Centers for Disease Control
National Institute for Occupational Safety and Health
Advisory Board on Radiation and Worker Health
124th Meeting
Wednesday, August 22, 2018

The meeting convened at 8:30 a.m., Eastern Time, at the Hilton Providence, 21 Atwells Avenue, Providence, Rhode Island, Ted Katz, Designated Federal Official, presiding.

Members Present:

Henry Anderson, Chair
Josie Beach, Member
Bradley P. Clawson, Member
R. William Field, Member*
David Kotelchuck, Member
James E. Lockey, Member
Wanda I. Munn, Member
David B. Richardson, Member
Genevieve S. Roessler, Member*
Phillip Schofield, Member
Loretta R. Valerio, Member
Paul L. Ziemer, Member*
Ted Katz, Designated Federal Official

Registered and/or Public Comment Participants:

Adams, Nancy, NIOSH Contractor
Barrie, Terrie
Blaze, D'lanie
Calhoun, Grady, DCAS
Crawford, Chris, DOL*
Darnell, Pete, DCAS*
Domina, Kirk
Elliott, John
Elliott, Michael
Fitzgerald, Joe, SC&A
Grimes, Kurt*
Harmond, Lokie, DOE
Hartsfield, Dekeely, HHS
Hand, Donna*
Hanlin, Daryl
Hinnefeld, Stu, DCAS
Hughes, Lara, DCAS
Mauro, John, SC&A*
Mcfee, Matthew, Orau Team
Nelson, Chuck, DCAS
Neton, Jim, DCAS
Rutherford, Lavon, DCAS
Stiver, John, SC&A
Taulbee, Tim, DCAS
Whitten, Dianne

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(8:29 a.m.)

Roll Call/Welcome

Mr. Katz: Good morning, everyone on the line and in the room. This is the Advisory Board on Radiation and Worker Health. This is our meeting Number 124.

I think we're setting some sort of record in Advisory Board meeting numbers. But, first, some administrative -- well, first of all, welcome, everyone, to the meeting.

Some administrative matters first. For people who are following along remotely and not in the room, the meeting materials for today's meeting, the agenda and the materials are posted on the NIOSH website under this program, under schedule and meetings, today's date.

So you can go there, you can pull up the agenda, you can pull up the background reading as well as the presentations that are being given today and tomorrow, this meeting goes through mid-day tomorrow, and follow along that way.

Also, the agenda has on it information for a Skype link. And so if you want to follow along by Skype, then you can actually see the presentation slides as they're being presented in the room. You don't have to do that, but you can.

Also, public comment time. There's a public comment session today at the end of the day. It begins at 5:00 and continues till 6:00 or until the comments are finished, whichever comes first.

So if you plan to give comments and you're remote, please be on the line by 5:00 because we never know how long that will go.

And just to note for people in the room, public comments, there's a sign-in book outside, and you should sign up if you want to give public comments.

Let's do, for roll call, we'll do roll call. I think -- hello? It's okay?

Okay. For roll call, I'll speak to conflict of interests, it just makes it easier, then we'll run through the roll call.

But for today's sessions we have two sessions where there are conflicts among Board Members. We have a Feed Materials Production Center, Fernald as we know it, discussion of the Site Profile review. And for that Dr. Jim Lockey will be recused from that discussion.

And then following that and a break we have an SEC Petition discussion for Sandia National Laboratory. And for that session we have two Members who will recuse themselves. And that is Mr. Schofield and Ms. Valerio. So I just note that now; it's easier.

So let's run through roll call. We have several Board Members who couldn't be here in person, but should be on the line. And we'll just run down alphabetically.

(Roll call.)

Mr. Katz: Okay, then, so, last piece of business, this is not administrative, but we have -- we've had some Board Member retirements since we last met, and we're going to have a tribute for that.

And for that we're going to have Ms. Beach read the tribute and then put that forward as a motion for the Board to accept. Josie?

Member Beach: Yes. Hopefully you can hear me. I'm going to be reading off my computer here. It's not very long at all. Okay. Let me know if this is going to work.

Members of the Advisory Board on Radiation and Work Health, the Board, wish to pay tribute to Ms. Wanda Iris Munn and Dr. John W. Poston, Senior, who have resigned this year from the Board after tenures of extended and exceptional service.

In both cases their CVs are far too extensive to do justice to their careers and accomplishments. But we hope to provide a brief sense of these.

Wanda began her service to the Board in 2002 at its inception as one of the ten original Members appointed by President George W. Bush. Her history and career, or careers, is colorful and storied and deserves some note.

She is the daughter of a pioneering American family, her mother having gone west in a horse drawn wagon in the late 1800s.

Her nuclear engineering career was preceded and accompanied by employment spanning medicine, education, investment, accounting, law enforcement, and elective office. This elemental family imprint and wide professional experience has been well reflected in her clear headed and practical perspectives on the -- and the diverse questions confronting the Board in its examination of historical operations at nuclear weapons facilities. It has also served the Board through the clear and systematic approach Wanda brought to resolving each question at hand.

As a front line nuclear engineer, a rare accomplishment among women of her generation, Wanda worked on the design and development, startup and management of the Fast Flux Test Facility at Hanford. The quality of her engineering work and -- was repeatedly awarded during her career and ultimately landed her in the Oregon State Engineering Hall of Fame.

It was also represented in her participation and leadership in professional societies associated with nuclear technology, including the Society of Women's Engineering, the American Nuclear Society, and the Columbia Chapter of Health Physics Society.

This rich professional experience at Hanford gave her keen insights into so many complex operations that the Board has evaluated over these years at so many diverse facilities.

The Board has benefitted and is grateful for the enumerable contributions made by Wanda, who missed no more than one or two of the hundreds of meetings of the Board and its many Work Groups and Subcommittees over her 16 year tenure.

It will also be missed the figure Wanda cut among the Board, as an independent minded colleague of feisty conviction, candor, and sympathy. Given the heavy burden of discussion that comprises our extensive Work Group and Subcommittee proceedings, the Board will perhaps especially miss the fine parsimony of her elegant dry wit and humor.

Dr. John Poston has been with us almost as long as Wanda. He was appointed to the Board by President George W. Bush in 2005.

He also bears some similarity to Wanda in his bent for efficiency. In John's case, he was not loquacious, he rarely spoke first or most on a matter before the Board and its subgroups.

Even as a Work Group chair, however, he always brought important clarity and his questions and quick resolve of technical issues and his insights and answers.

This is not surprising given his scientific pedigree. He is a highly published researcher in health physics and has served at the top levels of science, and more recent years, as a professor of nuclear engineering for Texas A&M and, previously, Georgia Institute of Technology, to heading the medical physics and international dosimetry at Oak Ridge National Laboratory.

He is a former president and fellow of the Health Physics Society, a fellow and former executive of the American Nuclear Society, a fellow of the American Association for Advancement of Science, distinguished emeritus member of the National Council on Radiation Protection & Measurement, a chair and member of multiple committees of the American National Standards Institute establishing

national dosimetry and radiation protection standards and a longstanding member of just about every other national, international body addressing the measurement of exposures to ionizing radiation and the protection of radiation-exposed persons.

With his wealth of expertise, in addition to training generations of students of nuclear engineering and health physics, he has directly advised and led advisory committee serving numerous health physics programs of international, foreign national, federal, and private nuclear operations spanning decades.

These have covered a vast expanse of technologies and purposes, including power and nuclear weapons production, nuclear medicine, waste disposal, contamination, remediation, weapons production, nuclear medicine, waste disposal -- did I say that again, I did, sorry -- and addressing the threats of nuclear environmental disasters and terrorism.

The Board has been fortunate to have John's deep experience in dosimetry, its capabilities and limitations as it is practices across myriad operations, settings, and circumstances. It has also benefitted from his enduring collegial manner, his efficient chairing of Work Groups and his good company during its travels, which will be missed.

In as much as Wanda I. Munn and Dr. John W. Poston, Sr., have made significant contributions to the ongoing work of the Advisory Board on Radiation and Worker Health during their years of membership, we also remain -- we who remain as Members of the Board thank them for their service, their scientific insight, and their wise counsel through many complex Board deliberations. They have served the Board and this country well.

This tribute is hereby adopted this 22nd Day of August 2018, at the 124th meeting of the Advisory Board on Radiation and Worker Health in Providence, Rhode Island.

Mr. Katz: Thank you very much, Josie. And, Paul,

do you want to handle the parliamentary business of getting this adopted? You might be on mute.

Member Ziemer: No, I'm here. I think we just require a second to Josie's motion, and I will give that second, then you can call for the vote.

Mr. Katz: Very good. So we have a second in Paul. And all in favor?

(Chorus of aye.)

Mr. Katz: Thank you. Motion passes. Thanks a lot, Josie.

Member Roessler: Ted, may I add something to that?

Mr. Katz: Yes, absolutely.

Member Roessler: This is Gen.

Mr. Katz: You or any other Members.

Member Roessler: The tribute certainly captures very well the talents and personalities of Wanda and John. When I reflect on their contributions, two words come to my mind, and that's intelligence and integrity. Their presence on the Board is going to be sincerely missed.

Mr. Katz: Thank you, Gen. Okay then. So let me just mention one last administrative matter. Stu, you can come up, it's okay.

Just, as you all note who see the agenda, we have POTUS designate still there for chair. We're still waiting for our Chair to be appointed. So that's still in the works.

In the meantime, I'm pitching in as acting chair. And as we've done previously with meetings, in my case that means I don't engage in the dialogue on issues, and I do not vote on issues, but I'm just administering the processes here.

Okay, and with that, thanks, Stu, we're on to the first

agenda item.

Mr. Hinnefeld: Thank you, Ted. I guess I'm coming over the, am I coming over the speaker okay?

Mr. Katz: Yes, you sound good.

NIOSH Program Update

Mr. Hinnefeld: Well, thanks and welcome, everybody. Nice to see everyone again. I was telling Ted a while ago it seems like I've been doing this for a long time, but not as long as Wanda though, that's for sure.

I'm here to give our typical update on news and statistics. A couple of things that are going on that I thought I would mention.

This first has to do with our website and the material that you can find on our website, or will soon be able to find on our website.

Now for some years now we have made it a point of putting discussion papers for Work Group meetings on our website in advance of the Work Group meetings so that people who were calling in to the Work Group would be able to follow the discussion and see the items that were being discussed.

And it's been a few years ago now, I was asked at a meeting in Denver, I know Terrie was there, I think D'Lanie and Kirk were there too, you know, it would be nice, these papers have references, it would be nice if we could see those references as well.

And I said, well, I think we could probably do that because, see, I didn't have to do the work to make that happen. So it took a lot more work than I thought, but it is very close. And probably by the next meeting we will have, be able to post references.

And there are a number of White Papers that have been there for a while that we have the references all lined up and ready to go, we just need to push the

button and go live on this, on this application.

And there will be a link underneath the discussion paper that says, cited references. You click that link, and it will bring up a list of the references. And that list will also be clickable links, you can click on that link and it will pull up the reference.

Now some of these references we are not -- we won't be able to make public because they are just full of Privacy Act information. And rather than embark on this huge redaction campaign there is just going to be a note, not available to the public. And if something is not available, it's almost certainly because of Privacy Act information.

But anything that we can make public, it will be there for people to look at. And that is, also, serves the purpose of providing some public access to this wealth of documents that we've collected over the years.

So it took longer than I thought, and it was harder than I thought, but it's -- we built an application, our computer folks have built an application that walks us through the process and then loads it up on the website. So it's pretty good.

My second item has to do with, for some reason there seems to be a lot of national interest right now on low level radiation effects. We just recently had commissioned SENES -- I'm sorry, it's the Oak Ridge Center for Risk Analysis, used to be SENES, to do a paper on the latest information on dose and dose rate effectiveness factor, that's what DDREF is, which is a factor that modifies what would otherwise be a strictly linear no threshold model for dose effects.

And there is actually, in several national meetings, there is quite a bit of discussion being developed about the linear no threshold model and is it really the appropriate model to use. There was a discussion at the Health Physics Society meeting this summer. I think the plenary session was about low level risk and LNT.

The Conference on Radiation Health, which is a conference that meets every two years in association with the Radiation Research Society, is meeting in late September. And the topic is low level dose effects and LNT.

And there is even a debate one day about whether there is enough scientific information available to essentially reject LNT and say that the risk really isn't linear, down to zero.

And there's a similar meeting convened a week later by the Health Physics Society and the American Nuclear Society in Pasco, Washington, on low level radiation effects and the low level risk model, low level dose risk model.

And then I just learned that the National Academies will hold a meeting next May on low level radiation risk. And I think that is sort of a discussion of what research should be done going forward in terms of low level radiation health effect.

So there is quite of lot interest going on, on this topic right now. Quite a lot of discussion.

And I think in large part because of the degree of discussion and the various numbers, there are quite a number of opinions out there about what you should be doing with low level radiation risk model.

We don't propose to change our model right now, based on anything we've received. We intend to wait for the discussion to proceed for a while before we do anything with any modifications to the IREP model along those lines.

The IREP model does in fact include right now dose and dose rate effectiveness factor. And we just figured, until something more definitive comes up, we'll just continue to use what we're using. So that's where that stands right now.

And then the rest of our updates are outreach type information. Since the last meeting we did

participate in a DOL sponsored authorized representative workshop. That was in Kennewick, where they have invited authorized reps. And they're organizing these sort of aligned with their district offices. So it wasn't in Seattle it was in Kennewick, but it kind of aligned with Seattle Office.

They did one last winter in Florida, aligned with the Jacksonville Office.

And then at the bottom of the slide you'll see that the DOL is sponsoring another one in Cincinnati. That would be aligned, essentially, with the Cleveland District Office, even though it's a couple hundred miles away.

So we are -- and we, I think, are going to host that. It looks like right now we will host that DOL sponsored authorized workshop in our building, so we'll be involved in that also.

In addition to that, we also conducted a one day dose reconstruction and SEC workshop, a site specific one for Sandia, in Albuquerque back in June.

We do that with our outreach contractor, ATL international. And also in conjunction with them annually, they sponsored a two day dose reconstruction and SEC workshop in Cincinnati, that we provide most of the presentations for.

Our staff goes down and presents most of those. So that's coming up in September of this year as well.

So those are my news items. I'll go on to some statistics. I'll just go through these really quickly. They're in the handouts.

These numbers of total cases going inexorably higher. Closing in on 50,000 cases that we've received. And some thousand of them, you know, our inbox tends to have about 1,000 of them at any given time. Things that we've received that are not done yet.

Of those that we've returned to DOL, most of them were returned with a DR and a few have been pulled for various reasons. And then about 3,500 have been pulled for SEC.

We're at the point now that when we add SECs, oftentimes we don't pull that many claims for SEC because when we add an SEC, we don't have this big pile of claims sitting there to be done. We've done the dose reconstructions, and so DOL will actually then go reopen those cases and run them through the SEC process after we had already sent them back. So, but they get a second look when the SEC is added, after we've already done the dose reconstruction.

These are how the breakdown of the cases in our inbox occur. Some 160 of those, where we have completed a draft dose reconstruction that's with the claimant to review and then provide the OCAS-1 back to us.

So we think we might be done with those, depending upon what the claimant tells us when they see the draft. So they're not all sitting on -- in our place.

Of the cases that have sent back, these are the breakdown on successful versus unsuccessful or compensated versus non-compensated. Slightly less than 30 percent of the cases with dose reconstruction are compensated. None of this has really changed very much.

These are DOE records requests. You can see that where there's almost nothing, what we would call late, which is more than 60 days. And the 130 are because we continue to get new claims, we continue to make requests, and they continue to respond.

In terms of the first 20,000 claims, most of them have been returned to DOL, either pulled or submitted with the dose reconstruction.

Three hundred fifty-seven have been administratively closed, and so our record keeping

kind of shows those with us. Those could be reopened if the claimant decides they want to continue the process. They're administratively closed because the claimant doesn't return the OCAS-1 form.

And then there are a few of them that we're working on. Anything that's an initial in the first 20,000 is a case that had been administratively closed at one time and then the claimant, or maybe the claimant, the original claimant's survivors decided to pick it back up and process it again.

And so those are cases that since there was never a dose reconstruction sent, they're considered initial cases even though we have not been working on them the whole time. They've been administratively closed for most of the time.

And so that completes that. So I'll try to answer any questions anyone might have on anything I covered.

Mr. Katz: Andy.

Member Anderson: Yes. Stu, who attends the workshops? The --

Mr. Hinnefeld: The dose reconstruction workshops? Well, when we do a site specific one, we oftentimes contact a labor organization that represent the workers at the site that we're covering.

And in large part, they're also the ones who come to the two-day workshop in Cincinnati. We have had people from DOL district offices come. Some of our advocates have come to those.

But it's in large part, ATL's contact list is with labor organizations that represent the workers at the covered facility.

Mr. Katz: Do we have any other questions from our Board Members on the line?

Member Roessler: Ted, this is Gen. I'm seeing the slides very well, and I could hear you had Josie okay,

I hear the people on the phone very well, but Stu I imagine is at the podium there, and he was very difficult to hear. It sounded very muffled.

Mr. Hinnefeld: Sorry. Maybe I'm mumbling in my old age.

Member Roessler: Oh, that sounded much better. I think speakers at the podium need to make sure they're close to the microphone.

Mr. Hinnefeld: Okay. I was probably looking at my screen rather than the microphone, and so I guess that will be a warning for people up here that come up to talk.

Member Roessler: That would help. You're coming through clearly now.

Mr. Hinnefeld: Okay, it's a little --

Mr. Katz: Yes.

Mr. Hinnefeld: -- I guess it's a pretty directional mic.

DOL Program Update

Mr. Katz: Yes, I think all these mics, the closer you are to the face of the mic the better. Any other questions? Very good, thank you, Stu.

And we go on to the DOL program update, which I think is being done remotely from Chris Crawford. Are you on the line?

Mr. Crawford: Yes, Ted, I am here. Good morning.

Mr. Katz: Welcome.

Mr. Crawford: Great to be here. Stu, would you let me know when the first slide is up?

Mr. Katz: Right. He's working on it, I'll let you know.

Mr. Crawford: Sure.

Mr. Hinnefeld: Okay, it's there, Chris.

Mr. Katz: Yes.

Mr. Crawford: Great. Thanks for your help, Stu. Let's go to the second slide.

Mr. Hinnefeld: Okay.

Mr. Crawford: Okay. This slide shows the compensation already paid through the program. You'll see that for Part B compensation we have $6.6 billion paid out. For Part E compensation, we have $4.4 billion paid. Medical bills, a separate reckoning, $4.3 billion.

And the total of $15.3 billion for the program, paid out in compensation for approximately 202,000 cases filed.

Next slide, Stu.

Mr. Hinnefeld: All right.

Mr. Crawford: Now, for Part B cancer cases, with a final decision to accept, we've accepted, with dose reconstruction cases, 10,628, which resulted in payments of $1.6 billion in compensation. For accepted SEC cases, which amount to about 26,500 cases, we paid out $4 billion compensation.

For cases accepted based on both SEC acceptance and PoC, Probability of Causation, greater than 50 percent, we have 1,038 such cases, and $156 million in compensation has been paid on that account.

For the totals, including all accepted SEC cases, dose reconstruction cases, and combined of 38,160, we have paid out $5.7 billion in compensation.

Next slide please.

Mr. Hinnefeld: Yes, sir.

Mr. Crawford: Now for the status of cases and location of NIOSH referrals, we show approximately 50,100 cases refereed to NIOSH for dose reconstruction. Of those, about 48,400 cases have

been returned to DOL from NIOSH, 42,000 of them with a dose reconstruction, and about 6,400 of them were withdrawn from NIOSH with no dose reconstruction. We show approximately 1,700 cases currently at NIOSH.

Next slide, Stu. For Part B cases with dose reconstructions and final decisions, we have 33,600 cases in that category, the final approvals about 11,700, the final denials, 21,900, for a 65 percent denial versus 35 percent acceptance breakdown.

Next slide please. This shows Part B cases filed by type. If we start with NIOSH and go clockwise from there, we see that 35 percent of our cases have been sent to NIOSH. Another 29 percent are under other, which includes silicosis, beryllium sensitivity, chronic beryllium disease.

We see that 9 percent are RECA cases, for uranium miners. And then we see that there is 15 percent of cases that are never sent to NIOSH. They're accepted as SEC cases without going to NIOSH.

And then finally we see that there are SEC cases that are referred to NIOSH, 12 percent of the cases. In most cases, because there are multiple cancers, some of which may not have been included in the SEC, so NIOSH has to evaluate the case with a dose reconstruction to see if those cases can qualify for medical benefits as well.

Next slide please. Here's a slightly different look. These are Part B cases with final decisions and will include SEC cases.

We see that there is very close to 100,000 cases with final decisions under Part B, of which 52,600 are Part B approvals and 47,400 are Part B denials. Here we see that approvals are about 53 percent and denials 47 percent.

Next slide please. Our top four work sites, these are the usual suspects, Hanford, Savannah River Site, Y-12 Plant, and Los Alamos National Laboratory.

And this is for cases generated in the, well, the federal third quarter, calendar second quarter.

Next slide please. And here we have the monthly percentage of new cases, DOE cases versus AWE cases, and the most recent readings show the AWE cases slipping a little to six percent of the total cases, versus 94 percent being DOE.

Next slide, Stu. Here we have an overall look at our SEC petition sites being discussed during this meeting.

Starting with Sandia National Laboratory, we see there are nearly 4,000 cases of which about 660 have been returned by NIOSH with a DR. There have been 1,809 final decisions, 1,223 Part B approvals, 1,120 Part E approvals, and $336 million in compensation and medical bills paid.

Metals and Controls Corporation in Massachusetts, we see that there is somewhat less than 1,000 cases. Four hundred and forty-eight have been returned by NIOSH with a DR, 937 have final decision issued under Part B, 457 have been approved under Part B.

We don't have any Part E approvals because this is an AWE site. And $73 million in compensation has been paid out.

Idaho National Laboratory has approximately 6,200 cases, of which 1,900 have been returned with a DR from NIOSH, we have 2,700 final decisions, 965 Part B approvals, 1,258 Part E approvals, and $321 million in compensation paid.

And we have the De Soto Facility in Los Angeles County. Seven hundred and sixty-four cases filed, 223 returned by NIOSH with a DR, 362 final decisions, 207 Part B approvals, 190 Part E approvals, and $53 million in compensation and medical bills paid.

And, next slide please. The last site to be discussed is the Feed Materials Production Center in Fernald,

Ohio.

Here we have a large number of claims, 5,334 shown. NIOSH has completed a DR for 1,529 cases. We have 2,282 final decisions, 1,019 Part B approvals. We also have 1,098 Part E approvals with $305 million in compensation and medical bills paid.

Next slide, Stu. Moving on now to DEEOIC outreach events. This first slide is actually boilerplate. We've all seen it before.

But the program conducts town hall meetings and traveling resource centers. And in the cases of small SECs, press releases are issued in lieu of meeting.

There are also quarterly medical conference calls, authorized representative workshops. And then there are informational meetings regarding medical benefits provided under EEOICPA, in some cases held with the SEC town hall meetings.

Next slide, Stu. Here we see the members of the Joint Outreach Task Group, which we're all familiar with I believe.

And that includes the DEEOIC membership, the Department of Energy, the DOE Former Worker Medical Screening Program, National Institute for Occupational Safety and Health, of course, the Ombudsman to NIOSH for EEOICPA Part B, Denise Brock, and DOL's Office of the Ombudsman for EEOICPA, Malcolm Nelson. There were monthly conference calls, and this group conducts the town hall meetings.

Next slide please. And we see a list of the most recent outreach events, starting with the quarterly conference call, but there is no information on that. That was June 12th and 13th, 2018.

Then there was an outreach event in Moab, Utah from the Denver District Office. Thirty-seven people attended, and four new claims were filed. That was June 7th.

Then there was another Denver District Office presentation, Grand Junction, Colorado, on June 6th, with 30 in attendance and one new claim.

There was an authorized representative workshop, May 15th and 16th, 2018 with 24 in attendance.

And then there was an outreach event in Ames, Iowa April 17, 38 in attendance and seven new claims filed.

And we see another outreach event, Bridgeton, Missouri, March 20th and 21st, 2018. Thirty people in attendance, four new claims filed.

Next slide please. Now we're looking at future outreach event. Town hall meeting in New Kensington, Pennsylvania, August 22nd, which is today.

Next slide please. The next outreach will be a town hall meeting also in Shiprock, New Mexico, August 29th and 30th, this month.

Next slide. And we have an authorized representative workshop taking place in Cincinnati on October 16th and 17th.

Next slide, Stu. And then we have a future outreach event, the fall meeting, which is being held in Washington, D.C. at DOL on October 24th, 2018.

Now the remaining slides won't be shown, but they're available on the Board's website. They're informational slides about what the program covers and who are eligible survivors, that sort of thing. Useful but not to be read here.

Are there any questions from the Board?

Mr. Katz: Thank you, Chris. Any questions on the phone from Board Members?

Okay, hearing none, thanks very much, Chris, for your update.

Mr. Crawford: Thanks.

DOE Program Update

Mr. Katz: And we're on to DOE. And we have to welcome here Ms. Lokie Harmond from DOE. So, a new face, welcome.

Ms. Harmond: Hi, I'm Lokie Harmond, and I will provide the update for Department of Energy in support of EEOICPA.

DOE's core mandate is to work on behalf of the program claimant to ensure that all available worker and facility records and data are provided to DOL, NIOSH, and the Advisory Board.

DOL responsibilities are to -- I'm sorry, includes responding to individual claim requests, via the SERT system, to DOL and NIOSH. Also providing support and assistance to DOL, NIOSH, and the Advisory Board on large-scale research and site characterization projects.

DOE process about 18,000 records a year, and they're split between EVs, for DOL, dose records for NIOSH, and DAR requests for DOL.

Individual records that are from claimants who have often worked at multiple DOE sites, for multiple contractors and subcontractors, and different jobs or divisions over a career. And for a typical request for a worker's record, DOE may have to search different sites, departments, and within different record sources and databases.

In FY17, DOE responded to 18,522 records over 25 DOE locations.

Listed here are the average number of pages for each type of request, and the size of the record packages are dependent on the years worked, along with a number of other factors.

In FY18, for the first and second quarter, DOE responded in under 60 days to 7,976 out of 8,167 record requests from DOL and NIOSH. So that's

about a 97 percent on-time response rate.

And many of the sites had near perfect records. And below are a couple of examples from the sites.

DOE provides support to DOL and NIOSH on large-scale research projects. Listed here are a couple of sites for projects that are going on, and many of our research projects do go on at the same time.

DOE supports classification of document review for final reports for DOL, NIOSH, and the Advisory Board.

We also research and maintain the Covered Facilities Database. And listed below is the link where you can find the full listing.

DOE continues to participate in all JOT meetings and AR workshops.

Our office also supports the Former Worker Screening Program, and their mission is to identify and notify former workers at risk for occupational disease and offer them medical screening that can lead to treatment.

The Former Worker Program has two links. The first link is their website, and the second link is a copy of their brochure.

That's it. Any questions?

Mr. Katz: Thank you, Lokie. Do we have any questions from Board Members?

Member Richardson: Could I? Hi, this is David Richardson. Could I ask a question? It's probably something that you might not answer right now but that you could get back to.

One of the items is DOE funds and coordinates records related to different activities, employment verifications for the DOL and dose records. I was wondering how much it's costing DOE currently?

What's the budget for these activities?

Ms. Harmond: I'll definitely have to get back with you.

Member Richardson: Yes, I know that wouldn't be something that you would be --

Ms. Harmond: Yes.

Member Richardson: But I'm sort of curious about kind of that aspect of this program.

Ms. Harmond: Okay.

Member Richardson: Thank you.

Ms. Harmond: Yes.

Mr. Katz: So, Lokie, you could respond to me, and I'll pass that along to --

Ms. Harmond: Okay.

Mr. Katz: -- the Board Members whenever you get that.

Ms. Harmond: I will do that. Okay.

Mr. Katz: Other questions? Questions from any Board Members on the line? Okay, great.

And our next session is on Fernald. And, John, is it John or Bob that's going to be presenting? John? Welcome, John.

Mr. Katz: Just for the record, Dr. Lockey has recused himself for this session.

Feed Materials Production Center Site Profile Review

Mr. Stiver: Can everybody hear me fine? Okay.

Good morning, Members of the Board and other attendees. I'm John Stiver from SC&A, and today I'm going to be presenting the, what is essentially the closeout of the Fernald Site Profile review.

You will recall last year, about this time at the Santa

Fe meeting, we went ahead and the Board agreed to close out the SEC issues. However, when I go through this presentation, you're going to see remarkable similarities to that presentation last year, mainly because a lot of the SEC issues were, as they were discussed over this 12 year period, were moved over to the Site Profile side.

And so in the interest of maintaining continuity, I'm going to go ahead and go through some of that material as well again today. Let me see here if I can get this thing to work.

All right. First, a little bit of background information about the Fernald Site, which is also called the Feed Materials Production Center.

It was located, obviously, near the Village of Fernald in the Miami River Basin about 20 miles northwest of Cincinnati in southwestern Ohio. Covered an area of about 1,050 acres. And a production area that encompassed approximately 136 acres in the center of the site.

I forgot, Fernald began operations in 1951, was fully operational by 1954. And as you can see highlighted here, the primary function was convert uranium ore concentrates and recycled materials either to uranium oxides or highly purified ingots and billets for machining or extrusion into tubular forms of assorted uranium enrichments.

There were nine separate plants. The pilot plant, ancillary buildings, administrative buildings that were connected by a network of roadways, along with storage pads, gravel ground cover, railroad access, landfills, so forth.

Outside the fenced area there was the waste storage area. There were six low level radioactive waste storage pits and two earthen-bermed concrete silos that contained the K-65 residues.

I think that was the code for the high specific activity radium-bearing residues. One concrete silo that

contained metal oxides and all the affected adjoining areas.

As far as the, let's take a look at the historic overview of the review process. This basically began back in about 2006, and this continued for 12 years.

Our Site Profile review was delivered in November of 2006 where 33 findings were identified. And concurrent with that, SEC Petition 46 was put forth in April of 2006.

And this was all employees. The proposed Class was all employees of DOE, DOE contractors and subcontractors employed at FMPC from January 1st, 1951 through December 31st, 1989.

SC&A released our SEC Evaluation Report review in July of 2007. And we found there were basically six principle issues.

The first was the coworker model for uranium internal exposures. The second was the HIS-20 database, which was used to, it was basically data used to create the uranium coworker model.

There was the issue of the constituent levels in recycled uranium. Issue 4 was the use of radon breath data for reconstructing doses from the inhalation of radium-226 and thorium-230.

Issue 5 was a review of radon emissions from the K-65 silos and associated exposures. Issue 6 was the reconstruction of internal exposures from the inhalation of thorium-232.

There were basically two components. One was based on daily weighted exposures. Basically air concentration data. And the second was based on chest count data.

And this last one was kind of an orphan issue that was carried over from our initial review and probably should have been in the Site Profile issue. And this was the absence of performance standards and

quality assurance for personnel dosimeters.

And the issues matrix revision 5 was the latest version. And it basically has a detailed narrative of all of these different issues, both Site Profile and SEC.

There have been a total of 24 Work Group meetings since the inception, from August 2007 until just a couple of weeks ago in August 2018. Numerous White Paper exchanges and discussions.

As of last year, basically this slide, I should have changed this, but this was, it's just a loose end that didn't get corrected. But there have been three classes added to the SEC from June 2012 up through September 2013. And these are all listed.

I provided links to the HHS designations. I don't think we really need to review these again right now since the SECs aspect has already been covered.

I'll go through the issues kind of briefly. SEC Issue 1 was obviously the coworker model for uranium internal exposures. And the central issue here was the completeness and adequacy of the bioassay data they use for dose reconstruction to support OTIB-78, which is the internal dose coworker model.

OTIB-78 has been revised three times from 2009 to 2016. And the coworker model has been incorporated into the internal dose TBD, TBD-5, Rev. 3. And then the TIB was cancelled.

The issues related to the applicability of the uranium coworker model to Fernald construction workers. And that was actually the basis of the addition of a coworker Class to the SEC from 1951 to 1983.

Issue 2 is the validation of the HIS-20 database. There are really two parts, Part 2A and 2B.

2A was basically validation of the accuracy with which the hard copy records were translated and converted to electronic data. A validation study was completed on that in December of 2010 and basically resolved

all of SC&A's concerns. And at the February 2011 meeting, it was recommended that subpart 2A be closed.

2B was the concerns about the integrity of the hard copy of bioassay data itself. This is where Petitioner raised concern.

And SC&A had prepared a report that described different strategies that might be used to investigate the integrity issues, possible data falsification, or things along that nature.

And the Work Group agreed that any such investigations would require considerable expenditures of resources. It was kind of the same type of thing that we tried for NTS, and resulting in inconclusive outcomes. And so this issue was not tasked and was closed.

Issue 3 is recycled uranium. This one has been going on continuously and was finally resolved at the meeting a couple weeks ago, in the August 10th meeting.

And this concerned the default concentrations on uranium mass basis of plutonium-239, neptunium-237, and technetium-99. They were associated with the receipts of recycled uranium at Fernald.

Obviously, plutonium is the big player here as far as dosimetry is concerned. The doses can be two to five times higher than uranium dose for certain organs.

There are three periods of interest here. Basically, 1953 to 1960 there were 45 metric tons in storage total with very little exposure potential.

1961 to '72, uranium, recycled uranium was processed, but the data do suggest that most of it was within specification, which was nominally ten parts per billion on uranium mass basis.

From 1973 to 1985 there were more highly contaminated receipts, mostly from the gaseous

diffusion plants. This was termed POOS for plutonium out of specification.

And then after '85, from 1986 on, Westinghouse Materials Company replaced National Lead of Ohio as the Fernald M&O. And they institute a comprehensive improvements in the HP and industrial health programs. And we felt that from there on dose reconstruction was probably possible.

Eight Work Group meetings took place from October 2008 to August 2018. In February 2012, there was an agreement on the constituent concentrations. Now recall, this was still at a time when this was considered an SEC issue. It had not yet been resolved.

We agreed that from 1961 to '72 plutonium would be 100 parts per billion, neptunium 3,500, technetium-99, 9,000.

And then from 1973 to the present, plutonium would go up to 400 parts per billion, neptunium to 11,000, and technetium to 20,000.

As of August 2018, we had had a -- first of all, let me back up a little bit. We had determined this was going to be a Site Profile issue in 2012. And TBD-5, Rev. 3 came out in March 2017.

And NIOSH had proposed different concentrations on what had been agreed to in the -- before this had been transferred to the Site Profile side. They had proposed a tenfold reduction in plutonium-239 from 100 to 10 parts per billion. Neptunium also went down from 3,500 to 400, and technetium from 9,000 to 6,000.

This was based on the notion that, basically, NIOSH had felt that they had uncovered a Lot sequence ID that would allow them to identify the timing of various receipts, and so they had based this upon that, that Lot ID sequence.

SC&A took a look at that and used the same approach

and came up with considerably different values than NIOSH. We found quite a bit that were over ten parts per billion.

And then NIOSH went back and looked at this and took a closer look at this Lot ID sequence, and it turned out there were -- some of those Lot IDs could be used to identify timing, but others were for very different purposes.

And so it was determined that we really couldn't use this timing data at all or the sequence ID to identify timing.

And so really the only thing left that was really a solid number was this ten parts per billion. And we were a little bit concerned that this was only going to be used, we understand, for partial dose reconstruction given this is during the SEC period.

But we thought, well, you know, you're taking away a lot of dose for these people that don't meet the 250 day criterion, so why not give them a little bit more. But try to give them maybe the 95th percentile or an upper bound value for this material.

But I guess NIOSH's position on this and their procedure is really to -- doing partial dose reconstruction is to use a best estimate instead of an upper bound. And there was some discussion on this at the August 10th meeting. And the Work Group agreed that that was probably a reasonable best estimate and considerably claimant favorable approach to take. And so that issue was closed.

Issue 4 is the use of radon breath data for reconstructing doses from the inhalation of radium-226 and thorium-230. We agree that radon breath data -- or analysis was a scientifically valid method to reconstructing radium and thorium-230 when the intake ratios of the two radionuclides are known and the impacted worker populations can be identified.

There was one remaining issue, this is the reconstruction, reconstruction of thorium-230 dose in

uranium- and radium-poor raffinates. So basically, if you don't have any uranium or radium, you might have a thorium intake, a thorium-230 intake, that would go undetected.

And we had agreed early on that this could be -- these doses could be bounded. And this was moved to the Site Profile status.

Again, lots of White Papers were exchanged, and a lot of discussions took place. In the August meeting NIOSH provided a pretty compelling argument as to why they could use bioassay and a ratio method to bound any intakes in Plant 2 and 3.

Where there might be this issue for about a three year period, from '59 to '61, where they were handling types of materials where there could possibly be this sort of an intake. And they had kind of a novel approach.

They looked at the DWE data, and I believe there were -- it was based -- I think it was about .1 of the maximum allowable concentration, which translated to about seven dpm per cubic meter of air.

And so based on a breathing rate of 1.3 cubic meters per hour, ten hour work day, 250 days and then spread out, I think that came out to about 26 picocuries per day intake. And then they compared that to the bioassay.

And assuming that they had Type F material and a missed dose calculation, I believe they came up with an intake of about 24 picocuries per day of uranium. And then when using the ratios to thorium-230 and the other alpha-emitting non-uranium nuclides in the raffinates, it came out to about 27 picocuries per day.

So that actually demonstrated that they could bound the DWE-based data using the bioassay and the ratio. And so the Work Group agreed to go ahead and close that out at the August 10th meeting.

Let me see if I can get ahead here. Issue 5 was radon

emissions from K-65 silos. Again, lots of White Papers were exchanged.

As a practical matter, NIOSH believed this issue really had very little significance with respect to dose reconstruction for actual claimants.

Again, this was an issue that we felt was important from an SEC standpoint because the doses could be quite high. But after the SECs were granted, it turns out it was really only about a six month period where this would really come into play for any claimants.

And rather than force the issue and continue discussions about the scientific merits of their approach, we went ahead and agreed, the Board agreed, or the Work Group agreed that if they use the 95th percentile of their model that would be adequate for dose reconstruction purposes. And that issue was closed. This is related to TBD issues 25 and 26.

Now moving on to the reconstruction of internal exposures from inhalation of thorium-232. This is Issue 6A. This was based on the DWE data.

And we were really concerned with the breathing zone and general air sample data and the air concentrations. We're probably going to be okay if, and only if, you can identify where the workers were in the facilities and which operations and buildings and time periods these activities took place.

Most of this air sampling was based on gross alpha activity and really wasn't focused on thorium work that occurred at the site but rather on uranium work. And thus, the samples really contained unknown proportions of uranium and thorium.

And plus, our research showed that workers really couldn't be reliably placed in thorium processing facilities during the period of interest.

6B was the reconstruction of internal exposures based on chest count data. 6B chest count data was

used to reconstruct thorium-232 exposures from two different periods.

'68 to '78, the results were reported in milligrams of thorium. And from '79 to '88 they're reported in nanocuries of thorium based on lead-212 measurements.

As far as the earlier period, in April 2012 an SEC was voted for all workers from 1968 to 1978, based on the inability to place sufficiently accurate upper bounds on intakes based on results reported in milligrams of thorium.

Basically, NIOSH used an empirical equation to get milligrams of thorium from chest count data. And it was applicable to that particular method that was used with a particular source term. And that really is not applicable to the forms in various equilibrium conditions that occurred at Fernald. And there are extremely large uncertainties involved.

From 1979 to 1988, the results were reported, as I said, in nanocuries of thorium. And the Work Group accepted NIOSH's methodology based on activity measurements of lead-212.

And again, as I said earlier, Finding 4.5.1, performance standards for personnel dosimeters, we didn't really question the merits for the use of the dosimetry data, but we considered -- felt that there was a need to consider the quality of the data and the context of the stated limitations.

We felt that expanding the range of uncertainty afforded personnel dosimeters that were used at the time to account for these deficiencies was really more an issue of uncertainties introduced by human error.

Basically, there were two aspects of this. Control badges were not routinely processed for badges worn by workers. And they didn't have a bona fide official training program for the technicians who assessed the badges.

Because there was really no way to rectify these deficiencies, the Work Group agreed to close this out at the September 2014 Work Group meeting.

And, basically, this is as of August of 2017. The Board voted to close out the SEC issues. I can go ahead and read this, even though this isn't the exact wording that went into the record, but the Fernald Work Group recommended that the Board find radiation doses could be estimated with sufficient accuracy for National Lead of Ohio and NLO, Inc., and Westinghouse Materials Company of Ohio employees from 1979 through 1989, and for covered employees other than NLO and NLO, Inc. from 1984 through 1989. Basically, the subcontractors.

The Board voted to accept this position at the August 2017 meeting. And that completed the Board's consideration of SEC Petition 46.

Now, moving on to the Site Profile issues. From my original review of November of 2006, of the 33 original findings, 27 were closed, four were in progress and two were transferred to the Procedures Subcommittee.

In addition to that, there were two other aspects that have come up since that. One was November of 2014. We reviewed NIOSH's White Paper about dose reconstruction methodology for the post-SEC period, from 1979 to 2006. We came out with seven findings and seven observations in that review.

And then in 2016 we reviewed the internal dosimetry coworker data. Basically OTIB-78, which, as you remember, was incorporated into TBD-5. And now we had two findings and six observations.

Now, let's take a look now at the findings that were in progress or transferred from the 2006 Site Profile review. Findings 7 and 8 had to do with raffinates poor in uranium and radium. And I just explained that to you.

At the August 10th meeting, 2018 meeting, the Work

Group accepted NIOSH's proposed method for bounding doses to uranium- and radium-poor raffinates. And that issue was closed.

Findings in Item 10 regarding recycled uranium. Again, at the August 10th meeting those issues were closed. The Work Group agreed that the ten parts per billion was sufficiently conservative and a best estimate partial dose reconstruction.

Findings 17 and 19 are correction factors for extremity beta exposures measured by film badges were transferred to the Subcommittee for Procedure Review. And these were really kind of wrapped up with the review of OTIB-13, but they're closed as they relate to the Fernald TBD.

Let's move ahead. Now, let's take a look at the post-SEC review. This mainly has to do with thorium methodology. The three periods, '79 to '89. Monitored workers here are going to be receiving their results from the mobile in vivo radiation monitoring laboratory, and unmonitored workers are going to be getting coworker intakes that were developed from that data set.

From '90 to '94, monitored workers are going to be using the individual in vivo examination center, the fixed monitoring system they had in place at the time. And the unmonitored worker is going to be assigned ten percent of the derived air concentration, the DAC. And that's going to apply to all radiological workers who were not monitored.

From 1995 to 2006, I mean, basically what we're looking at here would be the remediation period. Monitored workers are going to use the individual IVEC results or breathing zone data, which are available for them, as appropriate. And unmonitored workers will have no coworker dose assignment because basically they were -- anybody who was involved in the remediation D&D efforts were monitored. It was pretty well-documented who those people are.

More on the post-SEC thorium review. Findings 1, 3, and 5 basically involved who was going to be assigned the doses. And, basically, it was going to be all radiological workers who were not monitored from 1979 to 1994. At last year's July 28th meeting the Work Group recommended closing that.

Finding 2, intake assignments. We felt that maybe it might be appropriate to use the 95th percentile, but the Work Group determined the 50th percentile with the associated GSD was sufficient for most radiological workers.

The 95th percentile would be workers who submitted baseline fecal samples and workers employed by IT Corporation. That was the subcontractor that was handling the repackaging activities. And, again, at the July 2017 Work Group meeting that was recommended to be closed.

Finding 4 related to which Class, or should we use class-wide DAC values or Class W. Should it be the currently proposed Class W DAC for application of ten percent of the DAC values for unmonitored thorium dose reconstruction. And back in March of this year this was discussed and SC&A concurred with NIOSH's conclusion that the site utilized the Class W DAC in controlling airborne contamination levels. And that was recommended to be closed. That was really based on a lot of historic documentation that showed that Class W was indeed recommended and used.

There were also several observations. I think we have enough time to go through some of these.

The first three are basically in agreement with what NIOSH proposed. We found the in vivo monitoring program did focus on the most highly exposed jobs, such as the chemical operators. Not surprisingly, workers were positive in vivo results for thorium daughters, lead-212 and actinium-228, were re-sampled ten times as often as the rest of the monitoring population. So they did have awareness who these workers were and they were doing the due diligence and were vigilant.

Observation 3. We concurred with the claimant-favorable assumptions discussed in the December 2014 Work Group meeting. This was regarding the triple separation of thorium. This is in regards to the chest count data bias adjustment we felt accounted -- was acceptable criteria for unsupported radium exposure related to Post-SEC Thorium Finding 7.

Observation 4, I noted the review of the in vivo coworker distributions were not performed at the time of review due to SEC discussions of time-weighted OPOS methodology. So no action was required there.

Let's see. Observation 5. We did a review of 22 unmonitored claimants from 1990 to 1994, which indicated chronic exposure to -- no chronic exposure to thorium above the ten percent of the DAC. At least it would be highly unlikely for that to have occurred.

Observation 6. SC&A had requested clarification on breathing zone codes used to identify thorium results. And those are now discussed in Attachment E of the internal dose TBD update.

Observation 7 was: the temporal collection and measurement criteria for breathing zone samples is not apparent in the Fernald database. And NIOSH provided additional information that specified that breathing zone data were collected on a daily basis, but generally were reported on a weekly basis.

And thoron and unsupported radium, let's take a look at that. NIOSH modeled thoron exposures in Building 65, which is the thorium storage area, for comparison with the site-wide model, and additionally provided justification for parameter selection on the site-wide model. And this was the subject of SC&A Finding Number 6. At the March 15th, 2018 meeting, SC&A concurred with the proposed thoron dose reconstruction approach, aside from one minor calculational error.

As far as unsupported uranium, NIOSH is going to assign intakes in the rare case where the in vivo

result for actinium-228 is a factor of 1.5 or higher than the associated lead-212 result. And this was the subject of SC&A Finding 7. And at the July 2017 Work Group meeting, the Work Group recommended closure on that issue.

Now, moving on to the uranium coworker model. As I said earlier, the methods that were developed in OTIB-78 Rev. 3 were integrated into Attachment C of the Fernald internal dose TBD. The uranium intakes were derived; large data set, 400,000-plus bioassay results.

The unmonitored worker assignment, intake assignment, involved all prime contract workers from '52 to 2006, and all construction trade subcontract workers from 1984 to 2006. As earlier stated, the SEC-46 was established for subcontractors from 1951 to 1983.

Okay. There were two findings in our review of OTIB-78. The first one related to the treatment of negative and zero bioassay results. When we felt that that was inconsistent with the guidance in RPRT-53. And NIOSH indicated that feature revisions of the coworker model will use RPRT-53 methods, and the effect is likely insignificant. Again, in July 28, 2017 the Work Group recommended closing this finding. Or, excuse me, putting it into abeyance until such time as the new revision comes out.

Finding 2 had to deal with paired bioassay measurements for the same worker. It could be different by one to three orders of magnitude, and we were kind of concerned on that, on the same day. NIOSH investigated that and determined that the higher result was correct and the lower results were removed from the analysis. And that was recommended closed on July 28, 2018.

Again, six observations, along with our review of OTIB-78. The first being that SC&A could not recreate their calculations for some years in the late '80s and early '90s. It turned out that we were using -- both SC&A and NIOSH were using different

procedures. It turns out NIOSH used the correct procedure, so we withdrew that observation.

Observation 2 was just kind of an agreement. As expected, the use of the time-weighted one-person, one-statistic, or TWOPOS, method does reduce the variability but did not significantly affect the geometric mean of the distribution. That was recommended closed, as well.

Observations 3 to 6. There was additional information in the bioassay database comments column that was not utilized in the coworker calculations. I think this was to show what those are: reported results below the control limit; notations, the sample might have represented a pre-employment sample; indications of contamination or otherwise invalid samples; and identification of solubility type and intake route.

And NIOSH went ahead and acknowledged that in future revisions those comments will be considered. And the Work Group recommended putting those into abeyance until future revisions of the TBDs come out. With one exception, and that's the accuracy of the information designating solubility type and intake route cannot be confirmed. So that's not going to be used.

And, in conclusion, all of the remaining Site Profile issues have been closed or put into abeyance. The issue -- I shouldn't say the findings have been closed. Most of the observations have either been closed or put into abeyance as of the August 10th, 2018 meeting. And so the Work Group recommends that the Advisory Board close the Fernald Site Profile review officially.

And that's that. That's all I have for today.

Mr. Katz: Thank you, John. I think it should be obvious to everyone the remarkable work effort that's been put into this site by the Work Group and NIOSH and SC&A.

And, Brad, do you want to, before we get into questions, do you want to add anything to --

Member Clawson: Yes. Yes, I do. I know everybody is sitting there saying, "Oh my God, you went through this." I realize that, and I apologize to John, but I'm the one that asked him to do this.

Most of you haven't been on the Board since we started this. I wanted to go over kind of a roadmap of where we have been and what we have done, because this is a big milestone because we're coming to a close of the Site Profile. And I'd like to thank NIOSH, I'd like to SC&A and all the Board Members that have worked on this and supported us. Thanks.

Mr. Katz: Okay, let's move on to questions, then, starting in the room with questions.

Mr. Stiver: I knew it was going to be David.

(Laughter)

Member Richardson: I just have a few notes on the presentation, and maybe I could start at the end, because I think it relates to Issue 2. Issue 2 had to do with validation of the database, and there were two types of concerns in the validation of the database.

In talking about using the coworker data, the question of the accuracy of the information designating solubility type and intake route could not be confirmed and thus was not used.

So the suggestion there was that there was some types of information, although indicated in the database, that you were questioning the accuracy of it and therefore it was going to be discounted. Which led me to think about other concerns about the accuracy of the information, or just this general issue of Issue 2.

And it sounded like, Part B at least, was a question about the integrity of bioassay data. And that was

raised by the petitioner. And, in the end, it sounded like that was going to be hard to validate and therefore just set aside.

Mr. Stiver: Well, it would be the kind of situation where you're trying to prove a negative. There was no way to really -- you know, we tried several -- you know, proposed several approaches as to how you might go about doing that.

And, basically, based on previous experience, lots of resources were expended, and at the end of the day there was just -- the results were inconclusive. There was no way to really identify, we can say that these data, there's some smoking gun that there was some data manipulation or something along those lines that might have taken place. And so it was a decided, the Work Group had decided, and the Board had accepted, that that really wasn't a wise use of resources.

I think I had to -- if I can remember back that far -- it was a long, long time ago -- I think it was before I even got involved in Fernald, but there was some concern about scrubber data from Fernald that had gone offsite and had possibly been bad data and been doctored or something like that.

We had gone through the records and reviewed that. I think it was kind of taken out of context. I can't remember offhand exactly what the details are. I can probably go back and do some research on that. Maybe Stu could fill you in on that.

Mr. Hinnefeld: This is Stu Hinnefeld. I should mention I'm conflicted at Fernald but have an authorization from the Office of Ethics to work with the Advisory Board on this petition and these resolutions.

My recollection of the origin of that content was, in certain portions of the Fernald database, the site would make a judgment about what solubility Class the person was exposed to, and put that. That was what was questioned, and do we know that's right?

And that doesn't relate to our dose reconstruction approach, because when we do a dose reconstruction approach, we do, you know, all the potential solubility classes, and the one that's most claimant-favorable is the one we use. And so we make no judgment. And so any judgement the site made about solubility wasn't relevant.

With respect to proving that the data is good in the database, and I don't know that there is a particularly good way to do that absent the hard copy records, which I'm pretty sure not retained; they were kept in like a lab notebook or something, and even then it would be pretty laborious; but I'm pretty sure those were not retained since the data was what was considered in the record.

I will say that the bioassay laboratory was tested many times during the '80s, and including even before the DOELAP laboratory accreditation program, and it performed quite well each time. So, other than that, I don't know what else we can offer.

Member Richardson: So, the first point that you raised had to do with my question about the coworker data and this issue the solubility and intake route.

Mr. Hinnefeld: Correct.

Member Richardson: The second question about the concern of the integrity of the hard copy bioassay data, as raised by the petitioner, you're saying in fact the hard copy data have not been retained at all and so --

Mr. Hinnefeld: Well, I'm guessing that the original hard copy data would be in a laboratory notebook. The chemist in the laboratory and whatever they kept in their notebook. Now, that was quickly transposed in what was considered the record. And I don't think those lab notebooks were retained. I don't think we've encountered those.

Member Richardson: And so the basis for the original concern by the petitioner about the integrity of the

hard copy bioassay data, do you know what the foundation for that concern was?

Mr. Hinnefeld: Give me a minute. I think historically there was -- or, at some point, there developed a certain distrust towards the management. I think employees weren't terrible informed early on.

Even when I started rad worker training, it was really cursory and there wasn't a lot explained. And so I think there was a lot of room for doubt and, "yeah, you tell me it's good but what do I know about it?" And there wasn't a lot of serious discussion with people about it, it was just kind of like, "don't worry about it, trust us." And I think that gave rise to the suspicion, but I don't know that there was a particular observed reason for it.

Member Richardson: So there weren't -- because there's one suggestion of ways to assess this, which would be some sort of statistical approach looking for anomalies, which I agree would involve a lot of effort.

There's another direction that people sometimes take, which is was there a whistleblower case, is there documentary evidence that there was some concern about the quality of either hard copy or transcribed hard copy data that went into a database?

Mr. Hinnefeld: I don't -- when you're talking about whistleblower, you would be talking about insider, a person who's in a position to know that. I worked in the lab, and I don't remember anything like that. When I got there in the '80s, the people in the lab, as far as I know, did their work and wrote down the results. And I don't know of anyone ever raising concerns from the lab.

Member Richardson: Thanks.

Mr. Katz: Other questions in the room?

(Simultaneous speaking.)

Mr. Katz: Go ahead. Or maybe, Andy, do you want to pipe up first?

Member Anderson: Yeah, sure. I mean, it's kind of a monumental thing to close this out after all these years and it's kind of the question I have is, where does it go from here?

I mean, there seems to be a number of things in abeyance and other issues that could be impacted as the program continues in other areas, so what's the plan to go back, or how would we know whether something needs to be re-looked? I mean, we closed down --

Mr. Hinnefeld: Well, the item in abeyance about the coworker study was a variation in how sensor data are used, right? Sensor data or non-detect bioassay data. And the way it's used at Fernald is actually slightly more claimant-favorable than the way we say we're going to use it.

And so, for that reason, we didn't go off and re-do the entire coworker data set, because it's a huge data set. We said this is favorable, okay, we can live with that. So, you know, we didn't -- there is no immediate plans for that.

In terms of the other resolutions, the Site Profile issues, there will be changes to how dose reconstruction -- the guidance for dose reconstruction and the subsequent Program Evaluation Report to reconsider cases that could have been affected by those changes that were not compensable when the dose reconstruction was done.

Member Anderson: Okay.

Mr. Katz: Right. And let me just translate that. So, with PERs, when we do a Program Evaluation Report, the Board then looks at that report to see that everything was done in accordance with how it was expected to be done. So that gets reviewed at that point.

Brad, do you want to say something?

Member Clawson: Yeah, I was just going to mention that, what Stu just said. Because after this, actually, SC&A will review also the process and submit to us that all of the agreements that we have made on there have been put into the Site Profile. Or the TBD.

Member Anderson: Okay.

Mr. Katz: Thank you.

Member Anderson: Lots of moving parts

Mr. Katz: Yes. David, did you have another question?

Member Richardson: Yeah. And thank you for your patience with me, because it seems like some of these issues you've talked about for a decade.

The recycled uranium issue, I was wondering if you could help me to understand the significance of assumptions about the plutonium level within the recycled uranium. And you've settled on what you're calling a nominal ten ppb level for plutonium, and it sounds like there was a lot of discussion about how you settled there.

When I'm talking about kind of the implications of this, two things I guess I'm wondering about is, there were other values, like the 95th percentile, the distribution, which is substantially higher than ten. If you would translate that into dose to specific organs, what would the implications be there?

Mr. Stiver: Actually, basically you're looking -- originally we had agreed on a hundred parts per billion. There was the -- I think that was based on the ten parts per billion specification with basically a factor of ten added on for uncertainty, which is kind of a common practice in a lot of different aspects of health physics.

NIOSH had agreed to that basically because they had already done dose reconstructions in the past, so it

was going to be an administrative thing to carry it through. And after the SEC passed and it became a situation, from 1961 to '72 is within the SEC. So the only place this would ever come into occurrence would be for skin, prostate, or for less than 250 days of exposure.

And so it becomes an issue for partial dose reconstruction. And so we have a ten part per billion specification, but we don't know what data in that enormous set in Appendix F, I believe it is, of the DOE 2000, which is the Ohio Field Office report that was put together for a period of about ten months, a tremendous effort. And there's a lot of data in there, but we don't know the timeframe for any of that.

And we thought we had a handle on it. We thought we could use that lot ID code to identify the timing of it. And so we went through an exercise, Bob Barton did a great job on that, and went through and in using that code, came out with a distribution. And so, wait a second, this is way higher than ten parts per billion, the 95th percentile is more like 100.

And so NIOSH went back and then did more analysis and Stu gave a really good breakdown of that at the August 10th meeting. And it turns out that some of those codes you can identify dates, but other times it's used for other aspects. And so you don't really know.

So there's really no solid way to build a distribution. So all we're stuck with, we're left with this ten. Ten parts per billion.

And so, how do you put some uncertainty limit on it? Should it be two, should it be a factor of three, should it be a factor of ten? You just don't know. You're getting off into the realm of conjecture.

And so, since it's no longer an SEC issue, we thought, we kind of came to the conclusion that this is the only number out there we can really hang our hat on. And if we put out an uncertainty factor without any basis for it, I think it's going to be subjective. There's no

way to really quantify that.

And so that's why we wound up settling on the ten as being the reasonable best estimate.

Member Richardson: And you're hanging your hat on the ten because it's the geometric mean of --

Mr. Stiver: It was a production specification. Most of this material came out of Hanford at the time. And most of it was below ten parts per billion. It was the Group 6, I believe, in the DOE field office report. I mean, we talked about this for years.

Member Richardson: Yeah.

Mr. Stiver: You're coming in at the last minute part of all this, so I understand the confusion.

Member Richardson: And in terms of the impacted organs from an intake under different assumptions, now you're not talking about the key target organs for plutonium, you're not talking about the impact on the lung, for example, or liver. Well, perhaps liver. You're thinking--

Mr. Stiver: Yeah, liver bounds --

Member Richardson: -- about other cancers which would not be covered, is that correct?

Mr. Stiver: Well, it would be other cancers. Basically skin, prostate would be the two that wouldn't be covered. But then also, if a guy has a claim and he's less than 250 days during that time period, it could be for any organ.

Member Richardson: Right. Right.

Mr. Stiver: So there would be a tenfold reduction in the dose from that plutonium presumed in that particular source term and exposure scenario. From what it was said on before, which would have been the 100. That was actually our last bone of contention for recycled uranium. It carried through until this month.

Member Richardson: And could you help me once more to understand why there is no -- because in fact you did calculate standard deviation along with the geometric mean from the data that you had, but you believe that it was a mixture of distributions?

Mr. Stiver: Well, the thing is, we thought we had the Rosetta Stone to identify the timing. And based on that approach, put together a distribution. But it turns out that's not a good distribution because it includes -- we don't know that -- well, actually, we have a pretty good idea that it doesn't actually -- all those data are not from 1961 to '73. Or to '72.

So there was really no way to identify "this particular set of data come from this timeframe." If we knew that, we could develop a distribution, we could do all the statistics on it, and be very comfortable with the result. But we don't have that.

Member Richardson: And the concern is that you have data that come from outside that period and that's where these outliers come from?

Mr. Stiver: Possibly.

Member Richardson: Because you have some observed values which are substantially higher than ten.

Mr. Stiver: Yes. If you use the lot ID sequence approach, which has turned out to not be valid. So, we thought we had a handle on it, but it turns out we don't.

Member Richardson: But, again, the problem with using all the available information and generating a standard deviation, regardless of lot ID, what is the problem there?

Mr. Stiver: The problem is you're taking data from a different timeframe when there was more contamination coming in and wrapping it back in to the earlier time period.

Member Richardson: And not wanting to say, in the absence of information, a claimant-favorable approach would be to use the 95th percentile, the distribution from the observed data?

Mr. Stiver: Well, the thing is, we know that the highly contaminated material didn't start arriving until 1973. So, we have a higher value based on the most highly contaminated situation and the workers who were involved in that. And that came out to be the 400 parts per billion. Basically, continuous exposure at 400 parts per billion. We know most of them didn't get that, but we don't know who was involved in these different sub-projects that would have possibly entailed those exposures.

So, to take that data and use it to generate a distribution for the earlier period just doesn't make any sense to us.

Member Richardson: Okay.

Mr. Katz: Okay, thank you. How about our Board Members on the line, do we have any?

Member Ziemer: This is Ziemer. I don't have any questions. I was on the Work Group, so I've gone through all these things, but I do want to thank John for his presentation. He covered a vast amount of data, and a vast amount of work in that Work Group, in a very concise way. It made it seem like a lot, but very well done, John, we appreciate it.

Mr. Stiver: Thank you. I appreciate that, Paul.

Mr. Katz: Thank you, Paul. All right, then, if there are no other questions, what we have here, then, is a recommendation from the Work Group for the Board to accept its Site Profile review. And since it's coming from a Work Group it doesn't require a second.

If there isn't any other discussion left, then we can move to vote. So, I'll just run down the line alphabetically. Anderson?

Member Anderson: Yes.

Mr. Katz: Beach?

Member Beach: Yes.

Mr. Katz: Clawson?

Member Clawson: Yes.

Mr. Katz: Field?

Member Field: Yes.

Mr. Katz: Kotelchuck?

Member Kotelchuck: Yes.

Mr. Katz: Dr. Lockey is recused, not in the room. Dr. Richardson?

Member Richardson: Yes.

Mr. Katz: Roessler?

Member Roessler: Yes.

Mr. Katz: Schofield?

Member Schofield: Yes.

Mr. Katz: Valerio?

Member Valerio: Yes.

Mr. Katz: And Ziemer?

Member Ziemer: Yes.

Mr. Katz: Right, in all in favor, it's unanimous, the motion passes and the Site Profile review is accepted.

And, again, congratulations and thank you for this quite remarkable amount of work.

Mr. Stiver: Thank you.

Mr. Katz: And this takes us to our break period. We're just a couple minutes early.

Please be back on time because we're dealing with an SEC session, and so we need to get started pronto. That's what the petitioners would expect. And that will be Sandia, I believe. Thank you.

(Whereupon, the above-entitled matter went off the record at 10:11 a.m. and resumed at 10:31 a.m.)

Mr. Katz: All right, so, now we are back in business on the Sandia SEC petition. And let me welcome Chuck Nelson from NIOSH, who's doing the presenting here.

Mr. Nelson: Thank you, Ted.

Mr. Katz: And is the lead investigator for NIOSH. Thank you.

Mr. Nelson: How is everybody doing? Can you hear me okay there on the telephone line?

Member Ziemer: Yes, very clear.

Mr. Katz: Okay.

Member Roessler: Very good, thank you.

Sandia National Laboratory Petition #188

Mr. Nelson: Thank you. Like Ted said, my name is Chuck Nelson. I'm the lead health physicists for the Sandia National Lab. And what I'd like to talk about today is a little history about Sandia with regard to the SEC petitions.

Originally, the petition qualified back in October 21st, 2011. And the petitioner proposed a Class which essentially included security guards, police officers, central alarm system operators for any area of Sandia and with a timeframe of January 1, '63 through May 21st, 2011.

And based on that, we did add a Class on February 21st, 2012, and it read as follows. "All personnel that worked in any area at Sandia National Lab in Albuquerque, New Mexico for the period from

January 1, 1949, through December 31, 1994." So we cut it off at 1994, expecting that the program had gotten better. And so at that point we continued our evaluation.

Now, the basis for the 1949 through 1994 SEC Class was that there was insufficient monitoring data and information to reconstruct internal doses for those years. And what we were lacking was internal program monitoring documentation, internal monitoring data, and process information.

We did conclude that we could reconstruct external doses, including medical X-rays that were performed onsite as a condition of employment.

Now, after that time period, we committed to evaluate and determine the Sandia monitoring program completeness. It's how sufficient it was, how appropriate it was for all of Sandia-Albuquerque population from that 1995 period through May 21st, 2011. And we would document those results in an addendum.

Now, for this current addendum we performed 17 interviews with 15 people. There were five security guards. We had seven health physics professional-type, whether they be internal dosimetrists, rad protection engineers, those type of people. We also interviewed industrial hygienists, a database manager, and a researcher.

Also performed during this time since the last SEC, we did seven site data captures. And during that time, we've captured 800 relevant documents, and now we have a total of 5,400 documents.

Things we looked at for this time period were internal memos. Those were actually pretty telling. Radiation work permits, radiologic surveys, incident reports, air monitoring data, internal dosimetry records, breathing zone monitoring -- so that would be like your personal monitoring for individuals -- your derived air concentration, DAC hour tracking. And also in the review we looked at the monitoring

program, data collection and availability, and the programs compliance with the requirements.

We looked at DOE's Noncompliance Tracking System, how the site responded to it, any items that they identified through that system, and any corrective actions taken. We did the same for the Occurrence Reporting and Processing System. That's ORPS. And we looked at the sites internal assessments and procedures.

Now, based on all the review that we did, we are proposing a Class extension in this addendum, and it reads as follows: "All employees that worked in any area of Sandia National Lab in Albuquerque, New Mexico, during the period from January 1, 1995 through December 31, 1996."

And there are really twofold reasons of why we proposed this Class extension. And there were internal monitoring program concerns, which I'll go into some details here in a moment on that, as well as air monitoring data deficiencies.

Now, a little history about their internal monitoring program. Really, the internal monitoring program for Sandia didn't begin to be very formalized until about 1993. At that time, they hired internal dosimetrists and people with more expertise and internal dosimetry. And it's very evident when you look at their internal memos and documentation that things were done previously on an ad hoc basis; then, now, during this time, the program scene would be getting better and better. But it took a little while for that to happen.

They established their first interim internal dosimetry policy in December of 1993. And like I said, we were seeing the internal dosimetry progressing with continual development and improvement.

So, in this 1995 and '96 time period, we saw changes in the monitoring approach, we saw a lot of procedures being developed, and data was being collected and they were reviewing, they were actually

dealing with records better. They were reviewing them and putting them into more of a retention formalization, which it wasn't totally mature but we were seeing the evidence of that.

Now, internal monitoring program concerns. Documented program assessments, internal memos, and interviews conducted by NIOSH with Sandia employees revealed that really the staffing wasn't quite where it should be for the program development.

So, we were seeing the program getting better and better but we were also seeing some growing pains and the need for better staffing. And you'll see this over and over again. And it's the WebDose. That's their internal monitoring database. It wasn't fully functioning. So, that was as the case in previous evaluations. And it really was getting tough to try to get any records from them in an efficient and reliable manner.

One point of note is the internal dosimetry manager, we interviewed him, and we also, looking at some internal memos, he said that there were errors in data entry due to hand entry and lack of adequate personnel to enter the data into the database.

He said sometimes a rad tech would be in training, they would pull him out of training to manually enter this information in the database. And so we were seeing some issues with that when we requested some information from the site.

Okay, I mentioned previously about individual DAC-hour tracking. We did not find any official records during the '95 and '96 period. And we did see them -- it was procedurally required in 1997, and we did find that evidence.

This personal air monitoring, BZ monitoring, was not stored in the site's electronic monitoring database, which is this WebDose, for these years.

So, this all led us to the conclusions that during this

'95 and '96 time period, with regard to feasibility, that these uncertainties concerns associated with this changing internal monitoring program, it was very evidence during this time period.

And although we saw the site making several improvements, you know, by use of personal and area air monitoring, it did seem to lack the formalization in that we didn't find adequate evidence that some key implementing procedures were fully in place until mid-'96 and certainly by 1997.

And we judged air monitoring data insufficient due to a lack of required record retention and review procedures during this time period. And, again, we were seeing some issues with WebDose.

And based on this lack of data availability and internal monitoring program concerns, we have determined that dose reconstruction for this time period January 1, 1995 through December 31st, 1996 is not feasible.

Now, during this time period, there were 243 claims with employment. And of those 243, five claims had internal dosimetry data and 95 claims had external dosimetry data.

Now, this is kind of a standard slide here where we show feasibility. And we determine dose reconstruction, again, it's not feasible for all radionuclides from an internal standpoint. And, as previously, we concluded that external doses can reconstructed for beta, gamma, neutron, and occupational medical X-rays.

Some of these slides are a little redundant, but, again, the proposed class extension is "all employees that worked in any area of Sandia National Lab, Albuquerque, New Mexico during the period of January 1, 1995 through December 31st, 1996."

Again, as always, for partial dose reconstructions, if the individual doesn't fall under the SEC, if we had any internal monitoring data, we'll use that in order to complete a claim.

Okay, so, that covers the '95 and '96 period, which our addendum -- we added an SEC. So the question is, what about the '95 through the 2011? We are going to continue to evaluate and determine the monitoring program completeness. And what we ran into is, every time we get a copy of this WebDose from the site we find issues.

So, again, in May we got another version of their WebDose. We found some issues, they committed to getting back to us in September with some resolutions. They were confident that they could do that. And we also had received about 6,000 pages of air data that we want to go through so we can look at the field monitoring program. We expect to be done with the Evaluation Report addendum by the end of 2018.

I think that's it. Any questions?

Mr. Katz: Before we go to questions, Andy, do you have any remarks you want to make before we go to questions?

Member Anderson: No. I mean, the only thing would be our -- we did meet and we voted to support the addition. But we can get to that later, after questions.

Mr. Katz: Yeah. Right. Questions, Board Members in the room? David.

Member Richardson: You described the internal monitoring program as transitioning from bioassay to the use of personal and area air monitoring. Does that mean that they're transitioned away completely from bioassay monitoring?

Mr. Nelson: No. No, they still do bioassay monitoring, but they actually had a Dr. Skrabal come in and evaluate the program, and they determined that for, where there was some technology shortfalls, you need to start doing more personal air sampling for those radionuclides that are difficult to detect.

And so we saw evidence of that. They started merging in that direction. But, no, we still see bioassay at the site.

Member Richardson: And for the example of the feasibility findings for -- you said there was five claims from the period that had internal dosimetry data. By internal dosimetry data there do you mean personal air sampling or do you mean that those five had bioassay data?

Mr. Nelson: They had bioassay.

Member Richardson: Okay.

Mr. Nelson: Yeah, the only personal air sampling files we found is from a data capture during that timeframe in '95 and '96. We brought them back and we requested to the site, like we would any claim, "hey, for these individuals, send me everything that you have."

Well, what we got back didn't have anything to do with the personal air samples. Which was problematic for us.

Member Richardson: I see.

Mr. Katz: Do any of the Board Members on the line have questions for Chuck?

Member Roessler: No questions.

Mr. Katz: Thanks, Gen.

Member Ziemer: I have no questions. This is Ziemer.

Mr. Katz: Thanks, Paul.

Member Field: No questions.

Mr. Katz: Thanks, Bill. Andy, do you want to -- if we have no other questions, then, the Work Group did meet just a little more than a week ago, I think.

Member Anderson: Yes.

Mr. Katz: So, Andy, do you want to report on that?

Member Anderson: So, we met and we basically went through this presentation and I think asked many of the similar questions and raised the issue of, we really have not had a committee meeting because all of the proposals have continued to increase the size of the cohort for the SEC.

And we thought this, even though it was just a short period of time and we have a few questions about what was the reason for the cut-off that they chose on the upper end, when it really hasn't been determined when it's really been settled or is all the data there. And there's a commitment, again, to hopefully close this out. Probably not in time for the next Board meeting, but we thought their decision was an appropriate one, and the committee voted to add this, these years, to the SEC.

Mr. Katz: To recommend it. Before we get to that though, let's then go to the petitioner. I believe he was intending to be on the phone, so, do we have the petitioner on the line? For Sandia.

I'll give you a moment. Perhaps you're on mute?

Okay, I'm not hearing the petitioner. Although I was told he planned to attend, but perhaps just to listen. So, then, let's move on.

So, Andy has noted the Work Group is recommending the addition of this class for these two years. And since it's a recommendation from a Work Group, it doesn't require a second, just a vote. And if there are no other questions, we'll go on to the vote.

All right, we'll do this alphabetically again. We have several Board Members that are recused, I'll get to that when we go through them.

So, Andy?

Member Anderson: Yes.

Mr. Katz: And Josie?

Member Beach: Yes.

Mr. Katz: And Brad?

Member Clawson: Yes.

Mr. Katz: Bill?

Member Field: Yes.

Mr. Katz: David Kotelchuck?

Member Kotelchuck: Yes.

Mr. Katz: Jim Lockey?

Member Lockey: Yes.

Mr. Katz: Dr. Richardson? David.

Member Richardson: Yes.

Mr. Katz: Gen?

Member Roessler: Yes.

Mr. Katz: And then Mr. Schofield and Ms. Valerio are both recused. And Dr. Ziemer?

Member Ziemer: Yes.

Mr. Katz: Okay, and that makes it unanimous and the motion passes. And there will be a letter write-up. We don't have that letter write-up, but we'll get that to Board Members to copy-edit or what have you, and then we'll get that out from here. Thank you very much.

And that completes our sessions, I believe, for the morning. Yes, we're on to -- oh, I'm mistaken? No. Yes, so, we have a lunch break from 12:00 to 1:30 and then we'll have a Bomber for SEC petitions update. So, thank you everybody and we're adjourned for lunch. And we'll see you again at 1:30 Eastern Time.

(Whereupon, the above-entitled matter went off the

record at 10:50 a.m. and resumed at 1:30 p.m.)

Mr. Katz: So welcome back, everybody, to the Advisory Board on Radiation and Worker Health. Let me check and see about my Board Members on the line.

(Roll call)

Mr. Katz: Great, thanks, so we have all our Board Members here. Okay, I think we can go right into -- yes, I don't have any new faces in the room so I don't think I need to make any announcements about anything.

We can go right into SEC petition status update from LaVon Rutherford.

SEC Petition Status Update

Mr. Rutherford: Thanks, Ted. I'm LaVon Rutherford, I'm the Special Exposure Cohort health physics team leader for NIOSH and I'm going to give the SEC update.

We provide this update at every Advisory Board meeting and it lets the Advisory Board know petitions in qualification under evaluation and currently under Board review, and any potential 8314s we have.

Alright, to date we are up to 249 petitions. We have two petitions in the qualification process, we have three evaluations in progress at this time, and it says we have nine petitions with the Advisory Board, it's actually ten.

Okay, petitions in qualification, we have two petitions in qualification that are both for Clinton Engineering Works. The operational year is 1943 and 1949. All employees is one and the other one is all Roane Anderson employees.

The current Class Definition is for Tennessee Eastman employees, that's why we've received these two petitions.

Petitions under evaluation, Sandia National Lab, this is '97 to 2005. Chuck Nelson spoke earlier about '95 and '96 and the Board took action on that.

These are the remaining years and we anticipate completing that has Chuck had mentioned at the end of this year.

Lawrence Livermore National Lab is, again, a continuation of an existing petition. We added a Class up through 1989 and we are evaluating the 1990 to 2014 period under this petition. It's all employees.

We expect to have this addendum completed in May of next year. Superior Steel is an 8313 new petition that we received. We're well underway with our evaluation.

We do expect to have that completed in December. It may or may not be ready in time for the December Advisory Board Meeting and Ted is aware of that.

As I mentioned, we have ten Petition Evaluations that are at some various stage under Board review.

I didn't look at that password when you put it in earlier. Okay, I'm going to make sure I didn't miss something here, I thought I did.

Okay, we have ten Petition Evaluations that are under Advisory Board Review at various stages.

Hanford, we did have a little discussion about this at lunch and we are working on setting up a Work Group meeting to discuss the matrix.

We have been reviewing documentation to determine whether prime contractors' radiological control programs were meeting bioassay commitments.

Those might remember that the lower-tier contractors drove in SEC for the 1984 to 1990 period I believe.

Savannah River Site, we continue to work on

resolving issues raised by SC&A and the Work Group.

Los Alamos National Lab, we have been working on a White Paper that responds to SC&A's review of our addendum.

That report is actually just completed my review and it's headed to Jim's -- Dr. Neton's desk for final review and approval. So we expect to have that report out at the end of this month.

Again, Sandia National Lab Albuquerque, I think we've talked about that one enough. Idaho National Lab, I know we have it on the agenda tomorrow to discuss.

We have been working through issues in the Advisory Board's Work Group, identified by the Work Group and SC&A. Argonne National Lab West is with the Advisory Board and SC&A, as well.

Area IV Santa Susana, we had a couple of open issues that were raised by SC&A. We've been working to resolve those issues. I imagine Work Group updates when we get to those will get into a little more detail if needed.

Metals and Controls, there is a Work Group update scheduled for tomorrow that will be both the Work Group and NIOSH.

Member Beach: It's today.

Mr. Rutherford: Oh, is that today? Well, there you go. That's today, my bad.

The De Soto Avenue facility, that's tomorrow. See, I was looking at De Soto Avenue. De Soto Avenue facility is a new petition. We've recently completed that evaluation and we will be presenting that evaluation tomorrow.

This is just a table of the open petitions with some years awaiting a recommendation by the Advisory Board, and it's basically a summary of what I just presented.

And at this time, we have no 8314s, potential 8314s, to discuss, and that's about it. Questions?

Mr. Katz: Any questions from folks in the room?

Mr. Rutherford: You guys are awful easy on me since Dr. Melius is not here.

Board Work Session

Mr. Katz: How about my Board Members on the line, do you have any questions for LaVon? All right then, thank you, LaVon. Alright, we have a Board work session now, so let's do scheduling.

So the first item I have on there is we need a location for -- we have a Meeting December 12th and 13th of this year.

We need a location for it and so I've done what homework I could do on this matter and I can run through what I've thought about.

But my suggestion is LA because we have two SEC petitions open there, one may get -- and depending on how things go with SC&A, we have to talk to -- maybe put a priority on that if we're going to go with LA, but see how quickly we can do the SC&A review for the new petition if we end up tasking that.

And then we have NIOSH work underway, whether it's ready or not is also a question, but it may be ready in time. So, LA is, anyway, my first thought.

I'll just tell you about the other locations that I gave thought to and why I wouldn't recommend them first.

So, there's Albuquerque, we've been there recently twice and it seems very doubtful that we're going to have Sandia ready, with the Board ready on that in time for that meeting.

It's in relatively early December so that's why I didn't recommend it but I gave it thought. I gave thought to Augusta, Georgia, for Savannah River Site but SRS, things are not ready.

There are issues which we're going to pursue about, again, getting records and materials cleared, and so on, in a timely fashion from the site. But that's been a problem.

It's possible that the Carnegie SEC that LaVon just told you about would be ready but it's Pittsburgh and I don't know, Pittsburgh is a terrible weather spot at that time of year. So, that's not encouraging.

And then Idaho Falls, I thought about that because of the burial grounds work but, again, that time of year is a little bit questionable for weather.

So that's how I landed it at LA but I'm open to other thoughts, other locations from Board Members if you have those.

Member Beach: Sounds reasonable.

Member Anderson: Where in LA?

Mr. Katz: Well, I used to have more say in that than I do these days so it's the best we can do is what I would say.

Member Beach: Oakland is our normal spot.

Mr. Katz: Oakland is Northern California and the past places we've used because they were the easiest in terms of the airport were Manhattan Beach and Redondo Beach.

We've done both of those before and they're easy because it's easy to walk about and get your meals when you're not in the Board meeting and so on.

But I'm open to suggestions and maybe we'll chat with the Petitioner, I'll chat with the Petitioner later, if there are other thoughts about where might be good.

But anyway, I'll follow up on that and so let's go with that, LA for the next meeting.

Okay, then I need to also schedule dates out a year,

as we always do, and the next approximate timeframe is the week for a teleconference that we have for when we're scheduling would be June 24th, that week, the week of June 24th for teleconference.

I think June 24th is probably a Monday so Josie is suggesting Tuesday the 25th. Does that work with everyone in the room? That's going to be 11:00 a.m.

Is that okay with the three Board Members on the line too?

Member Roessler: It's okay with me.

Member Field: It's okay with me.

Mr. Katz: Paul? Okay, he may be on mute. Okay, so we may have lost Paul for the moment but June 25th, let's have that, then, for the teleconference.

Okay, and then the next in-person meeting approximate timeframe not surprisingly is around now, so August 19th is the week.

(Off mic comment)

Member Beach: I like fall vacations myself.

Mr. Katz: So we're talking about the week of August 19th. One of the difficulties is none of the summer months are great for the same reason.

July is terrible because we also have the 4th of July week which kills a lot of people's availability.

And we don't want to let five months run between meetings or then it's sort of hard to get our three meetings in.

Member Ziemer: I'm okay in August.

Member Roessler: I'm okay.

Mr. Katz: I think Paul said he's okay with August. I think it's just tough that August is about the right --

Member Anderson: But it's back to school.

Mr. Katz: Exactly, August 21st, August 22nd. Who's that from? Jenny.

So we can't hear this but apparently there's some background noise on the phone so I just would ask everyone but my Board Members to please mute your phones and if you don't have a mute button, press *6, that will mute your phone.

But some people are having a hard time hearing on the phone. So August 19th is a Monday so the 21st and 22nd would be Wednesday, Thursday. That's usually a good time of the week to do it.

Anybody have any trouble with the 21st and 22nd of August? Going once? Okay, 21st and 22nd of August. Great, thank you, and I'm sorry, I know it's hard.

Member Kotelchuck: It's not a problem for the rest of most of the Board.

Mr. Katz: Okay. So now we're onto Work Group and Subcommittee reports and this should go relatively quickly because a lot of Work Groups haven't --

Member Beach: On the 17th of April is that a call or a Board meeting?

Mr. Katz: That would be a Board Meeting.

Member Beach: Thanks.

Mr. Katz: So I'm going to run down the Work Groups and Subcommittees alphabetically. The first one is Ames, nothing new there. And Argonne East, Brad?

Member Clawson: We have had a Work Group meeting, we're proceeding forward with it. Nothing real new but we did meet.

Mr. Katz: The next one that doesn't have any activity, we have a new Chair I'll just announce I guess.

Dr. Roessler has agreed to be Chair for Blockson with

Wanda's retirement but we have no action on that. Brookhaven National Laboratory?

Member Beach: No change, we're still waiting for the updated TBD and it looks like we have a new status of January.

Mr. Katz: Thank you, and Carborundum, Gen?

Member Roessler: Yes, we just have Site Profile issues and NIOSH just finished a paper on the Monte Carlo calculations for the mixed uranium- plutonium fuel pellet work there.

That paper has been delivered through SC&A so that will take place I think and then NIOSH also said that they'll follow up soon with a paper that details the NIOSH resolution to all remaining Site Profile issues.

That paper is now in internal review.

Mr. Katz: Thank you, Gen. Dose Reconstruction Review Methods?

Member Kotelchuck: Well, we were talking about this earlier, we don't have a date set. A couple of us have responded.

There is at least one possible date available of the original choices and I urge the other Members of the Subcommittee to please respond quickly.

Mr. Katz: We are looking to a meeting in --

Member Kotelchuck: The Work Group to respond quickly.

Mr. Katz: -- meeting at the end of September. Thank you. Fernald, we've heard from today so I think that takes care of that. Grand Junction, Bill?

(No response)

I don't hear Bill. You're muted. We haven't had any Work Group activity on Grand Junction. I don't know what the coordination report says as to what's

coming next.

Do you have that, LaVon?

Mr. Rutherford: Yes, we recently updated the Site Profile, completing everything in May of this year.

Mr. Katz: So is that awaiting a second look or are we finished?

Mr. Rutherford: I believe we were finished.

Member Field: Okay, it's Bill. I just muted it and couldn't get back on. We wrapped that up I think.

Mr. Katz: Okay, so then we can retire the Work Group for the time being, correct?

Member Field: Yes.

Mr. Katz: Thank you. Hamburg, Brad?

Member Clawson: We've got a Work Group scheduled coming up to be able to go over the matrix. Part of the issue is that we've lost Sam and Chuck has taken up the work there.

And we've got the matrix that we've got to go over and get a path forward, and with the passing of Jim, I've just taken it up.

So we've got a Work Group I believe next month or in October. I think he said we would try to do it early October.

Mr. Katz: Thank you, Brad.

INL, okay, we have a presentation for INL, presentations that will update people not just on the SEC petition that's ready for potential action but also for the other petition and that's tomorrow.

Lawrence Berkeley? That's Paul.

Member Ziemer: Sorry, I was on mute. Well, the Work Group hasn't met. We do have now a document on assessing internal doses of alpha, beta, gamma

bioassays.

That document is with the Work Group. I think we're still awaiting some responses to SC&A comments on that, but in any event, probably if we're able to, the Work Group, we haven't had any meetings at all.

DCAS has got a lot of work going on at Lawrence Berkeley but we haven't actually looked at any of the documents at this point.

If we're able to maybe towards the end of the year, we can at least look at the ones that are available.

Mr. Katz: John Stiver, do you happen to know from the coordination report about what timeframe we have for that?

Mr. Stiver: We are waiting for NIOSH responses.

Mr. Katz: The ball is in NIOSH's court? Oh, I see, alright, I got that backwards. Thank you. Okay, so towards the end of the year, is that what we're saying?

Member Ziemer: I think that NIOSH is still responding to the White Paper on assessing internal dose from alpha, beta, and gamma bioassays.

So I think that's still in progress if I'm not mistaken. I don't know if Megan is on the line or who is handling that now for NIOSH? I don't know if Lara is still doing that one, is she?

Mr. Katz: Yes, so that's still underway. Let's see, where were we? Next we have LANL. Josie?

Member Beach: We heard from LaVon earlier. The Work Group is waiting for the White Paper to go through NIOSH and get to the Work Group and then we'll review that and schedule a Work Group Meeting.

Mr. Katz: And that's coming pretty soon I think, the paper?

Member Beach: Sounds that way, yes.

Mr. Katz: And then we'll have SC&A take a look at it too. Okay, Metals and Controls we'll have this afternoon. Mound, Josie?

Member Beach: We've pretty much wrapped up. Are we waiting for one more TBD? John, do you remember? The external, right?

So we should see that and SC&A is already scheduled to review that, correct?

Mr. Katz: Sure.

Member Beach: And then, John, this is for Stiver, I noticed SC&A was asking about doing some sampling on how the database is applied in practice.

Is that something we need to talk about as a Work Group?

Mr. Stiver: That was something we had earmarked earlier on.

Member Beach: So maybe in conjunction with your review we can discuss that?

Mr. Stiver: That would be a good time.

Mr. Katz: Yes, we should do that in the Work Group session. Very good, thanks, Josie. What about the test site, Brad?

Member Clawson: We had a Work Group in April of 2018, I believe it's with NIOSH on the whole-body ratio. The last I heard we were waiting for NTS.

Mr. Katz: Right, there's been some back and forth between staff on NTS for now quite some time. So it is moving forward. Oak Ridge National Lab, Gen?

Member Roessler: Okay, I have had no update from NIOSH or SC&A. The last thing that I think happened was we had the exotic radionuclide report from NIOSH, we received that in April.

My understanding is it's now under SC&A review.

That's all I know, so maybe if we have someone from SC&A or NIOSH who would like to comment, that would be good.

Mr. Katz: Can you come to the mic, please?

Member Roessler: That's the hot seat, Joe.

Mr. Fitzgerald: Joe Fitzgerald. Yes, we are fairly well through our review of Report 0090, which is exotic radionuclides X-10 ORNL.

We'd anticipate a response being prepared and ready by sometime late September, early October. So in another three or four weeks we should have it out through editing and into your hands and the Work Group's hands.

Mr. Katz: Okay, so, Gen, that sounds like you've given NIOSH time to read that and you read it later this year, November.

Member Roessler: Good, thanks, Joe.

Mr. Katz: Thank you, Joe. Okay, PPG we're going to hear from Jim on that. We addressed that in a previous Board meeting and Jim has done the follow-up on that.

So Portsmouth, Paducah, K-25?

Member Schofield: I think they're almost closed there. I can't think of anything that's still open on those.

Mr. Katz: So Chuck has just reported there's a neutron White Paper that's coming out in the next month or so on that. So we'll have SC&A take a look at that when that comes out, John Stiver, and then we'll have a Work Group.

So maybe this is also later this fall, October, November. Great, thank you. Sorry, I had to take some notes. Rocky Flats, David?

Member Kotelchuck: Right, Rocky Flats, nothing to

report.

Mr. Katz: Sandia, we're set on Sandia, we know where we are there. Santa Susana, also we'll be hearing about Santa Susana. Actually, we're hearing about DeSoto so Santa Susana, where are we with that?

Phil?

Member Schofield: We still have some items still open there.

Mr. Katz: And who is holding the ball?

Dr. Hughes: So we have a couple items open with the Work Group for the last Santa Susana petition and we're hoping to get this to the Work Group by the end of the year.

It's just been a time scheduling issue mostly to complete the couple White Papers and send them to the Work Group.

I hope to have them to the Work Group soon, within the next couple of months or so.

Mr. Katz: So that's two? You said a couple, is that correct?

Dr. Hughes: There were two issues, I'm not sure exactly how it's going to be presented to the Work Group. It might be wrapped up in one but the two issues will be addressed.

Mr. Katz: Okay. Thank you, Lara. Okay, SRS, Brad?

Member Clawson: Tim's been working on this. NIOSH has got the action and they've gone through a sampling plan. Right now we're having a little bit of trouble getting documents out of SRS.

But we're looking later on this year to be able to have a Work Group meeting, review the process.

Mr. Katz: Great, sounds like a busy fall for us.

Science issues, David?

Member Richardson: If you'll remember in the April meeting we had a presentation on DDREF, I think the outstanding issue in the short-term for us is there were peer-review comments provided to NIOSH.

And I think our next action item is for the group to get together after having looked at those peer-review comments and part of the presentation to wrap up a report on that topic.

But as Stu presented today, there's this other issue that there are a number of other organizations also working on this same topic.

And I believe the sense from NIOSH that was conveyed by Stu is that NIOSH is not intending to move quickly on this until those have happened as well.

But in terms of our own work, I think the next thing is to finalize a report on this, reviewing the peer review comments and incorporating what we found.

Mr. Katz: Tim?

Dr. Neton: I did put out a White Paper at the end of June, June 28th, that summarized our position on this and to a large extent, Stu summarized our thinking about the ongoing efforts.

But there are some other issues too, we thought, related to the assignment of DDREF less than one by the SENES people and that sort of thing.

It's a short read, seven, eight pages and I think the Work Group has it at this point. And we can probably look at that in addition to the peer review comments.

Mr. Katz: Right, okay, so you'll let me know, Dave, when the timeframe is right to set up a Work Group meeting. SEC issues, that's Andy but he's just inherited this Work Group so there's no report there.

Member Anderson: No, I don't have anything to

report.

Mr. Katz: There are several tidbits that need to come before that Work Group at some point.

Member Anderson: I don't think we have anything right now.

Mr. Katz: There's not any major --

(Simultaneous speaking.)

Member Anderson: We're waiting for some reports or I guess we're waiting to be told when NIOSH is ready to sit down with us.

Mr. Katz: Subcommittee on dose reconstruction, Dave?

Member Kotelchuck: First, just to note that we lost two senior Members to retirement, Wanda Munn and John Poston, who we talked about this morning and passed a resolution of thanks.

I'm happy to say that we have two new Members, Loretta Valerio and Jim Lockey, and we're back to work.

We met on July 24th and we finished the blinds that we had and we, amazingly, seemed to come to very near the end of our previous sets for dose reconstruction.

That is, there are some that are in progress, there are some that are with other Subcommittees. But basically, we are going to start working with audits and other things on the new set.

There's a good chance that we will not need a meeting, we'll not able to have a meeting until a lot more work is done, maybe towards the spring of this next year.

I was wondering, as Chair of the Subcommittee, in the past both Dr. Ziemer and Jim Melius had talked to me and others have said it would be nice to update

our report to the Secretary.

This appears to be a period in which there will be relatively little in terms of meetings. And I thought about it and I thought if I'm going to be asked to do it again, maybe this would be a good time.

And I would like to mention this to the Board to think about. Would you like me to do that? Is this an appropriate time? I'll be glad to.

Member Clawson: Yes.

Member Beach: I think I brought that up at the last Work Group meeting. I know I was saying it in jest but --

Member Kotelchuck: Yes, but I took it seriously.

Member Clawson: We figure if you're bored, by the time -- it should get there.

Member Kotelchuck: I'm never bored. There has to come a time and this is a nice break for me, such that I can devote attention to this and primarily it will be an update of the last report.

Mr. Katz: Yes, it has a nice new aspect to it because we've now reviewed a lot of blind, we didn't cover a lot of blinds in the last report knowing that we hadn't -- we were sort of midway with those.

So this is a good opportunity to have some emphasis on that, which we haven't really addressed in much detail in that report, I agree. And we may get to having more meat on the table for the Subcommittee a little sooner because we do have a set and it's going through the individual Board Member reviews presently this fall. And the quicker that gets wrapped up, the quicker we have more reviews ready for the Subcommittee, but thank you. That's a good idea.

Member Kotelchuck: I'll take a crack at it.

Mr. Katz: Right, and we have Rose to help us with the graphics and so on.

Member Kotelchuck: The graphics were a major contribution to the last report and I hope Rose will be able to do it or someone from SC&A.

Mr. Katz: Sure. Okay, Subcommittee on procedures review, we have a new chair. Josie?

Member Beach: Big shoes to fill there. I'm just getting my feet wet. I know that this afternoon, Dr. Neton, you're going to close out some outstanding issues. Well, you're on the schedule.

And then just briefly looking through the procedures, I mean, we have 60-plus that are closed. 55 or 25 that we have open issues on the procedures and around 28 that are in progress or in abeyance.

I've just been kind of going through the different procedures, I have a couple that I've seen that we have, the Work Group's never looked at that I will bring up at the next Work Group meeting.

Other than that, just wish me luck and hopefully lots of help from older Members.

Member Schofield: Did you refer to everybody as old?

Member Beach: Older.

Member Schofield: Oh, okay.

Mr. Katz: TBD-6000. Paul?

Member Ziemer: We have nothing active going on. The only sort of back-burner item right now we have for Joslyn, there is some older activity that needs to be completed. Right now I think the ball is in NIOSH's court to comment on some things relating to the MCNP library as far as the Joslyn site is concerned.

I think the latest thing I saw from Dave Allen was that NIOSH intends to have their comments out some time by the end of this year. So that's sort of a back-burner item. Otherwise, TBD-6000 hasn't met lately, so there are no action items.

Mr. Katz: Okay, thanks Paul. And then there's its sister Work Group, uranium-refining AWEs. Andy?

Member Anderson: We're just on hold right now.

Mr. Katz: On hold. And then, finally, there's the surrogate data. Paul has been chairing that, is now chairing that.

And that also hasn't met but it also has -- Paul, I don't know if you want to cover anything there?

It has an item, a small item to deal with, with -- I forget the site right now but there is a site for which the surrogate data issue -- I don't recall right now.

There's a site, we've been holding it, we've been waiting on that. It was a surrogate data issue that came up at the Board meeting actually and we referred it to the surrogate data Work Group but it hasn't actually taken it up.

Member Ziemer: Sorry, Ted, instead of the mute button --

Mr. Katz: It's okay.

Member Ziemer: I ended the call, I just had to dial back in, but -- so obviously I am new to this chairmanship, but I didn't hear what you had to say.

Mr. Katz: I was just saying, Paul, there is one site with a surrogate data issue. It came up as part of the SEC -- as part of the maybe Site Profile review.

Dr. Melius brought it up and thought that the surrogate matter should be looked at for that site, not that he had great concern about it. And we've had it on the burner, and I don't recall the site.

Member Ziemer: Okay, we need to track that down then.

Dr. Neton: This is Jim. I think it's the one that was Dow Chemical, maybe --

Mr. Katz: Dow Chemical.

Dr. Neton: -- in California. No, not Madison.

Member Ziemer: Not Madison I don't think.

Dr. Neton: It's a facility that was based out of California and did some early pilot plant work with extractions and there was a radon issue there, and I think Dr. Melius raised a concern about sufficient accuracy of the radon values that we used.

I think in that particular case we actually used the radon from one -- that old TIB that had the Florida phosphate industry stuff that we couldn't use because of the ventilation rates.

And so I wrote a response to that quite a while ago, and no action has been taken since then. It's a very small piece, maybe three pages long.

Mr. Katz: Right. So I'll -- Paul, I will unearth that report from Dr. Neton and send that to you. Maybe we can set up a -- it should be a brief Work Group call for that.

Member Ziemer: Right, sounds good.

Member Kotelchuck: That wasn't the blind case with -- I think it was, and I'm very glad to hear that a report was done and please CC me on that.

Mr. Katz: I'll do that.

Member Kotelchuck: Send it to me. Thank you.

Mr. Katz: I'll do that.

Dr. Neton: I think what happened there is this came up in a blind review, and Dr. Kotelchuck spoke to Dr. Melius about the issue who then was concerned enough to forward it on to the surrogate data issues for consideration.

Member Kotelchuck: Very good, I'm so glad that's done. I really would like to close that.

Mr. Katz: So I'll do that, I'll take care of that follow-up.

Member Beach: And, Ted, I forgot to mention we do have a Subcommittee Meeting scheduled for October 31st, just for the record, for Procedures Subcommittee.

Mr. Katz: Right, right.

Member Beach: I didn't mention it during the report.

Mr. Katz: Thank you. That's what I was thinking of when we were trying to figure out when we had already scheduled the other Work Group, but yes.

Okay, that takes us through all of our Work Groups. And I believe -- oh, no, so last but not least we have April public comments which I can run through for you all if you want to follow along. You received two documents for that.

There's the summary document, and then there's a document with all of the transcript, related transcript. The summary document's really adequate for this purpose here. I don't think any of these are hard to follow.

So we have a -- there was a comment on -- I'll take you through from Page 1 on, there was a comment on Portsmouth where I addressed that comment in person at the Meeting, so that's taken care of.

For Fernald, there were a couple comments, and those have been handled by Stu, one related to different practices at Fernald in the past, and Stu is aware -- the program is aware of those practices and accommodates us with its DR methods.

The second related to DOE's external exposure limit being high, too high to be protective, as the commenter put it, and, again, Stu explained that that limit doesn't really relate to what has to be done to do the dose reconstructions.

And we had several comments related to Dr. Melius,

then we had a Rocky Flats comment about Petitioners not being allowed to go through records, certain records, access to them. LaVon has handled that directly with the commenter.

We had a general comment about CLL, and we've addressed that. And then we go on to Sandia, and we had several comments about Sandia, this is Albuquerque. And these are going to be addressed in the final addendum you will receive on Sandia at the end of the year.

Let's see, okay, and then there were also comments you might recall about how long will it take to get certain information out of Sandia. But that bridge has been crossed since, and those records are -- and we've gotten those records from Sandia so that we're no longer hung up there. Then we had comments related to Pinellas.

I addressed them in real time at the Meeting, and there was also a comment by the same commenter about job titles being used for dose reconstructions, and it was explained that we don't rely just on job title to make dose reconstruction decisions.

And then finally, there was another comment related to Rocky Flats related to documents the Board should have looked at, and the Board had those documents prior to their voting on Rocky Flats. And that was discussed with the commenter.

And that's it for the comments from April. Any questions?

Okay, then that takes us -- it's early, but I don't see any reason why we can't just carry on to the procedures reviews if we're ready to do that.

And then we can extend the break because we want to start the Metals and Controls at the proper time. But, Jim, if you're ready?

So this is a session on the procedure reviews. We dealt at the last prior Board Meeting or maybe it was

two Board Meetings ago, I'm not sure, about skin doses, various issues, and Jim is following up on those.

Procedures Reviews (Estimating Skin Doses) OTIP 17 (Findings 7 & 15) & Overarching Issue 9 (continued)

Mr. Hinnefeld: Ted, I'm not sure I'm going to be able to show this to Skype. I can show it to the room, but I'm not sure I'm going to be able to show it to Skype, but they are on the website if anybody's on the phone and is on our website.

Mr. Katz: So why don't we just identify these documents so that people can follow along as well as the Board Members.

Mr. Hinnefeld: It's called Procedures Review Presentation excerpt.

Mr. Katz: Right.

Dr. Neton just said excerpted previous presentation material, and that, you can find that under the procedures review session on the NIOSH website for people in the public who want to follow along with these.

They're not extensive either.

Dr. Neton: Right, I do not have a formal presentation. I thought I could cover these two simple issues, one not so simple but I thought I could verbalize our findings.

Just to refresh your memory, Ted did say that these are related to OTIB-17, the Procedure Review Committee's review of the interpretation of dosimetry data for assignment of shallow dose.

Back at the April 11, 2018 Board Meeting, Wanda Munn presented this presentation, and there were a couple questions raised on this presentation and a companion piece, which is overarching issue 9.

They're all related to skin dose, and we'll just cover them here at one time. I think there was like 15 issues that were raised by SC&A in their review, and the Procedures Review Subcommittee closed out all of them, but a question was raised on two findings, the closeout of Findings 7 and 15.

I believe David Richardson raised this question, and it had to do with Finding 7. That is our selection and calculation of the attenuation factor that protective clothing would afford over certain areas of the body. And I think this was specifically related to the protection factor for the genitals.

There was no quibble about the 4 millimeter thickness, but I think after reading several times the question, I think it had to do with the relative attenuation of undergarments versus like coveralls, that sort of thing.

And we went back and looked at this in some depth and went back and looked at three different sets of protective clothing, three different sets of clothing and did measurements and came out with the result that these values could range anywhere from 1 to 5 millimeters, and the density would be somewhere around 1.5 grams per cubic centimeter for both the undergarments and the protective outer clothing based on the fact that these are cotton garments.

We re-ran the calculations using the mean of the distribution of the values that we measured and came out with very similar results for two of the three nuclides that were listed in Table A1 of TIB-17.

That would be for strontium-90 and yttrium-91. What surprised us, though, was that the value for rhodium -- ruthenium -- rhodium -- ruthenium-106, rhodium-106 was different by about a factor of two. In other words, the attenuation factor would be 0.5 not 0.2 something that was reported in the TIB.

Remember, this TIB was written back in 2005. It's a fairly old TIB, and those values were run originally with VARSKIN. VARSKIN is a program that we use

to assess these correction factors.

It's a pretty well recognized industry standard for that calculation. And in the VARSKIN Version 3 we got a value of X and VARSKIN value -- Version 5 for ruthenium/rhodium gave us a factor of 2 difference.

So given that, we believe that it's appropriate to go back and revise Table A1, and so this finding really should not be closed at this time.

So we're going to go back and, in fact, we were in the process of revising TIB-17 before this happened and namely, that was to incorporate the new ICRP 116 dose conversion factors that had been put out some time ago.

So this is a good time for us to go back and look at this quite old procedure. So that was Finding 7, and Finding 15 was actually the same thing about the 4 millimeter thickness and the relative attenuation of the protective clothing that we measured.

So given that this procedure will be revised, it will be reopened, then, at the time it is revised, and I suggest the Procedures Work Group could take it up again at that time if that's acceptable.

So if there's any questions on that particular issue?

Member Richardson: You said that you went back and did some measurements?

Dr. Neton: We obtained representative samples, I don't want to say they're representative, samples of protective clothing of three different types.

Undergarments, coveralls, I guess, that sort of thing.

Member Richardson: Apparently my short term memory is terrible, but I recall one of the issues being the permeability of the undergarment, not just the thickness but the assumption that you had a perfectly impermeable undergarment.

Dr. Neton: I thought so when you were talking, but

I went back and reviewed the transcripts and that did not come through in the transcripts. If that's the issue, we did not evaluate that particular concern.

That could be taken up again I guess when we revise this procedure, but we reread the transcripts very closely, and it had to do, I thought, with the differential attenuation of the undergarment versus the --

Member Richardson: You don't remember the phrase perfectly impermeable underpant. Well, it sticks in my mind.

Dr. Neton: It was not just me, we had three, four people review it.

But I apologize if we misinterpreted your question then, but it's a good time because we're going to go back and revise it anyway, so we can take that issue up at that time.

Okay, that was two of the findings on TIB-17, and then let's skip over to the overarching issue 9, which are still both related to skin exposure.

The first one of these was Concern 1. If you remember, we had a model, and this is interesting, this is not related to TIB-17 necessarily.

It's related to a dose reconstruction review that was done for Blockson -- no, Bridgeport Brass, where the finding was that you did not incorporate a dose calculation for finely suspended material that would fall, drop down, and deposit on a person's skin and give them a dose from their exposure.

So we proposed in that Dose Reconstruction Subcommittee review a model for that, and at that point, I think they recognized this was probably an overarching issue, and it got transferred over to Procedures Review Subcommittee.

In that model for Bridgeport Brass, we came up with an estimate of 16 millirem per year to bare skin, a

pretty small level of exposure. And we resolved one question which had to do with -- we assumed the skin was only contaminated for eight hours per day, and then Dr. Kotelchuck raised the question as well, how do you know if people take a daily shower, could it not be more than that?

So we went back and looked at the Site Research Database and found about seven sites that did AWE work in the 1940s and 1950s, this is Atomic Weapons Employer work, which is what this was designed to cover.

And in each of those cases, showering at the workplace was the recommended practice. Now, that doesn't mean all facilities do that, but it seemed to be -- the health and safety laboratory would go in and make recommendations.

And for instance, Chapman Valve, they were very clear, these people need to wear protective clothing, shower at the end of the shift, that sort of thing.

So it certainly seemed to be the bulk of the evidence points to that, but I would say that we can't definitively prove all cases did that.

Now, having said that, I looked at this from a much broader perspective, and I'm a little bit concerned about what we're doing here. We're assigning, in the case of Bridgeport Brass, 16 millirem to the skin. If you go back and look at the -- and this is for uranium facilities, if you look at the skin exposure that we're assigning based purely on working with the uranium metal itself, the dose is almost 6 rem per year to each worker for every year at the 95th percentile, which we had assigned for workers.

So you've got this huge 6 rem dose that we're assigning, and we're sort of quibbling over here about whether it's 16 or maybe 32 millirem. I'm kind of questioning the value of this calculation. I'm not saying we're going to omit it but maybe couch it in somewhat better terms.

Also, on top of that, Bridgeport Brass actually wore dosimeters, so you could also question whether the dosimeter itself would become contaminated, and that in itself would have indirectly measured that exposure to the skin as well because the contamination would not just preferentially deposit on the head but possibly on the dosimeter.

So we're going to go back and take a look at that issue. I went back and looked at the original transcript, this is a lot of digging, going back; thank goodness for transcripts.

I went back and looked at the original transcripts, and these items were not really officially closed, they were listed as in abeyance, the reason being that we committed to writing this in some procedure somewhere.

Well, we didn't. There is no procedure. The only place this modeling exists is in the response to the Bridgeport Brass dose reconstruction review.

So we need to go back, we're going to incorporate this into TIB-17, discuss some of the broader issues that I mentioned about the sanity of assigning 16 millirem versus 6000 millirem to the workers and include that in the TIB-17 revision as well.

So, Josie -- I was going to maybe close these out. Well sorry we couldn't do that, we're just trying to be intellectually honest here and make sure we do the right job. So that's where we are with those two issues.

Okay, the last one is probably the most complicated to explain, at least in one part, but I'll give it a shot, and I don't think we're going to change this one unless I hear some compelling argument to the contrary, at least at this point.

SC&A raised a concern. In TIB-17 there's an approach that we prescribe for how to deal with localized skin contamination. That is contamination that is not distributed uniformly over the whole body.

And SC&A recognized that the risk models themselves were developed from whole-body exposure, the Hiroshima and Nagasaki survivors in particular were whole-body radiation.

So are these risk models really appropriate to assign that risk value, excess relative risk per sievert, to something less than whole-body radiation, a square centimeter of skin, the 14 percent of the body that is covered by your exposed skin, the head and the hands, that sort of thing.

So we actually prior to this had asked Oak Ridge Center for Risk Analysis to opine on this issue. And David Kocher, who you all know, he presented at the last Board Meeting I believe, in January of 2014 issued a review White Paper of this exact issue.

And he evaluated the three possible exposure conditions that can occur or three possible conditions that we need to reconstruct.

One is that a small area of the skin is contaminated, and we know that the contamination is exactly over where the skin cancer was located.

And that relates to -- and then the question is, is the excess relative risk per sievert for a whole-body exposure okay to use for that small irradiated skin?

And I think this was distributed to the full Board maybe a few weeks ago, Ted. So I'm not sure everyone's read it, so I'll go over it a little bit.

The idea that Kocher proposed, and I agree with it, is that if the excess relative risk is equal to the excess absolute risk over the baseline risk, if the excess absolute risk and the baseline risk are proportionate all over the body, then it's okay because you would multiply the numerator or denominator by some fraction of skin, 0.1, 0.5, that sort of thing.

And it cancels out, and it's okay to use the excess relative risk per sievert for whole-body radiation. That's based on one key assumption, that the

baseline risk and the excess absolute risk are uniform over the body.

And can we prove that? No. So that's an open-ended question.

You can evaluate a couple different scenarios where it may be claimant-favorable to do that if you're reconstructing dose for skin that is exposed usually because the UV exposure also causes skin cancer, which would drive the baseline risk up for those cancers.

Likewise, it may underestimate it if you have skin that's normally protected and you don't have -- the baseline risk might be lower.

So SENES looked at this or Oak Ridge Center for Risk Analysis looked at this in some detail and basically came to the conclusion that right now, there's not sufficient information to be able to weigh in one way or the other on those unique cases.

So we're using the whole-body radiation, and that's the best we have right now. That's the first situation.

The second situation is the skin cancer, the contamination you know was measured, and it was measured on the forearm, and the skin cancer was on the back.

In that case, clearly, the risk is zero unless there's bystander effects or something to that effect. So we would assign a zero value.

The third situation is the trickiest of all of them, and that is where you have a skin contamination, a known skin contamination, but you don't know where it was.

This kind of puzzled me a little bit because I didn't think we had ever used this before. It turns out that this was developed way back when for the Hanford facility where we had a hot particle issue.

And so you could have a situation where there were hot particles -- there's a probability of a hot particle

depositing on someone, environmentally I think this is where it originated, and you know there's a probability that it could deposit on the skin, it was never measured, and you have a skin cancer. So what's the risk associated with that?

Well, in this situation where you don't know if the skin was irradiated over the tumor or not, it falls into the realm of binomial distribution.

Let's take, for example, if you have 14 percent of your skin contaminated which would include your head and your forearms and your hands, that represents 14 percent of the skin.

If 14 percent were contaminated, but you didn't know where the tumor was, then the maximum dose would be -- we would assume, just like we did when we knew where it was, let's assume it was all over the 14 percent, that would be the maximum dose.

And that would happen 14 percent of the time. The other 86 percent of the time, the dose is 0.

So you would have a binomial distribution where we would have a spike, 86 percent, 0 dose, 14 percent, the maximum dose.

And in this case for the Bridgeport Brass, it was 16 millirem. Well, we don't have a binomial distribution in IREP. It doesn't exist.

So what was done was we developed this log-normal approximation of the binomial that SENES investigated in some detail in their White Paper, and concluded, correctly so, that the log-normal approximation of a binomial is a claimant-favorable thing to do.

Since this issue was raised, we have communicated with SENES, and they are actually in the process now of producing a binomial distribution test model for us to use in IREP to see, indeed, if what we're doing is definitely claimant-favorable and whether or not we might want to move forward in the future and have

the true binomial distribution for this situation. So that's all I have to say on that issue, unless there's any questions.

The third issue is a little bit complicated, and I hope I did it some justice. Any questions?

Mr. Katz: Any questions from Board Members on the phone?

Member Anderson: Just a quick, so back to the individual case reviews, I don't recall if I've ever been involved with any of the detailed reviews.

Do they know the exact site of the cancer, or is it just listed skin cancer?

Dr. Neton: No, we know where the skin cancer occurred, we don't know if the contamination was at that site or not.

(Simultaneous speaking.)

Member Anderson: -- location?

Dr. Neton: Yes, originally we went and searched through the database. I didn't see any cases where we used it and then it sort of popped out of the woodwork and I said, oh, yes, we did use it at the Hanford site.

And not a lot, I think a couple dozen times maybe, something like that, it's been used and it's exactly for this environmental, hot particles that were coming out of the stack at Hanford that we've used it for.

And we believe -- like I say, I'm very confident it's claimant-favorable what we're doing because this lognormal approximation really overestimates the upper dose quite a bit. But that's what we're doing.

Member Beach: So that didn't get used at INL? That's another area I would have thought maybe.

Dr. Neton: I'm not seeing it ever used at INL. Tim may know more than I do on this but --

Dr. Taulbee: This is Tim Taulbee. We haven't actually looked or pulled through IREP to see whether it has been used at Savannah River or INL.

Dr. Neton: Yes, we pulled out -- this model uses a certain GSD that you wouldn't encounter in most dose reconstructions. In fact, if I've got one square centimeter of skin contamination, the lognormal approximation has a GSD of 14.

So we just went through all the IREP runs and said, which ones have GSDs of 14? And at first we saw zero but then we realized they actually combined the environmental uncertainty with the dose and came out with a GSD of like 14.2 so that's why we missed it.

But it is being used, and again, we're committed to looking at the test version that SENES puts together to see how well this plays out for us.

Member Schofield: So how many sites do you expect this to be applied to? I mean, we also have Pacific Proving Grounds, we have NTS.

I guess we have to handle it on a case-by-case basis, that's sort of a cop-out but I really don't know. How likely is it that you have a known hot particle, airborne hot particle problem?

I guess that's the way I look at it and I know Hanford, they did have that in the early years but it could be applied at any place that you have a suspicion that that occurred.

We allow for other areas of the skin to be contaminated more than 1 centimeter.

It's based on the percentage of the skin that's contaminated and honestly, I don't think we would ever be using that because it's very unlikely if you had something in a worker's record that said he had 5000 DPM per 100 square centimeters of skin contamination without some reference as to where it was.

Usually, it comes with a full diagram of the body with measurements and that sort of thing. So the only unique situation I can think of is this hot particle problem, and that was the origin of it.

In fact, the example in TIB-17 clearly indicates that they had hot particles in mind to use this one but they did make it more general and allow for other than hot particles.

So I think the bottom line of all this, we're reopening TIB-17 and a couple of the issues are going to be fleshed out, refined for better detail.

And unless we see something really -- it's possible we could use a binomial but we're going to go back and verify and make sure that these things are claimant-favorable and see where we go from there.

Member Anderson: So any idea when SENES is going to complete their --

Dr. Neton: Probably not very long. I don't do computer programming. To me, everything is simple. It's just allowance for another distribution. We allow for lognormal, constant, normal, that sort of thing.

No one ever envisioned, at least when we started the program, that we would be using a binomial distribution.

Mr. Katz: Any other questions? Thanks, Jim.

And then we'll just -- John Stiver, we'll just have a focused review when they do come out with their new OTIB so you can look at how they've handled these matters.

Okay, we have a little bit of time before we have Metals and Controls at 3:30 p.m. So if someone has something else they want to do between now and then, I think we can be on break. And please just come on time for Metals and Controls. Thank you.

(Whereupon, the above-entitled matter went off the

record at 2:41 p.m. and resumed at 3:29 p.m.)

Mr. Katz: So welcome, everyone, back after our brief recess. So we have the Metals and Controls SEC petition that we're addressing with the rest of this afternoon and then public comment session.

Let me explain a little bit about how this will work. For Metals and Controls, the Work Group Chair will provide an update on the Work Group's activities.

Pete Darnell, are you on the phone line?

Mr. Darnell: Yes, Ted, I am.

Mr. Katz: Great, welcome.

And then, Pete, who is the lead at NIOSH for the SEC evaluation, he'll follow up and explain about follow-up actions related to the last Work Group Meeting and the work products that are out there and in the works.

And then after that, we'll have the SEC petitioners address us and I think I can say their names, since at least one, Mike Elliott, is here.

And Mike, that's your father, correct? Your brother. Oh, no relation. For real? Okay. So, the two Mr. Elliotts anyway will speak to us as petitioners and then after that, we'll go right into public comment session and I'll make some remarks about administrative matters related to that. .

And then if there are other members of the public in the room, they'll have the first opportunity to comment, particularly if they're addressing Metals and Controls, since that's the focus of this afternoon.

And if you are and you'd like to do that, then there's a signup sheet out front where members of the public can sign up. The petitioners don't need to sign up.

And then we'll take folks on the phone later and I'll address that. But let me just check on the line and make sure I have my other Board Members on the

line. So, Paul, Bill, and Gen, are you on the line?

Member Ziemer: I'm here.

Member Roessler: I'm here.

Member Field: I'm here too.

Mr. Katz: Super. Okay, then I think that takes care of it. With no further ado, Josie?

Metals and Controls Corp. SEC Petition #236 (Attleboro, MA, 1968-1997) Update

Member Beach: Thank you. Metals and Controls, we have met once last May, May 3rd, to be exact. This first slide, of course, covers the Work Group Members: Henry Anderson, myself, Dave Kotelchuck, and Loretta Valerio.

So, this is going to feel a little bit like I'm throwing the kitchen sink at you. During our first Work Group Meeting, we had an issues matrix which we covered. We had a nice presentation from SC&A.

It was actually our first Work Group meeting where we had our Work Group Members be able to comment on different issues that maybe didn't hit the matrix, and so you might see some of that.

And again, we'll follow up with where we're going from here. So if it feels like a lot, most of these were all discussed previously with some or a little bit of resolution, which I know Pete will cover in more depth. I'm just throwing it all out there.

So, the first issue is the internal exposure associated with the subsurface maintenance and re-purposing activities in Building 10.

This one was really important to me. Part of this, the petitioners talked about in that building a lot of floods. In my opinion, that washes down several potential unknown contamination issues down into those subsurface areas.

The Landauer Film Badge Dosimetry Reports were an incorrectly calculated annual 95th percentile external penetrating doses to workers in the residual period.

Those, if you have questions on them, again we'll have NIOSH online to follow up on some of these. NIOSH incorrectly calculated the 95th percentile beta skin dose to workers in the residual period.

And then we had the swipe data used in the model. The last two years of operation is what swipe data we're using.

So the Work Group questions the appropriateness of the survey locations included in the model and the overall representativeness of the data given that much of the -- this is one of mine.

When I went through and looked at all of them, it was hard to read them, a lot of them were illegible. I know SC&A went through them with a fine tooth and NIOSH was claimant favorable on how they reported those.

However, I still have questions about that swipe data based on their location and where they're going to be used for. So, more on that.

The Work Group also questioned how the model bounded exposures in the ceiling area near the rafters or the work pertaining to the roof penetrations for the HVAC maintenance.

That really wasn't addressed early on. So I know it's been noted and we'll see some more on that.

Okay, so issues continuing the distinction between the production and non-production workers, I question how that was defined in the ER and I understand the new ER that will be coming out at the end of the year should address that, according to NIOSH.

Methods used to calculate ingestion rate should be more consistent with other sites. That, if you were

listening in on the Work Group meeting, was covered.

SC&A questions using exposures, experienced by high-flux isotope reactor workers as supporting evidence to validating the valid bounding methods used. Again, that was talked about and I think we have a resolution on that one.

It may be inappropriate to use external dosimetry data collected during the last year of Atomic Weapons Employer, AWE, operations as the basis for bounding the external doses during the residual period.

And on the line, am I doing okay on this mic? Can you hear me all right?

Mr. Katz: Sounds good.

Member Field: Thank you.

Mr. Katz: I find myself drifting so I wanted to make sure. Okay, so Work Group Members' concerns, some of these came up at the Meeting, some of them were just listed in the matrix after our meeting.

So first one, how representative is volumetric contamination data from the drain line characterization to exposures experienced by maintenance workers?

The second one, it goes back to the available sample data, how it was analyzed with either the isotopic identification or gross alpha techniques. The use of such data, we're questioning if it's acceptable, the absence of isotopic analysis.

NIOSH assumes that the gross alpha activity is either all uranium or all thorium, whichever gives the higher PoC. The amount of time subsurface work was performed each year that one is a huge concern for me because I'm not sure if the workers were clearly heard.

I know we went out and talked to the workers but I don't know if it was really well-understood how many actual time was spent there so that's something I'm

going to keep a watch on, how that continues to manifest.

And SC&A proposed a filter dust loading value of one hour per year. I feel like that's low. I feel like I need to get more information from the workers in the HVAC unit.

One hour per year, to me it just depends on how much time, so I need some more clear idea of what was happening in those HVAC units.

When I read through the reports from the workers, it seemed like some workers were in there wiping down the inside of the those units, changing out filters, vacuuming. It just seems like an hour a year seems low. But I might be wrong.

So I need some clarity on that. NIOSH needs to demonstrate and back up their concerns using example dose reconstructions, applying assumptions and models being proposed with the information and the data that is available. That's pretty standard, we typically do that at each site.

And then NIOSH needs to confirm the adequacy and completeness of the data so we do have some more work ahead of us.

Okay, to follow along with Work Group Member concerns, work during the Metal and Controls residual period included renovations, demolitions, and extensive maintenance, all taking place without health physics support, training, or knowledge of radiological hazards for the entire Class period.

Second bullet, radiological exposure potential in sub-surface areas, drains, utility trenches and exterior areas. Some of this we've already mentioned, I'm just adding to it.

All previously mentioned activities have high potential for residual radioactivity. Workers were not monitored. The swipe samples NIOSH needs to use from late in the operation period do not represent --

Mr. Katz: Can you hold on one sec? Someone on the line is not muted. If you would all on the line mute your phones and press *6, if it's someone on hold they can't hear me talking right now is the trouble.

But if someone would go out, Nancy, can you ask him to go outside and cut the line that's on hold? Thanks.

It's bearable in the room but it may not be bearable for folks on the phone so, Paul, do we need to wait until that line is cut before proceeding?

Member Ziemer: Ted, it is pretty hard to hear.

Mr. Katz: It's hard to hear I think I heard so let's just wait a second. Sorry about that, everyone.

Let me just note again please don't put this call on hold at any point. If you need to leave the call, hang up and dial back in because you'll upset the call for everyone else trying to listen.

Alright, Josie, go ahead.

Member Beach: So right about the second bullet, if it's not clear, it should be clear to you that subsurface, utility trenches, and exterior areas -- I have a lot of questions about that area and how the swipe data is going to cover those workers in that time period.

So maintenance work performed on the roof with potential exposure to workers, it was not mentioned in the ER so there was penetrations through the roof, the roof had contamination on it.

Again, some of the workers claimed it took two to three months in a given year that they may be doing that type of work with no monitoring again, unknown levels of uranium and thorium in subsurface areas inside and outside areas.

So that, of course, is a key for me, combining and reducing all intrusive work activities, the roof work including rooftops, roof penetration work, roof line just under the roof deck, drains, utility trenches,

exterior soils to one month per year seems on the low side and that's my opinion on that one.

Petitioners' concerns, so the Petitioners, I know I've seen a couple of different letters before our Work Group meeting and then we got one after our Work Group meeting and so what I did was try to combine some of those.

I may have missed some, if I did, I know you guys will jump in and throw what may have been missed.

So petitioners' concerns: workers were untrained, unmonitored, and unaware of what they were being exposed to on a routine basis, working in sub-surface soils and drains, utility trenches, on roofs, and in the exterior areas.

I'm hoping you'll expand on that in some of the work that was being done and help us understand that process. Metals and Control workers use aggressive work practices coming in direct contact with source materials with no controls and no limit to exposures.

In 1982, they had surveys used to release the building interiors for unrestricted use. They were flawed and were limited in scope. There were no intrusive surveys done inside the drain lines, utility trenches, subsurface areas, overhead areas, exterior areas that served former AWE areas.

So a big note of concern there. The characterization surveys that were done in 1994 and 1995 showed the survey in 1982 missed considerable amounts of radioactive residual activity.

The 1992 survey, we're limited to formal burial sites and I believe workers were actually running lines through these burial sites with no monitoring during the residual period.

Estimation of one month duration of exposure per year is low, Metals and Controls maintenance workers should have been exposed to subsurface residual radiation sources.

Source materials require no excavation while snaking out plug drains, pulling wires through underground conduit, installing and repairing surface and subsurface utility trenches.

And I misspoke, they would have been exposed in that first sentence.

And lastly, in 1985, the survey failed to identify, detect, or quantify volume of buried debris or where the majority of the respirable radioactive contamination was found and does not represent likely exposures to maintenance and M&C maintenance workers, maintenance workers exposed in job descriptions not described accurately or left out completely.

And lastly, the ER lacks sufficient data to meet its own criteria of estimating the bounding dose to workers in a scientifically sound and claimant-favorable manner.

Last thing I want to say is this was an unusual sites with unusual scenarios that put workers in contact with radioactive materials in unmonitored, unknown levels of contamination for unknown periods of time.

I can't say it any better than that. It's a tough one and I know in SC&A's presentation, they mentioned it was a tough call to make and I still feel that way.

So that's all I have. Any questions?

Mr. Katz: Thanks, Josie. Before we go to questions, let's hear from Pete first and then we can take questions for both of you.

Pete has notes but he was going to speak from, I think, your slides so you might want to help him with the slides.

Pete, are you there? Maybe Pete's line was the one on hold that we cut. Pete Darnell, are you there?

Mr. Darnell: It's hard to figure out if you're on mute or not on mute.

Mr. Katz: I'm just jesting, Pete. We can hear you now.

Mr. Darnell: If you don't mind, I'd like to use Josie's slide presentation and I'll speak from each one of her slides.

Mr. Katz: Thanks and so Josie will switch the slides for you as you speak.

Member Beach: Which one do you want to start with?

Mr. Darnell: That would be your Slide 2. I'll tell you when to shift slides. To preface, it's true, we haven't met since May and a lot of work has been done.

And actually, during the May meeting, the meeting was mainly about SC&A's presentation so we didn't get a lot -- NIOSH didn't get a lot of information out about what was going on in their path forward.

So an overarching path forward that we have is that we published a White Paper on the sub-surface and repurposing exposure model. The Work Group is yet to talk about that and we're still waiting on review by SC&A.

NIOSH will continue to refine that model. We're also developing a second White Paper which will address some of Josie's concerns specifically about the Building 10 ceiling area on the roof in the HVAC system.

The planned completion date for that White Paper is December 2018. While that's going on, we're also revising the Metals and Controls Evaluation Report and that's planned for completion January 2019.

After that point is when, during the normal course of our procedures, we'll develop and present the example dose reconstruction. For bullet point A on slide 2, the Working Group met to discuss the White Paper.

We have recalculated point B, the external penetrating doses that is issued. This has yet to be

reviewed by the Working Group. Point C is the same thing with the beta doses, we've recalculated and are awaiting review.

Point B, the site data, NIOSH addressed the legibility of representativeness of the data legibility and that's coming out in the next publication of the issues matrix that is currently out in review by the Department of Energy.

As soon as we get that back, we'll get that posted to the website and get it ready for review by the Working Group.

Slide 3, please?

NIOSH ER revision defines local production workers in the construction and maintenance service organization, facilities organization, or production machine operators/helpers, and production and repair R&M organizations.

Those are workers within Buildings 4,5, and 10. These workers also perform sub-surface work in the area surrounding Building 10 from a rear area, metals recovery area, Building 11, railroad spur area, and Building 12 areas.

Those were all the workers that are going to be included in subsurface and roof models that we're currently working on.

The remaining workers, in other words, the admin people, the people that didn't do the hands-on work that had access to Buildings 4,5, and 10 will be considered non-production or administrative employees.

And again, as with anything that NIOSH is doing, we'll keep that under review and modify as we get new information.

Point B, NIOSH uses the TIB-9, Technical Information Bulletin 9, as the preferred approach. The basis for that concept is that ingestion is proportional to

contamination and contamination is proportional to airborne radioactivity.

We've addressed this issue previously in one of the Board's Procedures Subcommittee and it's part of overarching issue 2 that is mainly for the Board.

Bullet C, NIOSH agrees that the exposure personnel working in the HFIR is likely larger than exposures to covered personnel. We will delete or edit our comparisons or references cited by SC&A.

That's in the Site Research Database. Do you need me to quote the Site Research Database numbers or are my notes that you have good enough?

Mr. Katz: No, your notes are distributed, thanks, Pete.

Mr. Darnell: Okay. Point D, in the current approach NIOSH has not calculated minimal doses during the site residual period, making the ER conservative.

However, we do agree that the source term over time should complete these exposures and we're going to provide new calculations for that in the condition report to maintain agreement with the depletion of external doses.

Slide 4, please. At the May 3rd, 2018, meeting, the Working Group asked NIOSH to determine that volumetric contamination data taken from the drain line characterization, where it's representative of the exposure of experience by maintenance workers throughout the residual period.

SC&A stated that the use of the 95th percentile value from the sample data could accommodate the potential in any event higher contamination levels encountered that were missed by the characterization study.

The long way around is we've come to a preliminary agreement that the 95th percentile of the contamination in the highest priority lines, which is

representative of what the workers could have been exposed to.

And again, as with anything, NIOSH will continue to review and revise as we get more information.

Point B, in the published White Paper, and that's the paper that's on the website right now, we presented the method to model the exposures in distortion fields in the drains with both uranium and thorium exposures to maintenance workers.

And I hope you'll forgive my use of maintenance workers as a generic term. I'm really talking about all the people I discussed earlier.

Point C, during the interviews, both NIOSH and SC&A specifically asked experts about their occupancy rates and there's a host of site reference database documents and personnel interviews where this was discussed.

And again, there was a preliminary agreement of one-month occupancy rates. What that basically means is that a worker in the specific groups I talked about earlier would get the highest dose one month a year assigned at the 95th percentile.

But that's Point D, the dust-loading value discussed in the published White Paper compares favorably to that developed by SC&A and we will review and revise this as we get more information. E will be sample DRs I discussed earlier.

F, NIOSH considers the value of data available to characterize the sub-surface environment and determine that the information used from the first White Paper was adequate with use where appropriate layers of conservatism apply.

And we're going to continue to work on that as this information is reviewed, new information is found, or data is revised. NIOSH will continue to update that model.

Next slide, please. Bullets 1 through 3 and 5, NIOSH recognizes there was the lack of training in health physics support to the M&C workers and we've used this information in the development and revised of the working papers in the Evaluation Report.

We feel very strongly this is important information and that's why we are using it.

Let's see, bullet 4. NIOSH, again, addressed the subset that's been repurposing concerns with the White Paper that we're going to be reviewing soon. Slide 6, please.

Again, point A, NIOSH recognizes lack of training and adequate support. Point B, during the interviews, we've discussed specifically about the work practices and soil conditions.

We asked very specific questions about that with the guys who did the work and that information is documented in the Site Research Database document.

We used that to develop the revision to the evaluation of the report in both White Papers. Point C, not to belabor the point but we had published a White Paper. That paper does not rely upon the 1982 decommissioning surveys. That was a sticking point and issue and we are addressing that.

Point D, we did use decommissioning surveys to develop part of the ER and part of the bounding, but we used that information along with D&D levels, successful contamination levels, and a host of other factors to come up with the boundings.

It's not just one thing or one factor that gave us the bounding dose. I feel like I'm not saying that very well. I'm sorry if it's not coming across. Slide 7, please.

Bullets 1, 2, and 4. NIOSH considered the data available to test drive the environment and other work environments.

We've determined that the information used in the first White Paper, which is the one that's published, was adequate for use with appropriate layers of conservatism applied.

We used characterization data from 1982, '92, '94, '95 to develop sub-surface internal and external models. We're currently developing the White Paper for the ceiling access.

Again, as we get more information, as we learn more of these models, they will be revised and fine-tuned.

Point B, again, we did ask the workers during the interviews about occupancy rates and we were very specific and pointed in asking how long they will work there, what was the longest amount of time they worked there in each of these areas. And that's documented in the SRDB and we used this to determine that one-month occupancy rate.

Slide 8, please. NIOSH considered the data that characterized the subsurface environment and other work environment. We use the information in the first White Paper, the one that's published.

We feel that it's appropriate for use with a conservative -- where conservatism is applied. I'm sorry, I'm losing my breath a little bit.

Again, we also use characterization data from 1982, 1992, and 1994 to 1995 to develop surface internal and external numbers. We're currently developing the worker ceiling exposures.

Finally, bullets 2 and 3, this is information that we plan to include in the revision to the Evaluation Report. And I think that concludes it for me.

Mr. Katz: Okay, thank you, Pete. So first matter, then, do we have questions for Pete and Josie from the room? Board Members?

Member Lockey: Josie, one question. There was a survey in 1982, 1985, 1992, 1994, 1995. Any

remediation after doing those surveys or not?

Member Beach: I'm probably not the best one to speak to that. I know they tried to clear the building with the '82. Does anybody have more information? NIOSH?

I know SC&A -- there was just different periods they were trying to get rid of their license or because they weren't doing the work anymore.

I believe that was the '82 survey and I guess if you have the answer or John Stiver?

Mr. Darnell: I couldn't hear the question, I apologize.

Member Lockey: So, Jim, the question was there was a survey in '82, '85, '92, and '94 and '95. So after those surveys, was there any additional remediation done?

Member Beach: Yes.

Mr. Darnell: Yes, there was.

Member Beach: From my limited knowledge on it, it kept getting larger and larger based on those surveys.

So the '82 survey, and Mike, I guess if you had some more to add to that, you were there, if that's appropriate.

Mr. Elliott: Good afternoon. Mike Elliott with the petitioners, former employees at M&C. I was there from '83 --

Mr. Katz: Can you pull the mic closer to you? Thanks.

Mr. Elliott: I apologize. I worked at M&C Attleboro site from 1983 to 2011. 1982 as you correctly pointed out in your speech was the final characterization surveys of the HFRI, high-flux isotope reactor area, which was a portion, the northwest portion, of Building 10.

And that resulted and also extended into some surveys of the adjacent buildings as well, 3,4, and 10. That resulted in the NRC releasing the building interiors for unrestricted use.

The 1985 survey was specific to the former burial site between Building 11 and 12. That was conducted by ORISE at the request of NRC, I believe,

or DOE and that was just to try to get a sense of how much contamination remained in the former burial site, low-level nuclear burial site. So that was '85.

'92 was also the burial site. There was both an initial characterization survey in '92 and then subsequently, there was a final clearance survey which also was checked by ORISE.

That was, again, just the burial site, what we knew at the time to be the burial site. As you correctly pointed out Ms. Beach, we knew then that we had not found the margins. The contamination extended well beyond the area that we excavated but we stopped at that time.

And then '94 to '95 were comprehensive site characterization surveys with intrusive borings in 10-meter grids going down approximately six feet at each location and collecting samples at depth and trying to put together some systematic -- there were both walk-over surveys of the entire site as well as systematic surveys, intrusive surveys, into the soils in which we analyzed the soil samples using the gross alpha screening technique.

And I'll talk about that during my comments later.

Mr. Katz: Thank you, Mike. Other questions for Josie or Pete or Mike? Other questions for the Board Members who went before or Board Members on the line?

Member Ziemer: This is Ziemer. I have one question. I assume that there will be written responses, or there are already?

Mr. Katz: Paul, his notes I did circulate already to the Board Members.

Member Ziemer: Were those the ones that were with the Board notice that you sent out? I guess I missed that one.

Mr. Katz: Yes, Pete's notes are in one of those installments.

Member Beach: I think it was the fourth installment.

Mr. Katz: David?

Member Richardson: This is just a question about clarity of the timing of materials. There's a White Paper which we received and there's the presentation of issues that are of concern to the Working Group.

It doesn't seem like any of the issues presented are with regards to the White Paper. Is that correct?

Member Beach: When I was writing the slides, I had a really difficult time because we have a matrix but it's very limited in nature in my opinion and we brought more issues to the Work Group meeting but we didn't really the time, like Pete said, to address those.

And they did worker interviews, which I was not part of and said that there were certain things that were decided based on worker interviews, which I find to be flawed.

So I'm not sure moving forward if we need to do more expansive worker interviews, the time limit on the subsurface work is one of them, the roof work.

So, to me, it seems like it was a foregone conclusion that it was done before we actually had a Work Group meeting. So, we're trying to build from that, if that makes any sense.

Dr. Neton: This is Jim Neton. I think what happened is when we issued that initial White Paper, the original ER that I presented about a year ago now I

think had some flaws in it.

We used the surface contamination values and came out with our traditional TIB-70 resuspension model and Mr. Elliot pointed out during that Meeting and others that we need to consider these volumetric issues, what we've determined to be the subsurface exposure model.

And after that presentation, we went back and NIOSH developed a subsurface exposure model which is the one that's posted on our website now.

Unfortunately, the meeting that we had on May 3rd never really got to review that subsurface model. People started coming up with additional concerns and issues that were related to the rafters and the roof, and that sort of thing.

And we're working on that piece now. That's an additional piece of that but I think what we need to do is go back and have SC&A issue a formal review of that first model and we recognize that there are some issues there, but that needs to be done and then we can move forward with this with Part 2.

Mr. Katz: And just to fill in the gap then there, Jim, that's underway. I've spoken with SC&A and they're working on getting that done by mid-September so that we can keep everything moving forward at a reasonable pace.

So far, I haven't heard that's not feasible. I think they're aiming to get that done and out by mid-September and then you guys can look at that and then we can have a Work Group meeting even to address that piece while we going forward with the other work underway.

Member Beach: And I think it would be nice to actually update the matrix that captures these legitimate concerns in a cohesive way. It's hard to piecemeal out the actual issues in my opinion. So that would be nice if we had that done too.

Dr. Neton: I think Pete indicated he has updated that matrix and it's at the Department of Energy for review right now. And as soon as it's releasable we'll forward it out.

Mr. Katz: Right, and I gather it reflects some of the responses to that we don't have in the record right now. Jim?

Member Lockey: Jim, one question in the surveys were surveys after '82 about subsurface contamination potential. Any additional surveys inside the buildings after '82?

Dr. Neton: Pete might know this better but, yes, originally, we just had survey data of the surfaces and it's correct that there was volumetric contamination of the drainpipes and such, and we used the data from those surveys to construct what's called the subsurface exposure model.

We took a 95th percentile of the volumetric contamination values and used that to establish what the potential exposure to the maintenance and other workers that were doing repurposing activities and whatnot at the site to address their exposures.

So we went beyond using the surface smear data and we used the data that was determined during these additional site characterization efforts.

Member Lockey: And these surveys of the rafters and things like that?

Dr. Neton: That's what we're working on, that's the second White Paper and I don't know that we have surveys of the rafters. I know we're working on a position on that.

We've got the HVAC system, you've got the rafters, you've got other materials. And that's still yet to be addressed.

Member Lockey: So that's the second phase?

Dr. Neton: That's the second phase, right.

Mr. Katz: David?

Member Kotelchuck: Jim, how could the borings in the soil tell you what was inside the drainpipes?

Dr. Neton: Actually, I think they surveyed the pipes to some extent, they actually took samples out of the pipes and measured them. These were not borings samples, these were in the building.

There's borings that were taken around the site, that's a different -- and we have a model for that as well for the general site characterization data.

But the volumetric contamination of the pipes was actually assayed.

Mr. Katz: Other questions for Board Members or on the phone? Board Members?

Dr. Mauro: Ted, this is John Mauro. I just wanted to jump in and ask a question for clarification.

I am right now working on reviewing the White Paper which deals with sub-surface exposures during maintenance and repurposing both within Building 10 and outdoors, the very major issues that I know are before us.

In doing that, I'm right in the middle of that right now, it's within the context that White Paper falls within the context of what I would call a compendium of material.

What I mean by that is in addition to the White Paper, there were other exchanges of information that went back and forth, questions, answers, memos. That was part of, I would say, the record.

Some of it was informal and there were certainly issues that emerged that go well beyond just the subsurface exposures.

So my question to everyone here on the Board that would help me is, I could prepare what I would call a narrowly-defined review where I directly go to the

White Paper and look at the specific subsurface models, assumptions, and data that we use to evaluate internal doses to workers that were doing the maintenance and repurposing activities in the 1970s and 1980s using the available data that's primarily collected in the 1990s.

Now, there are many other issues, for example, external exposures to the people in the subsurface environment doing these activities. Of course, you've just mentioned the rafters, an issue that was not addressed at all quantitatively by the team.

So, I guess my question is, my deliverable to the Work Group, should I keep that very narrowly focused and explicitly address point by point the approach, methods, assumptions that are in the White Paper?

Or should I more broadly present the compendium of material that was exchanged and the issues that are on the table and have been discussed and are part and partial to the story that's emerging before us?

Mr. Katz: John, I think I can answer that for everyone because NIOSH is yet to be able to address the rest, for example, the rafters work.

They have another White Paper in the works for that and so it really wouldn't be appropriate for you to be digging into that until you see what they proposed.

Dr. Mauro: I agree with that.

I guess I was more interested in the external exposure to subsurface environment and some of the material where that has been exchanged, the number of papers.

And I don't want to go into detail, that went back and forth and it established context within which the White Paper --

Mr. Katz: So, John, this is really not a great venue for working this out but I would suggest you do is

send us a little brief email and discuss what it is, the questions you might have that you think perhaps go beyond the scope of the review you're doing right now so that NIOSH can have a chance to address whether that's already getting addressed.

If it's not, then raising questions about those things is great, but if they're already addressing that, then there's no point you digging into matters that they're already going to be answering.

Dr. Mauro: Very good, I'll take care of that.

Mr. Katz: So, if you do that as soon as possible, I'll get that both to the Work Group and to NIOSH and we can get answers and you can get extra direction if you need it.

Dr. Mauro: Very good, I'll get that out right away.

Mr. Katz: Thank you, John. Okay, I think now we're ready to hear from the Elliotts. I don't know which one of you wants to go first but however you would like it.

We're glad you were able to join us for this meeting. We really appreciate it.

Mr. John Elliott: Thank you for the opportunity to address this board. I will take less than three minutes of your time.

My name is John Elliot, I am one of the original people who filed a written affidavit in support of the petition, as well as having participated in the NIOSH interview process conducted October 2017 in Mansfield, Mass.

I suffer from chronic myeloid leukemia, a cancer that is often associated with radiation exposure. I am on chemotherapy every single day, presumably for the rest of my life. Daily chemo comes not without its significant side effects.

Additionally, should my medical coverage change, Medicare, Medicaid, and a meager stipend from Texas Instruments, this chemotherapy would cost

me approximately $100,000 per year.

I am an unfortunate victim, an example of the hazards to which I and others were exposed. At no time was I ever warned of potential exposures. At no time was I ever monitored for potential exposures.

A great wrong was committed against myself and others who held positions similar to mine. It is not overstating the fact to say you can correct this injustice for a limited group of people to correct the mistake that was made by not including us.

As for myself, I began my career at M&C TI in 1969. As I'm sure you are aware from my affidavit, I do have a copy if anyone would want a copy, I held a variety of positions during my 34-plus years which exposed me to significant amounts of radiation. Building 10, pipefitting; snaking out drain lines; repairing, replacing below-grade contaminated pipe; excavating the surrounding contaminated soil; installing services through, at, and on the roofline; many penetrations through the roof; blowing off dust on the beams and enabling us to attach hangers and run pipe, hang pipe; repairing running services through Building 10, the utility trenches; and as well as contaminated exterior areas surrounding Building 10, 11, and 12.

It's amazing to think how incredibly often we actually did this type of work. These tasks were done with a very significant amount of -- a great regularity, very high frequency. It was demanding, it was physically aggressive work that always generated localized cloud dusts and showers of dust.

And I can recall very vividly many times, more than once daily, taking a shop air gun and blowing off the dust off of ourselves just to kind of do a quick cleanup.

You only have to review my affidavit, once again, to take greater note of the many exposures to which I and others were subjected. With no warning, no monitoring, no controls, no respirators, very little

PPE. I thank you for your review, your careful review of this matter.

Mr. Katz: Thank you, Mr. Elliott. Mike.

Mr. Michael Elliott: Thank you again, and good afternoon to Members of the Board, and really appreciate you coming out here to Providence to give us a chance to meet you in person. Much better than chatting over the phone.

One thing I wanted to address, the gentleman down here, it might have been you, sir, yeah, asked a question about why we did the or how we had the measurements on the contamination in the Building 10 drains and duct. And he was absolutely correct. There were actual samples collected.

I think there were approximately 15 samples collected from the drain. So that they ran, first of all they did some type of, you know, instrument was run through the lines where they could get through the lines. Some of the lines were completely blocked. And they took beta/gamma measurements.

And then in the area where there were some higher concentrations, they collected actual samples of the sediment. Also, there were some samples of the surrounding soils around some of the lines that we ended up digging up.

So the reason why we did that survey, it was, I believe it was August 1995 when we did that sampling of the drain lines, was because, you know, we had gone back into the interior areas, we found there was still elevated contamination in areas that had been released for unrestricted use.

And so we started doing some pilot remediation and finding that as we went down, as we dropped our meters down the drain holes, the concentrations were going up. Well, first we thought it might be just geometry or something. But lo and behold, it was a real mother lode of highly enriched uranium.

At that point, Westin was on board as our primary health physics group, and they really got very anxious and were concerned that if we started disturbing this stuff during our remediation, we could cause materials to accumulate as sufficient quantities in the presence of water in certain geometries, that we might actually cause a criticality event.

So the reason why we did that survey was to, primarily to eliminate the possibility that we were going to cause a criticality event. So we only did isotopic measurements for uranium, thinking, you know, I guess that was -- I'm not a health physicist, I need to make that clear.

But my understanding was the health physicists were only concerned about uranium at that point because they were, they wanted to make sure that it was not fissile material that might result in a criticality event. We did not do isotopic, in retrospect I regret this, but we did not do isotopic sampling for, or analysis for thorium.

And that would be one of my questions to NIOSH, is how, you know, I can understand in places where we have gross alpha screening measurements, they might do their magic with their dose assessment modeling. But how do you do that in the drains, for example, where we only have isotopic uranium concentrations? We do not know how much thorium was present.

And those were by far the highest uranium concentrations we encountered anywhere on site were in those drains. Same drains that John Elliott described in his affidavit that he was snaking out and in some cases excavating.

And I think one of the reasons for the confusion during the worker interviews was when we were asked, you know, how much time did we spend doing that kind of work. I think most of the workers were thinking, well, how much time do we actually spend cutting open the floor and excavating out pieces of drain line or excavating out conduit, not thinking

that, really, their exposures were occurring during these non-intrusive events as well. Like John would get called on numerous occasions to clean out a drain line.

So you know, I think that the work interviews, you know, I really, I do not want to in any way suggest that they weren't done thoroughly. And I have the greatest respect for Peter Darnell, for Pat McCloskey, for Dr. Mauro, and the young woman whose name eludes me at the moment but was there with Dr. Mauro. They did a great job.

But you know, sometimes hindsight is 20/20, and I don't think we necessarily understood all the questions exactly the way that they were going to be used later on. So if it's okay, I will dive into my prepared comments.

I'd like to commend Dr. Mauro and his team at SC&A for their honest assessment at the May third Work Group meeting that this Petition Evaluation is complicated by unusual circumstances. And it's a stretch to say the bounding dose of this Class of employees can be estimated in a scientifically sound and claimant favorable manner.

I'm somewhat paraphrasing what I believe I heard Dr. Mauro say. The Chair of the M&C Work Group, Ms. Josie Beach, has done a great job listing many of the uncertainties and questions that remain.

One additional technical consideration worthy of note that I would like to bring to your attention today concerns the gross alpha screening technique that we relied on extensively for the 1994 and '95 systematic characterization surveys, and which SC&A has used in developing their estimate of the bounding dose.

This novel method, in 1994, was tailored to our decommissioning project by our health physicist at the time, CPS, in that timeframe, circa 1994, to quickly and cost-effectively screen soils to determine if they were above or below the cleanup criteria of 30 picocuries per gram.

The correlation curve that was based on a dozen or so samples that ranged in concentration from a low of ten picocuries per gram to a high of a couple hundred picocuries per gram was what they used to establish to the NRC that that method was adequate for our purposes in determining whether or not we had met our cleanup criteria.

Even in that narrow range, we found that the screening results for samples below 30 picocuries per gram were biased high. So we were actually probably excavating and disposing of more material than we needed to. And the results for samples above 30 picocuries per gram were biased low.

But that didn't really bother us, because we knew we were going to be digging that stuff up anyway. This is probably due to the fact that the sample prep was not ideal within this screening method. A bulk sample was dried, sieved, and deposited on a petri dish at a certain thickness, you know, before being placed over an alpha detector instrument.

There was no attempt to plate out an infinitesimally thin layer of homogenous sample on a slide, as I understand is the preferred method for alpha spectroscopy. This likely resulted in significantly high internal shielding by surrounding soil grains, causing the low bias at the higher concentrations.

And who is to say how much bias there might have been at the higher activity concentrations, such as what we encountered in the building interior subsurface soils samples or elsewhere.

The gross alpha screening technique was designed primarily to help us determine the limits of excavation, not to accurately characterize the site-specific conditions of the source term. I would posit that it is inappropriate to use this data as the basis of modeling doses to employees who were exposed to this source term.

The one area where we did perform isotopic uranium analysis, the Building 10 floor drains, exhibited the

highest concentrations observed anywhere across the site. Lacking any isotopic thorium analysis, which we now know was likely also present, who knows what we might have found for a source term in that location?

This begs the question that had we used a more accurate isotopic analytical method, rather than the gross alpha screening technique for the systematic characterization surveys, what impact might that have had on the source term characterizations?

My point is that no matter where you turn in this evaluation, there is no end to the uncertainty. And by extension, I believe we can have no confidence in the model. There is no reliable source term characterization on which to base the bounding dose to this group of workers.

Against the backdrop of all this uncertainty, here's what we know for certain. Workers in this Class came in intimate contact with sources of radioactive materials originating during the atomic weapons period that were released in an uncontrolled manner into subsurface drains, subsurface soils, utility trenches, exterior soils where waste was managed, and overhead areas of the building interiors, onto the roofs of the buildings that housed the nuclear operations, and into the pockets and recesses of certain pieces of manufacturing equipment.

The residual contamination went undetected, unmonitored, and uncontrolled for over 20 years. Recall that we excavated close to 600,000 cubic feet post-1992 of contaminated soil and debris during that 1992-96 decommissioning project.

As we have heard in the affidavits supporting this petition, like my colleague John Elliott, in worker interviews last October, and again today during the public comment period, and I believe you'll be hearing from my colleague Daryl Hanlin later, the work performed by facilities constructions services and equipment R&M maintenance workers involved physically aggressive work practices that most

certainly disturbed the radioactive sources and resulted in localized dust clouds of contaminated material.

By nature, these maintenance work practices were non-routine, and by that I'm not talking about the frequency. I'm saying in terms of the physical activities were non-routine. It was completely unlike the routine work practices that would be performed by trained radiation workers in the controlled manufacturing areas where personnel exposure measurements had historically been performed.

There is no comparison between these two Classes of workers. By extension, any historical exposure monitoring of workers in the nuclear manufacturing areas is not comparable to that which was later experienced by the members of this Class under evaluation.

The workers in this Class received no awareness training about the hazards to which they were exposed. They received no monitoring of their exposures, and there were no administrative or engineering controls in place to limit their exposures.

Since there were no measurements or controls and the work was by its very nature non-routine, remember I said that's the physical activities, not the frequency, we have no way to estimate the resuspension factor for the materials disturbed in the course of performing their work tasks.

Recall that the resuspension factor is one of the essential elements of the model that NIOSH and SC&A have relied upon for estimating internal dose in the subsurfaces, which I presume is the topic of that White Paper that I just saw for the first time today.

In reference to the regulatory requirement of how NIOSH is to evaluate a petition for adding a Class of employees to be recognized under the SEC, as articulated at 42 CFR 83.13, paragraphs (c)(3), and I quote, If it is not feasible to estimate with sufficient

accuracy radiation doses from members of the Class, as provided under paragraph (c)(1) of this section, and as I'm sure you know, paragraph (c)(1) requires access to sufficient information to estimate the maximum radiation dose that could have been incurred by any member of the Class, then NIOSH must determine, as required by statute, emphasis added, that there is a reasonable likelihood that such radiation dose may have endangered the health of the members of the Class.

When I read this regulatory citation and I reflect on all the uncertainties and gaps in the information used to estimate the bounding dose for this Class of workers, lack of adequate source term characterization, incomplete knowledge of the nature, frequency, and duration of jobs performed in intimate contact with the source terms, a complete absence of any measurement or monitoring of the workers who are the subject of this petition, it seems clear to me that this is a scenario in which NIOSH must determine, as required by statute, that this Class of employees should be added as a new Class recognized under the Special Exposure Cohort.

In light of these realities, I can only hope that the Advisory Board will exercise its duty to pass along its recommendation to the Secretary of Health and Human Services to designate this Class as an addition to the SEC.

Thank you again for the opportunity to testify before the Board today.

Public Comment

Mr. Katz: Thank you, Mike. Board Members, do you have questions for Mike while we have him? Or on the line? Okay, then. Thank you very much, Mr. Elliott.

I think what we'll do now is go into the public comment session. Before I do that, let me just make a few administrative notes for people so they understand how this operates.

First of all, if you're in the room right now, we don't have enough people in the room that we really need you to go out and sign up if you haven't already signed up. But Nancy, could you get the signup sheet so that I have that.

So for your public comments, just understand this, and then we'll take people on the phone after we've addressed everyone who's in the room. So people on the phone, and we'll start with people on the phone who want to address Metals and Controls, in case there are any of those on the phone, and then we'll go on to other topics as we have time.

These Board meetings are all transcribed verbatim, so that everything you say is captured and published. And I just, you need to understand the exception to that is that if you discuss other individuals than yourself, their privacy we'll protect. So, because they're not here to tell us that they are okay with you talking about them. Even if they're family members, it doesn't matter.

So just understand that we'll redact enough information to protect their privacy. It's not that you can't discuss other individuals, it's just that we'll redact enough information so that their privacy's protected in the record that's published for this. And these, the transcripts for these meetings are all published on the NIOSH website for everybody to read.

So understanding that, then let's go to public comments. And then I'll start with public comments in the room. Let me just see. So, sir, Daryl, did you sign? Oh, yeah, you're already actually on here, so you can go first, yeah. Please identify yourself on the front end of your comments.

Mr. Hanlin: My name is Daryl Hanlin. I worked at Texas Instruments, the M&C plant, in Attleboro from 1975 until about 2002. I worked in the Facilities Group with Mike and John Elliott, in fact, I worked for John Elliott. And I had dual purpose also. I'm an electrician but I also, John asked me to develop a

safety program within the facilities organization so that we could handle things safely.

I would like to reiterate what John what John said, is that we were never, ever told about anything about radioactivity. Anything that we did, it was never any monitoring ever whatsoever.

When I first started, I'll tell you a brief story. I can laugh at it now, but I can tell you this. In 1977, I was hired into Building 10, and I was sent to go look for a wooden pallet. And so, as I'm going along the loading dock, not even realizing where the radioactive stuff was, and I walked along the loading.

And there's this big door open and I see a pallet, and I walk into there. And I'm heading over to the pallet, and the next thing I know I have a shotgun aimed at me and telling me hold my hands up.

I'm like holding my hands up, and then I had a bunch of individuals coming in the doorway that I came in with every jacket, every law enforcement thing. And they had guns on me. And I'm like, what did I do. So I don't know why that 1977, when it was all cleared up. But you know, I lived that, and they let me take the skid, so that's a little story for you.

So yes, I would like to reiterate and go through some of the things that, operations that we did. Now, I also was doing our facility safety. I was a training facilitator, so I wrote and established procedures and we tried our best to work with the OSHA regulations and incorporate them into our training. We did heavily train them, but we never had anything for radiation.

But for myself, I'll digress a little bit. I can remember having to, well, we had a flagpole out in Building 12, and I was tasked, my job was to bring power out to the flagpole and set up some lights. So I went from in the boiler room in Building 12, and then I hand-dug the trench, which I only found out this weekend that Mike told me that that was the main burial site.

So I hand-dug that trench and I laid all the pipes. And it took me several days to go from the boiler room to get outside. It was a lot of work. I was in the soil, I'm covered in it. I now realize I brought that home to my kids and it went into the laundry and everything else.

And you know, I can't even say I washed my hands. I might have sat out, because I was so dirty, I don't think I went in, I just ate outside. So I don't think I washed my hands. Now, I'm just thinking it was dirt, not a problem. Hindsight now, it worries me.

I do have two heart conditions. I have a pacemaker and I had to A fib, which I had a procedure done on, but it may come back. I also now have a problem with my adrenal glands, and I'm working with my doctors on that. So I'm hoping it's not going to get any more serious, but the exposures were there.

So yes, hired into Building 10, worked all around the site. Yes, we were one of those, myself included. I made penetrations through the rooftop in Building 10. We ran pipes from one location to another. Also, I don't think anyone mentioned that, they talked about the trestles and everything else.

But you know, there were electrical bus duct that was run throughout this whole plant. And you know, so it'd be yea high and about yea wide, and it had, you know, electrical bus bar. You'd slide a little window and you'd put these big switches on, the bus switch on there. And then you'd just plug them in and, you know, you run your pipe from there.

Well, those bus ducts were loaded with dust. We were frequently putting stuff on top of them, or if you had to go take an old switch out, you kind of like just blow it off with your face, you know, just push it away with your fingers and your hands.

You know, we didn't wear dust masks. For one, it was too hot. And so you'd just try to hold your breath and work as you may. But you'd get constantly covered with dirt, dust. Well, now we know it's,

there's radioactive particles included in there, which is a concern.

But this is stuff we did on a daily basis all the time, where we had lifts, we had our own lifts and then we rented lifts as well. So we had Genie booms and bucket lifts, and that's the kind of work we did. So we're always up in the ceiling, we're always creating dust, very aggressive.

I mean, you'd have some two-inch or four-inch pipe. You'd either have to cut out and pull it down, you're creating all kinds of dust, you're pulling these things out on the floor. We'd have to pull wires through the floor as well, take all the old stuff and trench in the floors in different places all over the site, including outside.

Like I remember, again, back in, we did some trenching on that same main burial site on Building 12, that flag location I was talking about, flagpole location. So there was numerous of us there.

Now, you may have had, and I will read, you may have had some testimony previous. This is first time of testifying. But we ran, when we had a brand new credit union built, we ran power and security lines, data lines and everything else through all the buildings, from Building 1, which was the furthest most point, into Building 12, through Building 10, through Building 4, all the way down to the outer portion of the site which had the new credit union that was built.

And so we had manholes that it went into, and we would pump out the water all the time. And we'd get down into the pits. We'd get covered in water all the time, you know. You'd be putting a vacuum on there to get it started and just, you know, stuff happens. And when you pull the wires, it creates a vacuum thrust anyways, and more water comes into the manhole while you're trying to work.

So we're constantly getting dirty and wet and trying to do our jobs. And there was numerous manholes.

What we did was just pump out the water onto the topsoil or grass or whatever was, you know, we just had to get it away from us.

And so those are just some of the tasks. And I forget how long it took us to do that, but it was quite a challenge to go through every building, cable trays, some pipe work and installing pipework and digging up the floor. Opening some, they had some trenches in the floor that had removable covers and stuff as well.

So, and that was another thing now. We, putting power, we made capacity for the plant to do different. We were always moving around because it was different products that were always coming on line. And we made capacity for those. Hence, we had to cut old stuff out and put new stuff in.

But some of the other things for power, we'd find a height, a ceiling height and put in cable trays. While we're trying to clamp the cable trays to support them, we constantly had dust. It was a constant thing, so you're rubbing up against everything. You'd cut into a wall so you could pass through from one building, like Building 4 into Building 10. And those are the kind of things.

Now, otherwise, we tried to use existing cable trays that are up there. Again, loaded with dust.

One of the projects I had in Building 10, and there were several of us working on it, and it took months to do this, but we had old, old, old fluorescent lighting and some metal arc lighting. It's kind of something you used to see in parking lots, but.

Well, they had layers upon layers of dust on them. So what we did first is we tried to install a track lighting, a large track lighting system. And then afterwards, we went down and we cut down all of the fixtures. And I'm telling you, they had sometimes three to four inches worth of dust caked up on top of them. That was in Building 10.

Now, we had no idea that this was contaminated in any way, shape, or form. Now, it was a dust storm when we did that. It was literally everywhere. John mentioned about, you know, shop air, and that's true.

We used to, we'd get so, we'd just use the shop air and blow our clothes off. But sometimes you'd do like spurts of it just to get it collected on the floor, and then you'd sweep. And it's always a plume.

And so you never could do a cleanup. We wouldn't release that. I realize now we actually should have been treated kind of like an asbestos removal. We would capsulate and then remove, that would have been a better program. But we weren't aware of that.

So I can emphasize, again, that, you know, it was a lot trench work. For instance, so I did a lot of training for all the facilities groups. But I can only train for what we were aware of. So even the grounds crew. So you know, they'd go out and they'd dig the soil up and plant trees and stuff like that.

And you know, they're mowing the lawn. Well, that, all the contaminated area, the lawn mower sucks up dust and blows it out while they're cutting, right. So that's some of the things they had exposures to that as well. I don't know how you calculate, but these are some of the work processes and some of the work being done.

And so I think I had a couple other things I wanted to say, but -- oh. There's one that really bothers me, and it's Defense-related work. And it took place in Building 1. That's not, I don't think, under the scope of what you're talking about here. But again, we had never any signs saying radioactive material, don't dig, don't do that. There was no warning or anything else.

But in Building 1, we had a freight area, a freight elevator area from, which almost joined into Building 2. And then it went down an aisle and it kind of went

left for a production line. Well, I was involved with the first remodeling of that, and they had a nice tile floor and you would drill through it.

Put a quarter inch bit down through the floor, run some wire or something down there, and you'd go downstairs to try to find it. To see if it's okay, you know, if you had an obstacles in the way you could run your pipe. And that's how we ran it.

And then of course then we didn't have long enough drill bits. So we would drill halfway down through the floor, and then we'd go in the bottom of the floor, get up on ladders and drill the other halfway up.

I can't remember, Michael would have to refresh memory what that particular radioactive material is. Radium-226? Yeah, radium-226. Well, those were releases not only to use and myself while it was drilling, not knowing, I just thought it was wood dust, right. But it has some, you know, residual radium-226.

But that was released in everybody's breathing atmosphere. And for, you know, all the workers that were involved in that. And it wasn't until the second kind of remodeling that I was ironically I started off saying about the elevator, that the first and only time I realized that there was a problem with that, and I had done, I had worked on that for almost a year doing that.

One of my coworkers who worked in the Safety Department, Dean Chapman, I know you're not going to mention names, but Dean Chapman come over and said, hey, what are you doing. You got to stop right now. I'm like what are you talking about, I'm just drilling a hole through the floor. I got to, you know, move some equipment. And he says, you can't do that. He explained that was a radioactive problem.

So I put down the tools and everything, and he was kind enough to bring me to his office, and he had a map of the location on the floors where all the, it had

all the contamination.

So again, there was signs on the walls that said, hey, don't drill through this floor. And I guess their way of encapsulating it was to just put tiles down and not disturb it again. But there was no training to say don't disturb this and don't cut it.

So it's kind of like that with the whole site. But I'm just saying, this is a daily basis. We're very aggressive, I mean even the duct work. The large pieces and small pieces of duct work. Now, they might cut into a piece of duct work on the side and extend it off to go to another area, or they might take big sections out altogether.

Now, that might involve taking a Sawzall and it vibrates and it shakes like crazy. Well, you know, a couple of sledgehammers. You had to pound it and break it down. So these kinds of things always dust released, and it's the kind of work that we're just used to doing and not realizing what we had.

That's all I have to say for now unless you have any questions.

Mr. Katz: Thank you very much. Do we, and do we have your contact information? Oh, you've got it, okay.

Mr. Hanlin: Yes, I also left, not that I'm looking for a job. I left my resume at the desk.

Mr. Katz: Perfect. No, that's very -- you obviously know a lot, and that's why I was asking. Thank you. So next let's see. So I don't have anyone listed in the room from this site, other than who we've already heard from. Is there anyone else in the room? I don't believe so.

How about on the phone? Is there anyone from Metal and Controls on the phone who wants to give comments? Okay, not hearing any. Then let's go to folks in the room first who have comments for today. So first on my list Delaney, Ms. Delaney Blaze.

Welcome.

Ms. Blaze: I'm Delaney Blaze of CORE Advocacy. I'm also the petitioner of SECs 235 at Santa Susana and 246 at the DeSoto facility.

Today I'm going to talk about the Boeing Company's fulfillment of requests for employment records for workers of Santa Susana, Canoga, and DeSoto. I think the Board needs an update on this situation, it seems to be playing out like a soap opera at these sites.

Workers are currently unable to obtain timely, accurate, or complete eligibility verification or employment records from Boeing. This results in incomplete dose reconstructions because the dates of covered employment are routinely misreported to NIOSH.

I represent several workers, some of whom qualify for the SEC. And yet 120 days have passed without any response from DOE or Boeing for employment verification or records. Just days before these claims were due to be denied because the workers could not establish any eligible employment, go figure, the Boeing Company provided a handful of records for each worker.

These records were consistently absent of work locations or radiation data for workers who clearly should have such documentation. Workers whose employment in a covered area spanned upwards of 30 years.

So the Boeing Company states its employment databases are extensive, that they date back to the 1940s. And prior to 2014, this statement was consistent with timely records responses that typically contained abundant records. It was not uncommon to receive up to a thousand pages of unique documents in response to a standard records request.

Then DOE stated in 2004 that Boeing's employment

records are, quote, So accurate and complete, they cover an employee's entire work life. This was DOE's assertion when it tried to convince the Department of Labor that only a handful of select Santa Susana workers were actually eligible for EEOICPA at all. And that all responsibility for determining the eligibility of the workers really should be at the sole discretion of Boeing.

That letter from DOE that made that claim was obtained under the FOIA, and I can provide it upon request.

Recently, a 45-year Santa Susana hot lab and DeSoto powder room employee provided me with copies of his radiation records, which he had meticulously collected while he was employed. This gave us an opportunity to compare his actual records to a typical Boeing records response, which we eventually received about 120 days after he filed the claim.

The Boeing Company supplied the records less than 24 hours after I provided some of the employee's radiation data as evidence of covered employment. This employee provided his quarterly external occupational exposure records showing he was consistently monitored at various locations at Santa Susana and the DeSoto facility.

He also supplied complete bioassay evaluation data, whole body and in vivo counting data, a site HP's letter stating that Rockwell never reported whole body or in vivo results for workers at Santa Susana or DeSoto. And a letter from the site physician stating that this employee had been among the most exposed of any workers included in the Rocketdyne worker health study.

In addition, the employee provided some incident reports. So obviously, we expected all these records and then some to be provided by Boeing in response to the Department of Energy's records request.

But none of these items were included in Boeing's response, with the exception of a single, two-page

quarterly external radiation record that was missing several years of exposure, and that under-reported the number of whole body and bioassay evaluations when compared to the employee's copy of the same document.

No bioassay data, no whole body or in vivo counting data, no HP letter, no physician's letter. And at first glance, this response to be comprehensive. It totaled close to 800 pages. But on closer review, it was revealed the Boeing has supplied the same records repeatedly, conspicuously lacking references to locations and radiation data.

It was a duplicitous document with a falsely inflated page count that made it appear much more detailed than it actually was. This is not the only records response that we've received in such a condition.

In addition, the incident reports that Boeing provided were incomplete. Several additional incident reports that involved this employee were easily retrieved from the Boeing incident report database. Yet Boeing redacted this worker's name and his exposures from each incident report, along with the names of managers and supervisors that were involved in the incident, in violation of its contractual and legislative requirements under the Act.

The Boeing incident report database revealed the Boeing had also extracted portions of the incident reports that it had provided by selectively removing the diagrams that showed where the employee had been standing during the event, and first-person written accounts of the incident that were offered by the worker.

Comparison of the unredacted incident reports to the employee's bioassay data showed discrepancies, where bioassay evaluations had occurred, excuse me, for which no incident reports had been provided. Or incident reports indicated a need for bioassay, but the bioassay records did not reflect a corresponding analysis.

We were able to provide the unredacted incident reports to the Department of Energy for review. They were retrieved from the Boeing incident report database obtained under the FOIA.

To date, according to Department of Energy, the Boeing Company is still refusing to provide unredacted clean copies of those incident reports, and currently DOE states its attorneys are locked in impasse with Boeing's legal department on this issue for Santa Susana and DeSoto workers.

Why now, almost 20 years after this program's enactment? Let's pretend that this worker, like the majority of workers out there, had no access to his own records to fulfill the burden of proof, and he is not represented by an advocate or anyone familiar with site history. He just hopes that the contractor and the agencies are going to do what they're supposed to do to ensure that he gets a fair evaluation.

How might this situation have turned out for him? In 2014, several irregularities and inaccuracies in Boeing's employment verification responses were verified. They're systemic. It was discovered that since 2005, the company has consistently supplied employment verification sheets that actively misrepresent the eligible workers as employees who do not qualify for the program.

So years or decades of easily verifiable covered employment, if we actually evaluate worker records instead of taking Boeing's word for it, are systematically disqualified. Some are shuffled into dose reconstruction based on a dramatically diminished perception of covered employment and exposure.

Now, since we discovered this problem, the quality of records responses has declined. Essentially, while Boeing has been permitted to continue providing the misleading and inaccurate information, which even Boeing states should never be used to establish eligibility because it's so unreliable, official

employment records that can be used to verify the eligibility have begun to disappear.

This suggests that efforts to actually fix this problem have not been pursued. But efforts to make the problem harder to discover have been actively implemented.

There are two other issues to quickly address. Boeing Company has not identified site remediation subcontractors. Current site remediation workers under subcontract to Boeing are automatically disqualified from EEOICPA.

Some are legacy workers who transferred to subcontract status with no change in job duties or work locations, other than their radiation programs were discontinued and they are no longer monitored for radiation exposure.

When I asked Department of Energy about this, they took the issue to Boeing. According to DOE, Boeing was shocked. They had no idea who that subcontractor was, or what the subcontractor might be doing on site, until I supplied DOE with photos of the workers at the Area 4 Radioactive Materials Handling Facility, wearing Boeing-issued site remediation clothing and gear, wearing work badges identifying Boeing as the primary contractor and the subcontract employer.

This apparently inspired Boeing's powers of recollections, and DOE stated that Boeing was able to verify subcontractor presence at the site.

But DOE said since Boeing is no longer under contract to perform site remediation, these workers, employed by the second largest site remediation subcontractor and hazardous waste transport company in the country must be there for some other purpose. The workers are not considered to be eligible for EEOICPA.

I've since obtained several documents authored by Boeing that verify site remediation services at Area 4

by the subcontractor and about eight other subcontractors. I'm working on a report to address the issue to ensure that the additions to the databases for subcontractors are made so that we can cover these workers.

But this is getting ridiculous. And why aren't these workers monitored for radiation at locations where they were once required to wear radiation protection?

Lastly, the Board should be aware that [identifying information redacted] and Rocketdyne took over from Boeing in 2005. They qualify as a corporate successor. Workers never changed job duties or work locations after this merger. It was reasonable to assume that their personnel records were simply transferred to the new employer.

Although Boeing has informed Department of Energy that employment records for these workers should be obtained from [identifying information redacted] and Rocketdyne, DOE has not included [identifying information redacted]Rocketdyne in its records requests.

Boeing states these workers retired in 2005, but evidence consistently shows their employment continued for [identifying information redacted]Rocketdyne, a corporate successor, for years. Records for these guys could verify legacy work locations and establish eligibility during site remediation. According to Greg Lewis, the issue is being investigated.

So there's the update. Workers affiliated with Santa Susana and its related sites are having serious problems getting verification and records. Their dose reconstructions are incomplete, their evaluations are not based on complete information, and we have compelling evidence to suggest orchestrated obstruction by the contractor.

These issues provide a basis for SECs at Santa Susana and DeSoto. Every claimant is deserving of

a fair evaluation based on accurate complete records under EEOICPA, and it is our job to ensure that they get it, or that they have access to an SEC appropriately. It's a privileged to address the Board. Thank you.

Mr. Katz: Thank you, Delaney. Next on the list I have Terrie Barrie.

Ms. Barrie: Good evening, Members of the Board, and thank you for allowing the opportunity to address you. My prepared public comments have been changed a little bit. I had a couple of conversations this morning that clarified some of the issues here. So this might sound scattered, but I'll try my best to it.

First of all, I want to thank all of you for serving on this Board. It's not until, you know, someone leaves that we realize how important your work is to us, and we thank you for your continued service.

I was pleased to see that the Work Group for the Metals and Control had a concern about consistency. This is very important. As you know, the ten-year review recommended that all decisions be as consistent as possible, whether it's dose reconstruction or how a SEC petition is decided.

I have heard complaints, I always hear complaints, about the Hanford and SRS SEC petitions. Those are in limbo. The reason is that NIOSH keeps finding new information, new documents. That's great, okay. But these guys have been, they're waiting -- let me see, claimants at Hanford for the contractor worker have waited over six years for a decision or a final recommendation. SRS is into their second decade.

There has to come a time when enough is enough. And when it comes to consistency, that was not given to the Rocky Flats workers. You may remember that thousands of boxes were uncovered by NIOSH at Los Alamos. And NIOSH did review, you know, a certain portion of those record. But there are so many thousands of other documents that could be reviewed

that might hold that smoking gun. Not necessarily for magnesium thorium.

There was a copy, I have a copy of the indices that NNSA gave me, or through a FOIA request. And although some of my wish list coincides or agrees with what NIOSH pulled, there's a couple of others on there that I couldn't link up with NIOSH's indices. For instance, there was a box, I imagine it's a box, it's unclear from the FOIA request, of neptunium analysis from 1987.

If you remember, I believe in 1985 was when the production for neptunium ended at Rocky Flats. So I'm kind of curious, you know, what's in that box? Is it analysis from 1985 back, or is it something from 1987, where it shouldn't have been?

So that's something that NIOSH and the Board and the Work Group really should take a look at. I gave NIOSH my wish list and they're going to, LaVon said that he did remember the neptunium. And he believes that he requested that from NNSA, but he's not sure of what the resolution of that was.

The other part of consistency that I'd like to draw your attention to is the Board voted to expand Sandia's Class, and that's great. They deserve it, you know, NIOSH agreed that they don't have enough documentation for all, to reconstruct dose for radionuclides.

Now, I'm not sure if this is an SEC issue for Rocky Flats, or if it's a Site Profile issue. But there's a number of exotics that I don't believe NIOSH has come up with a methodology to reconstruct dose.

For instance, californium, there was, you know, documentation of californium present there. Cobalt-60, of course. And then from these boxes down, there's thorium and halfnium and erbium, there's a box on that. And something about the Tokamak fusion core experiment.

It's unclear, it's in the Rocky Flats documents, but

how much involvement did Rocky Flats have? Were they part of that experiment? Were they just on the distribution list for that document? It's unclear, but something that needs to be, I would ask that the Board take a look at it.

And from my other conversation this morning, there's a number of Site Profile issues that are outstanding, but because of the SEC petition, that was kind of put on the back burner. So maybe we can take a look at that again to make sure that the dose reconstruction is accurate and consistent.

I think that's about it. Although I do want to make a sincere thanks to Stu Hinnefeld for incorporating the suggestion for putting the citations that you use online for the public. I forgot that we asked for that, so I'm glad you didn't. So thank you very much.

Mr. Hinnefeld: We're counting on you remembering.

Mr. Katz: Thank you, Terrie. Okay, I don't have any others listed, but let's go to people on the line. Again, let's start with if there's someone from Metals and Controls on the line. Okay, I don't hear any.

Mr. Grimes: Kurt Grimes.

Mr. Katz: Hello?

Mr. Grimes: Kurt Grimes with the Security Police Association, Sandia National Laboratories.

Mr. Katz: Okay, so that's not Metals and Controls, but that's fine. I didn't hear anybody from Metals and Controls. Can you just say your name a little more clearly? It was hard to make out.

Mr. Grimes: Kurt Grimes.

Mr. Katz: Kurt Grimes, thank you. Okay, Sandia. Go right ahead.

Mr. Grimes: Yes, I'm the President of the Security Police Association, and I know, thank you for the two-year addendum that was added. And also in addition

to that, I know you're still looking from 1997 forward, I believe through 2011. And I believe you're also looking at, now you're looking at a lot more data in regards to air samples.

So the question I have, I think what you're looking at, correct me if I'm wrong, but the question you're looking at is whether or not air samples are actually going to be sufficient enough, that there was enough air sampling done that internal dosage measurements would not have to have been accomplished or performed here at the labs.

So the question I would have is if there was any, that you could take a look at this while you're doing your review, is if there are any incidences to where air sampling actually prompted internal dose measurements to be performed.

Mr. Katz: Thank you. I'm sure that's not something someone can answer on the fly.

Mr. Grimes: No, that, I know that the investigation is ongoing, and I would like to submit that to the Board for them to have NIOSH to look at that.

If there were incidences where the air sampling actually prompted internal dose measurements to be performed here at site.

Mr. Katz: Yes, and I'm seeing head nods from the people in the program. So they will look at that.

Mr. Grimes: Okay, thank you.

Mr. Katz: You're welcome, thank you. Okay, other members of the public on the phone.

Ms. Hand: This is Donna Hand.

Mr. Katz: Welcome.

Ms. Hand: Okay, I'd just like to again thank the Board Members for all they've done and have been doing. But my main concern now is that, as I mentioned before in the last hearing, everything is

not consistent. The SEC petition for Pinellas with the metal tritides and everything says it didn't even qualify.

But yet here you've got Sandia, who took over the neutron tube and the neutron generator, those workers qualify now all the way up until 1996. Whenever the Pinellas Plant workers, that dealt with the metal tritide, that neutron tube and the neutron generator in a warehouse-type facility, everything, and there was no air monitoring records.

There was occasional internal samples, urine samples, everything, that wasn't even done properly. But yet we don't qualify? It's inconsistent and it appears to me that it's more like a political game.

Pinellas Plant workers deserve the same treatment and the conception of, you know, consistency of fairness and equal application of the law that you've given now to the Sandia workers.

Los Alamos workers and Sandia took over the tube in 1992 all the way up until 1997, whenever Pinellas finally closed. So you've got the metal tritides, which is one of them is still classified. You know, those workers that were in a separate building at Sandia that was made nothing more for the neutron generator, they get to have an SEC petition to 1996.

You know, it doesn't seem like there's a consistency here at all. And then whenever you have the skin cancers now that you're talking about, and it's a log normal distribution, then why is all the skin cancers at Pinellas Plant a triangular distribution with zeros? Whenever Neton said that there's no zeros. But yet we're having the dose done at a triangular distribution with zeros instead of log normal.

It appears that whoever is doing and reviewing the Technical Basis Document for Pinellas is just assuming that the facts are true whenever the evidence that I have been giving for years now shows contrary to it.

And I just would like for the Board Members to be aware of that so that it is their duty to make sure that every dose reconstruction is scientifically valid and its consistency. And they're the ones that appoint the SECs and tells NIOSH no, you cannot do that dose. Thank you.

Mr. Katz: Thank you, Donna. Other members of the public on the phone? Okay, hearing none -- do you have another comment? Come right up and just please identify yourself again.

Mr. Hanlin: Thank you. I'd just like to extend my comments, Daryl Hanlin. After I sat down, I realized that we were talking about the drain systems, and I want to give you an idea of what the environment was like at Texas Instruments. It's kind of flat land, and we were subject to a lot of flash floods.

And so actually, Building 10 was kind of at a higher elevation than Building 4 as far as they had a little ramp you'd go down. But Building 10, it'd be like a little river that ran outside through the building. And at times, the head pressure would be so bad, the drains actually went in reverse.

I kid you not. They'd come up out of the floor, shooting up like a fountain, over my head. And that would happen. So it's kind of reverse, pushing everything that was going down up again. And so that would roll through all the buildings, and there'd be times, take you hours to get all the water out.

Workers are spreading it around just trying to get it out, pumping it out and using squeegees to get it out. I just wanted to let you know that that happened quite frequently over the years.

Adjourn

Mr. Katz: Thank you, thank you. Okay, if there are no more public comments, then we are adjourned for the day. And we'll see you all bright and early tomorrow morning at 8:30. Thank you, everybody.

(Whereupon, the above-entitled matter went off the record at 5:18 p.m)