we also have the statement here that only a few pounds of concentrate were ever produced. The TIB-43 is based on an operational facility that's probably processed much more than that every day, okay? But what we need to find out

is do our guys, in fact, have any kind of guidance that tells them to use that ten percent? And if not, we'll put something out there that does.

And what Dr. Kotelchuck was mentioning, how do we prevent this from ever happening again, I'm not ready to say we need to prevent this from ever happening again because I'm not convinced it's wrong. What we need to do is make sure that both of us or somebody that's looking at the program can come up with the same flow path to get similar doses that we've got.

So my go-do right now is to go try to find out what kind of guidance we have for that. And if we don't have guidance, we can put something in place. But, remember, we're using 10 percent of an operational facility, and, you know, if we used 10 percent of what was really happening at Allied Chemical and Die, it would even be far less than that.

So this guy was -- we can all put our reasonable hats on here and realize that this is a very, very low exposure potential case. But I

do agree that we need to make sure that similar decisions are made from case to case.

MS. K. BEHLING: This is Kathy Behling. To just add to that, as I've said, our Method A is trying to, is a direct, you know, direct assessment or correlation between what NIOSH is doing. And had there been specific guidance to be used for the Allied Chemical and Die facility, obviously we would have used that.

So, again, this was my primary concern: Is the level of consistency that is 10 percent being used by all dose reconstructors? Is there any guidance out there? Because this isn't the first time we have seen situations where there may be a Word document or something out there that is being used. We've even seen inconsistencies between that and Site Profiles, and, luckily, we have stumbled across this particular case. But I do think that, as Dr. Melius is saying, the consistency issue is really important here and I'm glad that we at least identified that.

DR. MAURO: This is John again. If I

was to say what's the root cause of the times when we run into circumstances where we're so divergent is when there is a lot of judgment that needs to be applied. And this is one of those cases where you really don't have all of the information -- Site Profile details, guidance, etc. -- available to you. And the dose reconstructor is left with having to rely on professional judgment, and then you can see the differences arise. And that's why I consider this to be a little bit different than the others because, most of the time, you do have quite a bit of guidance available or information in the Site Profile.

MS. K. BEHLING: And this is Kathy Behling. One more time on this issue. Not only there, and you'll see that in one of these blinds, also even judgments when there is a TBD with regard to, and Hans has brought this up in several of his reviews, how can we be a little bit more specific and give a little bit better guidance with regard to using co-worker data, a 95th percentile versus a 50th percentile.

So even when there is guidance, you know, and I realize you can't dictate everything, nothing is completely cast in stone, but we do need to help the dose reconstructors as much as we can to make similar decisions. And that's one of the things I think that could be incorporated.

CHAIRMAN KOTELCHUCK: Let me just, in reference to that, where there is a lot of judgment -- and this is certainly, it's a small place. There was no monitoring and an enormous amount of judgment. I'd look at the 45.9 percent that NIOSH came up with. In a very large plant where lots of industrial hygiene and health physics work has been done, 45 percent is very rarely, if we look at it or when SC&A looks at it, generally, they're never going to go up into above 50 percent. In fact, they're not going to deviate much from 45.9. But is there a way of looking at this and saying there is -- make an estimate of the degree to which there is judgment involved, a large amount of judgment, and say at 45.9 you're actually close to 50 percent because that's really what is happening. This

would not happen, I think, in a large plant where there had been measurements where we have something to hold on to firmly.

MEMBER RICHARDSON: Yes, I agree completely.

CHAIRMAN KOTELCHUCK: Yes. And that may, that may help provide us with guidance if we had some effective way of assessing what led to the 45.9. In that regard, if we had some idea, then we'd start playing around with, well, 5 percent, 10 percent, 15 percent, and seeing if that changed things very much.

MR. CALHOUN: This is Grady. I came across some little nuggets here while we're --

CHAIRMAN KOTELCHUCK: Okay.

MR. CALHOUN: And I guess, you know, still, I think we're getting away from the fact that there is, that if there's guidance, this goes away. And so what I found here is, at least I haven't found the actual document, but what some of my co-workers have been sending me is that TIB-43 is based on a production rate of 12 tons of uranium per year at

the smallest plant. Twelve tons, okay? So we use one-tenth of those values for this site, which is certainly less than 1.2 tons per year. So it says that this is some guidance that I'm told we have.

CHAIRMAN KOTELCHUCK: Okay.

MR. CALHOUN: So it does say specifically to use 10 percent of the values in TIB-43. So we do have that, so it does exist. Now, it's not going to be a formal document.

Now the other thing that we're going to get into here is, well, why don't you make them all formal documents? Well, we've got 18 cases from this site, and what we should have done and what I always say this is always our standing is that we should make the TBD, not the TBD, the DR detailed enough that you know what we did. Not you in particular, the claimant or anybody. We're not going to make TBDs that are approved documents for 235 sites just in case we get DRs in.

So I'll see what we can do about, you know, firming this up a little bit. But it's out there, so I feel better about it now. I didn't know

it until just now.

MS. K. BEHLING: This is Kathy Behling, and I agree. And like we used to talk about back in the early days of our audit, we recognize that there are what we used to call these guidelines or notes out there that are specific to sites, and this could be a great example that could be out there. They're not necessarily formal documents because we understand you don't have the time to generate a formal document for every single small site where there's only 18 Dose Reconstructions. But you could put together something as simple as one of these notes, something in the training for those people that do these sites, and that would help with the consistency issue. And we used to see them. In fact, early on, I used to find them on the O: drive and know what [the dose reconstructors were] being trained in -- which is a good thing. And we're not even suggesting that you have to do a Site Profile for each and every site, but these workbooks or these notes are guidelines. And now we even put those into the case files. That was

something that I know Mark had requested.

MR. KATZ: This is Ted. Can I just ask one question, which is sort of the other side of the equation, about why these decisions are so far apart or this estimate? Kathy, for your side, John Mauro and whoever was the other, the A, did you folks not, at the time, recognize the nature of this production, or not even production but this exposure scenario, the difference between that and the normal Blockson, you know, mass production scenario? Was that not apparent in the information available on this site when you guys did your blinds?

DR. MAURO: This is John. I could answer. I mean, that's why I picked the lowest number of radon concentration in those publications that were measured [by] the EPA, to say, okay, that's how I came at it. I didn't go with the median; I went with the lowest.

And even then, when you're dealing with radon, you know, one picocurie per liter delivers 2,000 rem to the lining of the lung. So, I mean,

that's why I call this an unusual case.

MR. KATZ: Of course, you use your own methodology, which is really quite divorced from -- but in your situation, I think it's probably useful for someone to explore why your figure came out so much higher than theirs because if the assumption is sort of equivalent, I mean their assumption that it's a very low exposure and then they use the 10 percent, your different approach, using a low number, but I don't know how that relates to their assumption.

It seems like the Subcommittee, if they understood why your figure comes out so high, even though you assume a relatively low exposure level, would be helpful just to put, at least, your side because the A methodology, I mean, that seems clear-cut. If you folks had used a 10 percent or a similar percentage, we would have ended up where they were and there wouldn't have been any question with that. Your Method B, though, John, is the one that sort of blows a lot of mystery into the situation.

DR. MAURO: Well, let me just say one thing. The number for the working-level months that is used here by NIOSH is lower by a factor of two than is in my house right now, in my basement where I'm working right now, in other words one-half. So this is just my residence.

So something went wrong in the protocol with the 10 percent number that was an unintended consequence. I think Grady's explanation is understandable, but then what happens when you got to the radon, the 0.2 working-level months or whatever over a nine-year period, that means the concentration of radon is a fraction of 1 picocurie per liter. And there's where I say you have to be careful because you're using a protocol, let's say you're not standardized, though you intended in this particular circumstance where you're dealing with radon, you have to ask yourself the question what radon level does this mean?

MR. KATZ: I'm sorry, John. Someone has got a lot of background noise in their phone, and it's making it really hard to follow John.

Okay. Now it's quiet. Okay. John, I'm sorry.

DR. MAURO: That's okay. I really had my say. In this particular case, now, clearly, we have this divergence between the lung dose, not including radon, just we need to talk about that. And I think that's going to be important. But all I'm saying is from a radon point of view because I didn't even bother looking at the others. I didn't need to. I was able to get over 50 percent just by looking at four -- by the way, which this explains, radon is a very potent radiological carcinogen for lung cancer.

MR. KATZ: Okay. So you're basically explaining that you would like NIOSH to dig back into its methodology because you think it may not be that it's just the 10 percent figure that's giving them such a low output?

DR. MAURO: I think 10 percent maybe makes sense within a certain context but not when you're dealing with radon levels in this particular application. I can't imagine indoors at this facility that the radon level is what they're

basically saying is about 0.5 picocuries per liter.

MR. CALHOUN: Now, John, you've got to remember that this is enhanced radon. The radon in your basement doesn't count.

DR. MAURO: No, I understand --

MR. CALHOUN: Wait a second now. You have three pounds of uranium compounds processed over multiple years give you that much radon concentration, in excess of what God already put there.

DR. MAURO: Yes, okay.

MR. CALHOUN: That's all that counts.

DR. MAURO: Yes. Well, I mean, I hear what you're saying, and the only justification I have, for better or worse, is that, looking at the available radon data for these kinds of facilities, I went with the lowest reported value. Now, that may be too high for this particular facility, and that's good that we know that. In other words, that's why we're doing it. I think this is very revealing.

I went ahead and picked a number based

on my judgment that I said is a lower bound, and that was sufficient to give me quite an exposure for radon. So, I mean, it's important that we know that happened. That's one of the outcomes of this. Who's right and who's wrong is almost a separate question. It's just that it was so different, and the way we thought about the problem is quite different because we were allowed a certain amount of discretion for lack of detailed guidance or Site Profile or data. So I think it's revealing from that perspective.

MS. K. BEHLING: And this is Kathy again. With regard to Method A, let's go back to what the charter is or what the role is under Method A, is to try and use the guidance documents that exist for NIOSH and ORAU, and we're trying to match. We're hoping that we're going to come in exactly where they are or very close to where they are. And like John said, in many cases we do.

And I'm going to let Doug speak to this better because he can give more details, but, back to our report on page 13 and 14, Doug did understand

that Allied Chemical is a smaller process. He did use various assumptions. And when he did use the OTIB-43 data, and, Doug, stop me if I'm -- you have to understand, NIOSH selected the maximum value and took 10 percent of that. Doug did what he thought was reasonable by selecting from those tables in OTIB-42 a geometric mean value, and it didn't make as much difference in the external as the internal. But he used data that he had available that he thought NIOSH would use, and he used a geometric mean value, rather than the maximum value.

MR. KATZ: But that would be a mean of big operations with a lot of throughput, right?

MS. K. BEHLING: True. That's because -- yes.

MR. KATZ: That's the difference, I think. That's why it comes out so differently, right?

MS. K. BEHLING: And, Doug, I assume Doug is still on the line?

MR. FARVER: Yes, I'm still here. It's Doug. Well, I mean, the assumptions are laid

out there. And if the only contention is the intake rate, the daily intake rate, okay, I could see where that may not be the best number to use. But the problem was there was no guidance to use any other number or any number. This is the big problem with this case. There was no site information based -- other than a couple of lines in a document. I mean, there was no survey data and no, like, NIOSH document even describing the site. So you're left with almost no guidance to use.

Now, I could see where maybe you shouldn't use that full number of 44 picocuries per day. But I'm not sure what number would be a better number. Where do you stop: 10 percent, 20 percent, 30 percent? I don't know what the right value is.

What's interesting is that we used 100 percent, NIOSH used a 10 percent, and pretty much if you multiply one by 10 or divide the other by 10, you've got much closer doses.

MR. KATZ: Yes, that goes to the point that -- right, exactly. You guys basically use the

same methods.

MR. FARVER: Well, no, we used completely different methods, which is interesting that it came out so close if you were to use the same intake. Completely different methods.

DR. MAURO: This is John. What are the philosophies in terms of doing Dose Reconstructions? You're always stuck with the situation when you're dealing with a circumstance where you have, let's say it's a co-worker. What you usually end up doing is, if you believe the person likely received some exposure but, based on his job, it doesn't look like it could have been at the high end, the rule of thumb is to go with the full distribution of the geometric mean. And you only assign the upper 95th percentile when you believe that the worker's job category or circumstances was such that there was a real possibility he could have been exposed at the high end.

So in this particular circumstance, and that's why I used the word aberration. That's a

little extreme, but it is an unusual circumstance in that picking the geometric mean of the full distribution under these circumstances is not unreasonable. But, you know, Grady makes a good point. This is such a much smaller facility that even the geometric mean is really not a good number for this facility.

So, therefore, you're left with the judgment of, you know, how far below the geometric mean do you want to go? And the way, the approach they used was with this 10 percent effect, which brings you, at some level, at some percentile within a distribution. And that's why we've got, this is an unusual circumstance because of the limited amount of guidance and data that we have available. In fact, this is almost like a flagship indicator of circumstances, especially if you're coming into 40-percent level and a lot of judgment had to be used.

And you say what do we take away from this? Well, you know, when you have to use a lot of judgment and you're coming in in the 40s, you

know you're in dangerous waters. I mean, that's what I take away from this.

CHAIRMAN KOTELCHUCK: Yes.

MR. CALHOUN: I'm thinking, you know, when I look at this, it almost seems like, I mean, maybe our guidance needs to be revised a little bit, I mean way down, because, you know, three pounds is 1.25 hundredths of one percent of the lowest production rate used to come up with the doses for TIB-43. 1.25 hundredths of one percent.

DR. MAURO: Wow. You make a good argument there, Grady.

MR. CALHOUN: And we're using 10 percent. I don't know. We need to look back at the whole thing. I've got my homework assignment. I'm ready to do it.

DR. MAURO: You know, Grady, I'd be the first to agree with you. See, what I did, and again, this is completely judgment, is say, listen, is four picocuries per liter a low number? Yes, that's a low, I mean, in the world of radon, that's a pretty low number indoors, even in a, you know

-- now, I agree with you that you're saying the additional contribution above and beyond natural background in this building may have been minuscule, and, you know, you might be right.

So, I mean, this is good. This is a good conversation. I rolled with four because it was the lowest number measured at this facility, thinking, thinking that I was doing the minimal dose reconstruction. Just radon. That's all I looked at. And I was going to do a low end, the lowest I thought plausible. And I still came in with consequences that were significant.

But you're making a good argument. You're saying, listen, even that lowest number that you found in the literature at four picocuries per liter, which, in itself, in an absolute sense, is a very low number, even a relatively low number for a residential structure, you're saying that that's not low enough here because the amount of uranium handled and the associated radon from, I guess, the radium, the tailings part of it, could have been virtually zero, in effect, your argument would be.

Okay. I mean, I'm ready to have that conversation.

CHAIRMAN KOTELCHUCK: Yes. How about, Grady, you said, I'll take it on. How about doing that and then coming back to us and not only seeing what you get but also trying to think about how we could avoid this or what an analogous situation would be and how, therefore, we could avoid coming up with this sort of disparity again?

MR. CALHOUN: Here's what I'm going to do is I'm going to go back and I'm going to try to find out where this guidance exists because I'm just getting little snippets by email. I'm going to make sure that when we do dose -- I'm going to verify that that's right, but I feel confident that it is. I'm going to verify that it's right, and then I'm going to make sure that we start incorporating that in any new Allied Chemical and Dye company DRs to be quite specific about what we're doing.

CHAIRMAN KOTELCHUCK: Okay.

MR. CALHOUN: I kind of want, I kind of want to check where John got that big dose, so I'm

going to look into that one, too.

DR. MAURO: Yes. Well, remember, it's just four picocuries per liter, and you convert that to working-level months over a nine-year period, you know, you get about two. Now, what I would like to do and I didn't do it is, did I get the PoC right? In other words, going from four working level months, you know, over this nine-year period and coming out with a PoC above 50 percent, I'd like to go back and do that again and make sure I didn't do something dumb. But I think my number, my working-level month number is a good number. I mean, if you accept four picocuries per liter as being a lower end of the kinds of concentration this guy might have been exposed to, then my working-level month number is a good number and it's ten times higher than yours.

Now, going from working-level months to the PoC, maybe we better take another look at that because, you know, that's not something we routinely do, you know, is derive PoC.

CHAIRMAN KOTELCHUCK: Yes.

MR. BARTON: This is Bob Barton. If I could just make a quick comment here because we seem to have gotten maybe a little -- it seems like there's two separate issues. The first one is which number is the right one to use in Dose Reconstruction, but the other issue was this idea of guidance. And I, you know, I think we're all fully sympathetic to what Grady said about you simply can't have a Site Profile for every one of these sites. But I think there is some precedent, for example, in this Dose Reconstruction. TIB-43 was used. A lot of times, these TIBs, which are more site-wide, will have an appendix that will have just little snippets of site-specific guidance in how you're going to apply the TIB-43 methods to site A, B, and C, and it could be as simple as saying for this specific site the dose reconstructor, you know, was instructed to use 10 percent or whatever the correct number ends up being. And then that way you don't have to write a whole Site Profile, but you do have specific and clear guidance that can then be used for every claim

that's processed.

MR. CALHOUN: That's something to consider. I'm open-minded.

CHAIRMAN KOTELCHUCK: I wonder also, in this calculation, that either NIOSH or SC&A -- we're dealing with lung cancer. We're dealing with alpha particles. It is not our obligation or -- how should I put it? There is an issue about smoking and that the process of smoking will bring unusually large amounts of the alpha particles in, as happens with other things like asbestos.

We do not, the compensation, the law, as I understand it, in this case, we don't consider smoking in terms of saying -- this is different than other workers' comp things where we don't say you have a certain degree that was caused by smoking and a certain degree that was caused by work. But on the other hand, if we're trying to -- pardon?

MR. CALHOUN: Dave, actually --

MS. K. BEHLING: It's built into IREP.

MR. CALHOUN: It's built into IREP, and then there are several categories of smoking and

the more you smoke the more dose you need to go over 50 percent.

CHAIRMAN KOTELCHUCK: Oh, okay, alright. No, I didn't quite realize that. Good, good.

DR. MAURO: Yes, that and skin color also has play. So to the degree that they could, IREP tried to take into consideration confounding variables that clearly have a significant implication.

CHAIRMAN KOTELCHUCK: Oh, okay. Well, that's good. Okay, very good. I wasn't aware because I don't do the calculation as you folks do. And I'm glad to hear that.

So I think we have, we have a procedure following what Grady said. Is there anything more? I mean, do folks have any comments about that, or are we finished with what we can do with this for the moment?

MR. CALHOUN: I don't think we can do anything else with it until we take a look at it and decide what a path forward is.

CHAIRMAN KOTELCHUCK: Sounds to me, sounds right to me. Any other comments or input from any of the --

MEMBER CLAWSON: This is Brad. I think we need to look into it a little bit more.

CHAIRMAN KOTELCHUCK: That sounds good. Then I think it's reasonable to go ahead to another one of the blinds.

MS. K. BEHLING: If you'd like to do this, can I suggest that, you had mentioned earlier the Rocky Flats plant case under the 17th set. I'm going to let Ron Buchanan discuss that particular case. He's our Rocky Flats person.

CHAIRMAN KOTELCHUCK: Excellent.

MR. BUCHANAN: Okay, this is Ron Buchanan with SC&A. This is a Rocky Flat case, and I will cover the highlights. And if you have any questions, just stop me. I'll try to cover what we need to know but not go into too much gory detail.

This is an Energy employee who worked at the Rocky Flat plants from [identifying information redacted] through [identifying

information redacted].

MS. ROLFES: Ron, real quick, which case number are you looking at again?

MR. BUCHANAN: Oh, [identifying information redacted].

MR. CALHOUN: You can't talk about that on the line, that case number.

CHAIRMAN KOTELCHUCK: Oh, I'm sorry. Okay. I was not aware of that. I thought that was legitimate to quote. Okay. Well, we won't discuss that [and the information will be redacted from the transcript]. We have a document from Rocky Flats.

MR. BUCHANAN: Okay. I can talk about their job description and cancer, correct?

CHAIRMAN KOTELCHUCK: Yes.

MR. BUCHANAN: Okay.

MS. LIN: Well, Ron, can you just use the documents that have [been] PA-reviewed and redacted and talk about the case from that -- this is Jenny with OGC.

CHAIRMAN KOTELCHUCK: Good.

MS. K. BEHLING: This is Kathy Behling. I have to be honest, I'm not sure that this was PA-reviewed, and this was a question that I had before we decided we were going to discuss these. And we were told that, I mean, the redacted version is, there's just so much taken out typically. It's very difficult to work in a setting like this and --

CHAIRMAN KOTELCHUCK: Yes. Well, Ted, I think we can't, if it hasn't been --

MR. KATZ: Oh, yes, I think it has been PA-reviewed, but we just went through a whole case, so I'm not sure why this one differs. We just went through the Allied Chemical case without really causing a problem. I don't know why we can't go through this case. I mean, Ron is not going to get into enough details for someone to sort this out.

MS. LIN: Okay. Well, that's good. This one with the case number that's being used is the SC&A's case number that's randomly assigned. That's not part of the PA system, and that's fine. But I wasn't sure the case number that you just

called out, is it the claim number or the SC&A case number?

MR. KATZ: Well, we probably shouldn't even talk about it anymore.

MS. LIN: That being said, just be mindful of the information you're about to discuss, particularly, you know, the dose information that is very specific to the Energy employee. So anything that, if you want to discuss this, the cancer, then talk about the cancer in general terms, as opposed to the specific locations or the number of cancers associated with the case.

MR. KATZ: Yes, right. That's good general guidance.

CHAIRMAN KOTELCHUCK: But in this case, Rocky Flats with an enormous number of people, this is not a rare type of cancer we're talking about and I don't think it would identify any one individually.

MR. BUCHANAN: Okay. Can I --

CHAIRMAN KOTELCHUCK: You go ahead, yes.

MR. BUCHANAN: The person had one type of cancer. Can I state that type of cancer?

CHAIRMAN KOTELCHUCK: Yes.

MR. BUCHANAN: Okay. He had lung cancer. Okay. Worked there in the 80s. In this case, we had three methods: NIOSH's method and SC&A's A and B method, just like on the previous case. So I'll just refer to it as NIOSH and Method A and B.

All three methods used the Rocky Flat TBDs as their main guidance, along with IG-001 information and several others as we get into it. We see that NIOSH, in Method B, used the best estimate approach and Method A used the minimizing approach.

We see that Table 1-1, there it gives us a breakdown summary of the different doses assigned. And we had photon and neutron dose we had recorded, we had missed, and we had unmonitored or co-worker dose. And then we had medical x-ray dose, and then we had internal dose from plutonium and americium. One method we had depleted

uranium. We see that what this brings up is the fact that the doses were similar in case A and NIOSH's method and in B method it was larger in dose, quite a bit larger. However, the PoCs were not, did not really follow that. NIOSH arrived at about 47 percent, and SC&A arrived at about 56 percent using both methods.

So I'll go through and then we'll discuss it in more detail. We see that Table 2-1, there are comparison of the methods they used. And I will go through the differences in the methods, as opposed to going through all of them. And we see this is segregated into the types of doses. We have recorded photon dose. The main difference there was that Method B used some uncertainties that the other two methods didn't use for dosimetry uncertainty factors.

We see that the dose distribution was different. NIOSH used the normal distribution with Monte Carlo uncertainties. And then A and B used a constant with no uncertainties.

Missed photon dose. We see the similar

parameters there. Unmonitored co-worker dose. Let's see. Can you put that up on Live Meeting, Rose, or whoever is controlling the Live Meeting? Yes, you have it here. Can you go down to Table 2-1, okay? And that's where we're at. Okay, I guess I have control of it.

Okay. So we have unmonitored photon dose, and that is a difference there. NIOSH used 50th percentile. Method A, now, Method A arrived at over 50 percent without using co-worker dose and several other doses, so it's not considered there because you've got a PoC of greater than 50 percent with it included. And Method B used the 95th percentile, so this kind of goes back to what's talked about in differences we see sometimes.

We see that the dose distribution was somewhat different, and I point this out because this leads to a difference in the end. NIOSH used some triangle distributions there, whereas we usually use one type of distribution for any given part of the dose assignment. We use a normal deviation of 30 percent.

We can go to recorded and modeled neutron dose. There, again, we're similar, except they used the Monte Carlo uncertainty. And then we go to the missed neutron dose, and we had similar parameters there and similar distribution.

Unmonitored neutron dose. We see that that is similar there, except, again, NIOSH used 50th percentile and Method B used 95th percentile co-worker dose.

And so if we go to the medical, we see that NIOSH used the two that was recorded in the DOE files, whereas Method A and B both assigned annual doses according to Table 3-1 of the TBD. The rest of the parameters were the same.

Now, one of the main differences in this was in the internal doses. NIOSH separated out, the person worked two periods, a long period and then a short period. And so NIOSH took that co-worker dose, and all the results were background. And so they looked at the missed dose, and then they looked at co-worker dose, and they assigned the first part as missed dose and the

second part as co-worker dose, whereas SC&A assigned it totally on missed dose and the intake and resulting doses. So that did result in some differences.

Tritium dose was less than 0.001 rem in all methods, so that wasn't included. One of the largest differences was the depleted uranium, and that is that NIOSH did not assign dose to that and neither did Method A. Method B did assign it based on the americium-241 lung counts, and we'll talk about more on that when we get into the internal dose.

So if we look at the recorded dose, we see that we used similar factors there. NIOSH and Method A used similar factors there to assign dose. Method B used similar factors except more conservative. Method A and NIOSH used 100 percent, 30 to 250 keV photons, plus 100-percent less than 30 keV photons, whereas Method B was more minimizing in that they used 25 percent less than 30 keV photon and 75 percent 30 to 250 keV photons.

And so that gives a little difference

in the assigned dose. If you look there on Table 2-4, you'll see that the doses come out fairly close. Even though there's some difference in assignment, they came out at about 1.5 rem in both cases.

So we'll move on to missed photon dose. At Table 2-5 there, we see that, again, there are similar doses assigned there and they're small amount. And so that was similar doses there.

So we have the recorded, the missed, and then the unmonitored periods where there was no film badge data or it was unreadable. And so NIOSH, in Method B, assigned a dose for this period. Method A did not because they didn't need to because it was already over 50 percent.

Now, this is where one of the differences came in. We see that NIOSH used the 50th percentile, whereas Method B used 95th percentile to assign co-worker dose. And so this, of course, resulted in a different co-worker dose assignment. Plus, NIOSH used the Monte Carlo method and did a triangular distribution and also

normal distribution, whereas SC&A assigned it as a normal distribution with 30-percent standard deviation. And so this does lead to some differences in the dose and also in the PoC.

So we see that Table 2-6 comparison of unmonitored photon dose, we see that there is a difference there because of the 95th percentile versus the 50th percentile.

DR. MAURO: Ron, this is John. Just to make sure I am tracking you well, so it sounds like, again, what we are talking about there was a judgment made and it really relied on whether you are going to work with the 95th percentile.

In each table, it would be good to get the essence of the difference and it sounds like in the last two cases, the essence of the difference was whether the 95th percentile was used or the full distribution.

Would that be your take on these - so far what we looked at?

MR. BUCHANAN: So far what we looked at, that is correct, John. Plus the fact that they

were assigned different distributions.

DR. MAURO: Okay.

MR. BUCHANAN: It will be important in the end, okay. And so we repeat the same thing then for recorded, missed and unmonitored. Neutron dose we see that in this case you used similar parameters. The dose conversion factors and such, they are illustrated in Table 2-7 and 2-8.

Again, NIOSH used Monte Carlo method to determine uncertainty whereas the SC&A assigned a given uncertainty. And so otherwise the doses were similar as you see in 2-8 there.

Now, the missed photon dose we see in 2000 there the similar values and on exactly how many zeroes you feel is correct.

Sometimes if you use the best estimate program it will come up with slightly different numbers than if you actually physically go in and count them and insert where the zeros could have occurred here in the film badge exchanges and so you get slightly different zeroes and slightly different dose assignments.

But they are similar there in 2-9. Now we come down to unmonitored neutron dose which is like unmonitored photon dose.

Method A didn't assign it. NIOSH used the 50th percentile and SC&A method B used the 95th percentile and, again, there in Table 2-10 you see a substantial difference there in the dose assignment for unmonitored neutron dose.

And again NIOSH used the Monte Carlo methods to determine uncertainty whereas SC&A used a normal distribution of 30 percent uncertainty. Again, we don't run the Monte Carlo programs at SC&A.

That brings us to the occupational medical dose and in all methods assigned occupational x-rays doses and mainly using the TBD-3 Rocky Flats, also consulted Procedure 61 and OTIB-79 and the difference here is that NIOSH used the two that were recorded in the DOE records.

There was record of two x-rays being taken. That is what they assigned dose for. Both SC&A Methods A and B went to TBD-3 and said okay,

for these years of employment there was perhaps all of the x-ray information available and so they assigned an annual x-ray and so you see in Table 2-11 there that makes a difference.

A and B came out with the same values using annual x-rays and NIOSH came out with .084. That last -- on an absolute basis, it's not a whole lot of dose but there is a relatively large difference there.

DR. MAURO: Ron, this is John. I'm sorry to interrupt again but I think there -- I'm always looking for these themes -- this is one of the assumptions I've been making in working for all these years is that for DOE facilities when there is no explicit record of medical occupational exposures, we are required to assume that the person did receive annual exposures.

However, I realize also that I have not been as deeply involved in this dose -- these Dose Reconstructions as you have.

Has that guidance changed where the default - that is, if you have records that say

okay, we know this person -- we have records that say we know this person received two exposures -- had two exposures, so the differences here that might be important even though the doses are relatively small. Am I correct or am not -- do we still assume for DOE facilities that the -- everyone gets their -- this annual medical x-ray?

Or is the procedure now that are being used by NIOSH: No, we only use -- we count up the number of x-rays that's in his records and that's what we use? Do you see the distinction?

MR. BUCHANAN: Yes, and the way I understand the present accepted method is that if there is -- it depends on the site. Some sites are very explicit about providing x-ray information.

Rocky Flats is not one of them and well, I mean -- excuse me, about providing yearly or annual x-ray exams and some sites vary.

It depends on the job title whether they got it yearly or four years or five years or at beginning and at end or whatever. Since this person worked as a --

(Telephonic interference.)

DR. MAURO: I'm sorry to interrupt, Ron, but are those sirens coming from your area?

MR. BUCHANAN: No.

DR. MAURO: Someone is on the line that has a siren that -

MR. KATZ: It's okay. It's gone.

DR. MAURO: Okay. Thank you.

MR. KATZ: It was a neighbor.

DR. MAURO: Okay. I'm sorry. I'm sorry, Ron. Go ahead.

MR. BUCHANAN: Okay. And so in the particular case of Rocky Flats it depends on the job duties whether they had an annual x-ray or not and so in this case I would say generally it would be accepted you would use the DOE files as opposed to assigning an annual x-ray. Some sites that's not true. That's not an across the board thing. It depends on the sites and depends on the job duty.

DR. MAURO: So in this particular case would you say that NIOSH took the right strategy in terms of counting up the number of x-rays as

opposed to these strategies that you and I did, namely, giving an annual?

MR. BUCHANAN: Probably so.

DR. MAURO: Okay. No, it's okay. That's what it is. Okay.

MR. BUCHANAN: Right. I would say that probably that was more of a best estimate. I would say Method A and B maybe would be an overestimate. If it's less than 40 percent then, you know, yes, just go ahead and do the annual.

When you are around 45, 50, you know, I would say probably go by the DOE records for just per case. That's not an across the board stance; that's just for this one.

MS. K. BEHLING: Excuse me. This is Kathy Behling. The other thing that we can refer to here is, there's an Attachment A to PROC-61 and that has an attachment that identifies each of the DOE sites and for Rocky Flats, depending on the approach taken whether it's a best estimate, a minimizing or maximizing, even a best estimate approach says frequencies per TBD Table 3-1 or

actual records if records indicate more procedures in Table 3-1.

DR. MAURO: Okay. So it is all laid out there. So it's not that there's much discretion.

MS. K. BEHLING: Correct.

DR. MAURO: Okay.

MR. BUCHANAN: You're saying that if it says more than Table -

MS. K. BEHLING: I am reading - I am reading from the table from best estimate approach and that is what I just read, yes.

MR. BUCHANAN: Okay. Well -

MR. SIEBERT: This is Scott. I can't let that go.

MS. K. BEHLING: Okay. No, no. Go ahead. Go ahead, Scott. I'm sorry.

MR. SIEBERT: It's just the point that Ron was correct. It depends on the site and whether we believe that we can get the full x-ray record or not and Rocky Flats is one of the sites where we get the full x-ray records.

So we follow the x-ray records as they are provided by the site in a best estimate case. Actually, these days we use the records in all cases. We no longer do any overestimates in x-ray.

If you'll remember correctly that came out of the 10-year review. We use best estimate actual x-rays at Rocky Flats in all cases.

MS. K. BEHLING: I guess I just wasn't reading that in this Attachment A. But maybe I need to go back to Table 3.1, or 3-1. Anyway, go ahead. I'm sorry, John.

DR. MAURO: Yes, but for the Board Members, you notice we're having our own little -- as far as I'm concerned we are all trying to find the right approach and the complexity and, again, another takeaway that might be helpful to everyone is that finding the right approach is not always that easy.

There are a lot of procedures and, you know, I guess there are workbooks in there. So I know I, for one, realize it's quite overwhelming sometimes in working your way through one of these

and it's -- clearly, in this case it sounds like that there was some guidance out there that clearly explained the appropriate approach to use in this case.

But notwithstanding that, we did come away with two different approaches are the ones that SC&A used, both A and B, and the one that NIOSH used.

And Scott, it sounds like that you believe the guidance out there is pretty clear and that NIOSH did have the guidance and in fact did apply it appropriately.

MR. SIEBERT: Right.

DR. MAURO: And that's important to know.

MS. K. BEHLING: Well, let me -

DR. MAURO: Okay, go ahead, Kathy. Yes.

MS. K. BEHLING: I'm sorry. But as I just read, it says for best estimate approach frequency for the TBD Table 3-1 and if I go to the time period of 52 through 85 the frequency says

annual and termination PA chest, all workers.

And if that is not what you are following, if you are only using documented x-rays then the guidance needs to be changed.

DR. MAURO: That's important.

MR. SIEBERT: And I - this is Scott. I am going to have to look at those specifically and I agree, if our documentation does not direct that correctly, we would need to update that.

DR. MAURO: I like this. I'm sorry to discuss at length but I like this. See, we're getting out to the root causes. Who cares who is right and wrong? And I am not saying -- we don't have any turf here.

What we are doing is saying listen, there is guidance -- it's a complex program and it's easy for two people properly trained and, you know, trying to do the best job they can and many people -- you still could come up with differences and it's very important to understand why those differences are happening and that is what we are trying to do.

And right now it sounds to me that,

Kathy, your position is that the guidance is - you interpreted the guidance in a way that was different than the way in which NIOSH interpreted and I think it is important that we are getting some answer out of this whether or not - you know, whether or not the guidance is in fact clear and NIOSH, you know, did follow it or for some reason they weren't - they didn't follow it and that goes for us too, either way.

This way the Board gets a clear picture of where the vulnerabilities are and that is -- I think that is why we are all sitting around the phone right now.

MEMBER MUNN: That is why we are doing these reviews and you are correct, John. The other thing that we have grown unaccustomed to doing because of the way we've been forced to do some of our other things is, we have grown accustomed to accepting that fact that, contrary to popular opinion, many of these sites did keep excellent records and continue to have good records, and when we have them, good science will dictate that we use

the appropriate good records we have. Novel idea.

CHAIRMAN KOTELCHUCK: Well, now we go to occupational internal doses, and boom.

MR. BUCHANAN: Okay.

CHAIRMAN KOTELCHUCK: Big differences.

MR. BUCHANAN: Okay. So you can see these things do change, too. That is the issue. Like on x-ray, they change with time. So it's hard to keep track of them for all the sites.

Okay. Looking out for occupational internal dose, we see that here the DOE records show that the Employee had in vitro bioassay monitoring for plutonium, americium and tritium during the employment period. Also had a chest count for plutonium and americium.

All the results were below the MDA value for background and so what they would do with this information, okay. So we will look at what NIOSH did in this kind of summary form.

In this case, they looked at both co-worker doses from TBD-5 and also the missed dose

and compared them and in the long run ended up assigning a missed dose for the beginning and co-worker dose for the ending employment period.

And so they based it on the MDA values and also the co-worker from TBD-5 Table B-6 using the 95th percentile rate of intake and shown there in Table 2-12 their intakes.

And so we will -- from this they assigned a missed plutonium dose of around 5 rem, co-worker dose around 40 rem and a missed americium dose of about half a rem. This is assigned with constant value of no uncertainty.

Now, Method A - SC&A's Method A used a chronic intake for the whole employment period based on one half of the MDA, compared uranium and chest counts and decided that the americium chest count provided more direct readings than the uranium and so they used the chest count data just like NIOSH did.

And then in Table 2-3 it shows their respective intake of the different plutonium and americium isotopes. And then, of course, there's

plutonium at Rocky Flats. We had to do an adjustment for OTIB-49 for Super S plutonium and that is illustrated there in Table 214 and then the total down at the bottom there is 38.67.

Six rem assigned and now Method B used - also did a similar comparison and arrived at a total dose of 57 rem. And all this was assigned into the IREP tables and that brings us down into the tritium dose again. All three methods found at less than .001 rem and wasn't assigned.

Now, that brings us to the depleted uranium. Method A in NIOSH did not assign depleted uranium and where this -- where this comes from on the depleted uranium Method B is the only one that used that and it does state in the Rocky Flat TBD-5 that there was a potential for uranium -- depleted uranium exposure was plausible at Rocky Flats during the entire operating period.

It doesn't really say who to assign it to, what conditions and when to assign it to them. And, in addition, when the whole body count or lung counts was done there was a column for the results

in the raw data sheet that listed a position for uranium.

They had a plutonium, americium and then had a thorium, uranium. We determined that there was no thorium at this time, Method B did, but there was a potential for uranium.

And so they used the ratio of americium test counts to the DU concentrations and derived an intake and assigned this in the IREP table as a separate entity with a normal distribution of 30 percent and it came to 10 rem. And so we see in a summary of internal doses there in Table 2-17 that we had NIOSH assigning 46 rem, Method A assigned 38 rem, and Method B assigning a total of 67 rem including the 10 rem from the DU.

MS. K. BEHLING: Ron, this is Kathy Behling again and I just want to go back because I want to be fair here and let's go back to Page 18 for the plutonium and americium.

And one of the things that I wanted to ensure was included in here was exact verbiage from the NIOSH Dose Reconstruction report, and as you

will see I in fact put it in bold indicating that NIOSH has concluded that in -- the reason they selected the co-worker model for those shorter time periods, even though that was a lower dose, is because they have concluded that with these short time periods when you use missed dose, it can significantly overestimate the internal dose.

So I -- that is their justification and reason for doing that and I think that is appropriate and if you look at your Table 2-12 you can see for which these short periods in 1985 that they did assign the co-worker model and probably appropriately so if the missed dose -- if they have proved that the missed dose really overestimates -- incorrectly overestimates the dose. I just want to point that out.

MR. BUCHANAN: Okay. Thank you, Kathy. So go down to the summary and conclusions, Section 3, Page 24.

We see that Table 3-1 compares the doses assigned external, medical and internal and, again, to review we see that the total lung dose

was 49 rem, NIOSH 47 - about 48 rem on Method A and about 72 rem on Method B, and ten of that was due to the depleted uranium.

And so the PoCs come out 47.5 in NIOSH, 56.7 by Method A and 55.75 on Method B, and this is kind of concerning because here we have a higher dose than for NIOSH -- and PoC less than 50 percent, whereas Method A come out with a slightly less dose but a PoC of 56 percent.

So why was that and why was this 71 rem led to slightly less PoC than this 48 rem? And so looking over this the main thing we found - we can go through this and we can say okay, they used the best estimate or minimizing estimate, 50 and 95th percentile.

But if you look at this the doses come out similar here because the PoCs are inverted and reversed.

CHAIRMAN KOTELCHUCK: Yes.

MR. BUCHANAN: And so why is that. And so the reason I emphasize and, you know, maybe NIOSH can shed more light on this, this is kind of

something new that we ran into on this case, kind of like the last case, is that the main difference that we could see was the way the uncertainties were entered.

And like I say, SC&A does not have Monte Carlo capabilities on the uncertainties and stuff and so we don't assign triangular distributions and we don't assign varying uncertainties. We use either like a logarithmic distribution or the GSD of 3.0 for all the entries or whatever.

And so the main difference between NIOSH, A, B, and C was the way the distributions were entered and the uncertainties. So that is where we are at on this case: presented how it was done and some of the differences and the only thing we can arrive at is the way they are entered into IREP and this is kind of, you know, sends up a question is there a standard way - is this affecting any other TRs that are -

MS. K. BEHLING: This is Kathy again. If we can scroll down on Live Meeting a little bit then we can see that we wrote this up in here that

the dose uncertainties were entered into IREP where 82 percent of the total dose was entered as a constant -- that NIOSH entered 82 percent of a dose as a constant or the internal co-worker dose and you can see the differences here.

Eighty percent of SC&A's Method A was a log-normal distribution with a GSD of three and with Method B, 93 percent of the missed internal dose was entered as a normal distribution with a standard deviation of 30 percent.

CHAIRMAN KOTELCHUCK: Kathy, Dave. I -- just since we went through Table 3.1, the Method A column doesn't add up. It has internal doses, alpha 38.67. Could we go up to that? And then there is nine -- roughly nine more rems and the column up above doesn't have nine rems.

MR. BUCHANAN: Yes. That is an error and I thought that was corrected on there. On mine, I corrected it. That should be 41.915. That seven there should be a one.

CHAIRMAN KOTELCHUCK: Forty-one -- 41. Okay.

MS. K. BEHLING: Yes, I'm sorry. That is --

CHAIRMAN KOTELCHUCK: But your calculations were done with that and that's just --

MR. BUCHANAN: Yes. That is just an error there.

CHAIRMAN KOTELCHUCK: Okay.

MR. BUCHANAN: And that ties right there. It's just a typo error.

CHAIRMAN KOTELCHUCK: Okay.

MR. BUCHANAN: That's 41.915.

CHAIRMAN KOTELCHUCK: Yes.

MR. BUCHANAN: The relationship is still --

CHAIRMAN KOTELCHUCK: Okay.

MS. K. BEHLING: And I'm sorry. And if you go back to Table 1-1 the correct number -- the correct value is in there. It didn't get corrected at the end, 41.915 in Table 1-1.

CHAIRMAN KOTELCHUCK: Okay.

MS. K. BEHLING: My apologies there.

CHAIRMAN KOTELCHUCK: That's okay. So --

MR. SIEBERT: This is Scott. I'm prepared to discuss this if you would so desire.

CHAIRMAN KOTELCHUCK: Sure.

MR. SIEBERT: I just want to make sure that SC&A was -- Ron was done with presenting everything he wanted to do on that.

MR. BUCHANAN: Yes, I'm done.

MR. SIEBERT: Okay. Looking through this, the comparison, really, the lion's share of the difference is the internal, specifically the plutonium assessment.

CHAIRMAN KOTELCHUCK: Right.

MR. SIEBERT: And we have been having discussions right now about distributions and so on. The distributions that are required under the process of our project are laid out in, I believe it's OTIB-60.

But we've been consistently using it since the beginning of the project that missed dose is assigned as a triangular distribution for

internal and fitted dose is assigned as a log-normal distribution with a GSD of three.

Those are the -- those are the two distributions for when we are basing it on the bioassay data that we use, which is what was done in the NIOSH version.

There were no positive results in this claim for plutonium or for americium-241 chest counts, which is an indicator for plutonium. So any dose that was calculated, as Ron stated, they state that it's missed dose that they assigned.

However, missed dose should have been assigned as a triangular distribution, not as a log-normal with a GSD of there. That right there makes a huge amount of difference on the PoC calculation and that drives a lot of the difference that you are seeing in the PoC.

That is one of the issues, and I don't know if you want to discuss that a little bit more fully before I go on to another one.

MR. BUCHANAN: Okay. Well, repeat that please, so I can write it down.

MR. SIEBERT: Sure. When we -- when we assess missed dose that is a triangular distribution with a minimum of zero. The mode is the MDA over two value and the maximum is at the MDA and we do the calculations based on the bioassay results at those levels.

MR. BUCHANAN: Yes.

MR. SIEBERT: When we do fitted dose it is set as a log-normal distribution with a GSD of three and it's based on the actual positive bioassay results.

In this specific case, as you mentioned it's all missed dose that is being assigned so it should have been a triangular distribution and, as you said, those distributions really drive a lot of difference in the PoC calculations.

MS. BRACKETT: And Scott, is that -- you say that is incorporated into OTIB-60, the internal dose reconstruction TBD? Yes.

MR. SIEBERT: I believe that is where we have it, yes.

MS. BRACKETT: Okay. Definitely

there. This is Liz Brackett.

MR. SIEBERT: Thank you, Liz.

MS. BRACKETT: Okay. Thanks.

MR. SIEBERT: And that is something we have consistently done since the genesis of the program and, again, it gets documented in 60.

MS. BRACKETT: Okay.

MR. SIEBERT: So that -- so that's the differences from a distribution point of view. The other major difference that I saw is neither of the calculations on SC&A's side which -- let me go on aside for a second and let you know.

I really appreciate doing this process. It gives me an appreciation for what SC&A does every day because I had to go back and figure out how they did their stuff and tried to justify it, which was very interesting to do.

They did not take into account ingrowth of americium-241 from plutonium-241 in the plutonium mixture. Everything at Rocky Flats, when you're dealing with plutonium, you don't see plutonium without americium.

It's always a mixture and it's always growing in from the plutonium-241 component of the full mixture. You can see americium all by itself in urine results because there were times that Rocky Flats worked with purified americium.

However, you will not see plutonium without americium. So whenever we are doing calculations for plutonium you have to take into account the plutonium and the americium in tandem.

You can't do the plutonium and the americium separately. When you do that, you also must take into account the americium-241 ingrowth from plutonium-241 because if you take a chest count -- an americium-241 chest count and back-calculate an americium intake and then assume from ratios that the plutonium in the mixture is what is out of the TBD, if we don't take into account ingrowth, the plutonium-241 that is part of that mixture does continue to create and contribute americium-241 and you'll actually end up overestimating the chest count based on the intakes that are assigned.

I looked at the files that we got from SC&A in the review and without taking that into account, once I took the americium-241 ingrowth into account, their intake would have been only 55 percent of what it actually is assigned in the case itself. It cuts it almost in half.

MS. K. BEHLING: Okay. And Ron, maybe you can give me more details here. But I thought that we used the RSP plutonium/americium intake calculation tool.

MR. BUCHANAN: Well, okay. Now, Doug did this -- Doug and John did this. I just did the comparison. So, you know, I'd have to go back and research that. I didn't actually do the original dosage.

MR. SIEBERT: The americium -- the americium ingrowth function is part of IMBA and needs to be specifically turned on in IMBA to run that and the ratio of 241 plutonium to americium needs to be entered into IMBA and the IMBA files that we received did not have that option enabled so it did not take into account americium-241

ingrowth from plutonium-241.

MEMBER CLAWSON: This is Brad. You brought up something very interesting here which is unique to Rocky Flats: Is there something in the tools for the dose reconstructors? Do they -- how do they know to be able to do this? This sounds to me different than other facilities.

MR. SIEBERT: Brad, this americium-241 and plutonium mixture is not unique to Rocky Flats. We do this at Savannah River, Hanford.

Everywhere we are dealing with americium chest counts we have to take that into account when we do our assessments of a plutonium mixture because it does include the plutonium-241 as well as the americium-241.

MEMBER CLAWSON: Okay. So this is not just unique to Rocky Flats. I kind of got that from you at the beginning because you make the comment of whenever we do Rocky Flats this is how we do it.

So I was just wondering if this is something unique to them. But this is throughout all of the sites, the plutonium?

MR. SIEBERT: Yes. If I -- if I led you astray, I apologize. Perhaps my wording could have been clearer.

MEMBER CLAWSON: No. I just wanted to make sure that there wasn't something there that we need to make sure that, you know, that people that do this all the time may have known it but other ones that didn't. I apologize. Thank you.

MR. SIEBERT: And just to let everybody know, this discussion of americium-241 is also covered in OTIB-60, the fact that we deal with ingrowth as well.

DR. MAURO: And Scott, I'm sorry. I'm not as quick on my feet as I probably should be. But you're saying that because of this we overestimated the dose, and I have to say I'm having a little trouble following the narrative. Could you give it to me one more time?

MR. SIEBERT: That's fine. When you -- when you calculated your americium-241 intake you used a chest count and you -- and you determined the intake of americium-241 from -- for the whole

missed time frame.

DR. MAURO: Okay.

MR. SIEBERT: Then we used ratios to also assign the rest of the mixtures which would include the plutonium-241 in the mixture.

MR. BUCHANAN: Now this is your weapons grade and time period, right, that's at the table?

MS. K. BEHLING: And that is based on a -- the intake calculator tool? I'm trying to understand this too. Isn't there, like I said, that plutonium/americium intake calculator tool that we should have used?

MR. SIEBERT: Yes. But the problem is the only way you can use that tool appropriately is if you consider americium ingrowth from the plutonium-241 when you do your americium calculation.

Otherwise -- because what I did was I took the americium-241 intake that was assigned in the methods and if I account for ingrowth from a plutonium-241 that was also assigned and project out to the chest counts, the chest count is almost

-- it's projected to be almost twice as high as the actual chest count result.

MS. K. BEHLING: Okay. Okay. It's like we double -- we double count on that?

MR. SIEBERT: Correct.

MR. BUCHANAN: In Method A we get less of a plutonium dose. In NIOSH assigned we had 38 rem and NIOSH assigned 46 rem and our total - and so there must be another factor in distribution also in comparing A to NIOSH - SC&A Method A to NIOSH we come out with a lesser dose and greater probability. So that must be due to distribution factors as opposed to this americium issue.

MR. SIEBERT: Well, it's both of them combined and what I did as a quick down and dirty I was only -- I was given the IREP sheet from one of your -- I'm not positive which one it was but all I did was I ratioed the alpha dose down to 55 percent, basically almost in half, to account for the americium-241 because at this point everything is a straight ratio when you don't include these things.

When I reduced the numbers correctly like that and changed the distribution to triangular as is described rather than a log-normal with a GSD of three and reran the PoC, it came out at approximately -- well, I don't have to say approximately -- I can give you the actual number -- 47.38 percent.

So those two issues right there are what accounts for the difference in compensability decisions, in my mind.

CHAIRMAN KOTELCHUCK: Then it sounds like the SC&A folks, if they agree with this criticism and they, I guess, properly should double check, essentially what you have calculated, Grady, that is -- that resolves that problem significantly.

MS. K. BEHLING: This is Kathy again. Doug, are you still on the line? Do you want to weigh in on this at all? Because I - we will look at this, of course.

MR. FARVER: No, I've been looking at this but I've been trying to figure out where that

ingrowth function is. I haven't found it.

MR. BARTON: Could I ask a question? This is - this is Bob Barton. You mentioned that the ingrowth correction is mentioned in TIB-60, which is internal dose reconstruction, which was just recently updated last Fall but -- and I only have the current version in front of me -- was that guidance actually in the previous version, which I think was several years earlier when we were doing these blinds? I'm not sure.

MS. BRACKETT: This is Liz Brackett and it's actually not in either version. It is not addressed in OTIB-60. It is covered in dose reconstructor training and there is an informal guidance document for the, in the case when they are doing cases if they need it. But it's not in OTIB-60.

MS. K. BEHLING: Can we get a copy or can we see that guidance -- that guidance document -- that informal guidance document so we can verify this?

MS. BRACKETT: Yes, I will pass that

through NIOSH.

MR. SIEBERT: This is an issue that has been discussed in the Subcommittee actually in the past because we have dealt with this.

We have been doing this since pretty much day one of doing plutonium assessments on this project.

And Doug, to help you out or for IMBA, it's under the advanced options. You go to advanced options and advanced -- the second advanced options. It's under bioassay and has the allowed ingrowth of americium-241.

OPERATOR: Speaker, please identify yourself.

MR. SIEBERT: I'm sorry. This is Scott Siebert yet again.

MR. FARVER: This is Doug and that is right where I was looking and it is grayed out in my version or --

MR. SIEBERT: Well, you probably don't have -- do you have americium selected as the radionuclide of interest and then have -- let me

see here.

MR. KATZ: Well, I mean, you guys really don't need to settle this on this call. I mean, that's sort of the clarification of how to do which you can do offline, you guys.

DR. MAURO: By the way, one other - another takeaway I have here is that it sounds like that the sophistication of your program in terms of the training your folks, that the -- and the tools it's a living process and correct me if I'm wrong, any chance that when you're in a mode where, let's say, you're training people on your tools, especially when they are nuanced like this one, that one of our folks -- our lead internal dosimetrists -- can join in and --

MR. KATZ: Tom, this has been raised before and I've asked that and I thought Stu or somebody thought it would be reasonable actually. I think it's important that your folks who are doing Dose Reconstruction reviews get whatever training can be arranged that is being given to other dose reconstructors.

MS. K. BEHLING: Yes, we discussed during, I think, the last Procedures Subcommittee.

MR. KATZ: I think that's a great idea.

CHAIRMAN KOTELCHUCK: I am happy to hear that this discrepancy that appeared at first may in fact be resolved and that we do not have a flip-over in decisional compensation.

But basically SC&A will redo and make sure that we have agreement, in which case that's very hopeful and this is good.

MEMBER MUNN: I think you are right about that, David. And we have -- we have discussed this question and I've already seen ingrowth in this forum before.

CHAIRMAN KOTELCHUCK: Yes. Oh, yes, and it makes -- I think it is understandable to me who wasn't part of that discussion. I did want to ask before we conclude on this what we should consider about the depleted uranium, which now we are not looking at Method B of -- we are really comparing NIOSH and Method A.

But B considered and has ten rem of

depleted uranium and I would like somebody to tell me is that something that others missed or is there new information that depleted uranium is around that people were not aware of or --

MR. SIEBERT: This is Scott. I can address that one, as well.

CHAIRMAN KOTELCHUCK: Please.

MR. SIEBERT: There is no indication that the Employee (EE) was working in any uranium facility at Rocky Flats. The EE was placed -- anytime we saw data that placed the EE in any facility at Rocky Flats, it was a plutonium facility.

This was clearly a plutonium worker. The plutonium and uranium -- it's not the same area at Rocky Flats, from my understanding. It's a very clear delineation.

So this individual was clearly working with plutonium as is seen from here -- the individual's data. We also saw whenever we looked at any of the indication -- the incident reports and so on, they are always in areas of plutonium.

They are not in any uranium areas. So [what] we said in the bottom line is, this individual does not appear to have any reason to have been exposed to uranium based on the information that we have.

CHAIRMAN KOTELCHUCK: Okay. And SC&A folks, how do you respond to that?

DR. MAURO: We've got to go back and figure out why we included it. I have to admit, you know, this is something -- I'm involved very much in the Method B and I'd have to go and figure out why we included uranium, perhaps erroneously. But I think it's --

MR. SIEBERT: Well, John, I can tell you in the original report -- not the comparison report but the original report on Page 7, you clearly do state, see our Method B assigned potential internal intakes from DU, which was very claimant-favorable because the EE worked in the plutonium facility. Just to give you somewhere to look.

DR. MAURO: Okay. So in other words,

we -- thank you for looking so carefully. In effect, what you did find is that we made what we believed to be a claimant-favorable assumption, which was actually unrealistic.

Okay. I accept that. But we'll take a look at that. I mean, I think we should take a look at it.

CHAIRMAN KOTELCHUCK: Absolutely.

DR. MAURO: But I, you know, certainly accept that criticism.

CHAIRMAN KOTELCHUCK: So when we come back to this, this may be a -- one that's resolved such that there is now agreement and that is very good. It is just about four o'clock. Do people want to take a ten-minute break now?

MR. KATZ: Yes, that sounds great.

CHAIRMAN KOTELCHUCK: Okay. We'll take a ten-minute break. Be together at ten minutes after 4:00 Eastern time and then we'll go on to another case. This is progress. And I -- Kathy, I leave it to you to which case you'd like to choose next.

MS. K. BEHLING: Okay. Maybe we'll look at Fernald if Doug is up for it.

CHAIRMAN KOTELCHUCK: Very good.

MS. K. BEHLING: Thank you.

CHAIRMAN KOTELCHUCK: Thank you. See you in ten minutes.

(Whereupon, the above-entitled matter went off the record at 3:58 p.m. and resumed at 4:15 p.m.)

CHAIRMAN KOTELCHUCK: Kathy, as we begin, you said that you'd like to take a case from Fernald. Might you be able to show us the very first slide, the table with all of the different line --

MS. K. BEHLING: The comparison table?

CHAIRMAN KOTELCHUCK: Yes, the --

MS. K. BEHLING: The summary comparison, yes.

COURT REPORTER: This is the court reporter. Are we on the record?

MS. K. BEHLING: Yes.

CHAIRMAN KOTELCHUCK: Just let us take

a look at it and then ---

COURT REPORTER: Sorry. Are we on the record?

MS. K. BEHLING: Of course.

CHAIRMAN KOTELCHUCK: We're on the record.

COURT REPORTER: Okay.

MS. K. BEHLING: Of course, yes. Of course. It's your decision as to which case we do next.

CHAIRMAN KOTELCHUCK: But I, as Chair, I'm going to suggest that you choose it and we will be happy to do that.

MS. K. BEHLING: Okay. And the only thing, like I said, we --- just because of the details as you know and as you've recognized that we're discussing here, as I said, Doug and Ron and I have decided to split these up. And if Doug is prepared to do the Fernald case, which is the second one identified under the 17th set, that would be fine.

And, Doug, you can tell me and, if not,

I can take another case. But I will point out as we all recognize, especially looking at the Rocky Flats site that we just discussed, the level of complexity that, and especially that site, I believe, but that goes into these dose reconstructions.

And I think one of the things that I pointed it out when I wasn't sure when it was happening but at least because of how complex Rocky Flats is, it does sound like everything is in place so that the dose reconstructors appear to be doing this in a consistent manner.

And I just wanted to point that particular aspect out, that even though we may have -- but it shows you how complex -- and we've been running this IMBA for all these years and we're not necessarily made aware or were aware of all of these level of details and the advanced aspects of even the IMBA program.

But as long as the dose reconstructors are doing this consistently, and it appears in this particular case they are, I think that's a good

sign.

CHAIRMAN KOTELCHUCK: Yes, it is.

MS. K. BEHLING: So, Doug, would you like to start on the Fernald case, if the Subcommittee Members are in agreement?

MR. FARVER: I can do that and I can make it real quick without all the nuances and even going through the whole document. I mean, if you really want the short story --

CHAIRMAN KOTELCHUCK: Well, we have not suffered -- no, we can go through it in a little more detail -- in the same level of detail that the other two we've gone through. That was quite informative.

MR. FARVER: Okay. Well --

CHAIRMAN KOTELCHUCK: We're here until 5:00 p.m.

MR. FARVER: Okay.

CHAIRMAN KOTELCHUCK: Here.

MR. FARVER: I just didn't want to take up your time unnecessarily.

CHAIRMAN KOTELCHUCK: No, no. This is

not -- this has been constructive.

MR. FARVER: Okay. If we go to Page 8, Table 1.1, that will kind of tell you the story between Method A and Method B and the NIOSH calculations. And --

CHAIRMAN KOTELCHUCK: Okay. Yes.

MR. FARVER: Everything above the recorded shallow dose is similar, all of the photon doses and the missed photon doses for Method A and NIOSH. Method B is very similar.

CHAIRMAN KOTELCHUCK: Okay. Although A is our -- it's the comparison of NIOSH and A that is central to our mission.

MR. FARVER: Yes. And they're pretty much duplicates of each other.

CHAIRMAN KOTELCHUCK: Yes. Okay.

MR. FARVER: So that's pretty unexciting. And then you go down to onsite ambient dose --

CHAIRMAN KOTELCHUCK: No. The fact that they're so similar is exciting to some of us.

MEMBER MUNN: Statisticians. Right?

MR. FARVER: And the onsite ambient dose is where the really big difference in the whole case is. SC&A did not do an onsite ambient dose so we'll talk about that when we get to it. And NIOSH did. And that's where the three additional rem come from.

CHAIRMAN KOTELCHUCK: Mm-hmm.

MR. FARVER: That was your short story. Now we can go on through if we wish. You know, you see the occupational medical dose. Method A is higher than NIOSH but not as high as Method B.

CHAIRMAN KOTELCHUCK: I would say where the calculations are identical as they are for the photon dose, the low energy and high energy -- higher energy, there's no need to go over that.

MR. FARVER: Okay.

CHAIRMAN KOTELCHUCK: And I'm looking at A and NIOSH, unless you have something from B that you feel should be brought to our attention.

MR. FARVER: I don't believe so, mainly because if you look at the total doses, they're pretty similar.

CHAIRMAN KOTELCHUCK: They're almost identical.

MR. FARVER: Right. And the crux of it is the ambient dose, is where the three rem additional that NIOSH came up with that we didn't.

CHAIRMAN KOTELCHUCK: Okay. Let's talk about that.

MR. FARVER: Okay. And we can move on down to that section, which --

CHAIRMAN KOTELCHUCK: If folks disagree or other Subcommittee Members want to go over any of those that are identical there, please say so.

MEMBER MUNN: No, certainly not I. This is exactly what I was talking about at outset, how much of a difference is significant enough for us to -- yes.

MS. K. BEHLING: I'm sorry, Doug. This is Kathy. Obviously the doses are identical and also the methodology used has to be identical almost in order to come up with those identical doses.

MEMBER MUNN: Right.

CHAIRMAN KOTELCHUCK: That is correct.

MS. K. BEHLING: So that's important.

CHAIRMAN KOTELCHUCK: Yes.

MR. FARVER: Right.

MS. K. BEHLING: Right.

MR. FARVER: Well, if we look at Section 2.1.6, the onsite ambient doses, SC&A chose not to assess an onsite ambient dose because the employee was continuously monitored. NIOSH assigned an ambient dose after 1984 when the ambient dose was subtracted out of the measured dose, out of the dosimeter dose.

So that is the difference. They calculated the dose from 1994 through, is it '97, I believe. And we came up with the additional three rem.

MS. K. BEHLING: And I think what's important here is that that is documented, I believe in PROC-60 as to how to deal with the onsite ambient for each of the sites.

MR. FARVER: Yes.

CHAIRMAN KOTELCHUCK: Excuse me. I'm not clear what the difference is. I didn't quite follow it. Would you mind?

MR. FARVER: Why we did not?

CHAIRMAN KOTELCHUCK: Right.

MR. FARVER: We did not because the employee was continuously monitored, wearing a dosimeter.

MR. FARVER: So we did not feel there was a need to assess another dose on top of that.

MS. K. BEHLING: And generally that is the rule. However, like I said, there are some specifics to different sites and those are spelled out in PROC-60.

MR. FARVER: Correct.

CHAIRMAN KOTELCHUCK: And what are those specifics?

MR. FARVER: For this site that after 1984, you do start assessing an ambient dose. So NIOSH is correct in what they did.

MS. K. BEHLING: And that is because at that facility, they were subtracting out that

ambient dose from the measured dose.

MEMBER MUNN: Again, a facility issue, an onsite. Yes.

MS. K. BEHLING: Correct.

CHAIRMAN KOTELCHUCK: And NIOSH folks, what do you say? Grady?

MR. SIEBERT: This is Scott. We agree wholeheartedly that we did it correctly following the Procedure 60.

MS. K. BEHLING: Thank you for that, Scott.

MR. FARVER: Good.

MEMBER CLAWSON: This is Brad. I've just got a question on this because this has come up at some other sites. So what you're telling me is that when they started putting a badge, say, out there where the badges were kept or whatever, when they read it, they subtracted that from the people's badges? Is that why you --

MR. SIEBERT: That is correct, Brad. That is what they were doing.

MS. K. BEHLING: That's right.

MEMBER CLAWSON: Okay. So, okay. Just wanted to make sure. I was just trying to figure it out. I had heard that before and I just wanted to make sure.

CHAIRMAN KOTELCHUCK: So, but, I hadn't looked at -- I mean, what happened in '84? I mean, why the change?

MR. SIEBERT: It's just a change in how the site was dealing with their dosimetry program. Up until '84 they didn't have the ambient badges being subtracted out. I don't know if they had the ambient badges --

CHAIRMAN KOTELCHUCK: Okay.

MR. SIEBERT: Once they hit '85, they decided to start subtracting the ambient doses out so that they weren't reporting the ambient doses to the DOE. But, I mean, if that's conjecture to me as to why, but there was a clear delineation as to change in their methodology.

CHAIRMAN KOTELCHUCK: I'm not clear who's backing off. People are laughing, but who -- and I may have forgotten and it's getting later

in the day, the first slide, but why?

MS. K. BEHLING: This is Kathy. NIOSH was correct in assessing onsite ambient dose after 1984. We didn't do it because, as I said, often it is an issue of if you were monitored, we didn't need to do that. We made a mistake by not consulting PROC-60 in this particular case.

CHAIRMAN KOTELCHUCK: Okay. So we will -- so you accept that NIOSH did it correctly?

MS. K. BEHLING: Yes.

MR. FARVER: Yes.

CHAIRMAN KOTELCHUCK: Okay. And that effectively, I don't know, I guess, if you will, you should change it? Or is there any value to your actually putting this on paper or if this is something we could just describe, if you will?

And there's no change in the decision. That is to say, a flip over from compensable to non-compensable or non-compensable to compensable.

MR. KATZ: No. Right. This is Ted, Dave. I think this is just an example where, in

the narrative, the little summary memo, you know, they can cover this in a couple sentences how this issue was disposed.

CHAIRMAN KOTELCHUCK: Okay.

MR. KATZ: And then we'll have a clear record for this case of that matter.

CHAIRMAN KOTELCHUCK: Okay. That sounds good. I just want to make sure.

MR. FARVER: Okay.

CHAIRMAN KOTELCHUCK: Well, then --

MR. FARVER: We can move on to the medical doses.

CHAIRMAN KOTELCHUCK: Yes.

MR. FARVER: And on Page 15, you can see Table 2.6 of the two methods and the NIOSH results. And you'll see some differences.

CHAIRMAN KOTELCHUCK: Yes.

MR. FARVER: And Method A, pulled the numbers off of Table 8.9 from OTIB-6. And Method B pulled the doses from the Fernald TBD, Tables 3.14 and 16. And although it really wasn't specified where NIOSH got their values from, we believe they

got them from OTIB-6 but we're not exactly sure where because OTIB-6, they have 41 different skin cancer sites.

So it's a little tricky to make a direct comparison.

CHAIRMAN KOTELCHUCK: Yes.

MR. FARVER: So we don't really know what was done for that one, but they're all very similar.

CHAIRMAN KOTELCHUCK: And small.

MR. FARVER: And small.

CHAIRMAN KOTELCHUCK: So NIOSH folks, what do you say?

MR. CALHOUN: I'm being quiet here because I work at Fernald.

CHAIRMAN KOTELCHUCK: Oh, okay. Fine. Anybody else?

COURT REPORTER: Speaker, please identify yourself.

CHAIRMAN KOTELCHUCK: That is Grady.

MR. CALHOUN: That was Grady Calhoun.

CHAIRMAN KOTELCHUCK: That's fine,

Grady and that's correct. Is there anyone else that can speak to that or wants to speak to that?

MR. SIEBERT: This is Scott from the ORAU team. I mean, we're going to have to look at the specifics on what was assigned and why. We have somebody looking at it but they probably won't be able to answer it right at this very second.

CHAIRMAN KOTELCHUCK: Fine. Why don't we say that you will have somebody look at it and report back to us at the next meeting?

MR. SIEBERT: We would be happy to.

CHAIRMAN KOTELCHUCK: Okay. And then --

MR. SIEBERT: As long as Grady wants me to.

MR. CALHOUN: I always want you to, Scott.

CHAIRMAN KOTELCHUCK: Okay. Very good. So that would, I believe, conclude this.

MR. FARVER: Okay. We can wait until we get a response back from NIOSH. It looks like the employee had about seven exams so it should not

be too difficult to track down.

CHAIRMAN KOTELCHUCK: Yes. Okay. And that will be -- one doesn't have to present anything. Just tell us in words what that difference is and that will be incorporated into the report that we write up. Correct?

MR. FARVER: Okay.

MR. KATZ: Okay, so Scott will report out -- will send, you know, just like we would with other matters with matrices and so on. If he'll just send out what he finds, his response, when he has it, to the Work Group and to SC&A --

CHAIRMAN KOTELCHUCK: That's fine. Okay. And then that will resolve it without having to come back to the meeting. Then we will need -- we only have about 15 minutes because we've got to choose our next meeting. And I think if we don't have time to go over another one, maybe we should just talk about our meeting time and any other concerns and finish up for the day.

MEMBER MUNN: Good.

MS. K. BEHLING: Okay.

CHAIRMAN KOTELCHUCK: Kathy?

MS. K. BEHLING: One quick question here and I'm just -- I should have a better understanding. I do take notice -- and, again, it's not significant doses but I was curious for the internal dose, the total internal, the difference between Method A and B --

CHAIRMAN KOTELCHUCK: I'm sorry. I did not -- yes, yes. Okay.

MS. K. BEHLING: I just want to -- maybe we could elaborate on that again.

CHAIRMAN KOTELCHUCK: By all means. By all means. That's my mistake. I thought we had finished everything and we have not.

MR. FARVER: This is Doug. I think I can go on with that.

CHAIRMAN KOTELCHUCK: Please do.

MR. FARVER: Okay.

CHAIRMAN KOTELCHUCK: If we go to the bottom of Page 15, which we can see that it discusses NIOSH's uranium dose calculations. And well, this employee had, like, 217 urine samples.

I mean, it was a lot to look at, a lot of data.

But there are only -- there was one result that was above the MDA and one result at the MDA. Okay. So that's pretty much what you have out of over 200 samples. You're looking at maybe two results of interest.

So those are the ones that NIOSH plotted, assumed the chronic intake, 2 percent uranium. They assumed that those -- or before those dates, that those were acute intakes, that those results were caused by acute intakes.

So they assess two acute intakes on top of a chronic intake that occurs through the entire employment period. And that is the method they used to come up with their dose. They also did assess some thorium on top of that and from a baseline fecal sample and chest counts. Okay. And that's included doses. It will come up later.

CHAIRMAN KOTELCHUCK: Okay.

MR. FARVER: Method A for this, SC&A assessed an acute intake for the single elevated, the one that was elevated above MDA.

CHAIRMAN KOTELCHUCK: Okay.

MR. FARVER: So your MDA is at 14. There is one result of 14, one result of 18. So we just assessed the 18 as an acute and felt that the 14 fell in along the MDA line.

Okay. And then we assessed a missed uranium dose for the employee. So we had a little different approach. They had two acute intakes. We had one acute intake. And I see where we're at on live. Okay.

Table 2.10 shows the intakes. There was an interesting thing about this because we used the CADW and the IMBA software. But the CADW seemed to come up with some lower doses than the IMBA doses. And that information was in our original report.

But we did not put the comparison in here. If I remember right, I believe that the CADW at the time was doing -- it was doing an estimating for some of the uranium, thoriums -- I'm not sure. I seem to recall there was something the CADW was doing that it's no longer doing now. That's been

corrected.

But that may have been the reason that we noticed the difference between the CADW and the IMBA.

MS. K. BEHLING: The other thing that's strange about that is that CADW you have to put in the full year where the IMBA you can put in your exact years. So you would almost have expected the CADW to be higher.

I guess maybe that was brought to our attention. Maybe we should think about -- I don't know. As long as we know that that's been corrected and if -- well --

MR. FARVER: Yes. And if we go on to Table 2.11, we also assessed it for recycled uranium with those intakes. Now, we were off probably by about a difference of ten in our internal doses. Let me verify that. Internal dose of .037 and .302 from the NIOSH and then .292 for our Method B.

CHAIRMAN KOTELCHUCK: Could somebody scroll to where it --

MR. FARVER: Okay. Well, I was just flexing back for my own benefit.

CHAIRMAN KOTELCHUCK: Okay.

MR. FARVER: So Method A and NIOSH are off by about a factor of ten. And I believe I know why. I believe that's because we incorrectly chose Type S uranium and probably if we would have chose Type M uranium, the skin doses would have been higher.

That's just -- from looking at this right now, that's kind of my guess on this.

MEMBER MUNN: It's possible.

MR. FARVER: And I'm the one that made the mistake so I admit it. But I'm looking at it now and I'm thinking, why did you do that because you know that's not going to give you a skin dose Type S?

CHAIRMAN KOTELCHUCK: Right.

MS. K. BEHLING: Yes. That is what we did.

MR. FARVER: Yes.

MS. K. BEHLING: We did Type S uranium.

MR. FARVER: So I'm guessing that probably explains that factor of ten.

CHAIRMAN KOTELCHUCK: Okay.

MR. FARVER: Even though we assessed different intakes, you know, two acutes versus one acute over top of chronic, a lot of times that really doesn't matter because your overall dose is going to be about the same, assuming you choose the same material class.

And then we went on to assess some environmental dose but it wasn't much of anything. But that's kind of the short story and that's kind of where the two big differences are.

CHAIRMAN KOTELCHUCK: Okay.

MR. FARVER: The acute dose and then --

CHAIRMAN KOTELCHUCK: Medical dose. Pardon.

MR. FARVER: And then we kind of got the uranium solubility incorrect.

CHAIRMAN KOTELCHUCK: That should also be written up again, not necessarily -- if you would just do the calculation and bring it to our

attention.

MR. FARVER: I will. Now that I'm looking at Table 2-12.

CHAIRMAN KOTELCHUCK: Good.

MR. FARVER: And is that on the screen?

CHAIRMAN KOTELCHUCK: It is.

MR. FARVER: Okay. Now I'm more confused. Maybe it's because we didn't assess thorium. We'll have to look at that.

CHAIRMAN KOTELCHUCK: Okay. Then that one I would urge us to come back to next time. Okay?

MR. FARVER: Okay.

MS. K. BEHLING: We can do that.

CHAIRMAN KOTELCHUCK: Okay. So that's what we'll start with next time. And let's talk about schedule. Ted, could you talk to us about when we could get together again?

MR. KATZ: Sure. Let me just pull up the calendar so I can see where we are.

CHAIRMAN KOTELCHUCK: Right.

MR. KATZ: One second, please.

CHAIRMAN KOTELCHUCK: Sure.

MEMBER MUNN: July is a problem with us.

MR. KATZ: We have a Board meeting in July.

MEMBER MUNN: We have a Board meeting in Idaho.

MR. KATZ: Okay. So, well, July is further out maybe than we need to be though.

CHAIRMAN KOTELCHUCK: I wondered if we could meet sometime in early June or mid-June.

MR. KATZ: I don't know why we can't meet in June provided that people -- we have a lot to do with these blind reviews alone.

CHAIRMAN KOTELCHUCK: You bet we do.

MR. KATZ: So I think we don't have to worry about getting work done in time. Plus we have still a lot of work that I think both NIOSH and SC&A have done on the other sets, which we won't get to today but we could get through the regular cases.

So I think we have -- is this true, SC&A

or not? We probably have a full load of material even if we were to meet tomorrow. Right?

MEMBER MUNN: That's pretty close, I think.

MS. GOGLIOTTI: Yes.

CHAIRMAN KOTELCHUCK: Well, then let's --

MR. KATZ: That's good. So let's look at June then and we don't have to worry about being prepared so much.

CHAIRMAN KOTELCHUCK: Alright.

MS. GOGLIOTTI: Yes.

MEMBER MUNN: How about Tuesday the 23rd? Or do you really want it much earlier? We have a Board telecon on the 9th.

MR. KATZ: What about mid -- I mean, we have a telecon on the 9th. Right. But what about that mid-June area? So, for example, the week of -- I mean, even the week of the telecon, June 10th, 11th. How's that? Or the following week? The week of the 16th?

CHAIRMAN KOTELCHUCK: Right.

MR. KATZ: How are people's calendars for those dates?

MR. CALHOUN: This is Grady and I'm going to throw a wrench into it a little bit.

CHAIRMAN KOTELCHUCK: That's okay.

MR. CALHOUN: I'm gone on my annual fishing trip from the 5th through the 13th.

MR. KATZ: Okay. That's helpful. So --

MR. CALHOUN: And I've got a joint outreach task group meeting 16th and 17th in Saint Louis.

MR. KATZ: So are you alright, for example, on the 18th, Grady?

MR. CALHOUN: The 18th, 19th and then the following next two weeks look fine.

MR. KATZ: Okay. So why don't my Board Members look at that from the 18th forward to the end of June.

CHAIRMAN KOTELCHUCK: Okay.

MEMBER MUNN: My choice is on the 23rd.

CHAIRMAN KOTELCHUCK: Pardon?

MEMBER MUNN: I said, my choice would still be the 23rd.

MR. KATZ: Okay. But we have those five whatever --

MEMBER MUNN: Yes.

CHAIRMAN KOTELCHUCK: Right, 18th would work for me and would be good.

MR. KATZ: So Brad and Wanda, can you do the 18th?

MEMBER MUNN: I can do the 18th.

MEMBER CLAWSON: Yes. This is Brad. I can do any of those dates. I'm not that important, so --

MR. KATZ: You are very important, Brad.

CHAIRMAN KOTELCHUCK: Oh, yes, you are. David, is that possible for you?

MEMBER MUNN: He said yes.

MEMBER RICHARDSON: Well, it's -- I'm going to be a little bit up in the air. I'm going to be out of the country then. So I'll be on a six hour time difference.

CHAIRMAN KOTELCHUCK: Let's then proceed to the next week, if we can.

MR. KATZ: Are you still out of the country the next week, David?

MEMBER RICHARDSON: Yes. I'll still be out of the country. So either I can call in for part of the time. If you don't need me for a quorum, I mean, that would be --

CHAIRMAN KOTELCHUCK: Right. I think it would be reasonable for us to hope that we will have another Member by June 18th.

MR. KATZ: Oh, yes. I think we can get another Member by June 18th for sure.

CHAIRMAN KOTELCHUCK: In which case, if the rest of us can -- now, we don't know about John Poston's availability.

MR. KATZ: So let's pick a couple tentative dates. I'll query folks and if David needs to and, you know, you can call in for a small portion of the meeting or whatever.

CHAIRMAN KOTELCHUCK: Okay. Well, then let's pick the 18th as one option. How about

Monday the 23rd?

MEMBER MUNN: Tuesday the 23rd.

CHAIRMAN KOTELCHUCK: Tuesday the 23rd.

MEMBER CLAWSON: Yes. Tuesday would be better than the Monday.

MR. KATZ: The 18th and the 23rd. I'm going to send those out to John.

CHAIRMAN KOTELCHUCK: I'll tell you, the 24th would be better.

MR. KATZ: Or 24th.

CHAIRMAN KOTELCHUCK: Yes. And Wanda, that's what you suggested, didn't you?

MEMBER MUNN: Sure. Yes.

CHAIRMAN KOTELCHUCK: Okay. Let's do the 18th and the 24th.

MR. KATZ: I'll send those out and see if John Poston can make one of those.

MEMBER MUNN: Okay.

CHAIRMAN KOTELCHUCK: Great.

MR. KATZ: Then I'll be sending those dates out because I don't think we can have the

issue of David probably not being able to make the full meeting and John Poston not as well.

CHAIRMAN KOTELCHUCK: Yes.

MR. KATZ: Yes. Okay. That sounds good.

CHAIRMAN KOTELCHUCK: Alright.

MR. MELIUS: This is Jim Melius. Just to weigh in a little bit on what I think we need to do. I mean, I think the blind reviews are the key step we need to do to get the rest of the letters off.

And we need figure out what the schedule's going to be for when we are going to be able to say something about the blind reviews, meaning we have enough of them resolved that we can feel comfortable reporting on them, so to speak.

CHAIRMAN KOTELCHUCK: We'll have several that we can report on to the Idaho Falls meeting.

MR. KATZ: Well, I mean, that next meeting, I think we could knock out any of them if not all of them. And then get the memos written

up after that. If it goes like it went today, we spent a lot of time on other matters before we got to the blind reviews today.

CHAIRMAN KOTELCHUCK: Yes.

MR. KATZ: We could get many of them done, I think.

MR. MELIUS: Yes. No, my recommendation was just to focus on them and not worry as much about 14 through --

MR. KATZ: Right. Right.

CHAIRMAN KOTELCHUCK: That's item one on the agenda.

MR. KATZ: I agree.

MEMBER MUNN: Well, and besides, we did two sticky wickets really, the ones that were strange like that.

CHAIRMAN KOTELCHUCK: That's right. We started with the worst first.

MEMBER MUNN: Yes. We had the tough ones, I think, knock on wood.

CHAIRMAN KOTELCHUCK: Yes.

MR. SIEBERT: This is Scott. I'm

sorry. Now that we're talking about blind audits again, is there any way that NIOSH could be delivered any of the supporting files that SC&A used in all these? Just having the PDF report is very hard for us to recreate what was done.

MR. KATZ: Yes, Scott. That should be no problem with that. SC&A can send you the files for each of those that you want. I think it'd be helpful if you just request what files you want for which.

MR. SIEBERT: I mean, I'm just wondering if we can make it part of the normal process that --

MR. KATZ: Okay.

MR. SIEBERT: -- Grady gets all the files. Because NIOSH should really be the repository. I'll get it from them.

MR. KATZ: Yes. Yes. I don't see that there's any problem. Right? I'm asking whoever is the holder of the file. Kathy or --

MS. K. BEHLING: Yes. That shouldn't be a problem.

MR. KATZ: Yes, great. That makes it easier for everybody to move forward.

CHAIRMAN KOTELCHUCK: Yes. Okay.

MR. KATZ: Okay, then. Well, thank you all for a very productive meeting.

CHAIRMAN KOTELCHUCK: It certainly was. And this was productive and actually intellectually interesting.

MR. KATZ: Yes, it was that too.

CHAIRMAN KOTELCHUCK: And that's always fun. Okay.

MEMBER MUNN: What do those big words mean?

CHAIRMAN KOTELCHUCK: Okay. Well, thank you all. I will call the meeting to an end and adjourn.

(Whereupon, the above-entitled matter went off the record at 4:46 p.m.)