CENTERS FOR DISEASE CONTROL AND PREVENTION

NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY

AND HEALTH ADVISORY BOARD ON RADIATION AND WORKER HEALTH

ROCKY FLATS PLANT (RFP) WORKING GROUP (WG) MEETING

TUESDAY, OCTOBER 4, 2022

The meeting convened at 11:00 A.M. EDT

via video teleconference,

Dave Kotelchuck, Chair, presiding.

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Members Present:

David Kotelchuck, Member

Paul L. Ziemer, Member

Loretta Valerio, Member

Registered and/or Public Comment Participants:

Rashaun Roberts, Designated Federal Official

Nancy Adams, NIOSH contractor

Zaida Burgos, NIOSH contractor

Bob Barton, SC&A

Liz Brackett

Ron Buchanan

Grady Calhoun, DCAS

John Cardarelli, DCAS

Joe Fitzgerald, SC&A

Ashton Habighurst, HHS

LaVon Rutherford, DCAS

Mutty Sharfi, ORAUT OTIB

Matthew Smith

Regina

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PROCEEDINGS

(11:00 A.M.)

Welcome and Roll Call

DR. ROBERTS: I've got eleven o'clock Eastern, so I'm going to actually open up the meeting. So good morning, everybody. Welcome to the Advisory Board on Radiation and Worker Health meeting of the Rocky Flats Plant Working Group. I'm Rashaun Roberts, and I'm the Designated Federal Official for Board.

The agenda, presentations, and other materials and information relevant to today's meeting can be found on the NIOSH website/DCAS website under scheduled meetings for October 2022. So with that brief welcome and orientation, I'll go ahead and move into our roll call. Since Board Members who have conflicts with regard to this site really can't sit on this workgroup, there are no conflicts of interest for the workgroup members that are here. Other staff do need to state any relevant conflicts as I move through the roll call. So let's go ahead and start with you, Dave.

CHAIR KOTELCHUCK: All right. I'm present.

DR. ROBERTS: Okay. And you mentioned that Field may be joining late?

CHAIR KOTELCHUCK: Right.

DR. ROBERTS: Okay. And Valerio? Loretta?

MEMBER VALERIO: Uh-huh, I'm here. I was trying to unmute. I'm here.

CHAIR KOTELCHUCK: Okay. Welcome -- welcome, also, to this -- to

the working Group.

DR. ROBERTS: And, of course, Paul.

MEMBER ZIEMER: I'm here.

DR. ROBERTS: Okay, great. So let's move on to NIOSH/DCAS/ORAUT.

MR. RUTHERFORD: Okay, LaVon Rutherford --

MR. CALHOUN: Grady Calhoun, I'm conflicted at Fernald.

MR. RUTHERFORD: Yeah, I didn't hear Grady quickly enough, so I jumped in there. So this is LaVon Rutherford, I'm conflicted at Fernald.

DR. ROBERTS: Okay. Anyone else for NIOSH/DCAS/ORAUT?

MR. CARDARELLI: This is John Cardarelli. I'm conflicted at Fernald.

DR. ROBERTS: Okay.

MR. SHARFI: Mutty Sharfi. I am conflicted at Mound.

DR. ROBERTS: Anyone else NIOSH/DCAS/ORAUT? Okay, let's move on to SC&A.

MR. FITZGERALD: Joe Fitzgerald, no conflicts.

MR. BUCHANAN: Ron Buchanan, SC&A, conflicted at Los Alamos.

DR. ROBERTS: Anyone else from SC&A? Let's move on to HHS and contractors.

MS. HIBIGHURST: Ashton Habighurst, HHS, no conflicts.

MS. ADAMS: Nancy Adams, NIOSH contractor, no conflict.

MS. ROBERTS: Thank you. Anyone else for HHS or contractors? Okay, what about the departments, DOL, DOE? Hearing none, let's move on to see if there are any members of the public who would like to register their attendance now. Hearing none, thank you and welcome again.

I just need to go over a couple of additional items before I give the floor to DR. Kotelchuck, who's, obviously, the Chair of the this workgroup. So in order to keep everything running smoothly and so that everyone speaking can be clearly understood, please, everyone, be sure to mute your -- your Zoom, or if you're on the telephone, to mute your phone when you're not speaking. The mute button for Zoom is typically in the lower left-hand corner of your screen. If you are attending via telephone, press star six to mute if you don't have a mute button. If you need to take yourself off mute, press star six again.

Again, the materials that are relevant to today's meeting can be found on the NIOSH/DCAS website, and all materials were sent to Board Members and staff prior to the meeting. So with that, I will turn the floor over to you, Dave.

CHAIR KOTELCHUCK: Okay, thank you. I just want to comment that as we begin, this is our first working group meeting since the death of Terrie Barrie who was an active participant in our deliberations. Terrie was a fine person and vigorous advocate for Rocky Flats' claimants. We will miss her. And, of course, all of us want -- I'm sure we want to express our condolences to Nancy on the recent passing of her husband. Thank you for being here.

Okay, let us now proceed to today's agenda. And the agenda is we first -- we have on the agenda the DCAS overview of the Rocky Flats Plant, which LaVon will get -- will present, and later, Item Two is the SC&A presentation that Joe and Ron worked on --developed. If I may ask for those -- for folks making that presentation, is this order a good one or

perhaps the SC&A folks would like to present first and DCAS later? I'm usually --

MR. RUTHERFORD: Actually, -- Dr. Kotelchuck, this is LaVon Rutherford. I -- I went through SC&A's presentation. I think this is a very good order the way you have it set up right now.

CHAIR KOTELCHUCK: Okay, good. All right. So we'll start with your with -- your discussion as -- as on our agenda.

DCAS Overview of Rocky Flats Plant Technical Basis Documents as of January 2021

MR. RUTHERFORD: Okay. All right. Thank you. I'm going to share my presentation and see if I can get it in the slide-show format. All right. Can everybody see that?

CHAIR KOTELCHUCK: Yes.

UNIDENTIFIED SPEAKER: Yes.

MR. RUTHERFORD: All right. Basically what I'm going to do is, I'm going to go over the changes to the Rocky Flats Plant site profile, and then I will turn it over to SC&A to allow them to go through their review of that site profile and have discussions. I'm going to provide a summary of the major changes to the site profile, each of the TBD sections, and then after I get through with that discussion, I will provide a status of the revision of the Rocky Flats Plant internal co-exposure model. I'll also briefly discuss the external co-exposure model as well.

So I'm going to go through the summary of changes. We'll start with the Rocky Flats TBD, the introduction. In this TBD, there was really no

substantive change, other than indicating that the upper sections of the site profile were revised to incorporate Advisory Board comments and items associated with SEC-192. We also updated a -- the current SEC classes associated with Rocky Flats and feasibility limitations. You'll actually see a very common theme throughout these. If you recognize that our standard process is once a SEC evaluation and, you know, designation, determination is complete, we automatically establish a -- a -- a time to revise all the site profiles.

So one of the major drivers for changing these -- the TBDs was the completion of SEC-192 and the incorporation of the findings from that.

Okay. Now the site description. Again, there was no substantive change -- changes as well. Again, we updated to reflect Advisory Board comments and items associated with SEC-192 when -- and we updated the current SEC classes and feasibility limitations. All of the sections, if required, updated -¬the references were updated as well.

Occupational Medical Dose

The X-ray, the medical exposure T -- TBD, again, updated to reflect Advisory Board comments and the current SEC classes. We also updated the X-ray doses based on information presented in ORAUT-OTIB-0006, rev. 5, that required a few changes in some tables and such, and we also updated the references.

Occupational Environmental Dose

Our occupational environmental dose, again updated in accordance with comments from the Advisory Board and SEC-192. We also identified current SEC classes. And those of you that were on the Advisory Board work

-- workgroup would remember we looked at the -- during the SEC review, we looked at the FBI raid pretty closely. We developed a paper from that and -- to the workgroup in 2015. So we incorporated the information, some of the information, from that white paper into the environmental TBD.

Also, we updated the internal intakes for consistency with external assumptions. Basically, we then ensured the internal and external occupancy factors were updated to be consistent, updated on-site ambient values. Attachment B was deleted. This was a methodology for -- or it actually talked about identifying radionuclides of -- of concern. However, we had already discussed that in a previous section, so we thought it appropriate to go ahead and delete that attachment. And we also updated references as well in this section.

Occupational Internal Dose/Occupational External Dose

Occupational internal dose, again, as I mentioned, updated in accordance with Advisory Board comments in items from SEC-192, updated the current SEC classes and feasibility limitations. We also updated the annotation and attributions. There were some old annotations and attributions that we felt should be updated to currently standards of identifying specific documentation that supported those iteMS. And we also updated the references, updated the co-exposure study and updated data from OTIB-14, and we also added intake rates to -- for Super-S plutonium. We changed the guidance for post-1989 plutonium mixture to only assume a ten-year age, and then we incorporated a bunch of white papers from the SEC-192. We -- we had looked at potential exposures from neptunium in depth, possible presence of magnesium thorium alloys, exposures to tritium,

exposures from the Critical Mass Lab, and the impact of the FBI ride -- raid. These items were added to the occupational internal dose.

The occupational external dose, again, same comment. I probably should just put this up front and not have to say it every dadgum time. But we did update the -- to -- to incorporate Advisory Board comments and items associated with SEC-192, updated the SEC classes. If you remember from SEC-192, we did add a class up to 1983. We identified the feasibility limitations from that, so that's the --¬one of the key items there. Updated references, and again, we update some attributions and annotations.

Again, we incorporated a white paper -- this was associated with a gamma cell cobalt irradiator. There was a white paper we put together on the -- the rear view of that and potential effects from any exposures that weren't captured. We added additional guidance on the application of a co-exposure dose, dosimeter gap analysis, and an interpretation of external dosimetry record notations.

Now, just, you know, it's a pretty quick presentation, but I just wanted to -- thought it'd be a good lead-in for SC&A. I also wanted to give you a status of revising the Rocky Flats co-exposure. The all -- all co-exposure models, as everyone knows, are being updated to follow the criteria of IG-006, ensure that we can meet that. Rocky Flats internal co-exposure update has started, however, it is being worked -- we have like three or four co-exposure models going on at the same time with, you know, completion of INL, SRS, and a couple -- and another one. So it's being worked while we're working those, during downtime of those, so I don't have a really good completion estimate. But as we get a good completion estimate, I will

update the workgroup and -- to give them a better idea of when they can expect that. As well, we don't have a good date for the start of the external co-exposure model. But again, as a -- as we start to get good dates on that, I will provide updates through the workgroup and try to keep them informed as we're going.

And that's all I had. Any questions? I think you're --

CHAIR KOTELCHUCK: Fine. And you said that the -- or maybe I should ask. What are some of the -- when you finish the co-exposure models, what -- you are going to go over then all of the individual claimants' claims that have been done in the past, and you will update them, right?

MR. RUTHERFORD: Exactly. What we do is, we will do a program evaluation report to determine that potential claims that could be affected by the updated co-exposure model, and then the claims that could be affected will be -- you know, we will indicate that to the Department of Labor for rework.

CHAIR KOTELCHUCK: Very good, very good. And -- and are there any responsibilities of the -- of the working group when the co-exposure models are completed? They will be submitted to us for a final...?

MR. RUTHERFORD: It's pretty much -- pretty much been standard that the workgroups have been identified, and they've been reviewing those or SC&A has been reviewing those co-exposure models, so I would anticipate you would do that as well.

CHAIR KOTELCHUCK: Okay. Good. Thanks. Are there other questions or comments? I'm sure there will also be when we -- when we hear from SC&A, and I think it'll give us a little more depth to -- to respond

both to the what -- this presentation as well as SC&A. So perhaps we should go to SC&A right now.

MR. FITZGERALD: Yeah. Good morning. Joe Fitzgerald. Can everybody hear me?

CHAIR KOTELCHUCK: Yes.

SC&A Presentation: SCA-TR-2021-SP001 Review of 2019-2020 Revisions to Rocky Flats Technical Basis Documents

MR. FITZGERALD: Excellent. So anyway, this has quite a long history, and I think the reason for the amount of detail and listing in our report -- this was the one in December of this past year -- frankly, was to sort of bring it -- everybody up to date, provide a status as well as a review of those issues from 2005. I mean, they're 17 years old, so they don't get too much older than that.

Anyway, the way we went ahead and did the review of the TBD, we did go back and reviewed all the 2005 evaluations. There were 11 findings and four observations. So we started there as a starting point and looked at the most recent version of the TBD and, frankly, just did a comparison of to what extent the -¬these issues -- and there were a number of sub issues that were behind major findings and observations -¬to what extent they're reflected in the current version. And we also stepped back since these TBDs are relatively recent and reflect, I think as LaVon was saying, a lot of the work that the workgroup has done and NIOSH has done over the past 10 years.

Took a -- took a broader look at the technical basis documents, the

TBDs, and tried to see if there were any new issues or any new -- new questions that may have arisen from the revision process itself. So those were the two key aspects that we -- we reflected in the December '20, '21 review.

And I'm going to go through this at a relatively high level but the -- again, the evaluation that we did, did pretty much turn over all the rocks. There's a lot of sub issues that we addressed in our review, and they are -- they are detailed in that report. So if any -- if there's any desire to bore down into any one of these issues, we certainly can do that and we'll probably reference that report.

And we did get a response in July to the review that we conducted. And -- and our assessment today reflects the status of -- of where we came out in terms of NIOSH's response to our December report.

Next slide please. Okay, so sort of diving in. The first TBD is the site description TBD, which is the, sort of, broad history of operations and the description of the site. And we -- we found that -- that on our previous issues, the ones that we identified in 2005 have been addressed in rev. 2. And clearly -- and I -- I say this with some comments. Rev. 2 is more comprehensive in the scope and depth and, you know, a lot of the earlier TBDs, back in the early 2000s were the first --¬you know, first version of the technical basis documents, and they clearly have become more comprehensive over time.

This TBD included more details on the post-operational phase of Rocky, which is the site closure and DMD. And that was one observation we had back in 2005 that we felt didn't really get into those details as much as

it should have and -- as well as more specifics on operations, the time lines of those operations, and a number of issues that the workgroup got particularly focused on in the latter years, which included recycled uranium and U-233, which, as you recall, figured in one of our --in one of the Board's SEC considerations. And those were two of the observations that were included in that. So we -- we thought our observation 1 and 2 -- certainly we'd recommend closing those. Those are certainly addressed.

The third bullet, we did have a finding that focused on the -- on the site description, which is finding 8, and this was a -- a -- a consideration that we thought more information was needed about recycled uranium. Now, remember, this is 2005. And clearly, NIOSH brought much more information on recycled uranium. I think the workgroup certainly requested it. And that -- that focus is now reflected in the internal dose TBD. So it -- it -- it sort of was a -- was an original finding, which has certainly been treated a number of times since then. And you can find it in TBD 5.

Now, the only recommendation that came out of that, it -- it does get a lot of treatment in TBD 5, which satisfied indirectly our concerns in TBD 2 that the scoping of the operations that you'd typically find in a site description, we -- we think some of that should be brought back into the site description, not just simply addressed in -- in the internal dose TBD. So that's kind of an editorial comment. And I think NIOSH agreed and plans to look at that in future revisions to sort of clean that up a little bit. So on that basis, we do concur with NIOSH's response, and we would certainly look to TBD -- the next version of a TBD 2, the site description, to perhaps include more of that description.

So any -- any questions on -- on -- on our review of TBD 2 site description?

Okay. Moving on to TBD 3, which is occupational medical dose. We did have a finding on that one where, again, we felt that it should be more -- it should have been more treatment of occupationally necessitated medical X-ray. And there was some discussion, but we felt there were a number of -- of issues and questions that could bear further expansion. And -- and that was the basis of the finding.

And as -- as we note in our report, we went through and looked at all the sub issues that were the basis for finding 5, and there were a -- a large number, actually, that I understand from the guidelines that -- of what constituted occupational medical exposure, potential for other types of X-ray exposures, uncertainties involved with determination of -- of machine parameters. I mean, there's a number of issues. We went through all the sub issues in our review, and we -- we considered them had -- have been resolved in the latest revision of TBD 3, and we recommend closure on that basis of this finding. And there were a number of sub findings. So really, this one, I think, has been addressed comprehensively in the revision.

We did step back, as we did in all of these, and looked at the revision from the standpoint of okay, this is a new addition, are there any new findings based on the revision itself. And we did find some editorial issues in terms of when the tables in the prior TBD were updated, we found some -- some transcription errors, and we identified those, and NIOSH acknowledged and will, in fact, address those in future revisions. So on that basis, we concur with NIOSH's response, and we'll certainly review any future

revisions that come out.

Next slide, please. If there's questions on --

CHAIR KOTELCHUCK: If I may --

MR. FITZGERALD: -- (indiscernible) --

CHAIR KOTELCHUCK: I do have one, if I may, although it's probably more from my learning than anything else, but I have -- I -- I mean, I went back and I reviewed the detail document, the -- that you -- you wrote in December of last year. And in the environmental dose, and I -- I don't know if other people have immediate access to it -- but on page 16, which I have of that, you have something you have a section called uses screens, grids, and impact of offsite medical X-rays are not considered, okay fine. And then you said in the first bullet, do not consider the dose impact -- the dose impact due to less than optimal use of technology such as using screens, grids, or bucky systeMS. I don't know what the bucky system is. I'm not so well acquainted with the X-ray technology. I'm not sure also about the use of screens and grids. So why don't you just clarify that for me, what -- what those are -- or Ron?

MR. FITZGERALD: Yeah. Ron, are you on? I think that was -- I think that was your section.

MR. BUCHANAN: Yeah, I -- this is Ron Buchanan. Can you -- can you hear me?

MR. FITZGERALD: Yes.

CHAIR KOTELCHUCK: Yes, we can.

MR. BUCHANAN: Okay. No, I don't know what I'm --right here -- offhand, I don't know what a bucky system is. The grid system is -- they

used to do X-rays with a grid in front of it to get a reference point, and that was from the early work and those sort of things. I'd have to go back and read and look at specifics, but the interference that those cause with the different views and different X-ray machines and technology way back in '05 or '04 when this TBD was written and we reviewed it, they did not cover that. However, in the revised TBD and then in OTIB-6 and those as we progressed through the years, they do address those issues and have ironed those out. And so we found that they were no longer an issue for Rocky Flats and in the TBD 3 --

CHAIR KOTELCHUCK: Oh.

MR. BUCHANAN: -- as far as assigning dose.

CHAIR KOTELCHUCK: Oh, good. Thank you. I understand --

MR. BUCHANAN: Right.

CHAIR KOTELCHUCK: -- because putting a grid up in front of the X-ray, while it may give you a location, may interfere with the quality of the X-ray itself and you're often trying -- an X-ray evaluator is trying to look for relatively small or -- or faint signs, so anything that would in -- would interfere, obviously, would be something to take into account and -- and you have. Okay, thank you very much. I -- the grid is quite sufficient. If you do find out what a bucky system is, you might just email me personally afterward, unless others want -- want to get it. I just want to under --

MEMBER ZIEMER: Dave, this Ziemer. A bucky is just a -- kind of a bracket that holds the grid. It holds the X-ray cassette in the grid. That -- that --

CHAIR KOTELCHUCK: Oh, I see.

MEMBER ZIEMER: -- just that assembly is called a bucky.

CHAIR KOTELCHUCK: I see. Okay, very good. Thank you. As I said before the meeting began, I'm so glad that you're here with us to help us with some of the technical aspects of this -- this evaluation. Thank you.

So that's my -- my question. And so Joe, feel free to go on.

MR. FITZGERALD: Okay. And thank you, Ron.

Going on to, essentially, TBD 4, this is the environmental dose TBD as -- as revised. We had one finding, finding 9, from that TBD, and it really concerned inadequacies in addressing the potential environmental exposure from the -- from the routine and ambient air releases and particularly resuspension of contaminated soil. So there was a number of issues that involved that.

And some of the sub issues, we list them on our report, you know, the need for perhaps better source term calculations, exposure pathways, the usefulness of maybe identifying a time line for the (unintelligible) operations and -- and particle size. So there were a number of issues that -- for default in the -- in the environmental dose assessment process that we felt could be improved from the 2005 TBD.

Now, we looked at the rev. 3 -- and that was rev. 00. So we looked at rev. 3 of TBD-4. And, again, we found a, you know, much more in-depth and comprehensive assessment provided on -- on -- on the issues that we identified. And we went through some detail, and, again, it's probably five pages worth in our report, but we felt that the justification of the basis of what the monitoring data was -- was applied and how it was applied was -- was -- was much more detailed and comprehensive than it was back in

2005. That's a major improvement. And there's much more specific information and guidance about how the resuspension of soil contaminants contributed to the occupational environmental exposure. We felt that was a pretty significant gap as far as the environmental dose issue for occupational exposure. So we thought that needs to be addressed. And, again, we would recommend a closure of this finding based on pretty much the -- the treatment that's been provided in the rev. 3 versus where it was then we made that recommendation in 2005.

And I would say there's a number of sub issues that went into that finding, which, again, given the complexities of how you assess contamination and resuspension, you can imagine a number of parameters. And we felt that a number of those had to be addressed, and they have been. So that -- that's where we came out with. Any -- any question on finding 9? Again, we can go into some more detail, but that's kind of the overview on that one.

Okay. There were some other issues in the TBD revision, which we felt were important. We did have an observation that dealt with how the RATCHET air dispersion models was applied, and we felt that -- let me get that -- we felt that the model did not address the wake effect of buildings, which, you know, if you think about the way buildings are configured in a plant like Rocky Flats, we felt that would have some impact. And the -- the response, I think, that NIOSH gave us is that -- is that the wake effects of air movement around buildings were not -- would not be significant because, again, the releases from the -¬and this was the major leak point, building 771 stack, was not going to be a big impact to the wake effect just because

it was relatively high compared with the -- the buildings around it. So that being a big source of potential exposure just would not be affected as much by that.

And all other elevated sources in the model, the model that was being used, were treated as area sources. So and terms of the dispersion model, the RATCHET model, the initial dispersion was assigned based on them being area sources, which already accounts for the effects of the wake effect. That observation really was a specific focus on -- that you consider the effect of -- of --- of editing of air movement around buildings in terms of the dispersion model. And I thought -- we looked at the response that we received from NIOSH on that and how it's addressed in the TBD and felt that was satisfactory from our standpoint on that observation. Sort of a technical issue on the air dispersion model.

As LaVon mentioned, NIOSH more or less repeated its assessments and the exchange of views and information that the workgroup had on the FBI investigation, and we had a if you recall, a pretty extensive exchange on that issue. And so our -- our purpose in looking at how this is treated in the TBD, and it was treated in this particular TBD, was just to walk through the -- you know, the -- the issues, the exchange of comments and the dispositioning of the issues and just to kind of validate that this pretty much reflects those discussions and what we believe was the workgroup endpoint on that. And so, we believe, you know, it does, and therefore we certainly recommend closure of these particular issues.

Any -- any questions on any of that? That -- that was, again, the environmental TBD. And even though we're going relatively fast, I -- I'll

again say that there is quite a bit of -- if you go through this December 2021 assessment, a lot of detail, issue by issue and sub issue dispositioning that we did in that assessment, so these -- these resolutions are based on -- on the sub issues as well. There weren't any issues that we could find that were not addressed by the revised TBD.

Moving on to TBD-5, which is the occupational internal dose TBD, finding 1 was the question of NIOSH's suggested use of the urine bioassay MDA and in terms of the values appearing low based on our comparative review. And our bottom line in terms of the rev. -- revision 3, is, you know, there's an appendix, I think it's Appendix A, that gets into the listing of MDAs and is fairly detailed in terms of the basis of the urine MDA and an added discussion on the application of MDAs in the TBD, which is a significant up -- upgrade from the 2005 version, and addresses the issues that we recently had with the information that was provided from the MDA, which I think was -- was not sufficient.

There was information, but it -- it -- it just was not sufficient, so I think this is a major upgrade from that standpoint, particularly for plutonium americium where we felt that there was needed more information that.

On finding 2 -- and this was kind of a general, I don't want to say, catch all, but it was just sort of a reflection that there was a lack of treatment of a number of parameters that we felt were important, considerations that were important for those, and some of these I would focus on. They included how unmonitored workers would be treated. This is not simply co-exposure models but also nuclide-specific exposures such as neptunium, thorium, uranium, U-233. There was a number of source terms

that in 2005, we found to be relatively significant but there wasn't much -- and understandably at that point in time, there wasn't much in the way of guidance or information on how one would address workers that may potentially be exposed to, for example, neptunium releases or U-233.

Now, I would also add though, that, you know, somewhat in that time frame, a few years after 2005, actually, probably about four or five years ago, the Board recommended and (indiscernible) was designated for neptunium, thorium, U-233 for 1952 to '83. So this TBD predated the SEC evaluation which led to an acknowledgment of -- of not having sufficient data to support post reconstruction for unmonitored workers for those source (indiscernible).

So in a way, you know, that -¬that's not a threat in the process. And as LaVon pointed out, that's acknowledged in the TBD as well. So, again, this was the earliest version of what we thought were issues that needed to be treated and they, of course, ended up being treated over the ensuing 15, 16 years that the workgroup has been addressing with NIOSH and SC&A to Rocky Flats' issues.

Other considerations just to mention while we're here was the FOP particle size, solubility issues, you know, certainly super-solubility issues relative to plutonium are ones that come up on almost all the sites in terms of how that's gonna be addressed. The calibration of lung counting for Americium-241 and we -- sensitivity of the bioassays from a soluble source term.

So there was a number of issues that are sort of basic to internal dose reconstruction not -- not exclusively to Rocky but to all the sites that in

2005, we felt the TBD didn't go far enough in providing details. And as we detailed in our response -- our -- our comments in December, this is now a much more comprehensive TBD. And beyond just the SEC acknowledgments, there's a lot more information on how unmonitored workers are addressed for the other (indiscernible). So it presents a fairly complete story, whereas before there were a lot of gaps in how the dose reconstructors would go about reconstructing doses for those unmonitored workers.

Any questions for those who -- and that's pretty fundamental findings but, again, ones that I think I could describe as being overtaken by almost 15 years of review and consideration, both SEC and otherwise. So in a way, this is almost a reflection of the work that everyone has done on these issues since that time.

CHAIR KOTELCHUCK: Yeah, agreed, agreed.

MR. FITZGERALD: Okay. Now, this is, as I said earlier, in addition to simply looking back at 2005, we kind of stepped back from the TBDs and see if there was any new issues that struck us at this stage of the game, and this -- this is more or less an observation that is just a -- you know, tables have been added, tables have been updated, and we found that a table, B-11, just lacked units, and we thought they were (indiscernible), but we thought that needed to be clarified. NIOSH agrees that that will be edited. And therefore we concur, and we don't really see any further issue on that.

As we went along if we did see something that was a discrepancy or an issue, we went ahead and wrote it down and asked NIOSH for clarification. A lot these were resolved in their July response, some of them

are to be done in future revisions. So that's kind of how a lot of these come out. But nothing overly substantive. Again, an editorial comment.

Next one, please. Okay, finding 5 was really addressing the question of ingesting in case and a direct reference to the appropriate document that that guidance would be based on. And, again, we felt that the -- there should be more specific recommendations cited in the TBD for Rocky Flats. I think NIOSH's response was a clarification that -- that there was -- in terms of ingestion, there's a more general -- general or generic treatment that they provide. And it's not a site-specific one that would be repeated in every single TBD, and this is covered in ORAUT-OTIB-60 internal dose reconstruction, which was issued 2018.

Now that, obviously, wasn't available in 2005 when we made that finding, but at this -- at this point in time, in terms of the revision, this is kind of the approach that apparently NIOSH has taken that really that guidance is provided in there, and that they will not change TBD-5 to repeat that guidance. And we accept that. You know, this is the way it's done now, and that's fine as long as it's information that's available to the dose reconstructor, that -- that's what's necessary. So we recommend closure. That's -- that's not a gap -- certainly not a gap anymore, and the information is available to the dose reconstructor.

We had an observation about the wound dose model and -- and I think our observation is that while the approach in the TBD is claimant favorable for the cited organs, there seem to be -- we identified a model by Guilmatte and Durbin, this was a 2003 model -- and remember again, this was back in 2005 -- that was more -- seemed to be more favorable for lymph node skin

cancers. And we felt that would be more of a claimant favorable.

Now, in the revised TBD -- and this is the response that we received in July, was that ORAUT-OTIB-22 now references the 2003 model that we identified back in 2005. So it's -- covered it essentially. And that certainly satisfies that observation.

CHAIR KOTELCHUCK: Good.

MR. FITZGERALD: Next one. Okay. That pretty much covers all the internal dose TBD, and I was going to switch gears. Ron Buchanan did the analysis not only for the occupational medical, but the occupational external dose, so we're going to do a tag team here. And Ron, can you pick up from here?

MR. BUCHANAN: Yes. Can you hear me okay?

CHAIR KOTELCHUCK: Yes.

MR. BUCHANAN: Okay. Okay. This is Ron Buchanan with SC&A. And as Joe has alluded to, a lot of water's went under the bridge since 2005, and the TBDs was written sometimes before that. And so we've done a lot of OTIBs, had a lot of meetings, and I think I spent most of -- about half of my time for about 10 years on Rocky Flats and some of you Board members did too, and especially on the external -- I know it's a little simpler than some of Joe's issues on the internal. But we did have quite a bit of discussion on external, and we find that we're looking at finding 3. We'll go through these in findings and anything new that we might have came upon in our evaluation to the revised TBDs.

And we find that TBD-6, the patient external dose, these findings were resolved by the revised TBD, and we find that finding 3 in particular -- we'll

go through this by number -- and now we also have to remember that sometimes we didn't have issues or observations.

We kind of just threw things out in early days before we had an organized system. We did have findings. So some of the findings had many aspects to them or follow-on issues. So Joe and I tried to go back and look at all those to make sure we -- we addressed them or find where they were addressed.

Finding 3 was particularly concerned with the interpretation of the NTA film data for workers that wasn't included in NDRP. Now, a lot of you might recall the NDRP was a very extensive program, and we went through a lot of back and forth on that. And we did work that out, and revision 3 of NIOSH does address issues for workers that may not have been included in NDRP. And so what is used to (indiscernible) is the neutron-to-proton ratio coupled with the available co-exposure data. In other words, if the neutron -- if the worker was unmonitored or under monitored or the problems with the records, you remember ND -- the NTA film had problems with lower-level discrimination of the energy, and so I went through that, and ultimately DOE sector and then NIOSH TBDs and a number of discussions on that, and they have worked out a system in the Rocky Flat TBD-6, revision 3 where using neutron-to-proton ratio if there isn't sufficient or correct data available, and also coupled with the co-exposure model data. And LaVon just referred to an upgrade of that and -- and so that is what will be used for workers that may not have been covered by the NDRP. And so we wrote that up in our 2021 report after a review of revision 3 of TBD 6, and we recommend closure this finding. So it has been sufficiently addressed in the last 17

years.

Okay. Go to finding 4. Now, that was concern with the placement of the dosimetry on the person and angular dependency. And so remember, this is, again, in the beginning, and so we were just finding out all of the different variables. And revision 3 of TBD-6 does address the angular analysis and does an analysis of angular dependency of the monitoring devices. We checked those resources and studies they quote and found them correct. And we agree with NIOSH's recommendation in revision 3 as far as considering the angular distribution of the monitoring devices and find that it is satisfactory and recommend that this finding be closed.

Now, finding 6 was concerned -- and this is one that had a whole lot of sub issues to it, and so we gathered those all together that were under finding 6 and looked at each of them. Some of them had potential calibration errors. We find that how the calibration (indiscernible), what sources was use and such has been sorted out and been reviewed, and we have seen that that's been reflected in revision 3. The technical difficulties or deficiencies and data integrity -- of course, we went through a lot of data for integrity issues at Rocky Flat (sic) and things that would contribute to omitted dose really read as missed dose, something that would not be assigned. And we found that both those issues and also the missed dose itself find on the LOD dosimeter has been addressed in the main discussions at Rocky Flats and the OTIBs that came out of that.

Yes, a question?

CHAIR KOTELCHUCK: Your voice was getting fussy. The transmissions was getting a little fussy just toward the end on this last slide.

DR. BUCHANAN: Okay.

CHAIR KOTELCHUCK: Did other people have trouble? If they did, perhaps you might be able to repeat it. I'm sure it was just a temporary problem.

DR. BUCHANAN: Okay. I turned it on max. Can you hear me okay now?

UNIDENTIFIED SPEAKER: Yes.

CHAIR KOTELCHUCK: Yes. Thank you.

DR. BUCHANAN: Okay. I'll try to talk loud then, okay. Okay. So we find that those issues have been resolved in TBD 6, revision 3. Table 6-1, I believe it is, of that --¬of our -- of the revised TBD addresses some of those issues, and our report in December gives detail on that. And so we recommend that that be closed. That was finding 6.

CHAIR KOTELCHUCK: Thank you.

DR. BUCHANAN: Okay. The next one is finding 10. That was concerned with the hand and wrist extremities. And, of course, since 2005, we've had some OTIBs come out and these were incorporated in revision 3 of TBD-6 for extremity dose, and we reviewed those recommendations and the new revision and their sources. And as in our December 2021 report, we recommend that that has been satisfied, and we recommend closure of that finding, finding 10.

CHAIR KOTELCHUCK: Okay.

DR. BUCHANAN: Okay. Finding 11 was the last of the findings. We had -- was concerned with potentially a significant dose from industrial X-rays and neutron generators used for R&D and nondestructive work. Okay,

that was before we had a good description of the site profile and what took place and who was monitored mainly. And we have worked through those, and we find that the workers that had dosimeters would have dosimetry that worked around those. We looked at the calibrations of those, and it would cover the energy range. And so we found that the dosimetry system would catch any of those that were present. And so we recommend closure of that finding.

Okay. Now, then the rest of these, they are new issues and they're minor issues or, as I say, editorial issues or questions or clarifications. Because we went through the old findings and observations, the issues, and then we did review the revised TBD in light of was there anything unclear or errors in it. And so, the first one there on this slide had to do with clarify the reason for this change in neutron dose multiplying factors listed in Table 6-16 of the revision 3 compared to the old 6-14 in revision 00. The notes in the neutron dose multiplying factors had changed, and NIOSH's response was that the multiplying factors were upgraded based on the guidance of OTIB-55 which wasn't released till 2006 and, of course, was incorporated in the later revisions and wasn't available for the original TBD-6, revision 00 of 2004. And we concur with their response and recommended closure of that item.

CHAIR KOTELCHUCK: So okay, now, if I may ask, you presented two -- on the previous slide, you presented two multiplier factors. And you're saying they -- and they're rather different. And it -- it was -- they were just simply the old ones were replaced, and -- and there -- there's one multiplier now based on OTIB-55?

DR. BUCHANAN: No, there's a number of neutron dose multiplier depending on the energy range and such, but it -- it changed with OTIB-55, and so they updated all the neutron dose multipliers in the new table.

CHAIR KOTELCHUCK: Okay, all right. So, it was a pretty -- pretty dramatic replacement of some of the multipliers?

DR. BUCHANAN: Yeah. It was an update, enough to make a dose -- a difference that I noticed, so they explained why that was done.

CHAIR KOTELCHUCK: Okay, thank you.

DR. BUCHANAN: Uh-huh. Okay. Now, the next one is the LOD values for the neutrons in the revised TBD. And what we found out was that there was -- in Table 6-18 and 6-19 of revision 3 of the new TBD, there was a value listed as 226 millirem for 1962 and '63. And we could not determine -- we was able to be determine how they arrived at all the other years, but we couldn't for '62 and '63, how to get 226 millirem.

And in our second bullet point there, you see NIOSH's response that the equation for '62 and '63 is the LOD is equal to the blank plus 1.65 times the square root of the blank. And if you crank that out, you see there on the third line, it comes out to 181 millirem, which is the correct answer, instead of 226 millirem. And so NIOSH will correct that LOD value in 1962 to '63 in Table 6-18 and 6-19 in future revisions of the TBD. And we concur with that, and we'll review it when the future revision is available.

Okay, the next issue was the LOD values listed in the tables for the beta LOD value for twenty -- 2004 and 2005 was needed. In other words, okay, when they revised the TBD they added in 2004 and 2005, which wasn't available in the original publication in revision 00. However, there

was no reference of where they obtained those data LOD values. NIOSH responded that future revision will provide a reference for that for those two years. And we concur with their response, and we'll review it when the revision's available.

Okay. Now, we come to -- the next issue was missing or incorrect references for the revision in TBD-6, and this is, again, a housekeeping documentation issue. First bullet point there we see that we found that reference that's used in the text was not listed in the reference section pages 64 to 69 so you can look them up, and these were three issues there, page 10, Page 11, and page 94. And also, second bullet there, the caption on Tables C-8 on page 93 should use the phrase uranium workers not plutonium workers. That was in here in the caption. And the third bullet there we see that NIOSH indicates that future revisions will correct these references and include them and fix the caption on Table C -- C-8. And so we concur with that, and we'll review it when it becomes available.

So that is a summary of our findings and resolutions and any new documentation issues we had. And so what we find in summary is that -- that the revised TBDs that dry -- addressed most but not necessarily all. We still had a few follow ups. But most of our findings of our 2005 observations and findings in original TBD review, we find that SC&A addressed the other open issues in our report of 2021 in their July of 2022 response. And we noted that some of those we recommend for closure, and we concur with NIOSH's response on the remaining issues that will remain in abeyance, I guess, until further revised TBDs when they become available. We'll evaluate that and make sure that they are incorporated in it correctly.

So that concludes my presentation. Any questions for Joe or myself?

WG Discussion and Path Forward

CHAIR KOTELCHUCK: Questions folks?

MEMBER VALERIO: Dave, this is Loretta. I have a question.

CHAIR KOTELCHUCK: Yes.

MEMBER VALERIO: Can you hear me?

CHAIR KOTELCHUCK: Yes.

MEMBER VALERIO: If you go back to page 10, please.

MR. FITZGERALD: Okay.

MEMBER VALERIO: So, it notes at the bottom on the last bullet that NIOSH is (indiscernible) despite SC&A's observation. Is SC&A recommending closure of this?

MR. FITZGERALD: Yes. And we should have been more explicit about that. But, yes. The clarification that we received from NIOSH this past July, I think, clarified how they came out with -- how they treated that guidance. And that's -- that's -- that's satisfactory to us. So yes, that should be closed.

MEMBER VALERIO: Okay. Thank you.

MR. FITZGERALD: And I might add, you know, I think I mentioned that a lot of the varying significant issues that were raised by petitioners in the past, including the Critical Mass Lab and tritium issues, neptunium issues, and mag thorium, they all are addressed in what I think are a pretty detailed appendices, which I found very useful. It pretty much kind of encapsulates the issue and how the issue was dispositioned and resolved

and, in some cases, closed by the workgroup. So those are included -- in this case, those are included in the TBD-5 internal dose assessment, but the -- you know, there was quite a bit of work, obviously, by the workgroup on those issues, and they're embodied now in the TBD.

CHAIR KOTELCHUCK: Right, yes, I agree. We spent many, many years trying to deal with all the various Rocky Flats issues. And so it was not resolved until 2017. Even the SEC application. I recognize that -- well, maybe we'll -- maybe we should get into maybe there are more questions. Otherwise, perhaps we should just get into discussion with the -- within the workgroup, or -- Joe, you want to -- any further comments or anybody any further comments or questions?

Okay. I realized as we're going through this that since we have two new members in the workgroup, I don't know what opportunity you had -- and I apologize for not sending you our -- the working group recommendations back in the March 7, 2017, Board meeting that reviews a number of these issues, and I think that would clarify it. I don't know if you folks have had a chance to see it, and I apologize for not suggesting beforehand that you take a look at it. As I say at a in a March 2017 -- and I think that will clarify a lot of the issues on the revised -- the -- the revised evaluation report.

But I did -- knowing this, I did look carefully -- I reread carefully the December 2021 report by SC&A, which is really quite extensive. And -- and then, of course, basically NIOSH/DCAS really is in agreement. I mean, there's a -- there is a real agreement on what to do. And I certainly concur with what -- the presentation today. I -- I -- and feel comfortable with it.

And, of course, these are our -- these are technical consultants, and they may come to an agreement in some difficult situations. And that's -- I appreciate that. So I --

MEMBER ZIEMER: Dave, this is -- this is Paul.

CHAIR KOTELCHUCK: Yes.

MEMBER ZIEMER: Could you repeat that reference to the workgroup report? What was the date on that?

CHAIR KOTELCHUCK: March 2017. And I -- I looked up -¬ it's the -- our working group report is given in that, at that meeting, March 2017. And that will discuss a number of the issues which -- which Joe alluded to a few moments ago. The -- the search for the magnesium thorium alloy, the handling of tritium, many, many difficult issues.

And I think that that -- if I had sent them to you earlier or suggested it, it would have helped in your appreciation of today's discussion, but I'll -- I'll certainly say that I tried to compensate for that, at least by going over things more carefully -- as carefully as I could. I spent a fair amount of time on it.

And I do feel comfortable with the report and -- and my feeling is that it's -- I -- I would certainly suggest that we accept the report. I don't have any changes that I wish to make in their recommendations for change.

I don't know how -- Paul, how you and Loretta feel. And by the way, is Bill Field -- did -- did Bill Field join us or has he joined us? I know he said he would try to come in late if he could. Rashaun, do you know, or does anyone? I -- I -- are you present, Bill?

DR. ROBERTS: I don't see him. Excuse me. I don't see him yet

Dave.

CHAIR KOTELCHUCK: Yeah, okay.

DR. ROBERTS: And I haven't received any additional email.

CHAIR KOTELCHUCK: Right. Okay. He certainly emailed us in -- before the meeting that he would be late today. So -- so for the three of us, how -- Paul and Loretta, how would you suggest we proceed? I -- are you comfortable with the report even though this is both -- for both of you your first meeting of the working group?

MEMBER ZIEMER: Dave, I'm quite confident in SC&A's report and also I've looked at this or NIOSH responses, and I -- I think we're -- I'm fine in going ahead. And I can -- I can track that. You don't have to send me the March 2017 report. I believe I'll be able to go back on the NIOSH website for the meeting of -- that March meeting of the workgroup and find that report there.

MR. RUTHERFORD: DR. Ziemer, --

MEMBER ZIEMER: I do want to ask -- and maybe NIOSH can answer this. Going back to the original documents, the original TBDs as well as the revised, are those now with the -- with the updating of all the -- the systems at -- in Atlanta, are those now all on the DCAS dose reconstruction H -- HP workspace, or where are those now?

MR. RUTHERFORD: Yeah, Dr. Ziemer, this -- I want to answer a couple questions too, actually, on that. One that I want to point out, on our website you will find all the papers associated with the magnesium thorium alloy, the neptunium, the U-233, the -- all the various discussions that we had, you'll see white papers on that, response papers from SC&A, --

MEMBER ZIEMER: And all the previous work group meetings, right?

MR. RUTHERFORD: Yes, yeah.

MEMBER ZIEMER: Okay, gotcha, gotcha.

MR. RUTHERFORD: As for the documents, we do have all of the -- I know that they're on the -- they're available in the RNE -- RNECP under our virtual volume. I'm not sure that they're under the Advisory Board's virtual volume. I will -- past revisions. I know all the new revisions are there. But if you wanted to look at a past revision, you know, to a historical closed TBD, I'm not sure if they're there or not, but I can --

MEMBER ZIEMER: Yeah.

MR. RUTHERFORD: -- make any of them available that you need.

MEMBER ZIEMER: Well, it's kind of a moot point at the moment because not all of us can get into that virtual workspace yet even though I have -- the smart card's been updated and I have a new -- a new CDC laptop, so it is capable of getting there. But the software, it hadn't -- the IT folks there or the help desk people are working on this. I cannot get access to workspace.

MR. RUTHERFORD: I know Lori was -- Lori Marion-Moss was going to --

MEMBER ZIEMER: Yeah, Lori -- and Lori's working on that and so that will be coming along shortly. I did check on it this morning, and I could not get in yet.

But I'll -- I'll get these other ones on the -- on the website, the previous meetings, so it's not a problem.

CHAIR KOTELCHUCK: Good. Good. And as I said, I think we -- first,

if I were -- the first document I would look at was the work -- the -- the working group report in March --

MEMBER ZIEMER: I'll -- I'll look at that.

CHAIR KOTELCHUCK: That'll -- that's the first introduction and there are many -- an enormous amount of work was put in by LaVon and others and SC&A to try to resolve many, many issues and -- and then I think from -- from the -- from the report to the Board, your folks can work back and take a look at some of the white papers that -- for individual problems.

So okay, well good. Loretta, how do you feel? Are you comfortable with our -- with what's been presented that we could approve?

MEMBER VALERIO: So Dave, and -- and we talked about this yesterday. So what I did was I went back and I -- I did get into the virtual volumes, and there wasn't a whole terrible lot in there. It was just a couple of documents in there. The report you sent me yesterday, I -- for some reason, I didn't receive that until this morning. It didn't come through until this morning. So I started reading it. I haven't gotten very far. But I think both SC&A and NIOSH did a very -- I mean, you know, these presentations are extremely detailed. And I'm -- I'm good with -- with SC&A's recommendations to close some of these out.

I know that LaVon had mentioned something, and I didn't write down the slide, and I apologize, about not having an estimate on the -- is that the co-exposure models, LaVon?

MR. RUTHERFORD: Yeah, that's correct. I don't have good dates for when we expect to have them finalized. We -- the internal co-exposure model is -¬are -- is being worked at this time. But again, it --we're working

two or three other ones, and so I don't have a really good completion date for that, but it has started. And then the external, I don't have a good start date for it yet. So -- so yes. And I do commit to getting the workgroup updates on those as soon as they're available.

CHAIR KOTELCHUCK: Okay.

MEMBER VALERIO: Okay. So -- so I'm assuming, LaVon, that the same goes for not an estimate of a time frame for revising the TBDs?

MR. RUTHERFORD: Yeah, that's correct. You can anticipate the -- the -- honestly, when we complete a co exposure model, any of the TBDs that reference that co exposure model and would -- would require updating. So that would be one driver that would --¬would make the changes. Most of these, the changes that are required are -- are our -- our observations that are not real significant from a -- from a dose estimate standpoint. So but -- but anything that -- or when -- as I said, when those co-exposure models are updated, we will have to revise the internal code -- or the internal TBD and the external TBD, to reflect that. And so I would expect those changes to occur about the same time.

CHAIR KOTELCHUCK: Okay, good. I -- I may need maybe to say it, Rashaun, when I was talking with Loretta, I think the reason she didn't get the original December '21 report from SC&A was that I don't believe she was a member of the subcommittee yet. She -- and so she didn't get it in the normal course of events as I did.

DR. ROBERTS: Yeah.

CHAIR KOTELCHUCK: And that's why. So I sent it to her. I'm so sorry it didn't arrive until this morning, and I don't understand because I

sent it out yesterday late in the day. But as I say, I'm glad you got it and you had a chance to start reading it.

And so I think we're really in agreement, the three of us, that we're ready to proceed and approve the reports and -- and bring the -- ending the update that -- that will be done on the co-exposure model. So should we -- can we take a vote on that at this point or would somebody like to propose? I think the Chair is not really supposed to propose.

MEMBER ZIEMER: Well, yeah, before you to do that, Dave, just a question here. I know that SC&A has indicated what NIOSH's responses are. I noticed there was a response document, too, where -- was there a plan to go through that, or do we need to?

CHAIR KOTELCHUCK: Oh, on the -- with Mr. Sharfi, or Mutty, who is here on the call. I thought it reflected the work, the DCAS -- I thought it was reflected in the DCAS report.

MR. FITZGERALD: Actually, Dr. Kotelchuck, the reason why I didn't -- I didn't go through it is because I went through SC&A's summary, and they agreed with our responses. Our responses were -- were actually identified in SC&A's presentation and -- and their agreement with them. So I didn't feel like it was necessary that I go back and redo that.

CHAIR KOTELCHUCK: Okay, then --

MEMBER ZIEMER: Yeah, I just wanted to make sure that NIOSH was comfortable that SC&A had properly reflected their --

UNIDENTIFIED SPEAKER: Yes.

MEMBER ZIEMER: I -- I -- I agree that they had, but I --¬I didn't want to be presumptuous that you -- you'd necessarily --

CHAIR KOTELCHUCK: Thank you. Thank you, that's --that's good. And I certainly -- we certainly reviewed. I know I reviewed, you know, the report that -- that -¬that the -- the brief report about the agreement with NIOSH. Okay, so --

MEMBER ZIEMER: Yeah, and I'm certainly in agreement with closing those items that they recommend closure on, and there's some that will carry forward for review, so with that --

CHAIR KOTELCHUCK: Okay. So I believe it's proper to say that we're all in agreement for approval of this report of the change in the --

MEMBER VALERIO: Yes.

CHAIR KOTELCHUCK: -- evaluation, but good. Okay. So, I think that closes our responsibility then, our meeting, for today, unless Rashaun or anyone else has any -- I don't think there's another meeting to be scheduled until we hear about the co-exposures.

DR. ROBERTS: Sure. Dave, just one question for you and whether or not you would want an item on the agenda for our December Board meeting for -- to update the -- the broader Board on this or -- or what you thought about that?

CHAIR KOTELCHUCK: Sure, sure. I -- I -- I think by all means, we -- we should be able to report back on that.

DR. ROBERTS: Okay.

CHAIR KOTELCHUCK: However, not in the detail that it was presented today.

DR. ROBERTS: Right, right.

CHAIR KOTELCHUCK: But a summary of that, and so it would be brief

but important, and also they -- they recognize that the committee is back in action. We have new members, and well, it's important for the rest of the Board to know who they are and -- and how we're proceeding. Sure.

DR. ROBERTS: Excellent. Other than that, I don't have anything additional.

CHAIR KOTELCHUCK: Okay. I must say I've been looking at Florida and thinking about the December Board meeting. I don't envy your search for an appropriate place for us to get together in person. But I assume we'll talk about that in our conference calls.

DR. ROBERTS: Right.

CHAIR KOTELCHUCK: Yeah. So sorry about what's happening down there. Okay, well, then, folks, I think for the meeting -- we're ready to adjourn the meeting. So thank you all for being here. And thank you all for your contributions. And, of course, thank you for NIOSH and SC&A. We're dealing with some very difficult issues, very technical and involved issues, and doing a thorough job, as you did when we were trying to decide on the SEC application as well.

So with that, folks, please, for those of us who are on the east coast or Midwest, have a good lunch. And whoever is on the west coast, have a good late breakfast. Okay, bye-bye, folks.

(Whereupon, the meeting was adjourned at 12:23 p.m. EDT).