CENTERS FOR DISEASE CONTROL

NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY

AND HEALTH

ADVISORY BOARD ON RADIATION AND WORKER HEALTH

147TH MEETING

THURSDAY, AUGUST 18, 2022

The meeting convened at 1:00 p.m.

EDT via video teleconference, Dr. Henry

Anderson, Chair, presiding

Vet Reporting

Certified Court Reporters

PO Box 72314

Marietta, GA 30007

678-646-5330 ext. 514

reporter@vetreporting.com

Members Present:

Henry Anderson, Chair

Josie Beach, Member

Bradley Clawson, Member

R. William Field, Member

David Kotelchuck, Member

James Lockey, Member

David Richardson, Member

Phillip Schofield, 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

Kathy Behling, SC&A

Finn Black

Ron Buchanan

Grady Calhoun, DCAS

Frank "Chris" Crawford, DOL

Joe Fitzgerald, SC&A

Chuck Nelson, DCAS

Michael Rafky, HHS

LaVon Rutherford, DCAS

Members Present:

Matthew Smith, ORAU

Tim Taulbee, DCAS

Dianne Whitten

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PROCEEDINGS

(1:00 p.m.)

Welcome and Roll Call

DR. ROBERTS: Okay. I have 1:00 p.m. Eastern, so I'm going to go ahead and open up the meeting. So good afternoon, and good morning, everyone. I'm Rashaun Roberts. I'm the Designated Federal Official, or DFO, for the Advisory Board on Radiation and Worker Health. I want to welcome everybody to the second and final day of Board Meeting 147.

So like yesterday, we just need to go over a few things before we get started.

If you are participating by telephone today, all of the materials for today's portion of the meeting, including the meeting agenda, presentations, and other documents are posted on the NIOSH website for this program under scheduled meetings, and you can find all of that under the August tab for calendar year 2022. So you can go there and find and follow along with all of the presentations.

Materials were provided to the Board Members and to other staff prior to this meeting. If you go to the agenda on the website, there is a Zoom link, which will enable you to hear, speak, and watch the presentations through Zoom.

If you're on Zoom, you do want to be muted at all times when you're not speaking, and the mute for Zoom is near the bottom left-hand corner of the screen. If you are participating by phone, I do ask that each of you be careful to mute yourself, unless, of course, you

need to speak. If you don't have a mute button, press *6 to mute. If you need to take yourself off, press *6 again. And whether you're participating via Zoom or via telephone today, I'd like to ask that you, please, identify yourself before your presentations, comments, or questions in order to assist the court reporter.

So let me go ahead and move into the roll call. I'll start with Board Members in alphabetical order.

Board Members and staff should state any conflicts of interest you might have as you register your attendance. So we'll start with Anderson. Andy, are you on mute? Are you there? Okay, I actually don't see or hear him. So let me move on to Beach.

MEMBER BEACH: I'm present. I'm conflicted at Hanford. I forgot to mention that yesterday, sorry.

DR. ROBERTS: Okay. Clawson?

MEMBER CLAWSON: I'm here, and I'm conflicted at INL, which includes Argonne-West.

DR. ROBERTS: Okay. Field?

MEMBER FIELD: Yes, I'm present. I'm conflicted at Lawrence Berkeley Labs.

DR. ROBERTS: Okay. Kotelchuck?

MEMBER KOTELCHUCK: Here, no conflict.

DR. ROBERTS: Lockey?

MEMBER LOCKEY: I'm here. I'm conflicted Oak Ridge, Fernald, and Portsmouth.

DR. ROBERTS: Okay. Richardson?

MEMBER RICHARDSON: Here, no conflict.

DR. ROBERTS: And I'm hearing some interference, so I don't know if people are not on mute, but to have things go very smoothly today, I ask that you check and make sure that you're on mute.

Roessler? Roessler?

Member Roessler: (Gesturing.)

DR. ROBERTS: Okay. I can't hear you. Okay. I have her signaling that she's here.

Okay. Schofield?

MEMBER SCHOFIELD: Present, conflicted on Los Alamos.

DR. ROBERTS: Valerio?

MEMBER VAERIO: I'm here, and I'm conflicted out of all DOE sites in New Mexico.

DR. ROBERTS: Okay. And Ziemer.

MEMBER ZIEMER: I'm here. Conflicted on X10 at Oak Ridge.

DR. ROBERTS: Okay. Great. And has Andy joined us yet? Okay. If Nancy or Zaida is on, can someone try to contact him and see if he's just having some trouble joining the meeting today?

And I'll go on.

MS. BURGOS: I will --

CHAIR ANDERSON: here.

MS. BURGOS: -- try to reach him.

CHAIR ANDERSON: I'm here.

DR. ROBERTS: Okay. Very good. Thank you.

CHAIR ANDERSON: Can you hear me? I had trouble getting in.

DR. ROBERTS: Yeah, I figured as much. Okay. Well, let's go on to NIOSH, DCAS, and ORAU.

MR. CALHOUN: This is Grady Calhoun, and I'm conflicted at the Fernald site.

DR. TAULBEE: This is Tim Taulbee and unconflicted at the Mound Laboratories.

Mr. Rutherford: This is LaVon Rutherford. I am conflicted at the Fernald site.

MR. NELSON: This is Charles Nelson. I am conflicted at Fernald site.

DR. ROBERTS: Okay. Anyone else for DCAS or ORAU? Okay. Hearing none, let's move on to SC&A.

MR. BARTON: Bob Barton, no conflicts.

MS. BEHLING: Kathy Behling, no conflicts. Ms. Black: Finn Black, no conflicts.

MR. BUCHANAN: This is Ron Buchanan, conflicted at Los Alamos National Lab.

MR. FITZGERALD: Joe Fitzgerald, no conflict.

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

MR. RAFKY: Michael Rafky, HHS, no conflicts.

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

DR. ROBERTS: Okay. How about the Departments, DOL, DOE?

MR. CRAWFORD: Chris Crawford, DOL, no conflicts.

DR. ROBERTS: Okay. All right. Well, with that, let's see if

there are any members of the public who'd like to register attendance at this time. Okay.

Well, thank you, everyone. And, again, welcome. So let's prepare to go ahead further into the agenda. I just would like to remind you, again, to periodically check your phone or Zoom to make sure that you're muted so that we don't have any disruptions to the meeting.

So if you're participating by telephone, press *six to mute, *6 to take yourself off. If Zoom -- if you're on Zoom, go ahead and mute by going to the lower left-hand corner of your screen.

So with that, I will go ahead and turn the agenda over to you, Andy.

CHAIR ANDERSON: Okay. Thank you. On our second day here, first up is Chuck. I think you're presenting on SEC possession status update.

MR. NELSON: Yes, I am. Let me pull up my screen here. Can everybody see that?

CHAIR ANDERSON: Yes.

SEC Petitions Status Update

MR. NELSON: Okay. I'll get started. My name is Charles Nelson. I'm that DCAS SEC team lead, and I'll be doing the SEC update. Let me see if I can get these -- slides aren't -- there we go. So we do this updated every Advisory Board meeting. It gives the Board an indication of the petitions and qualifications under evaluation. In addition, this update provides SEC petition evaluations

currently under review with the Advisory Board, as well as any potential NIOSH initiated petitions, which are called 8314s. This update can help the Advisory Board prepare for future work group meetings as well as upcoming Advisory Board meetings.

Okay. To date, we have 259 SEC petition submittals. So that's one more than last report. We got a petition in that's currently on hold. It's awaiting employment verification. The petitioner submitted a petition, but they were unsure about the exact location of the EE's employment, so we're giving them some time to dig that information up from various agencies. In the meantime, Josh Kinman, our petition counselor has been working with that person, and so we're just waiting for more information. Currently, we have 11 reports that are under review with the Advisory Board, and those are evaluation reports.

Okay. The first Petitioner we have under evaluation is Lawrence Livermore National Lab. It was talked a little bit about yesterday. It's for the time period of 1990 to 1995. There is current SECs for that site for '50 through '89, but SEC-221 is what we're looking at right now. And the reserve -- that is a reserved period, 1990 to 1995. So when it comes out, it will be in addendum.

We continue to have problems getting onsite to address some of the issues. And this is due the COVID transmission rates, which are still currently red. We are actually working with the site, and have been for the last few weeks, to get things in order so that when things clear we can travel there, and we've got our ducks in a row. So over

two weeks ago, we had a call with -- we had one of our ORAU staff go to the CDC headquarters in Atlanta and had a secure phone call with the classification officer at Lawrence Livermore and basically smooth the way for when we do arrive at the facility that we should have some pretty good success accessing documents and so forth.

We will provide an update to the working group members once they are assigned. We talked about that a little bit yesterday. There's not a work group assigned yet for Lawrence Livermore, so maybe in the Board work group session we can talk about that some more. So, again, you know, the community level is in red -- is red there. So when we do find out we can go, there may be a short lead time. We'll certainly let the Advisory Board and SC&A know we're going there. But pretty anxious in getting there, so it may be a short lead time on that.

Okay. Next up is Hanford, which is SEC-57. All the SEC issues are closed except those related to ongoing co-exposure of modeling efforts. We have Savannah River, SEC-103. NIOSH is working to resolve issues raised by SC&A and the work group. The current active task is NIOSH is responding to five issues raised by SC&A in the report of Report-92 and the review of Report-92.

Next one on the list we worked on yesterday is Sandia National Lab, and it was voted on yesterday to deny the SEC, and Dr. Anderson has drafted a letter for this.

Okay. Next up is Los Alamos National Lab, that's SEC-109. And, again, we're working to resolve issues raised by SC&A in the

work group. The work group met on March 23, '22, and NIOSH presented Report-102 and 101. Then after that work group, SC&A was assigned to review both of those reports.

Next up is Idaho National Lab and Argonne National Lab-West. And, again, we're working on issues. And Dr. Cardarelli provided us update yesterday on that, so I think we're pretty updated at this point on that one.

Next up is SEC-235, that's Area IV, Santa Susanna. We're still working on getting records from the site here -- record site here in Cincinnati. As I reported last time, it's open but they're still restricting visitor access there. We've been in COVID red level high the past several weeks and pretty reluctant to get -- allow us to get there. But in the meantime, they have been digitizing records based on some keywords that we provide them and studying those documents over there for review. We do hope to be able to go to the record center to try to accelerate the data capture though.

Next up is SEC-236, that's Metals and Controls. SC&A completed a review of the NIOSH proposed re -- dose reconstruction report, and NIOSH also responded to the issues in SC&A's review, and we expect a working group meeting sometime soon. That was, again, discussed a little bit yesterday and perhaps again this afternoon.

Also, we have SEC-246 in a similar state as SSFL in that we're waiting to get to the record center but still receiving records. We hope to get there as soon as we can to accelerate this data capture.

SEC-250 is Y-12. The addendum to Y-12 was presented to the

Advisory Board in August '21, and SC&A was assigned to perform a review of that evaluation report, and this was also discussed some yesterday.

Next up is Pinellas Plant SEC-256. And NIOSH presented it and discussed the evaluation report in December '21, and SC&A was assigned to perform a review of our evaluation report. And, again, that was discussed some yesterday as well.

So sites with periods awaiting action, we have the dates next to them. So Hanford, SEC-57, '84 to '90 for primes. SEC-103 is '72 to 2007 for prime contractors. And SEC-103 for Savannah River for 1990 to 2007 for subcontractors. Los Alamos SEC-109 is for '96 to 2005. Sandia National Lab, this was discussed yesterday. And Idaho National Lab SEC-219 is 1949 to 1970. Moving on, Argonne National Lab-West is '58 to '79. Santa Susanna is '91 to '93. Metals and Controls, SEC-236 is '68 to '97, that's residual period.

De Soto Facility, SEC-246 is '65 to '95. Y-12 is '79 to '94. And Pinellas is 1957 to 1990.

Potential SEC petitions, we have a West Valley Demonstration project. We're currently reviewing a bunch of documentation for that, specifically focusing on a '66 to '68 time period. We haven't identified any infeasibilities to date, but we're, like I said, currently reviewing several documents. So if we come upon an infeasibility, we'll certainly raise it up to an 8314 level.

And that is all I had. Are there any questions?

MEMBER FIELD: Chuck, this is Bill Field. Where is West Valley

at?

MR. NELSON: Can you say that again, Bill?

MEMBER FIELD: Yeah, I said, where's West Valley?

MR. NELSON: I believe it's in New York.

MEMBER FIELD: Okay. Thanks.

MR. NELSON: Anybody correct me if I'm wrong. Yeah.

MEMBER ZIEMER: Chuck, this is Paul Ziemer. I have a question on your visits to Lawrence Livermore and possibly Santa Susanna. It looks like your group is ready to spring into action when the -- when the red flag goes down, as it were. Do you know -- or maybe others will have to answer, is SC&A or any Board Members going to be involved with those site visits?

MR. NELSON: They're certainly welcome to. You know, for Lawrence Livermore, we talked about it yesterday, there hasn't been a work group assigned for Lawrence Livermore.

So that probably needs to happen pretty quick, because, you know, we could be going in there fairly quickly. I know our ORAU folks are ready to travel once it drops below red. They're going to actually travel in yellow, and -- well, providing the site allows them to. So in order to prevent this from dragging on, we're ready to move quickly.

But we'll certainly let you-all know, kind of, getting into the position of -- of if we wait, it's -- the way the community levels are flipping back and forth from, you know, high, to medium, to low, you got to kind of act pretty quick. So we're kind of getting our ducks in a

row so that when we can go, we're going to spring into action.

And same for SSFL, that we may have to work with the DOE. So I'm going to see what we can do to get there. Because even when it was in a lower level, they weren't wanting us to come there right away. It -- they had opened the facility back in June, I think towards the end of June. They just have been reluctant to allow us there. But they are working with us well and providing electronic copies based on our -- keywords that we provide them, but that's proven to be a little slow. And I mean, we're getting lots of documents, but it's much more streamlined if we can go there and go through the boxes and say this is good, this isn't good.

MEMBER ZIEMER: Maybe SC&A can also jump in here. Do you guys have any plans for these, or is it premature for you?

MR. BARTON: Well, I don't think there's anything specifically planned yet. What I will say is that I think NIOSH has been consistent in letting us know when these trips are going on, so that we can attend, if it's warranted. But like I said, I don't think there's actually any dates on the table yet, so I can't really say specify.

MEMBER ZIEMER: I understand that. Are you ready to jump into action, or are you, as I say, is this considered premature for you? Do you need to wait and see what they come up with?

MR. BARTON: I think -- I think it would be premature for -- for us to commit on it at this point until --

MEMBER ZIEMER: Yeah. That's what I'm wondering.

MR. BARTON: -- what the plans are for it.

MEMBER ZIEMER: Thank you.

MR. NELSON: I will say for Lawrence Livermore, there's going to be some interviews. So if we know those are lined up, that means, typically, SC&A and the work group are pretty interested in those. So when we know the full scope of the visit, we'll certainly let you know. And like I said, we want to move pretty quick with it when we do get the green light.

MEMBER ZIEMER: Thank you.

MEMBER CLAWSON: Chuck, this is -- this is Brad. So you're going to be reviewing classified documents down there at Lawrence Livermore?

MR. NELSON: There will be some. Some of the discussions that Bob Burns had with the classification officer, they were looking at some certain tracers for that site. And he wanted to see if they were -- if we were going to be able to get to this information, and apparently, it's going to be pretty easy to do that. There may be some documents, and we do anticipate some documents to be classified. And -- but they said they felt they could get those in a format OUO and maybe unclassified -- and certainly unclassified.

MEMBER CLAWSON: Well, some of the -- some of your -- usually, when we go into a site like this, a lot of the interviews, too, with some of the people end up being classified, too. So I was just wondering about that.

MR. NELSON: You're certainly right about that.

CHAIR ANDERSON: When we put together the -- the

membership of the work group, we'll be sure to -¬I don't remember how many of us have security clearances, but we can be sure we have at least one of the Board Members that has clearance that could sit in on those if --

MEMBER CLAWSON: Right. That -- that's very true, Andy. And that's what I was going to get into on that. On another question, we've been discussing, you and I, about Hanford, because you're still on it. Do we kind of have a time frame for -- for Hanford?

MR. NELSON: Yeah. We have a time frame. We're trying to reel it in. And as I indicated to you before, we got of new copy of REX earlier this year. And going with that -- going through that and compare it to the NOCTUS files, we identified a bunch of fission product data. And we had, like, I think it's five or six boxes of fission product data from the time the site started to 1958. And it was for when GE was there, and it never made its way into REX. So this is during the SEC time period.

And we also found out going back and forth with Fernald over several weeks just trying to get answers on this stuff, is that there's -- there appears to be a total of 16 boxes of these records. So we're going to have to travel to the site and do a data capture on this and try to get this into a usable format for a co-exposure study. Because what we want to do -- even though it's an SEC, I mean, we could easily say that we can't reconstruct dose, but we want to give the claimants that don't have an SEC cancer as much dose as we can, you know, and we would like to get a co-exposure study with all that data.

So we want to make a pretty good effort in doing that. But we know that it's going to take a little time to do that. So what we decided to do is break out the co-exposure study from '84 to forward -- to present, and '84 to previous.

And in doing that, we hope to -- all these issues we're having with the earlier years, we could keep working on them, but in parallel, try to get this '84 period done earlier. But in having all these problems, it is extending our schedule. Currently, we're looking like summer of next year.

MEMBER CLAWSON: Okay. When -- when you do make that jump up there to Hanford, I would like to be involved with that, if possible.

MR. NELSON: Okay.

MEMBER CLAWSON: Okay.

MR. NELSON: No problem.

MEMBER CLAWSON: I appreciate that, Chuck.

MR. NELSON: All right.

CHAIR ANDERSON: Are there other questions people have? We're still in a waiting game. Hopefully, it's going to be shorter than it was in the past.

So if there are no other questions, Josie, you want to take over? I guess we're now on the procedures for the finalization of documents.

MEMBER BEACH: Sure. Yeah, we can -- I can definitely take over because it's super easy. I'll turn it over to Kathy, if Kathy is

ready to present. We were just going to continue on with closing out documents that the subcommittee has previously already voted on and closed out. So we'll go through five of them. I think we should just go ahead and go through them, ask questions after each one, and then we can formalize the vote at the very end for all five.

Kathy, does that work for you?

MS. BEHLING: Yes. That works for me. Can you hear me?

MEMBER BEACH: Yes.

MS. BEHLING: All right. It's better than yesterday. And can -- do you see my screen?

MEMBER BEACH: We sure do.

Procedures Review/Finalization/Document Approvals

MS. BEHLING: Okay. Great. All right. As Josie said, we're here, again, today to present five subcommittee on procedure review approved documents, and they're going to include four program evaluation reports and one technical information bulletin, as you see on this slide. So the first PER is PER-049, and that's associated with the Gaseous Diffusion Plant. And the PER was issued in August of 2016. And it was issued to assess the impact of several revisions to the Paducah TBD. Those revisions include increases to the occupational medical dose section, and that was due to increasing the default occupational medical exam frequency. There was also an increase in some of the years of assigned occupational environmental external dose. And for Section 6, the external doses increased due to revision in how neutron doses were assigned, and they're also now

including exposure to Tc-99.

SC&A reviewed the Paducah TBD and identified 25 findings. And those findings were actually resolved under the direction of the gas -- Gaseous Diffusion Plant work group. So under the procedures subcommittee, the review of PER 49 included only eval -– an evaluation of a sample set of impacted cases, which we refer to as our subtask 4 protocol for our PER protocol.

So we attempted to select cases based on four criteria that reflected changes in the TBD. And the first, we were looking for a nonsmoker that was assigned site default X-ray frequencies between 1951 and 1973. The second criteria was an EE that was assigned some external environmental dose. The third criteria was a case where the neutron dose was assigned. And lastly, a case where the Tc-99 external dose was assigned.

And it was -- it was requested that these cases be selected from six rework claims that resulted in a POC between 45 and 50 percent, in other words, best estimate claims. However, there were no cases within those six assessment claims that met the criteria for having external environmental dose or Tc-99 external dose.

So therefore, one case was selected where the EE was assigned default occupational medical X-rays and neutron dose. And for the subtest 4 case reviews -- we typically limit our reviews to only those methods that were impacted by the PER, which is what we did in -- for this case. SC&A submitted its review in March of 2018, and there were no findings. And we presented our report to the subcommittee

at the October 31, 2018 meeting.

Okay. And as I go into these cases, I'll just -- as a reminder, when I'm discussing the cases, I will be cautious not to disclose too much information, obviously, due to Privacy Act concerns. And hopefully, you do have access to our March 2, 2018 report. And if there are any questions and you need access to that document, just let me know.

Okay. This case represented the EE who worked at Paducah for approximately one decade. The EE worked throughout the plant and was monitored for -- yeah, was monitored for external and internal radiation exposure. The EE was diagnosed with a qualifying cancer approximately 40 years after termination of employment.

Now this table, I always show a comparison of the reworked and original doses. And as you can see, the external and occupational medical doses decreased while the internal dose increased. For the original occupational medical dose calculation, they did use the de –- default frequency X-ray exams that were recommended in the Paducah TBD-3, rev. 00. And this resulted in the assignment of an occupational medical dose based on that guidance that -- about 3.5 rem.

Now in the rework, NIOSH actually did not use the exam frequency based on the TBD guidance, but they used the number and the types of exams that were provided in the DOE records. NIOSH also assumed that there was a pre-employment X-ray, which resulted in a total number of X-rays that actually exceeded the original dose

reconstruction, and then this resulted in a total dose of approximately 500 millirem.

So the question meant more frequency of doses -- of exams but the doses went down, and that was due to the fact that there was a decrease in the lumbar spine dose. It was reduced from 2.9 rem to around 300 millirem and between revisions.

So as SC&A's review of rework case, we identified eight X-ray exams -- PA X-ray exams and a lumbar spine exam and the EE's DO record -- DEO -- DOE records. The pre-employment X-ray was included based on the TBD-3, rev. 3 guidance and doses were taken from tables 3-3 and 3-4 of rev. 0 -- 03, I'm sorry. SC&A was able to verify that the total dose of the approximately 500 millirem was correct, based on the revised TBD guidelines and that the annual doses were appropriately entered into IREP as normal distributions with a 30 percent of uncertainty.

Now, for a neutron dose, the original dose reconstruction did not assign any neutron dose, because based on guidance in rev. 0, the -- the individual, based on his job title and work location, did not -- they did not feel would qualify for neutron exposure. For the reworked, they did assign neutron dose based on the TBD-6, rev. 4 guidance.

And that guidance states that a neutron-to-photon ratio of 0.2 should be applied to missed, measured, and unmonitored photon doses, and that an ICRP adjustment factor 2 should also be applied.

The neutron energy range is considered to be 100 percent 0.1

to 2 MeV. And NIOSH applied an organ DCF value from IG-001 --

(Whereupon, a telephone sounds.)

MS. BEHLING: -- which is our external dose implementation guideline. And this resulted in the assignment of approximately 4 rem of neutron dose. So SC&A reviewed the reworked neutron dose calculations, and we were able to confirm that the doses were based on the TBD 6, rev. 4 guidance. We verified the appropriate DCF values were applied, and we recalculated the mismeasured and unmonitored doses and determined that the total assigned neutron dose was correct and the annual doses were appropriately entered into IREP.

And just to make mention of the environmental and the Tc-99 doses that were also changed in this revision and a result of this P -- PER, the environmental external dose was not considered in the original or the reworked dose reconstructions since mismeasured and unmonitored external dose was assigned.

And neither of the dose reconstructions considered exposure to Tc-99, because the organ of interest would not be impacted by the non-penetrating exposure. So SC&A agrees with NIOSH's conclusions regarding not assigning environmental external dose and Tc-99 dose.

With regard to internal, SC&A did not assess the accuracy of the internal dose because there were no -- there was no impact associated with PER 49. However, we did note there was a significant increase in the internal dose, and we looked at that. And it's interesting that the original was based on a hypothetical intake while

the rework was based on the EE's bioassay data. So that currently accounted for that increase.

So that is our review of PER-49 at the Paducah Gaseous Diffusion Plan. And do -– if you have any questions?

MEMBER RICHARDSON: Yes. This is David Richardson. I have one question.

CHAIR ANDERSON: Go ahead, David.

MEMBER RICHARDSON: Thank you. Just, would you -- would you comment on the last point you made there? Why -- why was the hypothetical situation so far off of, kind of, a claimant-favorable reality that was experienced by the worker?

MS. BEHLING: I have to go back and look at that in more detail because I was surprised by that result also. That's why I made -- I guess I brought it to the attention of the Board. But I really agree with you. I -- I should go back and get more details about the hypothetical approach that was used and the bioassay data. I can get back to you on that, unless NIOSH is in a position to answer that for us.

MR. RUTHERFORD: Yeah. This is LaVon Rutherford. I don't recall that exactly, and so I'd have to research it as well.

MEMBER RICHARDSON: That would be great.

MS. BEHLING: Yeah. I will certainly do that because I'm also interested in that. I should have spent a little bit more time on that aspect of it. However, because it wasn't included -- the internal dose wasn't included in the PER, I didn't want to expend too much time in

that area. But I will look into that. So --

MEMBER CLAWSON: Kathy, this is just Brad. When -- when you do research and write this up, if you could send it to the whole Board, I'd appreciate it.

MS. BEHLING: Absolutely, yes. I may need to reach out to NIOSH also, to be sure that I'm -- whenever I -- whatever I write up, I will have them look at also, just to be sure that I'm interpreting things appropriately.

MEMBER ZIEMER: This is Paul Ziemer. I -- I'm going to ask Josie if she can recall, I know we discussed this in the subcommittee meeting, and I don't recall what the follow-up was -- was on that.

Do you recall that, Josie?

MEMBER BEACH: You know, I was just thinking about that myself. I do not without going back to the transcript and looking at it, so --

MEMBER ZIEMER: I think the main -- the main issue at the time was that it wasn't -- at that time wasn't part of the PER, and what we were doing was closing out the PER itself. But this came up in the context of that as to whether or not the overall post reconstruction value could have been addressed, or at least called to NIOSH's attention at that point. But I don't recall any follow-up on that.

MEMBER BEACH: Yeah. I don't either, Paul. Thanks for inputting. I guess we'll have to wait.

MS. BEHLING: Yeah. And -- and typically, when I see these

types of discrepancies, I think to myself that this is going to be of interest to the Board. So I do -- when I say that generally we only look at those pathways that are impacted by the PER, when I see something like this, I generally do say I think you'd be interested enough for me to pursue this. And I -- I didn't do that in this particular case, but we will follow up and make sure that gets done.

MEMBER ZIEMER: I kind of had it in the back of my mind -- this is Ziemer, again -- that although that number increased, that someone at SC&A might have done a rough calculation as to whether that, in fact, would have affected the DOC in any event. And if it didn't, then it was sort of a nonissue or a moot point. But that might not have been the case. Again, and we need to look at it.

MEMBER BEACH: Right. And we do have a meeting next month. I think if -- if it's okay with the subcommittee, we can look -- look at this more thoroughly and discuss it at our upcoming meeting.

MS. BEHLING: And, Paul, these were -- these were best estimate cases that were selected from. But as we're seeing here, the dose increased for the internals. So, but we will look at this closer.

MEMBER ZIEMER: And one other point, when we get to the vote on this, this does not preclude closing the PER. Closing PER is not dependent on that information, I believe. We may want to keep it open anyway. I don't know.

MEMBER BEACH: Good point.

MEMBER ZIEMER: Well, we can talk about it later.

MEMBER BEACH: Yeah. Okay. Thanks.

MS. BEHLING: And Josie, do you want to have that discussion now? I was sort of stopping after each -- each document so that we could -- we typically vote at the end of each of these presentation documents.

MEMBER BEACH: Yeah. I had originally thought we could just vote on all of them at the end.

MS. BEHLING: Oh, okay.

MEMBER BEACH: But -- but with this question, does this preclude us closing this one out or voting to close it out? Does it need to be left open to answer this?

MEMBER ZIEMER: Keeping in mind the subcommittee recommended closure, but that doesn't --

MEMBER BEACH: Correct.

MEMBER ZIEMER: -- mean the Board has to.

MEMBER BEACH: Correct. So that's a question I'm asking, I guess, David Richardson, since you brought this up. Sorry to put you on the spot.

MEMBER RICHARDSON: Josie, that's completely unfair.

MEMBER BEACH: I know, and I apologize. And if we -- if you would prefer to keep it open, that's fine.

MEMBER RICHARDSON: No. I -- my concern is just as long as we -- I trust there's going to be a follow-up on this. And to me, it's more of an -- I don't think you need to keep this case open for that purpose as long as it's not lost.

MEMBER BEACH: Okay. Absolutely. And -- and we are keeping better track, so it will be reported on and discussed at the 29th -- September 29 meeting. And then at the next Board meeting, it'll be one of our -- our responses when we bring the next cases forward at the next meeting in December.

MEMBER RICHARDSON: And I may punt it over to Brad to say because he also expressed interest.

MEMBER BEACH: Okay.

MEMBER CLAWSON: Yeah. This is Brad. I don't -¬I don't have a problem with closing it. I just -¬from my personal knowledge, I wanted to better understand because this is a little bit different than what we'd had. It's just a personal thing with me. I know that you guys have already reviewed it and everything else, so I don't have a problem with closing it.

MEMBER BEACH: No, it's good to have fresh eyes, though. So then I think we can go ahead, Andy, and vote on this unless there's more questions.

CHAIR ANDERSON: That's -- that's fine.

MEMBER BEACH: I don't remember if we could do an aye vote or if we had to do an individual, Rashaun.

CHAIR ANDERSON: Paul, can we do a -- just an all in favor?

DR. ROBERTS: Yeah. I don't think -- we did not do a roll call for these documents.

MEMBER BEACH: Yeah. I didn't think we did either.

MEMBER ZIEMER: I might have mentioned that we know from

prior this -- before this meeting that the non-roll call votes will cause a problem for the court reporter because when we're all voting on Zoom, you can't hear all the ayes because everybody -- they cancel each other out of the recording. So one way -- one way to do this would be to ask if there are any dissenting votes, and that makes it easier to record.

CHAIR ANDERSON: Okay. Let's -- let's do that. Are there any dissenting votes? And -- and if there are, then say so and give us -- give the name for the court reporter. Any dissenting votes? So it appears to be unanimous approval.

MEMBER BEACH: Okay. So thank you. We'll move on to PER-008 as Kathy has queued.

MS. BEHLING: Okay. All right. PER-008 is a modification of the NIOSH IREP lung cancer risk model. And the effect of combined lung model on non-compensable lung case -- lung cancer claims. This PER was issued way back in April of 2007, and it determines the impact of the issuance of NIOSH IREP versions 5.5 and 5.5.1 were -- which were issued in close succession in 2006. The IREP revision compares POC calculations using NIOSH IREP and the NIH IREP model for the lung, the trachea, or bronchus cancers and selects the higher. It also incorporates a bias correction factor for random errors in dosimetry for never smokers exposed to radon.

SC&A reviewed the PER and submitted a review in December 5 -- December 15, 2010. We identified two findings. The review was presented to the subcommittee at the March 22, 2011 meeting, and

the subcommittee determined that subtests for case reviews were not necessary for this PER since the PER only required NIOSH to rerun IREP. It did not actually re -- rework any of the cases.

So our first finding is that the NIOSH IREP lung model generates excessively high POC values due to the model's failure to account for age at exposure, as well as the attained age of the exposed individual at the time of cancer diagnosis. And NIOSH's response at the March 22nd meeting stated that the chair of the scientific issues work group identified age of exposure as an issue to be -- to be evaluated under that work group. Therefore, NIOSH believed that this finding was really broader than just a PER-8 finding and should be addressed under overarching issues or within this scientific issues work group, and the subcommittee agreed with that and closed this finding.

And finding number 2 indicates that the NIH IREP lung model adjusts on a limited basis the effects of age at exposure and attained age, but a shortcoming of the model is that there's no further adjustment for attained age greater than 50 years old. So again, NIOSH recommended that this finding be transferred to the scientific issues work group, and the subcommittee agreed.

And that's the conclusion of PER-8.

MEMBER BEACH: And questions, comments?

Hearing none, Henry, I'll turn it over you for a vote.

CHAIR ANDERSON: Okay. We'll do like we did the last time. Do -- I ask for any of those opposed approving this recommendation, please, make yourself known. Sounds like it's unanimously to

approve.

MEMBER BEACH: Okay. Thank you. We can go ahead and move on, Kathy.

MS. BEHLING: Okay. All right. Moving on to PER-006. This is the external dosimetry target organ for prostate cancer. And that was issued in September of 2006. And the PER was issued because the external dosimetry target or -- organ for the prostate cancer changed from the testes to the bladder. This resulted in dosimeter external doses de -- decreasing since the bladder DCF is actually less than the testes DCF.

But occupational medical doses did increase slightly, but this increase is really offset by the decrease in measuredness and unmonitored external dose. So there were no cases that were evaluated because NIOSH determined the dose and the resultant PLC would not increase.

And I just will note that this PER did impact on OTIB-5, which specifies your internal and external target organ. And there was a page change issued to the -- supposed to be issued to IG-001 or external dose implementation guideline.

So SCN -- SC&A reviewed PER-6 and submitted its report in October of 2007. And we concurred that the bladder is the more appropriate surrogate organ since it's deep in the body cavity and close to the prostate, and also noticed that the testes can significantly overestimate external beta and low-energy photons due to being close to the body surface.

And SC&A did -- did have one administrative finding in reviewing this PER. And that finding -- and as I pointed out, this -- this review was done back in 2007, and the finding indicated that the PER didn't strictly follow the guidance of what was in place at the time was OCAS-PR-008, which is the preparation of program evaluation reports and program evaluation plans, because the PER-6 only had a single evaluation session rather than separate issues and POC evaluation second -- sections, and it was also missing a summary section.

And NIOSH responded that they agreed.

However, the PER contains all the necessary information for determining if the claims require rework. And NIOSH also stated that the PER process has significantly changed over time, and that PR-008 may be revised or cancelled. And the subcommittee agreed and NIOSH did fairly shortly, I believe, after that cancel the PR-008.

So that's the end of PR-006. Do you have any questions?

CHAIR ANDERSON: Seems pretty straightforward.

MEMBER BEACH: It is. I'm feeling like we could have done a couple more, Kathy.

CHAIR ANDERSON: Yeah.

MS. BEHLING: We only have 66 slides.

MEMBER BEACH: Yeah.

CHAIR ANDERSON: You picked the short ones. Okay. So let's vote on this. Again, we'll use the, all those who oppose approving these reviews, please, speak up.

Hearing none, the approval was unanimous. So that's the last one?

MEMBER BEACH: Nope. We have 23 and 66, two more.

CHAIR ANDERSON: Okay. Two more.

MEMBER BEACH: Okay. That was wishful thinking on your part.

CHAIR ANDERSON: Yeah. I thought, geez, that's going quick.

MEMBER BEACH: All right. Kathy, take it away.

MS. BEHLING: Okay. All right. We're going to move on to our technical information bulletin 0023. And this one gets a little more complex, a little more -- a few more findings. This is the assignment of missed neutron dose based on dosimeter records. And this OTIB provides guidance to determine when is it -- when it's appropriate to assign neutron dose using the one-half LOD method or really a missed neutron dose. And again, rev. 1 of the OTIB was issued back in March of 2005. And rev. 2 was issued in May of 2008. The OTIB-23 guidance states that when neutrons were monitored using reliable dosimeters and results are zero, the LOD/2 method is appropriate.

However, the guidance also states that missed neutron dose should not be assigned if two conditions are met. And condition one; if the nLOD/2 value exceeds 75 percent of the measured and missed photon dose. And condition two; using work location and site-specific dat -- data, it's determined that the EE's neutron dose is zero or incidental relative to assigned external dose. So keep those in mind. Okay. SC&A submitted its review of OTIB-23 in 2006, and we

identified eight findings. The findings were ultimately resolved after numerous subcommittee on procedure review meetings between 2006 -- '7 and 2008.

So let's go through the findings. Finding 1, procedure lacks clarity by failing to provide clear definition and is an inconsistent terminology. The primary concern SC&A had were inconsistencies between OTIB-23 and IG-001. And NIOSH responded at the October 2007 meeting stating that the dose reconstructors must consider all guidance and then judge which is better -- which best applies and consistency and interpretation of -- and application of guidance is achieved through training and quality assurance. However, NIOSH did agree that they may need to provide more clarification in OTIB-23.

The subcommittee requested that NIOSH and SC&A hold a teleconference with the technical experts and report back to the subcommittee on the results of that phone call. So there was SC&A and NIOSH telecon -- conference held in November of 2007. And NIOSH agreed to revise section two and other applicable sections of OTIB-23 in conjunction with a revision to IG-001, section 2.2.2.2.1, which is the neutron section, to clarify the application of missed neutron dose.

The significant change that was introduced into OTIB-23 was the removal of that condition one that I mentioned in one of the earlier slides, which states that the missed neutron dose is not assigned if the LOD/2 value exceeds 75 percent of the missed and

measured photon dose. And SC& -- the subcommittee agreed, but asked NIOSH to inform them when the OTIB had been revised.

Finding 2, when the LOD/2 method is not used, SC&A felt there was detailed information that was required that would not be readily -- readily available to the dose reconstructors. And NIOSH's response was the same as stated for Finding 1. And the subcommittee transferred the resolution of this finding to Finding 1, and asked NIOSH and SC&A to report back to the subcommittee after the -- after they have a technical clarification discussion. Oh, I should have shown that one, sorry.

Okay. Then the follow-up to Finding 2. During the teleconference, Finding 2 was resolved and NIOSH agreed to modify the implementation guide and OTIB-23 to expand on options for reconstructing dose when the LOD/2 method is not appropriate. And the sub -- subcommittee agreed, but asked, again, for confirmation when OTIB was revised. And for the sake of brevity, and so I don't repeat myself on all of these findings, I'll just point out that that was the subcommittee's response on all eight of the findings. They asked a standard teleconference and then for NIOSH to report back to them. Therefore, on the remaining findings, I'll only state our finding and NIOSH's response.

MS. BEHLING: Okay. Finding three, some of these are -- some of the findings sort of overlap, but we'll go through all of them. OTIB-23 references IG-001-as a basis for its guidance; however, the guidance is inconsistent, and specifically, the reference to reliable

versus unreliable neutron dosimetry differs between the guidance documents. And NIOSH responded that they do not consider the guidance to be inconsistent, but that rather it provides the dose reconstructors with additional guidance from IG-001. And NIOSH stressed that it is important to review the OT -- all the OTIBs and various guidance in combination with all other information available to the dose reconstruction staff.

So as a follow up, SC&A -- there was a joint teleconference and NIOSH agreed to revise OTIB-23 as well as IG-001. The revision, again, was to remove condition 1 on -- in OTIB-23 and will expand IG-001 on the possible options for reconstructing missed dose when dosimeters are unreliable and when the LOD/2 method is not appropriate.

Okay. Finding four, SC&A finds that it's questionable that dose reconstructors would be in a position to have information to make potentially subjective decisions to determine if this missed neutron dose approach should be used. And NIOSH responded that the OTIB is not intended to be used for best estimate dose reconstructions and that the OTIB provides additional information to the dose reconstructors on the application of using the LOD/2 method for missed neutron dose.

NIOSH also stated that missed neutron dose must be considered regardless of the dose reconstruction type, and the dose reconstructors had access to information that they need to make appropriate decisions about missed neutron dose. And then as a

follow-up, NIOSH did agree with SC&A's finding and will introduce appropriate changes in future revisions of the procedures.

Moving on to finding five. Finding five also points out another inconsistency between OTIB-23 and IG-001, namely, the need for neutron survey data and state times when missed neutron dose exceed 75 percent of the photon dose prescribed in IG-001; however, OTIB-23 requires a second condition to be met. So there was an inconsistency between OTIB-23 and IG-001 there.

And SC&A -- or NIOSH provided the same response and indicated it's important, again, to consider the totality of the information that's available to the dose reconstruction staff. As a follow-up after the joint teleconference, OTIB-23 will be revised in conjunction with IG-001. And, again, pretty much the same responses with regard to removing that condition one from IG --from imp -- OTIB-23 and expanding instructions on IG-001.

Finding 6, SC&A believes that it was unrealistic to reconstruct missed doses from numerous neutron measurements and accurate time information as specified in the IG-001. And NIOSH responded that if survey data are not available, that there are other data sources, as listed in the hierarchy of data in table 1.1 in the IG-001. And the use of any approach for neutron missed dose requires a description of that method in the dose reconstruction report. So it should be -- you should be able to track that.

And as a follow-up, NIOSH, again, agreed to revise IG001 and OTIB-23, pretty much as they had stated in the previous findings.

Finding seven, SC&A stated that the regulatory recommendation for "striking a balance between the need for technical precision and process efficiency" has been ignored in its OTIB, and NIOSH disagreed and responded that there's been significant effort to ensure that precision and efficiency have been considered in the DR process with respect to missed neutron dose.

And as a result of the conference call, NIOSH resolved this finding by stating that, again, condition one will be removed from OTIB-23.

Lastly, finding eight, the generic assumption of a neutron-to-photon ratio of 0.75:1 as a limiting value for the application of the nLOD/2 is neither technically defensible or claimant favorable. And NIOSH responded that it's common practice to apply site-specific neutron-to-photon ratios to measure a missed photon dose or assigning missed neutron dose. And NIOSH considered that approach to be technically defensible and claimant favorable.

And, again, as a follow-up, NIOSH did agree with SC&A's finding and will introduce appropriate wording in future changes in the procedures.

So as a final resolution of all eight findings, NIOSH did ultimately issue rev. 1 of OTIB-23 that was issued in 2008, I believe. And SC&A had an opportunity to review that and found that it adequately addressed all of our findings. And the subcommittee closed the review of OTIB-23 based on -- on that revision.

And there you have it. Any questions?

MEMBER BEACH: That was a long one, but a good review.

MEMBER ZIEMER: Josie, I have a comment, this is Ziemer.

MEMBER BEACH: Okay.

MEMBER ZIEMER: This doesn't pertain specifically to OTIB-23, but while we were going through it, this popped into my mind. I want to make sure that we have made it clear to those who aren't on the subcommittee and perhaps members of the public who are listening who may ask the question, why are we today looking at these events that occurred 10 to 15 years ago, and I want to make sure that they understand why we're doing this now. I don't know if Kathy might be the best one to explain that, or maybe you would want to do it, Josie, as chairman. But it's -– it's just occurred to me that some may be wondering about that. Already clear.

MEMBER BEACH: Yeah. Kathy's got a much longer history. In fact, back in 2007, I wasn't on this committee. But -- so I'm going to let Kathy get -¬I can explain it, but I think she can probably do a better job. So go for it, Kathy.

MS. BEHLING: Okay.

MEMBER BEACH: Good question.

MS. BEHLING: I'll make an attempt. And, please, embellish anything I have to say. Early on in the program, back in 2005/2006, SC&A was actually tasked with doing groups of procedures. We would be given -- I think our first set of procedures was maybe 15-20. There were PERs, there were OTIBs, there were procedures, and we were given them as a -- all at once, we would submit one big report.

Back then we used protocols for our review that had review objectives. We actually had a table, and it helped SC&A employees as we were going through our review to keep things consistent. We would look at various review objectives, and we would submit our report with those objectives, and they would be graded from 1-5, with five being yes, this was an appropriate approach, or one being we had issues with this.

Later, when we started to introduce things like DBRS and we started tracking things, I remember, Steve Marshky (ph) went through -- we had three sets of proceed -- of massive procedures that we put out initially; thereafter, we would be assigned one procedure at a time, and we will put out those reports as single procedures. Steve went back and looked through those first three sets and tried to pull out from those -- from those tables the review objectives and assign an up -- a finding to them, if they were less than five -- they were given a grade of less than five. And those then ultimately got put into BRS.

So there was a time lag between originally doing these reviews and actually sitting down and saying hey, we need to go in and track them, and put them into some system, and follow-up with them. So that's explains some of it. And the process then of going through them took, you know, several years also. But the reason that they didn't get looked at that quickly was, I believe, because of the way we were assigned those cases or those -- those procedures early on. Does that make sense?

MEMBER BEACH: Oh, it makes perfect sense. And I didn't realize that that's how they were assigned early on, so thank you for that. And -– and we are trying to go through and make sure we follow-up, capture questions. Before when we brought these to the Board's attention, I know we had questions, but we had no mechanism or we didn't utilize any mechanism to go back and answer the Board's questions. And we are trying to do a better job of tracking and answering questions just like the one we got today on 049. We'll discuss it and make sure we, you know, follow-up appropriately and close items appropriately and document that we've closed them, and when.

MS. BEHLING: And, in fact, I don't believe that our first three sets are -- have ever been -- had -¬we'd ever tried to have them PA cleared or they're posted. We could get those documents in your hands, if that's necessary. But I don't believe we've done that.

MEMBER BEACH: May be something discussed at the subcommittee meeting, Kathy. That's --

MS. BEHLING: Right.

MEMBER BEACH: -- if necessary, if we think it is.

MS. BEHLING: Yes.

MEMBER BEACH: Yeah. That's -- that's huge. Yeah.

MEMBER ZIEMER: And over the years, the subcommittee has proposed a lot of things that we realize didn't really come to the Board for the final action, too.

MEMBER BEACH: Right, exactly.

MEMBER ZIEMER: So a lot of these things that have occurred in a more timely fashion, but, like, getting them to the Board to make sure the Board is aware of all the actions that were taken by the subcommittee is important.

MEMBER BEACH: Correct.

MEMBER ZIEMER: We're doing (indiscernible), I would say.

MEMBER BEACH: Yeah. That -- that's what we're trying to do here. So if there's --

MEMBER RICHARDSON: Can I ask a few questions?

MEMBER BEACH: Absolutely.

MEMBER RICHARDSON: This is --

MEMBER BEACH: David.

MEMBER RICHARDSON: -- David Richardson. The first one is the document refers to the limit of detection for a neutron dosimeter. Could someone define what they mean by that?

MS. BEHLING: Okay. Probably NIOSH.

MEMBER RICHARDSON: Let me just expand on -- on my thinking here. You could start with a measurement device by distinguishing between its limit of detection and its limit of quantification, for example. And so that's a policy decision about what value is going to be recorded, not necessarily a technical decision about the performance of the measurement device.

I would move from there to say that it's diff --device dependent, in part, so different dosimeters would have different limits of detection, and those can be used at different facilities that have

different rules for the limit of quantification. But then I would expand beyond that to say that it's not simply an aspect of the device or the policy, it's an aspect of the environment when you're talking about neutron dosimetry.

So many neutron dosimeters or all neutron dosimeters are going to have varying limits of detection, in part, based on the energy of the neutrons or the spectra that's encountered, and even their orientation. So how is this policy implemented? How are we -- how are we simplifying this down to a judgement about all of those characteristics and/or is that taken into account?

DR. TAULBEE: David, can you point to me where you're getting the language that you're concerned with here? Because I'm looking at OTIB-23 and it's the assignment of missed neutron doses based on dosimeter records.

MEMBER RICHARDSON: And it -- well, so one of the rules, if I was understanding the presentation, was nLOD/2, and it becomes something which is operational.

DR. TAULBEE: That is correct. But each -- each side has tables of the nLOD/2, and it takes into account a lot of those factors that you were just now talking about; the energy, the type of methodology, etc. So those are all in the technical basis document. This is --

MEMBER RICHARDSON: Those general --

DR. TAULBEE: -- a general document that's trying to give dose reconstructors some additional guidance.

MEMBER RICHARDSON: Okay. And so --

DR. TAULBEE: They still have to apply those TBDs for each site.

MEMBER RICHARDSON: And that's a site-specific assumption about the –- the spectra and the geometry --

DR. TAULBEE: That's correct.

MEMBER RICHARDSON: -- correct, to the averages?

DR. TAULBEE: And the (indiscernible) is specific with it -- within each site.

MEMBER RICHARDSON: Okay.

DR. TAULBEE: Okay. Does that help it?

MEMBER RICHARDSON: I -- I guess. So we're talking -- we're talking on average about that. The -- the next -- next one was, there are various ways of imputing something below the limit of detection, and here, put forward is nLOD/2 versus another alternative that NIOSH has used more broadly in the past, which would be LOD over square root of two, and what was the basis for that?

DR. TAULBEE: Well, we started with -- I mean, from input -- from the IMP Guide 1, IG-1, for individual dose reconstructions, we assigned the nLOD/2 as the 50th percentile, is the median of log-normal distribution with the maximum being the LOD, and we assign that at the 95th percentile. So that's all in the IG, from that standpoint.

Now, when we do co-exposure models, we're using a new method called multiple imputation, where we impute that range below that limit of detection based upon the positive values above that. And you can see that in, I believe it's Report-71 for external dose and it's

either Report -- I think it's Report-96 -- 86. I'll have to get you that exact number for the bioassay. So we do currently use a multiple imputation methodology. But for individual dose reconstructions, we're using the nLOD/2 as the median for a log-normal distribution, with a maximum being the LOD.

MEMBER RICHARDSON: And that's --

DR. TAULBEE: That's all in IG-1.

MEMBER RICHARDSON: But -- but so -- but then there's this -- this rule where you -- you're just taking that nLOD/2, you're summing it over their history, and you're comparing it to the photon dose. Is that right? Is that condition -- is that what's being referred to as condition one? So there's no multiple imputation distri --–

DR. TAULBEE: Sorry, I -- sorry, I went on mute there. Condition one was removed from OTIB-23. This is what that whole subcommittee was addressing --

MEMBER RICHARDSON: Okay, okay.

DR. TAULBEE: -- in that time period.

MEMBER RICHARDSON: So this -- that -- that final slide, which was -- went through this and then says remove condition one, only condition two must be satisfied in order to include that missed neutron dose may not be included, that's -- that's blanket? That's not -- that's going to be in all cases?

DR. TAULBEE: That is correct.

MEMBER RICHARDSON: But wasn't there a subsequent finding to that, which was, again, referring to the generic assumption of a

neutron-to-proton ratio of 0.75:1? What was the basis for that? Is -- or is that -- that's sort of moved because --

DR. TAULBEE: That -- that has been removed.

MEMBER RICHARDSON: Okay. So the subsequent finding aid is -- is no longer relevant because finding seven, the resolution to it, was completely to remove condition one overall?

DR. TAULBEE: That is correct.

MEMBER RICHARDSON: Okay. Okay. That's (indiscernible). Thank you.

MEMBER BEACH: Thank you, Tim. Hey, David, did that satisfy all your questions?

MEMBER RICHARDSON: Yeah, that's very helpful. Thank you.

MEMBER BEACH: Thank you, Tim, for stepping in there and --

MS. BEHLING: Thank you

MEMBER BEACH: -- answering those. Any other questions?

CHAIR ANDERSON: And since there's, I mean, a 15-year difference between when this was gone over, what -- what did the committee do to review? I mean, there's been -- lots of those reconstructions have been done throughout that period. Have any issues -- is there a mechanism to raise for that -- those reconstructors to raise issues with some of these?

DR. TAULBEE: Well, when the –- I mean, if dose reconstructors had an issue with whether to assign neutron or dose, they have leads that they can go to and site experts within their group, you know, to look at that.

And I believe that dose reconstruction review subcommittee looks carefully at when we assigned neutron dose and when we don't. And, I mean, if you saw anything in there, I would think that that's where that would be identified. And I don't believe anybody is seeing any of those issues. I don't believe dose -- dose reconstructors are misinterpreting that guidance that's in the technical basis documents and in the -- here in OTIB-23.

CHAIR ANDERSON: Go ahead.

MR. SMITH: Matthew -- Matt Smith with ORAU team, and I'll just add in that the final revision of the OTIB, that -- that was agreed to, revisions are in there that when the dose reconstructor uses that OTIB, that they need to include their rationale in their dose reconstruction report.

CHAIR ANDERSON: Okay. That -- that's -- I just want to be sure be -- I think time has change and -- and it's good to get a sense of it. If everybody is satisfied they're using it appropriately and you've had changing staff and everything over those 15 years, it'd be nice to know that, actually, it's functioning the way you thought it was functioning 15 years ago.

THE COURT REPORTER: Excuse me, the gentleman who spoke right before Dr. Anderson, I could not understand your identification.

MR. SMITH: Sure. My name is Matthew Smith. And I am with the ORAU team.

THE COURT REPORTER: OREU team?

MR. SMITH: Sure O -- ORAU.

THE COURT REPORTER: AU, okay. Thank you.

MR. SMITH: Sure, thank you.

CHAIR ANDERSON: Okay. So is the screen now a new one?

MEMBER BEACH: No, we need to vote on that last one order.

CHAIR ANDERSON: Okay, that's what I thought or --MEMBER BEACH: Yeah, --

CHAIR ANDERSON: -- any other questions, people, now that -- Kathy, you're trying to move us forward quickly.

MS. BEHLING: Oh, no. Sorry.

CHAIR ANDERSON: Okay. So with that we had some good questions, and some of it I couldn't understand, but pretty well, it seems to be we're -¬we're on track with that last one. So I'll go with -¬with a vote the same way or any oppose to approving the recommendation from the committee to close this? Hearing none, unanimous by the Board to accept the recommendations in the closure by the committee. So Cindy, go on. No --

MS. JOSIE: Okay.

CHAIR ANDERSON: Let's go on to the next. Yep.

MS. JOSIE: This is the last one. Thank you, Henry.

MS. BEHLING: Okay. All right. This is PER-66. And it's associated with a Huntington Pilot Plant. And this PER was issued in November of 2015. And it was issued due to changes introduced into revision one of the Hunting -- of Huntington TBD. The revision added intakes for Am-241, Th-230, and Tc-99 for the periods of 1956 through 1963 and 1978 through 1979. And this increased internal

dose to estimates for all previously adjudicated cases.

A history of this TBD, the TBD actually started out being on ORAU, Oak Ridge Associated University, team document, and revision one was issued in October of 2003. And then rev. 1 of the TBD was issued in January of 2004. PER-25 was thereafter issued to evaluate -- to determine the impact of the addition of electron dose that was introduced into rev. 1. And then in August of 2008, NIOSH replaced the ORAU TBD with an OCAS, now DCAS, TBD and added intakes for total uranium, plutonium 239, and neptunium 237.

Thereafter, PER-33 was issued to evaluate the increase in the internal dose due to the OCAS --the introduce -- introduction of the OCAS TBD. And SC&A has reviewed many of these documents. And I should have actually included this as the first item, and I apologize for not doing that, but early on in our dose reconstruction review process, at times, Mark Griffin would select a dose reconstruction and say, this is going to be an advanced dose reconstruction review. And we would actually do or call it a partial review of the technical basis document associated with that case. And that happened for the Huntington facility under the eight set of dose reconstruction reviews.

And as a result of -- and I call it partial because when we did the dose reconstruction reviews then, we only looked at those portions of the technical basis document that were included in that dose reconstruction. So it –- we –- we look at pathways that were -- were part of the actual dose reconstructed case. As a result of that, we had 12 findings. And then we performed a focused review of the

OCAS-TKBS-004, rev. 00 in March of 2013. And that review was to determine if the 12 findings that we had in our dose reconstruction review are actually addressed in this 2004 version of the TBD.

We -- we also reviewed PER-25, and then we did another review of the OCAS-TKBS-004, rev. 00, because SC&A's initial -- was initially asked to re -¬review that TBD in March of 2013, but it did not -¬we weren't given the authority to review the entirely revised strategy that had been for deriving external penetrating and nonpenetrating dose to workers during the operational period. We were -¬were not asked to look at that aspect of that TBD. Therefore, SC&A was tasked to explicitly -¬explicitly address those new -- that new material, as well as five of the remaining findings from our initial re -– dose reconstruction review, and that was done in July of 2013.

So since all of these previous TBDs had been reviewed, the report that we submitted to the subcommittee looked at only a selected number of cases under our subtask 4 report, and that was submitted in October of 2016. There was one finding, and SC&A presented our review of the subtest for report at the October 31, 2018 meeting.

Okay. For our case review, NIOSH identified two rework cases with POCs between 45 and 50 percent, just estimates. And SC&A's review was limited, again, to evaluating only the internal dose since this was the be -- the pathway that was

impacted by PER-66.

The history of the Huntington Pilot Plant, alternative name is

Reduction Pilot Plant, the period covered is 1951 through 1963 and 1978 through 1979. They supplied nickel powder that was used to make gaseous diffusion barriers for Paducah and Portsmouth Gaseous Diffusion Plants. And the feed material sources were nickel oxide and barrier scrap that was contaminated with uranium and the associate radio -- radionuclides from the uranium enrichment process.

For our Case 1, the EE worked at Huntington for numerous years. There was -- there were no records indicating that the EE was monitored for external or internal exposure. The EE was classified as a plant worker and was diagnosed with a qualifying cancer after termination of employment.

Here's our table that shows the comparison -- a summary of the comparison between doses between the reworked and the original dose reconstructions. Again, decreases in external and occupational medical dose and a significant increase in the internal dose.

Okay. The original dose reconstruction was performed in 2003 using internal intake values from table 5 of rev. 0 of the ORAU TBD. And the doses were calculated using the CADW, Chronic Annual Dose Workbook, and assessed for the total uranium, plutonium-239, and neptunium. And this resulted in the assignment of approximately -- a little greater than 100-millirem.

For the rework, NIOSH used the inhalation and ingestion intake values from table 5 of the DCAS TBD rev. 1. And we calculated doses, again, using CADW for the same three radionuclides as the original, but they also included the three additional radionuclides of

americium, thorium, and Tc-99. They're -- based on the guidance in the TBD, there's a comparison that is made of the various absorption types, and that's specified in Table 5 of rev. 5. And the resulting dose -- the resulting higher dose is selected based on two -- on the comparison of the available absorption types.

Doses were entered into IREP as constant values, and this resulted in a total dose of nearly 9 rem. So SC&A's assessment of the reworked internal doses, we, first of all, concur that the EE should be classified as a plant worker, and we were able to verify that the correct inhalation and ingestion intake values were -- were used to calculate dose. We also confirmed that the higher dose was selected based on the potential solubility types.

SC&A reran CADW and entered those results into IREP, and then finally recalculated a POC that approximated NIOSH's POC. So we had no finding with the internal dose associated with Case 1.

Okay. Case 2, again, another EE that worked for numerous years at the Huntington Pilot Plant. There was no monitoring records. And, again, this worker was classified as a plant worker. And the qualifying cancers were diagnosed after the employment termination. Here's our table of comparisons. And although the external and occupational medical doses decreased again, the internal doses significantly increased.

So for the original DR that was performed in 2004 using rev. 1 of the ORAU TBD for intake values, and I apologize, I -- I put -- that is incorrect. I have DCAS-TK -– TKDS-004. It should be ORAU on

this slide, so my apologize -- apologies for that error. Again, the doses were calculated for only the uranium, plutonium, and neptunium exposure. And as a result, an estimated total internal dose of approximately, 6 rem was calculated for both of the cancers.

For the rework, again, they, obviously, use the revised TBD and the table 5 values. They calculated doses for its six radionuclides rather than the three from the original TBD. Absorption types were compared and the higher were selected. And this -- the doses were -- annual doses were entered in IREP as constant values resulting in a total internal dose of greater than 22 rem for cancer I and greater than 23 rem for cancer II.

Again, SC&A agrees with NIOSH's assumptions, and we were able to verify that all the CADW input data was appropriate. We reran CADW and we recalculated the POC. And, again, we were able to closely match NIOSH's POC. And we did not have any findings about the rework of this case, but we did have one TBD-related finding.

Okay. In this finding, when we were going through the TBD, we identified several errors that were associated with the inhalation and ingestion values for, not the plant worker, but for administrative workers, the values given in table 5 and revised TBD. Specifically, Th-230 ingestion intake was listed as 6.3E-1 pCi/day, and we actually calculated a value of 1.7E-3 pCi/day. Tc-99 inhalation value was listed as 1.91E-1 pCi/day, and we calculated a value of 5.2E-4 pCi/day.

And lastly, the Tc-99 ingestion intake value was listed as 4.0E-3

pCi/day, and we calculated a value of 1.1E-5 pCi/day. This was discussed at the October 2018 meeting, and NIOSH acknowledged that there were errors and that they were in the process of revising the TBD and that they would correct those -- those errors.

So the subcommittee closed the finding but asked NIOSH to report back to them or to inform them when the TBD -- TBD was revised. And NIOSH has revised that TBD in November of 2008 and corrected those values.

And that's it for PER-66. Any questions?

MEMBER BEACH: Again, thank you, Kathy.

MEMBER KOTELCHUCK: I'm Dave -- Dave Kotelchuck.

CHAIR ANDERSON: Oh, hey, there, Dave.

MEMBER KOTELCHUCK: Thank you. Did the –- did the POCs -- the POCs for some of the cases you looked at change? And did -- was the compensation decisions affected?

MS. BEHLING: The POCs changed, but they did not -- they were not compensated.

MEMBER KOTELCHUCK: Okay. Which is to say that the POCs did not change their compensation status?

MS. BEHLING: Correct, correct.

MEMBER KOTELCHUCK: Okay, good.

MS. BEHLING: Yes.

MEMBER KOTELCHUCK: Just wanted to make sure.

MS. BEHLING: Okay.

CHAIR ANDERSON: Other questions? That was a very good

review. I understand what -- what went on and the changes that impacted it. While the change didn't seem to impact compensation, so the doses didn't contribute that much more, but it improved the accuracy of what was done.

So if there're no more questions, we'll vote the same way this time. For those who do not want to accept the recommendation of the committee, please, vote nay. And I don't see any nays, so that means we unanimously approved the recommendation by the committee to accept these reviews and their conclusions.

MS. BEHLING: Can -- can I interject something here that's off the subject of the subcommittee on procedures review.

CHAIR ANDERSON: Sure.

MS. BEHLING: While I have everyone's attention. I just want to make mention. I -- I'm attempting to stand in for Rose while she's on maternity leave, and I just want to make the Board aware that, hopefully, in October, we will have the 31st set of those reconstructions completed and sent out. But you know what happens thereafter, we have to schedule a one-on-one teleconferences. And that's -- I know with everyone's schedule, that's -¬always can be challenging, but I just want to make you aware that that is coming up, that we will be doing the one-on-ones starting --

MEMBER BEACH: And -- and Kathy, you said in October?

MS. BEHLING: Yeah. I believe mid-October or so is when we should have that 31st set of three-dose reconstruction cases completed. And I actually, I think, Dr. Kotelchuck, that we would

probably want to do the one-on-ones prior to having another meeting.

MEMBER KOTELCHUCK: Oh, absolutely.

MS. BEHLING: Okay. So I just wanted to make mention of that.

MEMBER BEACH: So Kathy, do you want to hear from us on scheduling, because I'm going to be gone until the 21st of October -- November. So I'll be gone for a month, October 21st to November 21st.

MS. BEHLING: Well, you -- if you want to write that to -- hopefully, Rose will be back at the helm –-

MEMBER BEACH: Okay.

MS. BEHLING: -- at that time, but I just wanted to make you-all aware that that was coming up, because that often takes us quite a bit of time. So if you want to inform Rose and -- and me, that would be fine.

MEMBER BEACH: Okay. And anybody else that has conflicts, I think maybe that's a good idea to get those to you.

MS. BEHLING: Okay. Great. Thank you.

MEMBER BEACH: Okay.

MEMBER KOTELCHUCK: Yeah. I -- Dave Kotelchuck. I wonder about whether there are ways of rethinking and speeding up that one-on-one process. It takes a long time. Its function is to acquaint members of the Board who are not on the subcommittee with what the subcommittee does, and it's -- it hasn't -- as a -- as a will and educational backdoor, professional (indiscernible).

But it has taken us a long time. And it's -- I wondered -- I'd like to be able to think a little bit about it, and raise with you, and later with Rose, whether there was some way of speeding that up, including having a larger group of people being talked to, like talk to three people instead of two at once, instead of pairs, triplets or whatever.

MS. BEHLING: Yeah. Quite honestly, when I was --when I was the test manager for the dose reconstruction reviews, I found the one-on-ones to be the most critical thing that we did under that subcommittee, because it does give us also an opportunity to really give you details. And I know already in some of my -- the cases that I'm performing right now, I have notes in there, I want to ask the Board Members, what do you think about this, how do you feel we should go about this, should we include this as a finding, do you think this is just an observation; so I find that interaction to be very important, and like you said, educational also. We don't always get to discuss that level of detail when we go through the reviews. And I know it's -- it's -- it can be a lengthy process, but I think it's well worth it.

MEMBER KOTELCHUCK: Well, Kathy, I think that I'm not actually suggesting this as a permanent change. I'm really suggesting this as a temporary measure based on the slowing down of the entire process by COVID, followed by the cybersecurity initiative that things have slowed up so much, we don't have a big backlog, to be sure. But I do feel as if we -- you know, we're going to

have only a couple of meetings, for example, of subcommittee this year, not because --

MS. BEHLING: Right.

MEMBER KOTELCHUCK: -- we can't meet, but because it just takes time to work through, and Grady talked to us earlier about the fact that there are people who are changing jobs, they're having people in. So I'm -- so I'm not disagreeing with you, in fact, I'm -- I'm supportive of what you say. I would suggest, though, that maybe this time we try to think about --

MS. BEHLING: Expediting it.

MEMBER KOTELCHUCK: -- expediting it, and then returning -- based on what you say, and I agree --¬returning to our -- our previous method, where we just -- where you talk with two people, you or Rose talk with two people at a time.

MEMBER BEACH: Well, can I make -- this is Josie, can I make a quick comment? Dave, I'm wondering if getting three people together would be more time consuming than getting two on scheduling. So that -- that was my concern, when you mentioned three people rather than two.

MS. BEHLING: That also to be a concern of ours is -- is the scheduling aspect.

MEMBER BEACH: It's difficult to get two together, let alone three. So just a thought.

MEMBER CLAWSON: Well, and let -- let -- Dave, Dave -- this is Brad Clawson. I -- I agree with you to a point. But we also have

some new Board Members that should be coming on in that time era, and it's -- it -- it's going to be important for them to be able to understand the process, but also understand the background for it. I -- I will be right honest with you, that -- that one-on-one time and all we've been trading out people that we are grouped with and stuff like that, it -- it's opened up my eyes to an awful lot of different ways of looking at it and stuff like that. I -- I'm with Kathy. I see that as one of our most valuable times, I really do. And by putting more people together, we're just -- we're -- we're -- I agree with Josie, where it's going to be an issue and deal. We -- we've got time, and I realize what you're saying, but I kind of disagree in a way. So I just wanted --

MEMBER KOTELCHUCK: Yeah.

MEMBER CLAWSON: -- to point that out.

MEMBER KOTELCHUCK: Well, you raise -- you raise -¬Dave, you raise an important point. With new Board Members coming on, it is -- that -- that becomes -- that's a quite an important thing that they be -- get -- get acquainted with the process.

UNIDENTIFIED SPEAKER: Now, I --

MEMBER KOTELCHUCK: Probably, if I may -- if I may suggest, some of them be on the -- end up on the dose reconstruction subcommittee. I hope so. So that --that's both -- both what you and Josie said give me thought, and I'll -- let's -- let's see. Let me think, also, more about this, but I really would like to expedite the process.

CHAIR ANDERSON: It would seem useful to -- to have the new

Board Members sit in, and may could potentially be a third if you wanted a third, more as an educational tool for them than to have them be really stressed out because they don't really know the process that well. And so where I'm headed here is, October, hopefully, we'll get them on-boarded and through their security processes, and their computers on board, and their IDs, and all of that, but that's early October. It's six weeks away.

MEMBER KOTELCHUCK: I know.

CHAIR ANDERSON: So, you know, we may want to at least consider before us getting started on this waiting till we get them on-boarded and so they can participate, rather than wait --

MEMBER KOTELCHUCK: Right.

CHAIR ANDERSON: -- for the next -- I mean, where group 32 is going to be probably 18 months away, so --

MEMBER CLAWSON: And Andy -- Andy, this is Brad. You bring up a very good point, and I wasn't going to put it out until they actually came on board and we had them and so forth like that, that they kind of team up with some of the people after -- you know, we can go ahead and pick a lot of the next sets and everything else like that, but start going into the process. I think it would be very helpful for all of them to -- to be assigned with -- with other groups that have been on there. Because this is -- this -- to me, this is one of the most critical things that we do in this whole process right here. And this is where everything's based on. So I think you bring up a very good point. And I understand what you're saying on it, Dave, I'm just -- I

guess I'm looking at being on here for a few more years, possibly, and making -- making these new members coming in a little more educated than I was when I came into it.

MEMBER KOTELCHUCK: Well, right. And I -- I think what Henry said, maybe we want to think about making sure that we do it with the new Board Members, even if that means delaying just a little.

CHAIR ANDERSON: Well, we'll get a better sense of how the on-boarding is going before too long, so it may be -- if that gets delayed, then you'll need -¬we'll need to move ahead on this and not wait too long. But they're going to go through a multi-day training, I think that's the plan, in Cincinnati, like we all did. So --

MEMBER CLAWSON: Right.

CHAIR ANDERSON: -- they -– they will go through the technical process of being able to find the documents. And just speaking from experience, they'll probably then not be able to do it when they get back home. So I think this will be a good way to follow-up with their training is to have them meet more members and work with them one-on-one on some of these. So --

MEMBER KOTELCHUCK: I -- I -- I'm glad this

discussion has opened up. I think let's -- I mean, we -- we're not trying to come to a conclusion right now and there are intangibles coming. I expressed the need that -- of speeding things up, but we -- we -- let's all --let's all think about it, and then at some point, we may need --

CHAIR ANDERSON: Yes.

MEMBER KOTELCHUCK: -- action forward. Okay. Thank you.

CHAIR ANDERSON: So did we vote on 066?

MEMBER BEACH: Yes, we did.

MEMBER KOTELCHUCK: (Indiscernible) --

CHAIR ANDERSON: I thought I --

MEMBER BEACH: Yeah, --

CHAIR ANDERSON: So, anything else, Josie?

MEMBER BEACH: No, except for thank you, Kathy, for your hard work, as usual, and your presentations.

MS. BEHLING: Thank you.

MEMBER BEACH: And we'll follow –- we'll follow-up on 049.

MS. BEHLING: Okay. I will do that, yes. Thanks for your attention.

MEMBER BEACH: Okay. Thank you.

Board Work Session

CHAIR ANDERSON: So that -- that brings us to the last session we have here for the Board work session. And before I forget, I would like to -- I have -- we've received a letter that John Howard sent to the Barrie family. And I'd like to read that into the record. I think, on our behalf, it really expresses our feelings as well. So let me read that.

It's (reading): Dear Barrie family members, all of us at the National Institute for Occupational Safety and Health, NIOSH, especially everyone at the NIOSH Division of Compensation Analysis and Support were sad to learn of Terrie's death. We send our

heartfelt condolences to the Barrie family.

Having met with Terrie on several occasions, I can attest to that fact that she was a caring and effective advocate who worked tirelessly on behalf of our country's Cold War Patriot. She will be remembered not only for her commitment to atomic energy workers, but also for her willingness to share her time and expertise with claimants throughout the country.

For two decades, she was an effective voice for them at meetings of the Advisory Board on Radiation and Worker Health. It would be difficult to measure the impact she had on the many peoples' lives she touched personally and professionally by helping others through the claimant process. Please accept our condolences to her -- to your family and your loss. Sincerely, John Howard, director.

So I think that expresses our feelings as well. Thank you.

Okay. We have -- we went through the work group reports, we've got our scheduling done.

MEMBER BEACH: Can you let -- Andy, can you let Phil address the subcommittee?

CHAIR ANDERSON: Sure.

MEMBER BEACH: Is that time?

DR. ROBERTS: Actually, could I just -- kind of circling back before we get --

MEMBER BEACH: (Indiscernible) --

DR. ROBERTS: -- to Phil. You know, Phil, if you don't mind, if

we could kind of, you know, end with you, I think -- I think that would be good. But since we were discussing some of the subcommittee activities and things like that, and we heard the work group and subcommittee reports yesterday, I just wanted to kind of close the loop on some of those discussions.

So, you know, we heard from the reports yesterday that there are some work group meetings and some work group meetings that need to be scheduled. So I will be reaching out shortly to the chairs and everybody to start the process of scheduling those work group meetings.

Also, it's been noted that we do need to stand up a work group for Lawrence Livermore. So what will happen is that if you have an interest in participating in that work group, if you would, go ahead and send me and also Andy an email indicating that interest, and we can kind of take a look at those who are interested in it to just make sure that that work group is going to be balanced appropriately, and then we'll stand up the work group from there. So I just wanted to invite people who are -- who may be interested in sitting on that work group to -- to indicate their interest. That's not a guarantee that you will end up on the work group because we do have to ensure the appropriate balance, but, please, do indicate your interest.

I also wanted to touch on the April 27th through 28th public comments that were submitted. Almost all of those comments pertain to the Pinellas SEC. Petitioners and their representatives indicated that they've provided technical and other information to the

Board, and they've requested that the Board provide a response in relation to the petition. And since the -- the requests for Board response were repeated yesterday, I did want to point to Dr. Anderson's reply after the conclusion of the public comment session yesterday, which is that once the Board's technical contractor, which is SC&A, completes its review of the evaluation report, the reestablished Pinellas work group will be convened and it will review information provided by NIOSH, SC&A, and also petitioners as well.

I'd also like to reiterate that if petitioners, their rep -- or their representatives would like to send information to the Board, work groups, or subcommittees, they can send that directly to me as the DFO. My direct email is R., S., as in Sam, r3@cdc.gov3. Comments that they may send to the DCAS mailbox are typically forwarded to me provided -- you probably -- if you're sending to that mailbox, just make it clear that the email is intended for the Board or its work groups or subcommittees. So I just kind of wanted to review that for people.

Let's see, I think we've talked a bit about new Board Members. As I said before, it remains to be seen whether or not they're going to be on-boarded quickly, but I do anticipate -- I'm cautiously optimistic that we'll see them on boarded sometime this fall. It's difficult to say exactly when that will be, but as Andy mentioned, we're in the process of planning some things for orientation for them, so that their transition into the Board can be as smooth as possible.

I also -- speaking of new people, I also just wanted to ask if

OGC had any updates that they wanted to share with the Board at this time about personnel?

UNIDENTIFIED SPEAKER: (Indiscernible.)

MR. RAFKY: No, nothing from OGC.

DR. ROBERTS: Okay. Okay, great.

Okay. So I think those were the items that I wanted to touch on to kind of wrap things up.

And -- and so, Andy, if you don't have anything additional, we can certainly turn the floor over to Phil.

CHAIR ANDERSON: I was going to say, the public comments, we all got the responses and we saw all of the public comments that are in the -- in the list were assigned to someone, and there are responses in that list, so I don't know if anybody has any other questions about that. But it seems to me we have adequate responses to all of the public comments that did come in at the last Board meeting. So I just wanted to be sure everybody has taken a look at those. And if you have questions about those or disagree with anything, now is the chance to -- to raise that as a response. But assuming it's -- they were all pretty detailed, so I think we appreciate NIOSH doing that promptly, so that's information there. So with that, I'll turn it over, and take it away, Phil.

MEMBER SCHOFIELD: Okay. This is Phil Schofield for the record there. Hello? Can you hear me?

CHAIR ANDERSON: We can hear you.

MEMBER BEACH: Yes.

MEMBER SCHOFIELD: Okay. I am resigning effective September 1st. Last year, I had hopes that my health would turn around, and I'd be able to stay on the Board. It's been the greatest job I've ever had my life, and I'm going to miss all of you on the Board, I'm going to miss people from SC& -- I mean, CA and NIOSH, both, SC&A. Due to my health problems continuing to get worse, I am stepping down immediately. But I just want to tell everybody I appreciate everything they've done for me, the companionship we've had, and I'm truly going to miss all of you. That's really all I got to say. Thanks.

CHAIR ANDERSON: Well, thank you, Phil. We all appreciated your participation. And through all of your trials on the health side, you were able to attend the meetings and participate on the committees, and you really went out of your way to participate as much as possible. That was certainly greatly appreciated. We'll now have to look for how we replace you on the various committees that you chaired and really appreciated what you contributed for the committee.

MEMBER SCHOFIELD: Well, thank you, Andy.

MEMBER BEACH: Phil, this is Josie. I already texted you or sent you an email, I know. But we will miss you greatly and hope that you'll keep us updated on -- on how you are and how your family is.

MEMBER SCHOFIELD: Thanks.

MEMBER BEACH: And hopefully, you'll allow us to reach out and

call occasionally.

MEMBER SCHOFIELD: That would be appreciated.

CHAIR ANDERSON: You can always participate as a public member. We'll give you emeriti status.

MEMBER SCHOFIELD: Right. Right.

MEMBER CLAWSON: Phil, this is Brad. I just want to tell you how much I appreciate everything you've done. I appreciate your knowledge that you helped us with from your work experiences and just your friendship and all. I greatly appreciate it, and you'll be greatly missed, but we'll stay in touch with you.

MEMBER SCHOFIELD: Well, thank you, Brad.

MEMBER KOTELCHUCK: And I want –- Dave Kotelchuck, I want to echo that. You've been here the whole -- you were here on the Board when I first came on the Board, and so I feel like you're an eternal member of the Board, from my perspective. And we -- you -- you have contributed enormously in the discussions. You have always brought a perspective that not all of us -- and experience that not all of us shared, and so we -- we can learn from you. And we -- we really will miss you, and do stay in touch, seriously. Thank you.

MEMBER LOCKEY: Phil, this is -¬

MEMBER SCHOFIELD: Thank you, Dave.

MEMBER LOCKEY: -- is Jim. I concur. I -- keep --please, keep us updated, how you're doing, and what you're up to, and don't become a stranger. And certainly, you're going to be missed, and we wish you the best always.

MEMBER SCHOFIELD: Thanks, --

MEMBER ZIEMER: Phil, Paul --

MEMBER SCHOFIELD: -- I appreciate that.

MEMBER ZIEMER: I think that I -- I certainly reflect what everybody has said already. It's hard to add to that, but we certainly will miss you and wish you the best as you go forward and continue to face the health issues. We're -- we'll keep you in our thoughts and prayers.

MEMBER SCHOFIELD: Thanks, Paul.

THE COURT REPORTER: I'm sorry, who was that? Phone number ending 045?

MEMBER SCHOFIELD: It's [identifying information redacted]---THE COURT REPORTER: No, I'm sorry.

MEMBER SCHOFIELD: -- is my phone number. THE COURT REPORTER: No. I'm trying to --

MEMBER RICHARDSON: That was Paul Ziemer that was speaking.

THE COURT REPORTER: Okay, thank you.

CHAIR ANDERSON: And then before that was Jim Lockey.

THE COURT REPORTER: Yeah. I got that. I couldn't hear the -- Ziemer. Thank you.

MEMBER ZIEMER: Oh, okay.

MEMBER RICHARDSON: And this is David Richardson. I just wanted to also say thank you so much. And thank you for all your contributions and work, but also, just personally, for your -- the

opportunity to get to know you and your friendship. So personally, I'm sorry to hear that you're leaving, and you really will be missed. Thanks.

MEMBER SCHOFIELD: Thank you, David. I appreciate it.

MR. CALHOUN: Yeah. This is Grady. I want to echo the same thing. Grady Calhoun from -- from DCAS. We've been around a long time. And I know that we've got to have -- had the opportunity to go out and have dinner a couple times in the past, and that was nice. And I appreciate, you know, your attendance at all these meetings and a nice, friendly demeanor that you always seem to have. So take care, and I wish you nothing but the best.

MEMBER SCHOFIELD: Thank you, Grady. I do appreciate that.

MEMBER VAERIO: Oh, this is Loretta.

CHAIR ANDERSON: Go ahead, Loretta.

MEMBER VAERIO: I want to thank Phil for his guidance, his support, and for being an amazing travel companion. I will stay in touch with Phil. And I wish him, of course, the best. But, again, it's going to be hard to -- to replace him as a friend and as a peer. Take care of yourself, Phil. Keep us informed.

MEMBER SCHOFIELD: Thank you, Loretta.

DR. TAULBEE: Phil, this is Tim. I want to thank you for all that you've done and your contributions in the past. It's been great working with you. I do wish you all the best in the future. And hope --hope everything works out great. You will be missed. Thank you.

MEMBER SCHOFIELD: Thanks, Tim.

MEMBER ZIEMER: For the Court Reporter, this is Paul Ziemer. My video wasn't working so I switched to the phone. So the phone ending in 5045 that you asked about earlier, and then I lost it, it was Paul Ziemer.

MEMBER KOTELCHUCK: And Dave Kotelchuck. I -- I only wish that we could end with a face-to-face meeting so we could give you a good warm handshake and hug. That's not possible yet.

CHAIR ANDERSON: And a cake. We needed a cake.

MEMBER KOTELCHUCK: Yes. So let us -- we'll express regret, but life isn't allowing us quite to do that. But the feelings we have are sincere and shared by us all.

MEMBER SCHOFIELD: Well, like Brad said sometime back, it'll be nice when the whole Board can get together and see each other and actually be there with each other. I think that's a real bonding thing for this Board.

MEMBER KOTELCHUCK: Yes. Yes, Dave.

Ms. Adams: Phil, this is Nancy Adams. Let me pipe in here quickly. I actually spoke to Ted Katz a couple of weeks ago, and he specifically asked about you. And so I will let Ted know that -- that you are going to leave us. And -- and we will certainly miss you. You have been so full of grace, how you have handled all of your medical trials and tribulations. And it's been such a pleasure since you joined in 2007. You and Josie came on Board together at the same time. So God speed, Phil.

MEMBER SCHOFIELD: I didn't realize it'd been that long. Sure

flew by. Thank you, Nancy.

CHAIR ANDERSON: Any other comments?

MS. BEHLING: This is Kathy Behling from SC&A. I also want to -- I don't know what else -- what more can be said, but it's been a long journey. I -¬I think SC&A got involved in like 2004, 2005, and I remember right away, meeting you and -- and like everyone said, your graciousness and your kindness. And we wish you all the best with all of your medical issues. I'm sure things will be fine. We're going to be praying for you. And hopefully, when we get somewhere near you, maybe we can even get together and -- and have you join one of the meetings. That would be great.

MEMBER SCHOFIELD: That would be great. Thank you, Kathy.

MS. BEHLING: You're welcome. You take care.

MEMBER SCHOFIELD: Thanks.

CHAIR ANDERSON: Any other comments?

MEMBER CLAWSON: I believe Gen -- Gen is trying to talk, I believe. We can't hear her.

CHAIR ANDERSON: We can see you, Gen, so give us a sign. Yeah, right.

MEMBER KOTELCHUCK: In our thoughts and in our prayers.

CHAIR ANDERSON: Well, we may have to bring you back. We've got -- your announcement, I think, other than Rashaun and I, you caught everybody a bit off guard. So our typical of putting a letter or something together may wait till the next meeting. So we're not going to let you off the hook altogether. So we may need to have

you link in for -- or something, or if we come by your area. So we'll -- we'll definitely keep in touch and that your contribution really needs to be documented and us to underscore the importance of your contributions. So you'll have to think about what we can do more in the future and keep in touch with you --

MEMBER SCHOFIELD: Well, thank you, Andy. And when you come here, don't bother bringing your fishing pole, we only got sand trout.

CHAIR ANDERSON: Oh, yeah. Well, we can always bring fish back from the story, you know, too.

MEMBER SCHOFIELD: That's true. That's the only way you're going to catch one here.

CHAIR ANDERSON: Exactly. Yeah.

DR. ROBERTS: I -- I just wanted to say, too, Phil, it's been an absolute pleasure working with you. I know it's been a very short time, but I have enjoyed it. It's been a pleasure. And I just wanted to send my best wishes to you as well. And let also -- let the Board know that I've asked Nancy to put together a letter for our October 20th teleconference so it can be read into the record, a tribute. So Board Members should look for an opportunity to work on that with Nancy.

MEMBER SCHOFIELD: Well, thank you, Rashaun. You're taking over a very busy program.

DR. ROBERTS: Thank you.

MEMBER FIELD: So this is Bill Field. I just want to make sure -

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CHAIR ANDERSON: Go ahead, Bill.

MEMBER FIELD: Yeah, I just want to make sure that we have your non-CDC email so we can stay in touch somehow. Maybe if Rashaun could share that or if you could share it somehow, I'd really appreciate it. But thank you for all your friendship and your -- your good humor and your perseverance over the years. So great. We'll miss you.

MEMBER SCHOFIELD: Thank you, Bill. I really do appreciate that. I appreciate the opportunity to tell everybody that I am going to miss all of you. Even times we disagreed, I still learned a lot. And, you know, I learned a lot about taking and giving and understanding. So I want to -- thanks for this opportunity to everybody. So with that, Andy, I guess it's back to you.

MR. ANDERSON: Okay. Well, all you said it was a two-way street. I think everybody benefited in this process and appreciated all you did, and you appreciated what we did to make your life a little more exciting with all of the things that we had ongoing. So with that, I think we're done. Are there any other issues we need? If not, we'll start to plan for the group call that's going to be coming up. And I will entertain a motion to adjourn.

MEMBER KOTELCHUCK: So moved.

MEMBER BEACH: I'll second it.

MEMBER CLAWSON: Andy, I think you ought to get Genevieve to second that. We could --

MEMBER KOTELCHUCK: Yeah, right. All right.

CHAIR ANDERSON: Okay. So I think we're all set.

MEMBER CLAWSON: Okay.

MEMBER BEACH: Take care, everyone.

MEMBER KOTELCHUCK: Bye-bye all.

(Whereupon, the meeting was adjourned at 3:12 p.m. EDT.)