UNITED STATES OF AMERICA

CENTERS FOR DISEASE CONTROL

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NATIONAL INSTITUTE FOR OCCUPATIONAL
SAFETY AND HEALTH

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ADVISORY BOARD ON RADIATION AND
WORKER HEALTH

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88th MEETING

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TUESDAY
DECEMBER 11, 2012

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The meeting convened at 8:30 a.m., Eastern Standard Time, in the Hilton Knoxville, 501 West Church Avenue, Knoxville, Tennessee, James M. Melius, Chairman, presiding.

PRESENT:

JAMES M. MELIUS, Chairman
HENRY ANDERSON, Member
JOSIE BEACH, Member
BRADLEY P. CLAWSON, Member
R. WILLIAM FIELD, Member*
MARK GRIFFON, Member
DAVID KOTELCHUCK, Member
JAMES E. LOCKEY, Member
WANDA I. MUNN, Member
JOHN W. POSTON, SR., 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
ADLER, SANDRA
AL-NABULSI, ISAF, DOE
ALLEN, DAVID, DCAS
ANDERSON, DAVID
ANIGSTEIN, BOB, SC&A
BALLINGER, JOHNNY
BURGOS, ZAIDA, NIOSH
DAVY, THERESA, DOL
DEHART, JULIA
DEHART, ROY
FITZGERALD, JOSEPH, SC&A
GLOVER, SAM, DCAS
GOINS, MICHAEL C.
HINNEFELD, STUART, DCAS
JESKE, PATRICIA*
JUSTICE, LORING
KINMAN, JOSH, DCAS Contractor
KOTSCH, JEFFREY, DOL
LEWIS, GREG, DOE
LIN, JENNY, HHS
MAHATHY, MIKE, ORAU Team
MAKHIJANI, ARJUN, SC&A
MCFEE, MATT, ORAU Team
MCKEEL, DAN*
MCQUADE, JAMES, DOL
MEE, ED
MOORHEAD. ARTHUR J.
NETON, JAMES, DCAS
PRESLEY, LOUISE
ROWE, GORDON*
RUTHERFORD, LAVON, DCAS
SILVER, KEN, ETSU
STIVER, JOHN, SC&A
TAULBEE, TIM, DCAS
WHITLEY, GARRY
ZIEMER, MARILYN

* Participating via telephone

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(8:33 a.m.)

CHAIRMAN MELIUS: Good morning. Before we start, let me have Ted get the phones going here.

MR. KATZ: Thank you. Good morning, everyone. Welcome to the Advisory Board on Radiation and Worker Health. Let me just check, are the lines un-muted now so they can hear us? Very good.

PARTICIPANT: We can hear you.

MR. KATZ: Super. Thank you out there.

CHAIRMAN MELIUS: Okay, thank you and welcome to the meeting number 88 of the Advisory Board on Radiation and Worker Health. Now I will have Ted go through and do the phone instructions and the roll call.

MR. KATZ: Right, thank you. So a few things. We don't have many visitors yet in the room but for you folks in the line, all of the materials for this meeting are posted

on the NIOSH website, under the Board Section of the website under "meetings." Just look for today's date and you will see all the materials for the presentations that are to be given today and the same for tomorrow.

There is a public comment session today. It is from 6:00 to 7:00 p.m. It will start at 6:00. So folks on the line, please be in attendance at the front end if you plan to comment because the public comment session will only go as long as there are people continuously commenting and then we will -- so it could end earlier than seven. So please be there on the front end of that. We will start with commenters in the room, however.

Next, about just phone etiquette. For folks on the line -- for all of you listening, please mute your phones. Don't leave your line open so that we can hear what is going on your end of the phone. If you don't have a mute button, press * and then 6. That will mute your phone for this call, * and

then 6. And to un-mute your phone, if there is a point where it is appropriate for you to be speaking to the group, you just press *6 again and that will un-mute your phone.

And also, please do not put this call on hold at any point. Hang up and dial back in if you need to because your putting the call on hold will disrupt the call for everyone else.

Okay, let's go to roll call then for Board Members. And I am going to address conflict of interest where it is germane for this meeting. And I am just going to go down the line alphabetically.

(Roll call.)

MR. KATZ: Very good. Thank you all. Jim?

CHAIRMAN MELIUS: Okay, thanks, Ted.

First up this morning, our first presentation will be from Stu Hinnefeld on NIOSH Program update. Stu, welcome.

MR. HINNEFELD: Thank you, Dr. Melius and hello, Board Members.

I'm starting to get a sense of deja vu when I do this. Well, I seem to be still in the meeting. Let me see if I can figure out how to do this. I don't think I know how to do it.

CHAIRMAN MELIUS: Somebody's run off with your presentation?

MR. HINNEFELD: I got it. Okay, this is the program status update that I give each meeting. I'll start off with a little bit of program news and the news that I could think of the last three months involved a couple of what we considered sort of outreach activities or workshop activities that we have conducted since the last meeting. One was the annual dose reconstruction and SEC workshop that we sponsor in Cincinnati through our outreach contractor, ATL International. And they identify interested parties, largely drawn from labor organizations but not

entirely. Usually these are people who are at the covered facility -- well, they are from covered facilities. Quite often they are union officials, and they are people who are trying to answer questions for their membership or from people who worked at their sites or the sites that they are involved in. And in order to help prepare them or assist them in providing better assistance in that fashion, we have these workshops in order to try to provide them some information about the program, a little more in-depth information about the program. This is a two-day workshop that focuses strictly on our activities, DCAS's activities and the Board and so on. It doesn't get into the party or any of the other parts of EEOICPA. So when that occurred there toward the end of September, we had approximately between 25 and 30 people, I suppose, there. And those workshops, there is a little workshop evaluation sheet filled out afterwards. They are almost universally

positive. Everybody is happy for the information. And we have had people back more than once. Some people have come to that workshop more than one time, recognizing that you can go hand them all this information and if they are not answering questions every day, it gets stale and may need to be refreshed. So we do have people back more than once for that.

So that occurred back in September. And then in November, starting on Election Day, our Ombudsman, Denise Brock, sponsored an advocate's meeting in St. Louis for people who advocate for various populations of claimants or petitioners. And that workshop covered pretty much the entire gambit of things available under this program. And it even, I believe, gets into the Former Worker Monitoring Program which is not really part of EEOICPA but is allied, a related organization at DOE and we frequently align with them on outreach activities and things of

that sort because it is the same population that everyone is trying to reach.

So at that workshop, we presented three or four presentations on various aspects of our activities and the Department of Labor presented for a day and the Department of Energy had part of a day. And so it was quite a lot of activity presented and some of it even got into the medical, medical benefits and home care and there was some discussion about that. I think there was some discussion about beryllium. So it was a pretty extensive advocate's meeting. I wasn't there for the entire thing but I was there for a portion of it and met several of the people there.

So those were a couple of the outreach activities, larger outreach activities that we do. We have done those since the last meeting and we participated in those.

So that is kind of the news of the last three months. I guess the other news is

that the World Trade Center program keeps borrowing DCAS staff because there were certain similarities among the programs. You have a claimant kind of a population and claimant databases and things like that. Communications are similar. So we have had a number of people working, or a couple of people going on details over there. Chris Ellison is still on detail over there.

That is about it for the news. I will page quickly through the statistics. If anyone has any questions, I will be glad to answer anything that anybody may want to ask. This is our up-to-date information on claims and where we stand. We have still, by this tally here, about 1,500 with us about of the 38,000 that have been submitted to us. Some 329 of those -- or, I'm sorry, 247 of those, a draft dose reconstruction has been done. So we kind of feel like we are done with those and they have gone to the claimants for their review.

And there are a number of cases that we have just started moving on from Hanford. These are the non-SEC cancers and the most recently added SEC Class. There are quite a number of cases in that group and we wanted to make sure that our technical documents aligned with what we are going to be doing for dose reconstruction. So only recently have our technical documents been lined up to comply with the most recent designation. And so those are starting to move now.

And then there are a population of chronic lymphocytic leukemia cases that the arithmetic is going to be done on this month. And so those should start moving later on this month.

So there are a couple of fairly large populations that are kind of stuck but they will be moving, are starting to move about now in the claims that are in front of us.

Here is our summary of our breakdown of how the cases that have been less than or greater than 50 percent. I think that works out to 29 percent and 71 percent now; 29 percent being greater than 50 percent.

I think in my view the fraction has dropped a little bit. It used to be 30 or 31 percent that were above 50 percent. The only thing I could attribute that to would be that the additional SEC Classes that have been added have moved cases out of dose reconstruction like lung cancer cases, for instance, which quite frequently are compensable, to dose reconstruction. But those get moved out of dose reconstruction when you have an SEC Class. So that is the only thing I could think of that would account for that.

And this is a chart you have seen for years and there is enough cases that have been out there that it won't change, I don't think, the relative shape of the charts aren't

going to change very much.

You can see that our submittals and production numbers are kind of running abreast, have been for the last couple of years. You can see the -- I don't know what color that is. It looks like blue to me, the cases received from DOL. I don't see colors very well. That line you can see has tracked fairly steadily for years. We had the big influx at the beginning and for the last two or three years, we have kind of had a steady input. And quite frankly, we don't see what would happen now to cause that to go down. That looks like that is just going to be the steady state of new cases that come up from this worker population. And we are essentially caught up. Other than oddball cases like I was mentioning, when you have a technical hold for like Hanford non-SEC cases or CLL, the cases are getting done within nine months from the time we get them. And they are being done now within five months of when

we get all the data associated with the case, in 90 percent of the cases. So we kind of feel like we are caught up in terms of dose reconstruction.

I have got the status of the first five thousand claims. I don't know if that is informative because these claims, some of them keep getting reopened and returned to us. So the claims that are open may have been reopened and returned in the relatively recent past. And if they are reopened for additional employment, sometimes we have to get additional information and so on.

And then I have got the ten thousand as well. It is the same kind of information. There are a couple in this population that have not yet been done the first time. Those probably relate to -- there is -- I think one case is a Sandia non-SEC that we wanted to make sure the technical documents lined up with. And if I am not mistaken, the other one is a Hanford non-SEC

in that population I was just talking about.

DOE's performance, I think, continues roughly the same. They in general make the 60-day. I don't have any particular issues to talk about there with DOE in terms of their responsiveness.

And a summary of the Special Exposure Cohort, which of course you guys are intimately familiar with. And a little more summary of those involved.

So that is what I have today for this presentation. If anybody has any questions --

CHAIRMAN MELIUS: Well, anybody have questions for Stu? I actually have one. And I want to make sure I understood you correctly, Stu.

If I understood you, you said that there were two out of the first ten thousand that are still not --

MR. HINNEFELD: I believe there are two on here. I'm sorry, three.

CHAIRMAN MELIUS: Three.

MR. HINNEFELD: Three, initially.

CHAIRMAN MELIUS: So those are several years old.

MR. HINNEFELD: Yes. Yes, the cases that -- we keep track of these legacy cases and there is the oddball one that we are trying to get rid of. Well, I think one might, the one I didn't think of might be a Battelle Columbus case. You know, we haven't resolved Battelle Columbus yet. We are here to recommend a Class for some portion of that period.

And then there are the two other oddball ones I mentioned that have been on hold for various reasons.

CHAIRMAN MELIUS: I mean, it just seems unfair to the claimants for them not to get their claims addressed after --

MR. HINNEFELD: Absolutely.

CHAIRMAN MELIUS: -- how many years.

MR. HINNEFELD: I absolutely agree.

CHAIRMAN MELIUS: Yes.

MR. HINNEFELD: I absolutely agree.

CHAIRMAN MELIUS: Okay.

MR. HINNEFELD: And it is an uncomfortable situation for me as well. That is why I know which claims those are. I'm trying to figure out what do we have to do to get those moving.

CHAIRMAN MELIUS: Yes, I mean I certainly would urge you to get those resolved.

MR. HINNEFELD: You bet.

CHAIRMAN MELIUS: Any other questions?

MEMBER ROESSLER: Jim, this is Gen on the line. Can you hear me?

CHAIRMAN MELIUS: Yes, we can.

MEMBER ROESSLER: And I can hear you very well, but I could hardly hear Stu at

all. I wonder if you would ask the speakers to get closer to the mic.

CHAIRMAN MELIUS: Okay, either that or maybe we need more volume on that mic.

MR. HINNEFELD: Speak directly into the mic like this?

MEMBER ROESSLER: That is a little bit better.

MR. HINNEFELD: Was that better, Gen?

MEMBER ROESSLER: Yes, it is a little better.

MR. HINNEFELD: Okay.

CHAIRMAN MELIUS: Any Board Members on the phone have questions?

Okay, thank you.

MR. HINNEFELD: Before I yield the floor, I noticed that we were just joined by Louise Presley and I have an errand from Dr. Howard here today. Louise, could you come up here, please?

Dr. Howard asked me to present

this. It is an obelisk. I will read the inscription. It is: "In honor of Louise Presley for her constant companionship and attention to the efforts of NIOSH and its Advisory Board on Radiation and Worker Health in their service to U.S. nuclear weapons workers, in memory of Board Member Robert W. Presley from John Howard, the Director."

MS. PRESLEY: Thank you.

MR. HINNEFELD: Sure thing.

(Applause.)

MS. PRESLEY: Thanks to all of you. You have been a special part of my life since 2002.

MR. HINNEFELD: Dr. Howard thought it was fitting, since we are here in Knoxville, to recognize Louise's service and to acknowledge Bob's dedication to the Board and his work on behalf of the Cold War Patriots. Dr. Howard also wanted me to specifically mention how vividly he remembers the barbeque we had here so many years ago and

the hospitality that Louise and Robert showed us at that time. That made quite an impression on John. So thank you, Louise.

CHAIRMAN MELIUS: Okay, thanks, Stu. And certainly, Louise, on behalf of the Board also, our best.

Okay, our next speaker is Jeff Kotsch from DOL.

MR. KOTSCH: Good morning. This is the standard update for the Department of Labor. Chad, if I get too soft, let me know.

Just again the standard brief overview of the enactment of the Energy Employees Occupational Illness Compensation Program Act. It was enacted in October of 2000, at which time Part B, the mandatory federal entitlement program which is run by the Department of Labor became effective and Part D, which was the state workers comp assistance program administered by the Department of Energy, started. Then Congress amended, in October 2004, amended the Act to

abolish Part D and created the federal Part E, which was transferred to the Department of Labor. As of, most of these slides are December 2nd, we had 158,856 cases filed and over $8.7 billion in compensation paid. There are the agencies involved, and the location is for the Department of Labor's national office and its four district offices.

And this is the summary of the NIOSH referral case status. Again, as of December 2nd we have had 38,843 cases referred to NIOSH for dose reconstructions, of which almost 36,000 have been returned, over 30,000 with dose reconstructions; 5,500 roughly without dose reconstructions, pooled because they might have been there when an SEC Class was implemented or there might be insufficient information for some of the cases and they had to be withdrawn.

We are indicating a little under 2,900 cases at NIOSH, 1,576 for initial referrals and a little over 1,300 returned for

reworks or primarily the majority of those would be -- the large majority would be due to additional cancers or additional employment for the rework.

And this is the breakdown of the NIOSH dose reconstruction status. Again, 30,452 returned by NIOSH with the dose reconstruction. There you see the breakdown of the 25,287 cases that have dose reconstructions and final decisions by our Final Adjudication Branch. Roughly 64 percent denial, 36 percent final approval.

And this is the breakdown for the Part B cancer cases with final decisions to accept. Again, accepted dose reconstructed cases, 8,414 paid to 11,864 payees. Again, for anybody who hasn't heard it before, the number of payees is always greater because there might be, in the event that the employee has passed away, there is often more than one survivor. So that was $1.25 billion in compensation. For the accepted SEC cases,

about 17,700, $2.6 billion in compensation. The next one is the line for accepted SEC and PoC greater than 50. And the final is all accepted SEC and dose reconstructed cases, about 26,700, a little over 41,700 payees for $3.9 billion in compensation.

And just a bar, the bar depiction of the Part B cases final decisions for covered applications. And on the right side, a bit more breakdown for the final decisions denied. The primary one is less than 50 percent compensation, less than 50 percent Probability of Causation, and then also medical information insufficient to support the claim and survivor ineligibility.

A quick summary, we have been doing this over the last couple of meetings, of the DEEOIC SEC outreach events for fiscal year 2012. Just a quick run-through.

The facility: Sandia National Lab, the date of that particular one was November 1, 2011. The attendance, we had 385 people

attending and we had 48 new claims filed at that meeting.

Then November 2nd, there was a meeting with GE Evendale, 80 attendees.

The Y-12 plant meeting on January 18th of this year, 133 people, 30 new claims.

Pantex in March, mid-March, 283 attendees, 28 new claims.

Savannah River Site on April 17th of this year, 500 attendees, 40 new claims.

Linde Ceramics in mid-April or later April -- April 25th, 19 people in attendance.

The Brookhaven National Lab meeting on July 17th, which was a joint outreach task group meeting for an event. That was July 17th, 200 people, 19 new claims.

Sandia National Lab was on August 22, 60 attendees.

Fernald, the Feed Materials Production Center meeting on January 25th, fairly lightly attended with 12 attendees.

Hanford meeting on October 23rd, 187 attendees and the Clarksville Modification Center meeting on November 18th -- I'm sorry, November 8th.

Other outreach events, there was informational meetings regarding medical benefits provided under the Act: one in Farmington, New Mexico, that was December 4th; and one in Kayenta, Arizona that was December 5th. These are Part E events, principally related to home health care issues or issues involving the Part E program.

As Stu mentioned, we also participated in the meeting in St. Louis, and I forget the dates on that one.

In the cases of small SECs, these are ones where we might have a handful of identified claimants affected by the SEC. Generally, just press releases or even direct mailings are used as a method to contact the claimants.

Greg usually talks about this --

I'll just run over it quickly -- the Joint Outreach Task Group. Its membership is up there, Labor and NIOSH, DOE, the Ombudsman for NIOSH and the Ombudsman for our program at Labor and the DOE Former Worker Medical Screening Program. And they have monthly calls and coordination meetings.

And then this is just the final, the end of the presentation where we usually go through the facilities that are either on the list for discussion of the meeting or also includes local facilities. Again, just running down the left-hand columns is the number of cases -- claims in parentheses for both Part B and E, cases returned with dose reconstructions, final decisions for Part B, final Part B approvals, Part E approvals, and then the total compensation, including the medical bills paid.

And you see the numbers for Baker Brothers. There was one Part B approval and a little over $277,000 in total compensation.

Battelle Labs, King Avenue, 208 Part B cases, 32 Part B approvals, $7.1 million.

General Steel Industries, 682 Part B cases, 72 Part B approvals and a little under $11 million in compensation.

Hanford a little under 14,000 cases, a little over $3,500 Part B approvals, $792 million roughly.

Joslyn Manufacturing, an AEC, so it is only Part B. They had 105 cases, 38 Part B approvals, $2.9 million.

Savannah River is almost 14,100 Part B cases -- I'm sorry, just cases, 14,100 cases a little under 5,100 Part B final decisions and $670 billion roughly in compensation.

Then the local facilities: K-25, 14,367 cases, 4,165 Part B approvals, $1.1 billion in compensation; Y-12, a little under 16,500 cases, 4,460 Part B approvals, $1.1 billion in compensation; X-10 7,666 cases, 1,821 Part B approvals and almost $491 million

in compensation.

Just a quick summary of the top four work sites that we are seeing. We forward probably around, I think it is about 200 a month to cases for dose reconstruction to NIOSH. It might be a little lower. But the top four work sites generating new Part B cases are Savannah River, Hanford, Y-12 Plant, and Sandia National Labs.

And then the final -- I won't bother going through the rest of this. These are just the slides that we present for general information and we have all heard that a number of times, the general information on the programs for the people that are interested in that.

Any questions?

CHAIRMAN MELIUS: Okay, thank you, Jeff. Questions for Jeff? Yes, Paul, then Dave.

MEMBER ZIEMER: Jeff, I know that your figures usually differ a little bit from

NIOSH's, and we understand that. But one item that jumped out at me, if I heard it correctly, was that you are showing something like 36 percent approval rate on the PoCs 50 percent or greater and NIOSH's number was something like 29 percent. That seemed remarkably different to me.

MR. KOTSCH: Yes, I am trying to remember if that is -- yes, that is what it is. I don't know how it is written up there but that is a function of the fact that it includes -- maybe it is improperly identified. But our final approval rates includes the SECs that we just automatically --

MEMBER ZIEMER: Oh, you throw those back in?

MR. KOTSCH: Yes. I'm sorry, yes.

MEMBER ZIEMER: Okay, thank you.

MR. KOTSCH: This probably could be better identified there.

CHAIRMAN MELIUS: David Richardson.

MEMBER RICHARDSON: I guess now I have two follow-up questions. One would be to verify that. The number 16,000 with greater than 50 percent seems too close to -- too small to include all of the SECs plus those greater than 50 percent, if Stu's numbers are right. So maybe we could check on that and just next time understand it better.

The other question I had relates also to that. When I see those numbers, the number and the proportion that are greater than 50 percent, I always end up trying to do in my head something other than look at the crude proportion across all cancers. And so I am trying to kind of consider, well, what proportion of those are lung cancers? And part of it is I think about from a claimant's perspective, they are interested in those numbers to get a sense of the likelihood that their claim is possibly compensable or not. And I think in some sense to move forward with the time and investment of energy that it

takes to file a claim and to understand how likely it is that that might be compensated.

I guess a long way of saying it is, at some point -- and it doesn't have to be all the time because we see these numbers a lot, but at some point could we see this broken down by, for example, ICD code for those cancers which you have handled more than 50 or 100 claims. So those would be the proportion of lung cancers which have ended up with a final positive decision and the proportion of prostate cancers and skin cancers. Would that be something that you could tabulate? Because I think for some people that would be useful and for me also.

I am curious because I have a sense that those numbers are markedly different.

MR. HINNEFELD: This is Stu Hinnefeld. We have that tabulation on our website. It was updated about two months ago. It's on the SEC page of our website.

MEMBER RICHARDSON: Okay, so NIOSH is doing it, not DOL?

MR. HINNEFELD: Right. And it is a tabulation of cases that had a single cancer. When you start getting multiple cancers, it gets more complicated. So the cases that have a single cancer and it is broken down by, I think, by ICD-9.

MEMBER RICHARDSON: Okay, maybe you could point me to it. Thanks.

MR. HINNEFELD: Sure. When we get a chance, I will show you.

MEMBER RICHARDSON: Okay, thank you.

CHAIRMAN MELIUS: You have got the floor. Now I have stolen it back here.

My other suggestion on this, the mystery numbers here, could that be the final approval be when you then put back in the SECs from those same original set of cases that had PoCs done but then later became SECs?

I wonder if that accounts for

that.

MR. KOTSCH: Yes, I think that --

CHAIRMAN MELIUS: So the small difference rather -- and there is a separate set of SECs that are just direct SECs. They go to DOL. NIOSH never sees them --

MR. KOTSCH: Right --

CHAIRMAN MELIUS: -- and they never have a dose reconstruction done. And I think that -- my guess is from -- because I went through this and got all confused at one point.

MR. KOTSCH: That may be part of it. I will go back. We have had some reporting problems with our system. So I will double check those. The other thing would be sometimes -- I don't think this is the case, but it might include also our beryllium and our silicosis cases, too, that drive final decisions, but I will check. This should be just NIOSH-related things, but we will check those numbers again.

CHAIRMAN MELIUS: Thank you.

MR. HINNEFELD: I will point out one difference. One reason for the difference in numbers is the final decision lags behind the dose reconstruction by a considerable amount of time.

CHAIRMAN MELIUS: Yes, we have always had that lag.

Okay, Loretta. I'm sorry, Loretta, I didn't even see you. Go ahead.

MEMBER VALERIO: Can you give me a little more detail on how, if an individual meets the employment criteria for an SEC but the diagnosis is an unknown primary, if they are considered under an SEC or if they are still forwarded to NIOSH for dose reconstruction?

MR. KOTSCH: I think for those cases -- unknown primary. We don't -- I mean there are a list of probable sites for when there is a primary with an unknown or the secondary with an unknown primary. But an

unknown primary, I think, unless we get a decision or some kind of determination from one of our contracted medical consultants, we would probably have to forward it to NIOSH outside of the SEC realm. Can you think of anything else?

I mean, we need some other determination as far as a medical decision goes, and we would have to refer it to one of our, essentially our in-house oncologists or hematologists.

CHAIRMAN MELIUS: Brad?

MEMBER CLAWSON: Jeff, this is just an observation that I have seen and I don't understand. I usually try to direct them to you guys.

But, in discussing some of the Site Profiles, some of the questions I have been hit up with is the claimants file under Part E but then they get told that they can't process their claim until NIOSH does a dose reconstruction.

MR. KOTSCH: In the Part E?

MEMBER CLAWSON: Yes.

MR. KOTSCH: That shouldn't be right. I mean, generally a claim comes in from like, say a DOE facility, it initially comes in as both and essentially is treated as both a Part B and an E claim, if it is appropriate. They should not be connected; the Part E decision should separate from the NIOSH decision.

MEMBER CLAWSON: And these are earlier claims and I don't know what to tell them. The only reason I am bringing this up to you is I want you to realize what we are seeing and what they are talking to us. Because they actually filed it under Part E because it was more of the chemicals that they worked with and their response back was that they were still waiting for NIOSH to do a dose reconstruction.

MR. KOTSCH: That may be for the Part B decision. That should not have held up

the Part E that I am aware of.

MEMBER CLAWSON: So they should --

MR. KOTSCH: If it is a Part B and a cancer, yes, it is probably being related to -- it will be hinged on the NIOSH dose reconstruction. But if it is a non-cancer condition and a chemical exposure, that should be independent of the NIOSH dose reconstruction.

MEMBER CLAWSON: Okay, and if we do see this, my direction was to contact your office and kind of get a clarification on that. You have got some outreach programs. Is that the correct process?

MR. KOTSCH: I think that would work.

MEMBER CLAWSON: Okay.

MR. KATZ: Jeff, back to Loretta's question about secondaries with unknown primary. I thought, at least one cancer, I thought it was bone cancer, perhaps, where even the secondary bone is covered, regardless

of what the primary was.

MR. KOTSCH: Yes, I mean there are -- bone, liver and kidney are covered. But I think Loretta's question was an unknown primary. Right?

And we make our best shot with our either oncologist or hematologist that we have to try to make -- if there is enough information there, we will try to figure it out. If not, we can't really put it into the SEC process and we have to go through the dose reconstruction process.

But then again, they may not even have the information to provide that analysis.

CHAIRMAN MELIUS: Any other questions for Jeff?

Okay, if not, thank you, Jeff.

MR. KOTSCH: Okay, thanks.

MEMBER ROESSLER: Jim, this is Gen on the line again.

CHAIRMAN MELIUS: Go ahead.

MEMBER ROESSLER: Yes. I have

been corresponding, too, on email with others who are on the line. We are having some trouble hearing the speakers. The rest of you seem to come through well. I wonder if the mic could be turned up or they could get closer to it.

CHAIRMAN MELIUS: Yes, we changed the mic around and we will keep reminding people to speak louder on that.

MEMBER ROESSLER: Okay, thank you.

CHAIRMAN MELIUS: Because we are hearing them fine is the problem but that may not mean it is being picked up well enough on the phone.

MEMBER ROESSLER: Okay, thanks.

CHAIRMAN MELIUS: We will keep reminding them. Thank you for letting us know, Gen.

Okay, next Greg Lewis from Department of Energy.

MR. LEWIS: All right, good morning, everyone. It is Greg Lewis from the

Department of Energy, Office of Health, Safety, and Security. And I am going to talk about our role in the EEOICPA program.

Our core mandate, which I go over every time, is to work on behalf program claimants to ensure that all available worker and facility records and data are provided to DOL, NIOSH, and the Advisory Board.

CHAIRMAN MELIUS: Greg, if you are going to look at the slides, turn directly towards them and speak into the mic. Because even we were having trouble hearing you.

MR. LEWIS: Sorry about that.

So we have three primary responsibilities under the program. The first is to respond to individual requests for information for single claimants. The second is to provide support assistance to NIOSH and the Department of Labor on larger scale records research projects. And the third is to research covered facility issues, adding additional years, taking away years, things

like that, making sure we have the right facilities designated and we work closely with Department of Labor and NIOSH on that.

So I also talk about this every time. Our site contacts are really the most important part of our program. We rely heavily on our sites to gather these records. And our site managers or site POCs, as we call them, have a significant role in our ability to respond to requests. They work closely with NIOSH researchers and DOL researchers to identify the right people to participate in interviews, to identify the right collection to records, to provide those records to Department of Labor and NIOSH after site research visits. We also handle classification reviews and are an on-site resource to workers to direct them to Department of Labor and NIOSH or the correct person to address their issue.

We respond to about 6,000 Department of Labor employment verification

requests a year, about 4,500 NIOSH requests per year, and 5,500 what we call document acquisition requests or DARs, which are the Department of Labor requests for basically all exposure information on an individual, that would be medical, industrial hygiene, dosimetry, things like that, really, and anything that puts an individual at a certain location on a site or might establish the exposure for that individual.

So it is about 16,000 requests per year and that has been fairly steady over the last few years.

We have a number of challenges in gathering these records. Claimants often worked at multiple DOE sites, particularly here in the Oak Ridge area. I think a number that I have heard is about your average employee that has worked at one of the Oak Ridge area sites, has worked at three, including the three gaseous diffusion plants, the National Lab, and Y-12. Your typical

employee, if they have worked at one, they have most likely got to about three of them in their career.

At some of the sites, we will have to go to 30 to 40 different record sources for an individual, particularly if they had a long career and particularly at sites where the contractor may have changed over from time to time. Many of the new contractors brought in their own records management systems, databases, their own way of doing things. So for an employee with a 30-year career, we would likely have to go to many different databases, even for the same type of information. For example, dosimetry information would be in one database for five years and then a separate database for the next few years and then in microfilm or microfiche, something like that.

So the large-scale records research projects, these are driven by the needs of Department of Labor and NIOSH. So we

do our best to react and anticipate what their needs are going to be, where they are going to need to do these projects. And we made sure, to the extent possible, that funding and manpower are available to support these projects. We come up with a plan to enable the classification reviewers on-site to keep up with the demand. These projects can be very expensive and time-consuming. But again, we do our best to make sure the resources are in the right place to allow us to respond in a timely manner.

We are often supporting four to five projects at once. I think the next slide I show will talk about some of the projects we are supporting now. And again, classification is sometimes a considerable concern and we do have to review millions of pages on occasion, particularly for the weapon sites and labs. And we try to do that in as expedient a manner as possible.

So here are some of the sites that

were facilitating records research now. As you can see, some of those are sort of in the thick of the research, some of them are winding down but we are still supporting the final three requests and some of them are just starting up.

Document reviews. Again, we have come up with a security plan that outlines how we plan to review documents, how we review final reports, source documents, things like that, what our timeframes are, what the requirements are for security clearances, for visits, what the visitors are supposed to do, what we are supposed to do. We try to lay that all out in that security plan. Now currently we are taking a look at that security plan. We are thinking about updating it. We don't envision any real significant changes, just kind of updating problems we have encountered over the years or things that we have adapted. So we are just going to formalize that in our security plan. We are

also working with NIOSH and SC&A on some slightly new protocols and procedures regarding worker interviews. So we are working with our headquarter security folks and some of our site security folks to make sure that we are comfortable with these changes.

So since the last Advisory Board meeting in September, 30 documents have been submitted to headquarters classification review. The average turnaround time has been eight working days and we have done it quicker when needed.

And then our third role, major role under the project is the covered facility database. The full listing is at the link there, and we are constantly working with DOL and NIOSH to refine that database and make sure it is accurate, up-to-date, has the right contractors listed, years, et cetera.

So the SERT, the Secure Electronic Records Transfer System, is the big new

development on our side. It is a big development for DOL and NIOSH as well. That went fully live as of October 15th. So what that means is: starting October 15th, all records requests sent to Department of Energy from either NIOSH or DOL -- and these are the individual records requests, not the large-scale records research projects -- but all of those are now coming to DOE through the SERT. We believe it has been very successful so far. You know, with any large system and this system has close to 400 users and is going to be handling, as you saw, 16,000 records requests a year and should be about 16,000 records response a year, more or less. So it is a major system, and with any major system there has been some glitches, some little things that we have had to resolve, some things that we didn't anticipate until the system was stood up. But by and large, the response that we have gotten is very positive. This system works. We are getting the

request. It is instantaneous. It is transparent. As soon as DOL and NIOSH press that button to send the request, it is instantly visible on the DOE end and we can see it and start working on it immediately. We have been responding. And so far, everything has been going well. We believe it adds, as I said, a level of transparency. It takes out the need for sending things with FedEx or faxing. And I think most importantly, it improves the data security with 16,000 requests going back and forth and this stuff being people's personal information, Social Security numbers, medical records, sensitive information like that.

The security of this information is of the utmost importance. And we believe that this system adds a layer of security.

So a couple recent initiatives. We have been working on an outreach video. We have, I think, the final proof. Just as of this week we got it in our office. We are

going to be sending it out to Department of Labor, NIOSH, both Ombudsmen's office, those that participated in this video. And once we get their approval on the final version, we will be going live with that. It will be available both online and as an actual DVD upon request.

And we are also preparing -- well, we have actually come out with the first edition of our newsletter, which my office is going to be doing monthly. It is not going to be too big, you know, about two or three pages, talking about some of the initiatives that we are doing, some of the things that we are working on. We are going to be featuring some of the different sites and some of the things they do as far as indexing projects, some of the interesting stuff that they are doing on claimants' behalf. We are also going to be featuring some of our Former Worker projects as well. So we think it will be a good tool to provide information on what we

are doing, give a little bit of a behind-the-scenes look at the things that we do for workers.

I believe we had a sign-up sheet available at the last Advisory Board meeting. But if not, I will put one out at this Board meeting and we will send it to anyone. We have an email listserv, so certainly the Board Members, anyone in the other agencies, as well as anyone in the public that would like to receive it is more than welcome.

Outreach, Jeff touched on it briefly but the Joint Outreach Task Group is a combined group with Department of Labor, NIOSH, the different Ombudsmen's offices and the Department of Energy and our Former Worker programs. Again, with the thought that we are all essentially trying to reach more or less the same worker population, it just made sense to combine resources, both for efficiency on our end, but also so there is a one-stop shop for the worker that they don't have to go to

three or four different meetings. You know, this program can be confusing and it is just easier to have one place where they can get hopefully all the answers that they are looking for and get into the right program or get their question answered by the right group.

And our Former Worker Medical Screening Program, this is a free screening program that all former Department of Energy, Department of Energy contract workers are eligible for. We have local programs in and around the major DOE sites. We also have two national programs, one for production workers, one for construction trades workers. No matter where you live, we are almost always able to find a clinic that we can contract through to screen you in an area close to your house, typically within 50 miles, most times closer than that. Although, even in the rural areas, we are typically able to get within 50 miles.

And the local programs here are the Worker Health Protection Program, a joint program with Queens College and United Steel Workers. The principal investigator is Steven Markowitz. And that is at K-25. And then also for the local construction trades workers, it is the Building Trades Medical Screening Program and the principal investigator is Knut Ringen. The contact information is provided on the screen.

And with that, are there any questions?

CHAIRMAN MELIUS: Yes, thank you, Greg. I have one question/comment regarding the new interview procedure. You mentioned that you were coordinating with NIOSH but we would -- the Board and our contractor also need to be apprised of what is going on. We have had problems in the past. I think we got them straightened out, but I would like to make sure that the procedure doesn't interfere with our ability to interface when we do need

to do interviews. And so I am trusting you to -- we would like to be informed about this.

MR. LEWIS: And if I said NIOSH, I think I misspoke because I know that Joe Fitzgerald has been involved and I know that there is involvement with both SC&A and NIOSH and certainly I will make sure to keep you informed as far as the Board.

CHAIRMAN MELIUS: Okay. Thank you. Brad?

MEMBER CLAWSON: Greg, I appreciate your comments there and keeping us informed. One of my questions was: as this new security program comes into place, it is not going to conflict with any of our procedures that we have in place right now as a Board, or SC&A, or NIOSH, this electronic program that you were talking about?

MR. LEWIS: The SERT. The Secure Electronic Records Transfer?

MEMBER CLAWSON: Right.

MR. LEWIS: I don't believe so.

Again, that is intended for the individual requests. So if someone applies to the program and NIOSH or DOL needs their records, they are making NIOSH or DOL would make that request for their records through the SERT.

Typically, for large-scale records research projects, we wouldn't be going through the SERT. Now certainly, if we did eventually want to use the SERT for that purpose, it would only be to get records from point A to point B. At some point, it may be valuable to get NIOSH or DOL to allow them to receive the records through the SERT, but certainly the request, the investigation, the research, all of that would -- there is no mechanism in SERT for that. That SERT is really just an ability to get records from one place to another securely. And of course it has some tracking built in for the individual level requests but I don't anticipate this would have any effect on how the records research and the large scale projects are

handled.

MEMBER CLAWSON: And I understand that. And my other one is the eight days, I would question the turnaround because there has been numerous --

MR. LEWIS: Yes.

MEMBER CLAWSON: It takes a long time.

MR. LEWIS: Yes, and the only thing, I keep meaning to put this in the slide. But the only thing that we track as far as the number of days is the requests that come into headquarters, the final report requests. All final reports or draft reports, once they have reached a significant level of content in NIOSH or SC&A or the Board wants to kind of distribute them further internally, they will come to us for a review. So that is only for the reports that are being sent to headquarters review. Because we only have the ability to track those in such a close manner. The stuff that is done out at the site for

classification review is, as you know, boxes and boxes of data sometimes. And we do work with the sites to try to ensure that it gets out in a timely manner. But we are not able to track it to the level that we are of the final reports. That is why we put the final report tracking in this presentation. But I agree, it does take longer for the sites to review, particularly because there are large amounts of information, but also they have competing tasks and needs for the classification folks on-site. We do try to get them to return documents in as timely a manner as possible. I know we do struggle in certain cases.

MEMBER CLAWSON: And I understand about the large scale boxes and so forth. But many of our site visits that we have gone to, we have taken our notes and so forth and those are critical for us to proceed on forward. And some of these we are looking at three to four months.

MR. LEWIS: Yes, and that is unacceptable. One of the things that we are trying to work on now is to make sure that sites are differentiating, particularly between things like notes or reports or things that were written on-site versus just the boxes of source documents. We understand that, I think, on your end the notes and things like that are of a higher level of importance, most times, than the source documents. But a lot of times our sites will lump that all together and go through the whole thing before sending it out and it doesn't make a lot of sense. We think we would like to separate out those notes or those particularly high-priority items, get those out in a much shorter timeframe and then work on the larger document requests. We have definitely not always done that well, and we think we can do better and we are going to try to.

MEMBER CLAWSON: Another part of

this, too, and this falls into NIOSH's ball, too, and that is: it is very difficult to track where we are at with these requests. And I am going back to our notes that have been written up on-site. The communication between DOE, the site, and then say NIOSH, too, it is really, there is no clear way except for going through you to figure out where we are at. And we are usually getting it third-hand. And I know it puts you in a bad situation, but if there is any way that we can clear or help that, it would be greatly appreciated.

MR. LEWIS: Yes, and I would be glad to talk to you or it may be good to sit down with someone from NIOSH, SC&A and the Board and talk about ways to improve that. I mean, I think having a clearly defined request -- I will say from our end sometimes it is: our sites end up somewhat confused over what the priority is for who or what exactly has been requested and they may not be asking enough questions on the front end, but I think

some further clarity from the requester establishing, there are four things I asked for, one is notes and two is documents X, Y, and Z and the third is this report that I was writing or something like that, and prioritizing those and being very specific about what those are because oftentimes I get put in a position where someone from NIOSH or SC&A will come back to me a month or so later or two later, saying, "Hey, I made a request at a certain site," and the site says, "Well, we have got a couple of requests, which request?" or "We thought we had finished that one." And I end having to go back and forth to make sure what was requested. What was completed. Is it all complete? What was the time frame? Things like that. So maybe getting that more clearly defined on the front-end might help everyone. But I think we would be more than willing to talk about it.

CHAIRMAN MELIUS: Henry has been waiting for quite a while here.

MEMBER ANDERSON: Just quickly, how often does the Joint Communication Task Group meet?

MR. LEWIS: Well, so the Joint Outreach Task Group has monthly calls to kind of coordinate outreach activities between the different groups and talk about what each one is doing. Because, in addition to having joint meetings, we also may attend -- there are separate meetings for each group, too, that may have certain specific interests or specific needs at different locations and we might send information along with another group. Or we might, maybe DOL and NIOSH will be at a meeting, but DOE won't feel the need. So we coordinate monthly, but I think we typically have three to four actual Joint Outreach Task Group meetings.

I think we have a tentatively planned three meetings for next year, with a possibility for a fourth. And I think Northern California, we are planning to do the

Bay Area, you know, aimed at Berkeley, Livermore, Sandia/Livermore, and the Stanford Linear Accelerator Center, those four.

We are also looking into the Chicago area, aimed both at Fermi and Argonne Labs. And there is a third which escapes me right now. But we try to get that information out. And we have a calendar on our website that I can point you to as well.

CHAIRMAN MELIUS: Thank you. Can I, in follow-up to some of Brad's questions and discussion, I really think we need a tracking system for these site requests, as opposed to the DOE headquarters request. So can we ask Joe, since I think everything, all our secure information is supposed to flow through our contractor through you. Correct? Supposed to.

So could you work with DOE and NIOSH and see if we can get a system set up so we know? Which would give more specificity to what the requests are, what information Greg

gets, as well as maybe facilitate some of this. Because I think if not, we just keep going around and around on this and complaining and I don't think it is -- despite good intentions, I don't think we are necessarily understand what is going on or how it is being fixed.

MR. HINNEFELD: We do track our submittals to sites for requests for clearances, except for the interview notes like Brad was talking about. We haven't included those heretofore on our tracking system but when we make a request from our side to the sites. And so I don't have it with me but we could produce that, the information we have on our requests.

CHAIRMAN MELIUS: Yes, if we could just copy onto that. I know that interview notes have been an issue at least at one site and I believe more than one site, where they have tended to lag or get sort of lost somehow. So let's work it out and see if we

can come up with a solution.

MR. LEWIS: Be glad to work on that.

CHAIRMAN MELIUS: It is important and we need to know when there are inordinate delays. Thank you very much, Greg.

Back to Stu Hinnefeld on the update on the ten-year review implementation.

MR. HINNEFELD: Okay, I have just a few slides to talk about progress on the ten-year program review.

Our progress on the ten-year program review is being done, usually in conjunction with one or -- usually one Work Group or Subcommittee of Board to keep the Board appraised of how things are moving along. It is proving to be kind of an extended process because the additional, the things we are doing here, we are adding on to the work we were already doing. And so it does continue in all these areas at varying rates of accomplishment.

I have got a slide for each of five focus areas and I have selected just certain items to say about each one. I do have a little more detail on my notes. If anyone has questions on particular items, I think I can provide a little more information about some of the items that may not be addressed in the slides.

In the dose reconstruction area, of course, we are working very closely with the Dose Reconstruction Subcommittee in evaluating quality of dose reconstructions and working to sort of determine a way of measuring quality and to improve the quality of the dose reconstructions. So it is ongoing. It is a fairly significant piece of discussion at the last several, I think, or at least the last few Dose Reconstruction Subcommittee meetings.

In response to some of those conversations, we have implemented a blind review process which kind of gives us

continuing -- we expect it to give us a continuing sort of measure of the quality and some maybe quality items to look at as we go forward.

This is still -- we are doing it, but it is still sort of developmental because it involves DCAS staff doing a dose reconstruction, unbeknownst to ORAU. The case is still assigned to ORAU. ORAU does the dose reconstruction. The DCAS person does it first and then we compare the two dose reconstructions to see, theoretically they should be pretty consistent. And the DCAS dose reconstructors are essentially coming up to speed in doing this. And we are learning how to document it in a way that allows for a reasonable comparison between the methods. So it is still a work in progress, but we are hopeful that we will be able to get some information out of that as we go forward.

We have, in fact, one of the items from the ten-year review was that if you,

DCAS, have all these quality aspects in place which you are talking about, why is it that the Board keeps finding all these findings when they review dose reconstructions? Or the Board's contractor.

And so we have -- way back we selected the five most recently completed dose reconstruction -- most recently completed cases that had been reviewed by the DR Review Subcommittee and looked at the findings on those cases to find out why in fact there were findings found on those cases.

So we are approaching, we are getting close to having a product on that that we will be able to provide to the Subcommittee and discuss there. The "Why was the error made?" is sometimes a little hard to figure out. You find what the error was, but it is a little hard to figure out, no matter when we do this, what exactly did the dose reconstructor do instead of what he was supposed to do?

And part of the dose reconstruction review was to look at these efficiency measures and see if they are really worthwhile because of the issue that we face when we do an overestimating dose reconstruction and the person gets, for instance, another cancer. And then we do a more precise dose reconstruction and their DR goes down with the additional cancer from what it was originally, which is just pretty much not explainable. We are doing everything we can. We've put wording in the dose reconstruction. In the original one, when it is an overestimate, we say, this is an over-estimating approach and if the information changes, it could change, you know, the dose reconstruction would likely change and go down.

When we prepare a re-worked dose reconstruction in this case where we had done an over-estimate and now we are doing a new one, we explained what the differences was,

how the overestimate was done in the first one, and that is taken out here. And that is taken out here, and so what the new outcome of that particular part of the dose reconstruction is, we put all that language in there and we are trying to address it in that way.

When we looked at the amount of time and, therefore, cost associated with eliminating these efficiency measure altogether, we felt like we could not abide that. We couldn't keep up with the workload as well close to what we are doing now. You could argue we are not keeping up with the workload in all areas anyway. But it would just make it that much worse if we had to spend all that additional effort on dose reconstruction. So we felt like we weren't in a position to be able to do away with overestimating approaches altogether. But we have done a couple of overestimating approaches that didn't really save us that

much. We have done away with those. Those relate to using defaults for medical X-ray exposure, like defaults for frequencies of X-rays when in fact we have the X-ray records.

And then the second one had to do with missed doses and maximizing the number of zero readings, rather than when we actually knew what the number of zero readings were and we could use the actual numbers.

So there have been a couple of things we have done away with, where we could do that without costing, without too much additional effort in the dose reconstruction.

The quality of service has had to do with how well we communicate to people and how well we listen to people. Most of the progress so far has been on the communications side. And this is getting tangled up in other initiatives that are being placed on us by our parent agencies.

First of all, we have re-written a number of our communication products,

especially what we call our process letters. When a person is going through dose reconstruction or through the SEC process, they get a series of correspondences from us, and we have re-written those into what is called plain language. There is this plain language act that government communications for the public are supposed to be written in plain language. So we are attempting to put these things, and they really sound to me much more readable. So we have done a number of changes to those kinds of process letters and to fact sheets.

To better serve people who want to participate in a Work Group or Work Group meetings but not in person, who want to participate by phone, we have adopted the practice of placing the documents that will be discussed, and in most cases, I believe any presentations that are going to be given, we get those available on our website before the meeting. So someone who is calling into the

meeting can follow along and have some hope of understanding the conversation because listening to the conversation without having the documents that people are talking about, there is just no hope of following it. It is probably difficult to follow on the phone anyway, but at least there is some hope of being able to follow it if you know what documents are being talked about.

And we did modify the Board web page to facilitate navigation, if any of you have checked it lately. If you print out the Board's landing page, you don't get 80 pages anymore. There is just a landing page and then the links to it work just the way they always did. It is just instead of taking you down the page, they take you to a different page. That was an initiative from a parent agency, either CDC or HHS to here is the standard format that you should have on your website.

Another initiative that I don't

mention here that is competing with our progress in these quality of service items, is the requirement for all documents on our website to be 508 compatible, which means they are prepared for an electric reader for essentially an audio, a program that gives an audio translation of the written text. So it is for people who are blind, essentially.

So we have had that requirement for new documents, that has been in place for quite some time. And all new documents for years have gone up in that fashion. And the key element here is if you can think with a figure if you have a paper with a figure in it, a graph or something, you'd have to put in alternate text to describe that figure so that the reader has something to explain to the person, to the user, what that figure maintains.

That has always been in place for new documents, but we have recently been told that all documents, including our archives,

have to be 508 compliant by this coming spring or middle of the year. And so the work on updating those old files is distracting from additional progress.

Timeliness of dose reconstruction certainly we believe we have kind of gotten where we can go with that. I think we have obtained most of what we can obtain in the routine cases. I think there may always be oddball cases. Hopefully they won't get to be years old anymore.

But for the most part, cases are done now within five months of receiving all of the data necessary to do the claim, and they are done within nine months total. And those are generous. I mean most of the cases are done in a shorter period of time than that.

And for reworked dose reconstructions where the person has already been in the process for a while but now they are getting a reworked dose reconstruction, a

recommendation from the ten-year review was that we have a higher priority on those cases. And so those we expect to be done within 60 days of having all the information that is needed.

So if it comes back, for instance, with a new cancer, none of the employment information changed, we should get that done within 60 days of getting it back.

Well SEC is proving to be difficult. The whole sufficient accuracy effort has taken, we have had a couple of mis-starts and fits and starts on that. Of course if it were easy to define sufficient accuracy, it would have been done when the wrote the rule, as opposed to trying to do it now. And we are doing sort of a case law basis. We are looking at -- we started out looking, starting essentially at the beginning, looking at all the documents that are associated. You know, the Board's recommendation, our Evaluation Report, Secretary's designation. And we

weren't getting very far. We weren't getting anything concise that could really be interpreted. So we said let's try the other direction. Let's start with the most recent and let's look at the Secretary's designation and then use our memories for what we knew about the specifics of those cases and why they were decided the way they were and summarize in that fashion.

And we expect we will be able to categorize these in a handful of categories, each one having its own particular explanation with it. That may be helpful and we can then the idea being that we can then proceed with discussions of feasibility along those lines, in accordance with decisions that have already been made.

And another recommendation was that when we make our SEC decisions or what our conclusions in the Evaluation Report, we should point out which ones are scientific decisions and which ones are sort of policy

decisions.

As we have gone through that, it kind of occurred to us that we don't really have -- you know, the pure scientific decisions are the arithmetic. You know, when you get into any really other kind of decisions, what you really have is a science-informed policy decision. But the whole point of it, as Lew Wade reminded me, the whole point of the recommendation was transparency of the decision process. So make the decisions transparent. Don't worry about whether they are scientific or policy. Just be very clear about what decisions you made in the writing. And so we are proceeding down along that path now, and we are hopeful that we will be able to have something on some of these Evaluation Reports kind of in a companion document that kind of describes those decisions.

Okay, quality of science, again, these are several things that are in progress.

Our contractor, ORAU, is developing a process to minimize inconsistencies between technical documents. We recognize there are some of those out there. There is some progress made on this. I'm afraid I don't have an up-to-date report.

With respect to some of our indirect exposure methods like coworker studies, we are in the process of using Savannah River site data to essentially as a validation exercise for our coworker modelings. And I think, if I am not mistaken, you know, Jim you can correct me on this, I think what we are doing is in Savannah River in some cases we do have enough information to identify sort of occupation groups, as opposed to the entire site as to coworkers. So we can make some comparisons about whether using the entire site is in fact a favorable approach the way we use it.

And we still are in the fairly early stages of characterizing and quantifying

claimant favorability. We always say we are claimant favorable but we have never really described it in any kind of quantity. And that was one of the recommendations from the review.

Finally we are going to be having a progress reporting page on our website of the ten-year review. It is designed, I think we just need to say go and it will go up pretty soon, that describes -- it will include the reports that were written, the five reports, the selected recommendations that were then built into the action plan and then progress on those various actions. And the progress will include sort of an evolution of the actions as we have gone down this path and felt like we weren't getting where we needed to go and we changed course a little bit. So we expect to have that up and running probably, I would think, within a month it will be on. So it will be a place where people can go and check and see this is what

has been going on, on the ten-year program review.

Okay, I will be glad to answer any questions that anyone or comments that anybody might have.

CHAIRMAN MELIUS: Okay, we have sort of limited time here. So we may have to have you come back a little bit later for additional questions because we have a ten o'clock Hanford review and it is a petition. The petitioner will be, or the representative is expected to be on the line. So we try to hold to schedule.

Actually before I saw your presentation, LaVon sort of covered -- sent me an email sort of updating me. And we do expect to be able for the SEC Evaluation Work Group to begin some discussions, meetings -- Work Group meetings to discuss this sufficient accuracy issue either in January or February. I am going to hold LaVon to those dates that he put in his email for some reports.

But I would add, I mean I think we really need to start addressing that issue because, at least from my perspective, one, it keeps coming up in terms of a lot of our decisions that we are currently doing we make today in upcoming meetings.

Secondly, the coworker issue, the issue of claimant favorability and so forth all revolve around what is sufficiently accurate. And I don't think we can make a judgment on that without -- or assessment of that without sort of dealing with those issues without directly dealing with sufficient accuracy. So I would urge you to keep to those deadlines.

And I think we should plan, I think we need to come back to the Board with some discussion on that. So it may very well be if things go well, and I am not sure our Work Group would necessarily have recommendations, but we may very well want to have that on the agenda for our next March

meeting in order to be able to give everyone a chance for some input on that as we wrestle with it.

So I think that is, again, I have been a little concerned that some of these have lagged in terms of getting up. The coworker I think is a critical issue because it potentially affects so many sites and so much of what you have done. But all these are important. We need to, I think, show some progress. So I am glad to see the web page and so forth and see if we can keep these moving.

And I think I have used up most of the time now. Are others going to have questions for Stu? Okay, then what we will do, Stu, when we have a break, we will have you come back up and ask questions.

MR. HINNEFELD: I'm here for the duration.

CHAIRMAN MELIUS: Okay, we figured that. Good.

Okay and I would like to move to Hanford. Ted, can you make sure the phone is working correctly?

MR. KATZ: One of my Board Members, Gen or --

MEMBER ROESSLER: Yes, Ted, we seem to be on now.

MR. KATZ: Okay, very good.

MEMBER ROESSLER: But you never know. We have been on and off most of the morning.

MR. KATZ: Well, I understand. There have been a number of problems. One of the problems contributing to this, too, is that the vast majority, because I looked at the website that shows everybody's individual line, the vast majority of you that are listening have not muted your phones and that causes problems in and of itself. There is -- press *6 to mute your phone. But really everyone but the Board Members for most of this day should be muted for the entire

session until we get to public comment session later. The only exception to that is the SEC petitioners who can be off mute because they will be speaking to the group off mute during their SEC sessions. But that would be helpful anyway. Thank you.

CHAIRMAN MELIUS: So the next item on our agenda is an update on the Hanford SEC Petition number 155, which we talked a little bit about at our last meeting. The Work Group has discussed and we have an update to date.

The order will be that first Sam Glover will give an update. And essentially it is the presentation that he gave to the Work Group at our recent meeting. I will give you sort of -- since I chair the Work Group, I will give you sort of an update of the Work Group meeting. We may ask Arjun to comment at that point also.

And then before we take any action, actual action on the petition, we want to have an opportunity for the petitioner or

petitioner representative to make comments and then we would open it up to some sort of decision or action by the Board at that point in time.

So, Sam, go ahead.

DR. GLOVER: So we are going to try an alternate microphone. Does this sound okay? Can you hear me?

CHAIRMAN MELIUS: I can but I was hearing the other one, too. It is the people on the phone that were --

DR. GLOVER: Okay, I want to make sure that everybody can hear me so that everybody on the Board can participate.

MEMBER ROESSLER: We can hear offline -- I mean on the phone. I can hear.

DR. GLOVER: Great. I am -- giving this presentation now I feel a lot better. Last week I, unfortunately, was feeling very unwell. So I also promised Glenda when I put this together, I was like this is only going to be provided over the

thing. We are just going to be walking through these slides. So she made me redo these a little bit since we are actually going to present these.

So there is a few parts in this, I apologize, I am going to go through fairly quickly because they are really just an update that I provided to the Board and kind of reminding folks where we were.

So this is SEC-00155 and I am just going to very quickly give you a brief update on the petitions, discuss Hanford's bioassay program during this time period. And I focused on Super S and the fecal monitoring program. I am also going to discuss a little bit about OTIB-49, which is NIOSH's Super S, how we deal with Super S cases and specifically what do we do for OTIB-49 at Hanford, especially with cases dealing with fecal samples.

So very quickly, the petition came in November 10, 2009. The petitioner proposed

a very specific Class: all personnel who were internally monitored via urine or fecal samples, who worked at the Plutonium Finishing Plant in the 200 Area at Hanford Site from January 1, 1987 through December 31, 1989.

The petition was qualified for evaluation essentially for the opportunity that radiation records may have been lost or falsified. And this was part of the US Testing falsification of data issue and we have discussed this at some of the previous ones. But just to kind of refresh folks' memories, Hanford right now has four SEC Classes that were previously added and we sort of did this incrementally. The very earliest years 1943 through 1946 was the DuPont era; '46 through '68; and then we had a Class that subsumed all of that and added a few years at the end, which expanded from very specific Classes to a more broad Class beginning in '43 through '72; and then most recently we added 1972 -- it was added to the SEC from 1972

through 1983 for all areas of Hanford in SEC-00201.

So SEC-00057 sort of subsumes most of that. They have asked for -- the original petition came in looking for 1943 through 1990. The Advisory Board of NIOSH continued to review post-1983. The time frame associated with SEC-00155 was encompassed by SEC-00057; however, it was very specific and focused on the data falsification and was deemed appropriate for a separate review.

The petitioner's specific evidence of accusations by the U.S. EPA of purposeful wrongdoing by US Testing resulted in NIOSH determining that issues regarding quality of bioassay data required further investigation as a separate issue from the continuing Board evaluation of SEC-00057 and the intent of NIOSH's separate evaluation of SEC-00155 was to assure that issues identified with US Testing's non-bioassay analytical programs did not adversely affect the company's bioassay

analysis operations in Richland, Washington. They had two separate laboratories. If you recall, there was a New Jersey lab and a laboratory in Richland, Washington. And it was the laboratory in New Jersey that was found, to be convicted of wrongdoing.

NIOSH evaluated the time period requested by the petitioner, realizing that if issues were found, it would broaden. And so we looked specifically at January 1, 1987 through December 31, 1989. And while the location was specified as employees who worked at the Plutonium Finishing Plant, the evaluation was primarily focused on the overall bioassay program. So it encompassed a broader part of Hanford.

So some sources of exposure. So our next slide, those who are following online, some sources of exposure 1987 through 1989. And I have starred the ones that had identified as Hanford as being a potential source of insoluble plutonium with low

americium-241 content. This would be considered fresh plutonium.

So the weapons grade metal production, the Remote Mechanical C Line at Hanford is starred, the Plutonium Reclamation Facility, miscellaneous treatment glove box operations, analytical laboratory operations, development laboratory operations, and they also had this polycube processing going on at the time, which is mixture of polystyrene and plutonium oxide.

There were, also at the PUREX facility, an oxide production line that was run during the early part of this time frame and it also is identified as a potential source of fresh plutonium.

So personal monitoring data. US Testing processed thousands and thousands of bioassay samples during this time frame. I have got some graphs that will show this very shortly. Urinalysis was the principal method of bioassay at the site. Workers deemed to

have higher risk or those involved with potential incidents may also have fecal samples. Americium typically monitored with in vivo counting methods, usually as an indicator of plutonium intakes.

Hanford also maintained an extensive area monitoring program which was not the focus of this review.

Briefly, Pacific Northwest National Labs was responsible for overseeing the quality of the data produced by US Testing during this entire time frame. And they had around 250 blanks and quality control samples from 1987 to 1989 and annual reports were conducted and these were reviewed as part of NIOSH for our SEC review and in the Board's folder, I moved some of these documents there for your review.

Just very briefly about 1983 Hanford modernized its bioassay program. They went from a gross separated alpha -- they still separated things, but it was done with a

gross measurement tool. And they went to alpha spectrometry in 1983. Well this is not a specter from their -- this is actually from my historic archives. This is the kind of information you get from alpha specter for different nuclides. So you get all the different radiometric materials separated and you can use this as a recovery-corrected method so you can adjust for recovery.

US Testing developed methods to respond to expedited samples. So there weren't just samples done at US Testing. There were also samples done for accidents and for -- and so each of them had their own detection limits. And so when you look at the database, you need to recognize that some have different counting times and different, they allowed different recoveries. What would your detection limit be associated with that?

So this is a confusing graph. And it is really not that bad but when you first look at it, like what are you trying to say?

What I am trying to indicate is for a person who has a fecal sample in either a year before it or the year after it, how many urinalysis or in vivo measurements were conducted for that person? And so let's just take 1988. For people who had a fecal sample in 1988, there were 180 persons who had four other samples done. And, Paul, you had a lot of questions. Did I explain that okay this time? I hope. Because really I lost them the last time I was trying to explain this. And so in 1989, there would have been 120 persons who had four of these measurements conducted on either side.

So you can see in 1988 and '89, they ramped up the fecal monitoring program but essentially there are, for a person who has a fecal measurement, they have many other measurements conducted the same time.

And this just gives you a feel for how many more samples are being conducted. Typically anywhere from 1500 to 3,000 urinalysis samples at a time, versus what may

be up to 150 or a couple hundred fecal measurements in a given year.

So Hanford was very much in front of the Super S curve or concerns when -- I provided some different documents Hanford had prepared for us or obtained for us so we would have those. I gave those to the Board. They presented an overview of technology shortfalls in 1988. They called it at the time, Super Class Y. And now it is, as the ICRP models have been updated, it is Super Class S, essentially the same but S and Y, it is just a different terminology in a document called Methods to Improve Plutonium Monitoring.

At the time they used ICRP 30 biokinetic models. So kind of the older style but it is still -- they looked at what would be the deficiency or insufficiency to meet the DOE orders to meet the 100 millirem annual effective dose equivalent. And so they provided tables that showed the amount of plutonium going to urine. It was too low to

be observed using the alpha spec method. And they were very concerned that freshly prepared plutonium would take some time for the americium-241 to grow in. And so the in vivo counting methods would be insufficient to find these intakes.

And so I won't belabor the tables. This gives you some element of mass and activity that were required to meet their targets, what they felt the 100 millirem targets would be at the time. And those are annual effective dose equivalents. So 100 millirem every year.

And so here we have what is called a bioassay challenges that they described in the '88 document. You can see that for an intake at their intake level, at what they consider their target level, it would very quickly drop below the level that they can see by alpha spec. And so you see the graphs. Curve A is excretion in urine from the acute intake that would be measurable at one year.

So this gives you what the urine excretion using the old biokinetics would have looked like. And then curve B shows what the expected urine excretion would be at the target line. So you can see for B within two or three days, it drops below. And that is for a type S intake. So that is the upper curve. The lower curve would be for what they had developed as their Super Class Y. It starts out below the intake level and for the target excretion, you can see that it doesn't get there.

So they actually began a pilot fecal program and I concentrated on the fecal program because there were a lot of questions by the Board. So I focused a lot of my presentation to that. They had about 50 workers who participated and they had some issues regarding providing samples and sample not reported. Of the 84 scheduled samples, they only got 58. There were 1719 plutonium urinalysis samples for 1987, that same time

frame. And the workers did not like it. Obviously, fecal sampling programs are not really well received by the analyst or by the person providing the samples.

The pilot program was continued for 100 workers at the Plutonium Finishing Plant, the first one being at PUREX. So they actually then moved this to the Plutonium Finishing Plant. Fecal samples showed about 40 to 50 percent of the workers were statistically greater than controls and these were -- it was basically a low-level plutonium intake going on at the Plutonium Finishing Plant that they were seeing in the fecal programs. And they actually then introduced some very long, high-rate sampling programs of air samples and then confirmed that there was this low-grade intake going on.

Plutonium urinalysis, they had 2,008 routine, 130 specials, which would be associated with an intake or a suspected intake. There were 37 routine plutonium fecal

analysis and 34 specials.

So in 1989 after 12 months as a pilot program, the sampling frequency was changed to annual and essentially this became mandatory. They had mandated that the workers would participate. There were 2,156 routine urinalysis and you can see that the big ramp up of plutonium fecal analysis were 259 routine with 16 specials.

So this was implemented with the experiences learned during the pilot program. It was mandated by the employers. There was not an external spike program. So the urinalysis program, they would provide some blinds with some spikes. It is harder to do that with a fecal program because you are really looking at trying to spike it with insoluble material and it is not just like spiking it with a liquid standard. However, all the standard radiochemistry practices were still observed. You still had to have, so you may not have a special QC sample with that

associated as a blank or a fecal sample that had a spike in it, you still had to run spikes. You still had to run blanks. You still had all those alpha specs and everything associated with all the quality control programs that US Testing ran for the urinalysis program. So they were still observing all those same procedures.

So until 1990, June 1, 1900, the routine fecal program operated normally, until the contract default with US Testing. The May samples were never analyzed.

In September, before an interim contract could be put into place, Hanford terminated the program. This was done because the Hanford facilities were no longer processing materials that would be classified as freshly separated Super Class Y plutonium. So they stopped this fresh oxide program.

So the in vivo would be able to see it, essentially is that means. Now the in vivo program will be able to see the

americium-241 with that. Even though there may be a deficiency in the urinalysis, you can still see it by the in vivo program.

So dose determinations made for workers in the program at the start of the year were assumed chronic exposures January through September, based on the fecal results in the December 1989 through April of 1990. This is PNNL's dose determinations, not ours.

In the 1990 Pu urinalysis, there were 759 routine, 56 specials; and 35 routine fecal samples with 44 specials. At this time, once the US Testing shut down, they sent a lot of samples out to places like Los Alamos and Oak Ridge until they could get a contract in place because they still had to get that feedback on worker bioassays.

The results of the pilot program were summarized in a 1993 published paper about approximately 100 workers. They discussed the quality control samples using artificial and known blanks, people who were

known not to be exposed to plutonium. There were 391 samples from workers provided, 47 control samples consisting of 31 artificial and 16 samples from unexposed individuals.

So very briefly, OTIB-49, that is our TIB on estimation of doses for plutonium strongly retained in the lung. Let's see, this seems to -- I think she split my slides a little differently. So anyway, sampling and radiochemical methods described, that actually goes to the previous slide. I missed that. That actually should have been with the previous slide. So in that paper they describe some of the radiochemistry.

So in this OTIB-49 estimation of doses for plutonium strongly retained in the lung and while the newer ICRP insoluble plutonium increased the retention time above ICRP 30, the actions that we have seen, there are people who have longer retention than what the new models show. And so we have had to modify our doses associated with that.

So OTIB-49 was based on nine cases from Rocky Flats and one case from Hanford that had well defined intakes and exhibited long retention times. Upper-bound cases were used to establish the bounding dose. So the worst case, longest retained materials in the lungs by actual workers, that was actually used to set this data. We then compared that to data from the U.S. Transuranium and Uranium Registries autopsy cases to see how it compared.

Just to give you a feel, this is a case from Rocky Flats, Case 825. The dotted purple line shows the type S what you would expect. You can see that after a thousand days to ten thousand days, it drops off quite a bit. But you see that the blue dots don't follow that line. The material is much more insoluble than that and stays in the lung. So that is going to continue to give lung dose. It is not going to give necessarily a dose to the other organs in the body but for lung and

lymph nodes, it is an important factor. So we have to come up with dose adjustment factors, depending on the type of data being used, whether using in vivo data or urinalysis data or air data, you have to adjust for the factors on dose.

And so essentially here you will see the bottom line on curve B1, it says what a type S lung retention would look like. The top lines are what the cases, the worst cases, those two that Rocky Flats and that Hanford case, what they showed their retention to be. And so you can see for curve B2, these are the adjustment factors to go from the bottom line to those various cases. You can see that upper correction factor is the curve that we apply for OTIB-49.

So you can see that on an individual year as you get out past intake, it can take a substantial adjustment in dose from what you would expect from class type S. So we do not try to change the models; we adjust

the dose.

So we have essentially I am not going to get a lot into this but the Super S adjustment factors, depending on whether you are dealing with lung counts or with air concentration or urinalysis, there are a number of factors that are used to adjust the dose to make it equivalent to what the dose should be, based on the type S sampling.

All right, next slide. So OTIB-49 specifically addresses adjustments of fecal data. Fecal samples collected less than two months after an acute intake or less than two months after the end of a chronic intake should be evaluated with the standard type S model. Once the intake is determined, the dose is adjusted using direct measurement factors. Fecal samples collected after this two-month time should be modeled as if they were urine samples because essentially what is happening is the mechanical clearance in the lung is being overridden. For whatever reason

the plutonium normally, there is a mechanical factor in addition to solubility, they are still pulling this out. And those essentially have been turned off. And so the mechanical factor is what puts it into the fecal samples and so you have to then model this as a urine sample.

And so we adjust that by a factor of three. And the reason is here is the correction factor. If you were to use injected plutonium and compare the fecal output and the urine output, this is the fraction of intake in the urine and fecal samples. If you look at the ratios, after 100 days, three months, you sort of waiver in between two and three as an adjustment factor.

So application at Hanford, during this time really we are looking at standard procedures used to apply to Hanford data. Assumptions include the age of plutonium, the plutonium isotopic makeup, fuel grade or weapons grade, the solubility class, including

Super S, if appropriate. And that is dependent on the organs. You have to really look at the information available for a case and what are the cancers associated with that case.

NIOSH TBD currently uses the contractual MDAs. That has been discussed. Methods during this time period for SEC-00155, current TBD indicates ten year old plutonium should be used. Weapons grade and fuel grade may be evaluated. And I must say rarely is fecal data available. But OTIB-49 is used to evaluate and compare that with other indicators.

Sometimes they indicate intakes are not claimant favorable if the assumptions would result in detection by other methods. So you compare the urine versus the in vivo. And you have to look at did I have a claimant favorable assumption. Case-specific data must be reviewed since in vivo data may make some assumptions not claimant favorable.

With that, thank you very much.

CHAIRMAN MELIUS: Okay. So at least from the Work Group's perspective, we have gone through this, we feel this sort of completes the evaluation of this SEC. We had already had a presentation and gone through on the issue of the US Testing and the fraud at that that we discussed at our last meeting. We still had some questions on the dose reconstruction method. So that is why we had another Work Group meeting and went through that.

Let me open up first for Board Member questions for Sam. I will add at the Work Group meeting, Arjun and Joyce Lipsztein were both involved. It was a conference call and the SC&A was satisfied with the dose reconstruction method. I think it is a fair statement. We did not ask SC&A for a formal review of it but we did ask for their participation in the conference call including Joyce, who has got significant expertise in

this area.

If there are no questions, then -- yes, David. You look like you are --

MEMBER RICHARDSON: I have been trying to get myself organized. I apologize.

One question was related to intake dates. You had an algorithm for interpreting the fecal data based on the time from intake. Could you explain to me how that would be known or when that is known and when that is not clearly known?

DR. GLOVER: Yes, sir. That is where the case-specific data comes into play. Sometimes the only reason we know there was an intake is that it triggered the fecal samples and so they evaluated it as an acute. So Hanford oftentimes, as a result of whether the guy came back with positive nose wipes or there is an indicator that they began following an acute intake. Oftentimes we are going to treat these as constant chronic's, our standard approach. But if there is

indicators that the site actually had an intake, then we are going to look at that and compare the analysis as if it was -- so the site will often give us indicators that an intake occurred.

MEMBER RICHARDSON: There were -- I don't want to go back to -- I would like to but I am not going to go back to some of the other issues that were raised in the report. But one of the things I am trying to juggle was monitoring for kind of the relationship between the availability of in vivo data and the questions about the bioassay data. And my recollection of the Hanford data are that there is -- I mean in a sense, there is a lot of information. On the other hand, there is not. You saw transitions over time between kind of more bioassay monitoring or more in vivo monitoring and that there are at least groups of workers for whom, there is a large proportion of workers for whom there is neither. There are some who only have in vivo

information. There are some who only have bioassay. And then there are some who have both.

And some of the questions that were raised about concerns about the bioassay program are sort of set aside because, well, for americium-241 was largely monitored by the in vivo program, which is true as long as somebody was covered by the in vivo program. And presumably one of the reasons that you would do bioassay also is that there was some value in that. And I guess I am trying to understand how we kind of resolve that problem. Is there -- the argument I guess is that the in vivo program was sufficiently targeted such that they were running the bioassay program for americium, for example, with very little value added. Is that --

DR. GLOVER: I don't know whether very little value added is the right --

I guess the question I have is that not everybody always has to have bioassay

but we have to know that the highest people at Hanford had the bioassay or that were appropriately. So not everybody at Hanford has urine and fecal in vivo but they had a very aggressive monitoring program for the people at the plutonium finishing plant and the other facilities. And so many times everybody was monitored through certain time periods at Hanford. So I doubt -- and I didn't, unfortunately, pull the statistic down. Some of my database stuff came back late and, unfortunately, I was ill.

I did have the data come late on the in vivo but there is a very large americium-241 and that would have been coupled to the urinalysis program. You wouldn't have typically done urine or the americium-241 measures. You may have whole body counts and not urinalysis because you may be in an area that is not really plutonium.

So for people getting Am-241 chest counts in the lungs, that would typically be

coupled with the bioassay program. For these very specific workers, they also had some fecal measurements done.

So but it really would have been -- you know they had some very specific protocols and I don't think we have seen any evidence to believe that the highest exposed personnel wouldn't have been monitored.

CHAIRMAN MELIUS: I think I would also add, David, this is a very focused SEC petition. So there is ongoing evaluation going on that is sort of more looking at the bigger site and so forth. We added a number of people, large numbers to the SEC already, site-wide. But there is still ongoing evaluation being done. This is sort of a separate focus. I mean the questions are appropriate but you sort of have to remember the context also.

Henry?

MEMBER ANDERSON: Yes, could you just remind me what triggered the special

samples?

DR. GLOVER: There would have been specific criteria that would associate with an incident. They expect if somebody may exceed the 100 millirem --

MEMBER ANDERSON: And would all of the people involved in an incident actually have had tests or was that also a voluntary thing so that you could have people that should have had a special test but didn't and then how would you address that issue? Because it would probably be in their record that they were involved in an incident but if they didn't have testing, assessing that would be a challenge.

DR. GLOVER: There are certain Classes of workers that -- typically routine samples like closeouts or when they leave a site, that you may not get it. People at the Plutonium Finishing Plant, if you did not provide a sample, you are going to go on a work restriction.

MEMBER ANDERSON: Okay.

DR. GLOVER: So you are not going to continue to work.

MEMBER ANDERSON: Good.

DR. GLOVER: So if you don't -- I mean it is sort of voluntary but not really.

MEMBER ANDERSON: Yes, okay, because the fecal samples are often a challenge.

DR. GLOVER: Yes, that was sort of a pilot program and they were just trying to implement it. And when it became mandatory, then if you wanted to continue working, you had to participate.

MEMBER ANDERSON: Okay, thanks.

CHAIRMAN MELIUS: Any other Board Member questions? If not, if the petitioner or the petitioner representative is on the line, if you wish to make comments.

Again if the petitioner or the petitioner representative is on the line and wishes to make comments. You may be on mute,

so please, *6 again would get you. Okay.

I will add that the petitioner representative did participate in the Work Group call and discussion.

In that case, let me indicate that the Work Group at our last meeting slash conference call did vote with all those unanimously to recommend that the NIOSH recommendation is that this Class not be added to the SEC, that they could reconstruct dose with sufficient accuracy for this particular Class that was evaluated for this petition.

The Work Group agreed with that determination and, therefore, really is bringing a motion back to the Board that we accept the NIOSH evaluation.

So any further discussion or questions on that? If not then, Ted, do the roll call.

MEMBER GRIFFON: An affirmative vote is to support NIOSH?

CHAIRMAN MELIUS: To support

NIOSH, correct.

MR. KATZ: And let me just note for the record that Ms. Beach and Ms. Munn have been recused from this discussion and also for the vote.

Dr. Anderson?

MEMBER ANDERSON: Yes.

MR. KATZ: Mr. Clawson?

MEMBER CLAWSON: Yes.

MR. KATZ: Dr. Field?

MEMBER FIELD: Yes.

MR. KATZ: Let me just check to make sure. Mr. Gibson, are you on the line? Okay.

Mr. Griffon?

MEMBER GRIFFON: Yes.

MR. KATZ: Dr. Kotelchuck?

MEMBER KOTELCHUCK: Yes.

MR. KATZ: And Dr. Lemen is absent. Dr. Lockey?

MEMBER LOCKEY: Yes.

MR. KATZ: Dr. Melius?

CHAIRMAN MELIUS: Yes.

MR. KATZ: Dr. Poston?

MEMBER POSTON: Yes.

MR. KATZ: Dr. Richardson?

MEMBER RICHARDSON: Yes.

MR. KATZ: Dr. Roessler?

MEMBER ROESSLER: Yes.

MR. KATZ: Mr. Schofield?

MEMBER SCHOFIELD: Yes.

MR. KATZ: Ms. Valerio?

MEMBER VALERIO: Yes.

MR. KATZ: And Dr. Ziemer?

MEMBER ZIEMER: Yes.

MR. KATZ: So the motion passes unanimously.

CHAIRMAN MELIUS: Okay, thank you. And why don't we take our break now. I will remind the Board, we do have a number of issues to go over in terms of Work Group reports and so forth. But we turn, at least I believe it is on the second page on the annotated agenda that we received are some

suggested dates for meetings next fall. So if all of you could check your calendars, because I would like to do that. The next time we have a break we should at least start to discuss those while everybody is here.

And we will reconvene promptly at 11:00 because we have an SEC evaluation to review at that time. Thank you.

(Whereupon, the above-entitled matter went off the record at 10:37 a.m. and resumed at 11:03 a.m.)

CHAIRMAN MELIUS: Welcome back and the next thing on our agenda is an 83.14 petition Battelle Laboratories. And Tim Taulbee from NIOSH will be doing the presentation on that.

Go ahead, Tim. And again, best you can, speak into the microphone. Get as close as you can because it is hard to do that and look at slides at the same time.

DR. TAULBEE: Okay. Thank you, Dr. Melius. Well, hopefully we have moved the

microphone onto this side so that when I look at the slides, you will still be able to hear me. Thank you, Dr. Melius.

Before we get started, let me recognize the lead author of this SEC. And this would be Jason Davis. He did the lion's share of this work. I just have the privilege of presenting it to you all today.

So to give an overview of this petition, this has actually been a little bit of a work in progress over the past few years, as you will see. But in October, NIOSH determined that it was not feasible to complete a dose reconstruction for an existing Battelle Memorial Institute, King Avenue claim. So on October 18th we notified the claimant and provided a copy of the Special Exposure Cohort Petition Form A. October 25th we received the 83.14 and then on October 19th we issued this Evaluation Report.

The proposed Class is all atomic weapons employees who worked at the King

Avenue facility owned by Battelle Laboratories in Columbus, Ohio during the period April 16, 1943 through June 30, 1956 for a number of work days aggregating at least 250 work days occurring either solely under this employment or in combination with work days within the parameters established for one or more other Classes of employees included in the Special Exposure Cohort.

So how did we come to this particular Class and determination that we couldn't do dose reconstruction? So that is the subject of my talk today.

A little bit of background. Battelle is an EEOICPA-covered facility from 1943 until 1986 as an AWE. It is a 58.3-acre site, accommodating 13 buildings bordered by King Avenue, Battelle Boulevard, Perry Street, Third Avenue, and the Olentangy River.

The main focus of their work was to perform atomic energy research and development for, initially, the Manhattan

Engineering District, the Atomic Energy Commission, the Department of Energy. They also did work for the Nuclear Regulatory Commission, Department of Defense and commercial entities. It has been owned and operated by Battelle Memorial Institute.

So that is a rough background of what the site was doing.

The information that we looked at to try to do dose reconstruction starts really with our Site Profile and Technical Information Bulletins and procedures. And the Battelle King Avenue Technical Basis Document was really pretty void of information prior to about 1956 time period. And the reason that the initial authors of it didn't cover that time period was we were having difficulty getting data but we also didn't have any claims at that time in that era. So it wasn't a huge priority for us to try and identify people or to identify information. It was only until recently during an update that we

went back to try and gather more information regarding that TBD.

We also have Site Research Database, existing claimant files. And what I want to talk to a little bit here is the data captures. Because of that vacancy in the TBD, this is why we started going back to the sites, to Battelle on-site. About two years ago, in January of 2011, we went up there. We talked to them. We looked through their microfiche records as to what information that they had in this early time period to try and gather more information on their inventory, their processes, their radiological monitoring information.

So we visited the site four times in the past two years, three in 2011 and one in 2012. We also looked at DOE's Legacy Management Database and the OpenNet or OSTI, Energy Citations database. We looked out at Hanford in their Declassified Document Retrieval System, conducted internet searches,

as well as looking at the NRC's ADAMS database.

So we have spent a lot of time in the last two years looking for records for this particular site in order to work on upgrading that Technical Basis Document. Well, in total in the Claims Tracking System we have 62 Battelle claims for the King Avenue facility. Only 25 are during these recommended years that we are recommending this Class for. Dose reconstructions have been completed on 19 of them mostly due to work on other sites and many of these have become compensable due to this other work that we were able to fill in or SECs at other sites, for example.

Claims that contain internal dosimetry were zero. Claims that contained some external dosimetry were six. So what you will see here is the difference between the Class and the number we have completed. We are looking at six claims.

Of the six claims, only one of them actually has an SEC cancer and that is this one that we are able to contact them and notify them of our inability to reconstruct the doses. So the other five that we have within the database that we haven't completed do not have SEC cancers.

So a little bit on the radiological operations during the AEC work. With the initial contract with Manhattan Engineering District was April 16, 1943 and it was to perform atomic energy research and development activities. This initial work was on the fabrication, rolling, forging, and extrusion of uranium metal. This was for the Clinton Pile as well as the Hanford Piles.

Then they switched in the mid to late 1940s through early 1950s to work with uranium and thorium metal. And with thorium I will get into more detail later but particularly we are concerned with the forging that they were doing.

Between or right after the war is when they started doing some research in the extraction of uranium and thorium for phosphate ores, particularly the Chattanooga shale deposits and then to the monazite sands.

So this is kind of a summary of the radiological operations that they were doing this time. And I will go into more of the uranium and thorium operations here in a minute.

But the buildings that they were working on were somewhat limited. Building A was their corporate office but it did have some small laboratories. Most of the work in this early time period was done in the Foundry, the Metalworking Building and the Materials Building. They also had a Radiochemistry Building, a Machine Shop, and then two other Chemistry Buildings and a Mechanical Engineering Building that actually worked with some depleted uranium.

And what you will see here from

this particular slide is these areas. And up here you have got the -- okay, we can't see it. Do we have another pointer? Okay, apparently not.

Anyway, from this slide you can see Building 1 there with the Foundry down to the south of it is where the metal working and the materials laboratories are. Building 4, they are the Radiochemistry and so forth.

So the potential for radiation exposure was really uranium, enriched uranium, thorium, and then some special samples. External radiation is primarily beta and gamma from exposure to uranium and thorium and then the special samples of radium.

So the uranium operations that were going on during the war, 1943, and this is from an MED Trip Report, they talked about the heating of the pellets, the extrusion of small billets into rods; hammering of heated billets into rods -- that would be forging -- the rolling of the heated billets; experiments

to prevent oxidation; machining, they were doing some of that under oil and then nickel plating.

By 1945 they had written a report on the metallurgy of uranium, Tuballoy in this case and how all of these process work. So they were kind of a research development of how to do this during this war effort.

After the war, though, this work appears to have scaled back. The research shifted more to the extraction from ores and sands. And they were looking at small quantities -- large quantities of ores and sands but the batch processing methodology they were using was pretty small, on the order of ten to 20-pound type of batches. And when you look at the uranium content within those and the thorium content, you are looking at really gram-type quantities.

The emphasis during this time period appears to be more on the work of beryllium, at least that is the preference --

the abundance of reports that were published during that time period.

One of the Trip Reports that caught our interest as well was, mentioned occasional samples from Chicago and Clinton Laboratories are received. These are low radioactivity. Intensity of radioactivity is measured before leaving Chicago or Clinton Laboratories and the results accompany the samples. An example of this was a radium compound measuring 0.1R for 50 hours at a distance at one foot. At present time, no samples have been received which reveal any significant degree of radiation. So in this time period they didn't really consider this 2 mR per hour source to be significant. So we found that kind of interesting, especially when you consider during the war effort they were also processing some tons of uranium using that for research and that also was not considered significant apparently.

The report goes on to talk about

that the Battelle Institute had no radiation counters and was equipped in no way to work with radioactive materials. Although they had been doing this for the previous three or four years. The officer advises that should the occasion arise, the handling of hot material as necessary, the necessary counters and film badges should be obtained. So we have pretty good evidence that at this point they had no radiological monitoring capability prior to 1946, even though they were doing some radiological work, including forging and rolling of uranium.

1952 is the first indication here we have of some kind of radiological controls of personnel monitoring -- not personnel monitoring but personal protective equipment. This is on the rolling of uranium. And here you are seeing a worker rolling rods in strips under various conditions and roll-separating force was measured. Here is the instrumentation. Here he is feeding a uranium

bar into the rolling mill, very precise type of measurements. You also notice he is wearing a respirator, a half-face respirator in this particular case. But this was the only mention or the only indication we had there was really any respiratory use during this type of scenario. We don't know if it was all the time. We don't know if this was just on a one time off. But we do know that the particular operation here with uranium rolling is more of a hands-on type of operation. This isn't remote. This could generate some dust here.

The inventory information that we have is also incomplete but it follows along the story of what we have been able to reveal from the records. A '43 and '44 time period we are looking at a little over a ton of uranium, '45, '46 we don't have any inventory reports so I have got a question mark there. We don't know whether there is a lot or a little. 1947, '48 through '51 it does seem to

ramp back up, which supports those measurements that I showed you in that previous picture. Enriched uranium not much at all was handled there.

Thorium, this one is a little bit of a surprise as to the 800 kilograms in 1947. We don't quite know what they were doing with that in that time period. We do have some indication in '48 and '49 and later. And I will talk about that in just a second.

So what we have is kind of an incomplete inventory picture. Now, there is the possibility of additional data captures being able to fill this in. The reason that we are not holding up this 83.14 really has more to do with the lack of monitoring information. But the inventories are showing there was significant quantities or some quantity of radioactive material there on-site.

For thorium operations, 1948 we have a memo from Westinghouse discussing the

rolling of approximately 900 pounds of thorium received from Battelle Memorial Institute. So we know that they were receiving material from Battelle. 1951 Battelle produced a report on the technology of thorium, which discussed the production of the metal, physical properties, fabrication of it, chemical properties, mechanical properties. So we are kind of assuming that they were doing some of this work. And when you look at the inventory that they had leading up to this, it kind of supports that they would be doing some of this measurement on the chemical properties, fabrication, et cetera.

The interesting part for us was 1951, an Oak Ridge Report, ORNL-1090 stated that the metal that they were using to develop their analysis on the metallurgy of thorium indicated that the metal was cast at Ames Laboratory, which we know Ames did a lot of thorium manufacturing or creating of billets. It was cast at Ames Laboratory, forged at

Battelle Memorial Institute, and rolled and machined at Westinghouse, which kind of moves up here to this 1948, receiving material from Battelle. Most likely, it was being forged back in 1948 and going to Westinghouse.

So we have some indication here that '48 through at least 1951, '52 time period, you have got forging of thorium going on there at Battelle in that foundry.

So going back here, the source term we are looking at ton-type levels of uranium and thorium. Process knowledge is showing rolling and forging, both physical processes that could generate dust and potential exposure to workers. There is some potential that workers were wearing respirators. We have no information about that as to what type or anything other than that one picture. That is all the information we have.

From an internal monitoring data standpoint we have no internal bioassay prior

to 1955 and we have one result in 1955. 1956 is when uranium urinalysis really kicks off there for the facility and the records seem to indicate that this was kind of the birth, essentially of the urinalysis program there at the site. And we have quite a bit of records starting in 1956.

External monitoring data, there is no external monitoring data until February of 1951. Some monitoring data between '51 and '55 and that is depicted in this particular slide where you can see the number of film badges that were issued. In 1950, it is very small, a couple of hundred in 1951 and then up to around 500 steady through about 1955, at which time the program really begins to take off, '56 and '57 with a wholesale monitoring of workers for external radiation.

We do have some what I would call non-routine radiological surveys. The first mention of, really, health and safety that we found was that 1943 Trip Report where they

said respirators are used in dusty places only. Don't know what dusty places means by their definition from that earlier time period. And we don't have any other indication other than that one sentence.

1947 we do have a radiological survey that appears to be the first survey that was conducted there. There is alpha contamination found in laboratory work table up to 2000 dpm, gamma surveys ranging from 1 mR per hour to 12 mR per hour. Beta-gamma was 0.1 mR to 160 mR.

The author of the Trip Report recommended that Battelle obtain radiological survey instrumentation. So this is a second confirmatory piece of information that Battelle didn't have any instrumentation until at least some time after 1947. So it doesn't appear that there was any monitoring really going on until that particular time period. And then we have these intermittent surveys.

The next survey set we have is

three radiological surveys in 1950 conducted March through May. There were 48 air samples analyzed by the Health and Safety laboratory in New York under several conditions: wet sawing, dry grinding, although most of these 48 samples were listed as installation blanks. They would take a blank and then they would move the air sampler to the particular location and take a measurement at that time. So they were very concerned about making sure that they had a good background going on. So really we have about 20 air samples from this time period.

1951 we have radiological survey conducted in three laboratories; 77 smears with contamination results ranging from background to 981 counts per minute. We don't have information on what counters were used or what the efficiency was. We could probably make some estimates there but 77 smears across three laboratories really isn't that much data.

Twenty-one beta-gamma surveys again ranging from 0.1 mR to 20 mR per hour. The desks, at least from the locations where these surveys were taken, desk tops were generally contamination- free, although work benches and hoods were not.

In 1957 we do have some breathing zone air monitoring survey conducted during the rolling of thorium. What I found interesting about this particular survey which is outside the time period here, but the author of that particular survey indicated to the people running the lab to please let him know when you forge thorium. He would like to take some air samples.

So it looks like the forging of thorium was going on from 1948 up through 1957 and in 1957 the person taking the air samples was actually wanting to try and get some data on that. So we have about a decade of an operation potentially going on here and we don't have any information about it, as to

what those levels were when they were doing that operation.

So when you go back and you take a kind of the weight of the evidence here of source term available, we are looking at again tons of, low tons, like one ton of uranium and likely a sub-ton of thorium. So low quantities but significant operations. The process knowledge tells us that they were do rolling and forgings, so an abrasive process that would generate dust.

Personal monitoring data we don't have anything during this time period for internal. For external we do have some starting in February of 1951, but for internal, we don't have anything of that time period, other than these handful of air samples at intermittent time periods.

So between all of those, it is just trying to do a dose reconstruction here to come up with sufficiently accurate value just doesn't seem feasible to us because of

the hands-on type of operation that was going on.

So as a result, our conclusion here is based upon these internal monitoring records, the process description is the source-term data. We feel these are inadequate to complete dose reconstruction with sufficient accuracy for the evaluated Class of employee during the period of April 16, 1943 through June 30, 1956.

Why did we cut it off at June 30, 1956? That is when the bioassay and urinalysis starts up. Now we do plan on conducting additional research at the site. We have got more data captures planned but our information so far indicates that we don't think it had any urinalysis out there, that there is no indication in the records that they were conducting any routine urinalysis prior to 1956.

The survey information that we have is intermittent, sometimes in Trip

Reports, sometimes just in a memo. There is no indication, unlike Oak Ridge National Laboratory that I presented back in September where we had indication that there was lots of air sample data out there, we just couldn't find it. We don't have any indication here that there is any air sample data, other than these few samples that we found.

So we don't believe there is anything out there, which is why we wanted to move forward on the 83.14 instead of waiting until we completed all of these data captures for this particular site.

June 30th was picked because when we looked at the bioassay data, starting in July of 1956 we have a list of workers and which buildings they worked in, buildings A, 1, 2, 3, 4, 5, 6, the main buildings, the Foundry, the Machine Shop, the Materials Building, the Metallurgy Building. People from those buildings were all included in the urinalysis program. So we felt that this was

a reasonable cut-off at this time, at least from an 83.14 standpoint. We don't have anything up until this time period and then it looks like the program is beginning to take some form and monitoring the workers.

With regard to the external monitoring, we feel the same way. The process descriptions, the source-term data are inadequate to complete dose reconstructions with sufficient accuracy for the evaluated Class of employees during the period of April 16, 1943 through February 13, 1951. This is the start of that film badge monitoring that I showed you earlier. So the actual external feasibility is shorter than the internal feasibility for this site.

When we start getting the film badge data, we do feel that we should be able to reconstruct the doses, or at least the external doses amongst these workers.

So our feasibility summary is that dose reconstruction is not feasible for

uranium and thorium from '43 to '56 and then for external, it is infeasible until February of 1951 and after February, we feel we can do external dose reconstruction.

So health endangerment, the evidence reviewed in this evaluation indicates that some workers in the Class may have accumulated chronic radiation exposures through intakes of radionuclides and direct exposure to radioactive materials. Consequently, NIOSH is specifying that health may have been endangered for those workers covered by this evaluation who were employed for a number of work days aggregating at least 250 work days within the parameters established for this Class or a combination of work days within the parameters established for one or more other Classes of employees in the SEC.

Again, our proposed Class is for all workers who worked at the King Avenue facility owned by Battelle Laboratories in

Columbus, Ohio during the period April 16, 1943 through June 30, 1956 for a number of work days aggregating at least 250 occurring either solely under this employment or in combination of work days within the parameters established for other SECs.

Again, this is just a summary of our recommendation. And with that, I will be happy to answer any questions.

CHAIRMAN MELIUS: Okay, thank you, Tim. Any questions? Yes, Phil.

MEMBER SCHOFIELD: Yes, Tim, I have got a question.

Starting in '56 we were seeing people monitored in those buildings. Do you know which all buildings they did this work in and were they decommissioned before '56 or were people still working in there but just not doing radiological work in there anymore?

DR. TAULBEE: Okay, say that last part again. I'm sorry.

MEMBER SCHOFIELD: Okay. What I

want to know is, you have a number of buildings listed in '56 where people were being monitored.

DR. TAULBEE: Yes, sir.

MEMBER SCHOFIELD: Do you know, were those the only buildings where radiological work had occurred? Because what I want to know is if people were still working, like had offices now in some of the other buildings where radiological work had been carried on, were those buildings decommissioned, decontaminated?

DR. TAULBEE: That is unclear to us. Now at least from the 1943 time period with the foundry type of work, it doesn't appear that those buildings were decommissioned or decontaminated because the work continued on post-1956.

It is just bioassay monitoring picks up then in 1956. So we are seeing the work kind of continuing over this span and it just, the monitoring picks up like in 1956

time period.

Does that answer your question?

MEMBER SCHOFIELD: Yes, it says there is people could have still been receiving a dose internally and externally in the other buildings.

DR. TAULBEE: That is correct, yes.

CHAIRMAN MELIUS: And they are still evaluating that. So we are not being asked to reach any conclusion on that at this point.

MEMBER SCHOFIELD: I just wanted to make sure that was clear in my mind.

CHAIRMAN MELIUS: Yes, okay. Paul?

MEMBER ZIEMER: Just to clarify though, for the early period that you are talking about here, you are including all the buildings on your map, I believe, not just the ones that you identified as radiological buildings. Am I correct?

DR. TAULBEE: That is correct. We

haven't found a way to really identify who worked in which building. So we are including all workers.

MEMBER ZIEMER: Right. Thank you.

CHAIRMAN MELIUS: And I actually have a follow-up to that. Since the Class definition is the King Avenue facility, is there a way for DOL to identify which Battelle Laboratory workers worked at the King Avenue facility?

DR. TAULBEE: In this time period, yes. And the reason is that the Jefferson facility didn't start up until 1956.

CHAIRMAN MELIUS: Okay. I wasn't sure what the history of Battelle was. It's a lot bigger now, I know. Okay, thanks.

CHAIRMAN MELIUS: Josie and then --

MEMBER BEACH: I just was curious. There was badge data you found in 199 external dosimetry records in '51. You may have mentioned it. Why can't you use that or why

aren't you using that?

DR. TAULBEE: We are using that.

MEMBER BEACH: Okay.

DR. TAULBEE: I thought I had said that we were using the external monitoring records, the badge records starting in 1951.

MEMBER BEACH: Oh, okay.

DR. TAULBEE: If you go back to this feasibility summary here, you will see that dose reconstruction is feasible after February of 1951 for external.

MEMBER BEACH: Oh, okay. Thank you. I just missed that.

CHAIRMAN MELIUS: Loretta?

MEMBER VALERIO: According to slide 62, claims have been filed for Battelle. Can you give us an indication of how many employees were actually employed at this site during the time frame being considered?

DR. TAULBEE: We have two pieces of information along that lines and that is 1947 and 1949. And it indicates the number of

employees working on the site or working on the AEC projects. I believe it is like 173 and 180. They are in the SEC report where we call those out. So we are looking at a few hundred workers that were known to have been working on the AEC projects there at Battelle in the '47 and '49 time period.

There were, obviously, more employees at Battelle at that time period than that, but those were the ones who were working on the AEC projects. But we are not designating only people working on the AEC projects as being part of the Class. We are saying all workers because we can't identify who those people are. Or at least we haven't found a way to identify them yet.

CHAIRMAN MELIUS: Josie, do you have another question -- or just want attention? David.

MEMBER RICHARDSON: I was also thinking about your map. If I was understanding correctly, although the map

showed a lot of buildings where a lot of work happened, for the period you are talking about, it was just Building A with the old administration building and Building 1, the Foundry that were really used until -- were actually constructed before the mid-'50s. Is that right? So all those other buildings on the map really didn't exist. That map is not showing what was there at the time that this SEC is being considered.

DR. TAULBEE: That is not -- no. The SEC goes through 1956. So some of these buildings that were constructed in the early '50s were doing radiological work.

MEMBER RICHARDSON: Okay, maybe I am just -- I mean it sort of says A and Building 1 and then it says Buildings 2 through 7, 10 through 13 were not constructed until the mid-'50s, which made me all of a sudden sort of blank them off the map and think are we really primarily focused with just two buildings and the Classes covering

those people and the rest of it wasn't there. I am stating that as a sentence, but I mean that as a question.

DR. TAULBEE: Okay, I don't know the answer to that actually. With regard to when each of the buildings came online and when they started doing work, I don't have that information at the tip of my hands here.

A lot of the decommissioning information that took place in the 1980s, they documented some of the building histories. That is the information that we are going off of. So you will find things that are vague in the reports of built in the mid-1950s. It very well could be the 1952 time period and the authors were calling it that.

So I don't know that we have the actual construction information of when these buildings came on place.

We do know that Building 1 was the primary one with the foundry with the rolling operations that were going on, rolling and

forging. These other ones we do know are radiological buildings, due to some of the other processes that were going on.

CHAIRMAN MELIUS: But we have no way of separating out the Class. So whatever was there and they worked in up through the end of June 30, `56, they are going to be covered. And apparently there is no way in the personnel records of determining if somebody come in in '55 could have worked in a totally separate building but we wouldn't have a way of knowing that or knowing that they weren't exposed, I guess would be the --

DR. TAULBEE: That is correct.

CHAIRMAN MELIUS: -- problem. Any of the Board Members on the telephone line have a question?

Okay, if there are no more questions, and my understanding is that the petitioner is not participating in the conference call.

MEMBER LOCKEY: Just one question.

The way I read it, if you worked at the Kings Avenue facility, you are covered. Correct?

DR. TAULBEE: Up through June of 1956, yes.

MEMBER RICHARDSON: I guess that got to my -- I mean at first I was thinking this is a very big site. There are a lot of buildings. What are the issues of access control? How many other people were working there? But it is sort of like during this period we are talking about, it is actually not a very big site and there were very few buildings. And those buildings that are there are apparently were the ones where there was work being done.

MEMBER LOCKEY: The whole facility is covered.

MEMBER RICHARDSON: Yes.

CHAIRMAN MELIUS: And they are putting up new buildings and probably maybe different operations, but you can't separate out the people. And we will see what happens

after '56. Maybe it got better after '56. That way we will have more monitoring records, so maybe that will help separate, though it doesn't always carry over to the personnel side.

If there are no further questions or comments for Tim, do I hear a proposed action on this petition?

Let's see, who could possibly -- Wanda?

MEMBER MUNN: Who would be willing to do that? I move that the Board accept the proposed Class --

CHAIRMAN MELIUS: Can you turn on your mic?

MEMBER MUNN: They told me it was on. The proposed Class -- yes, well we are not the red light district over here.

(Laughter.)

MEMBER MUNN: I make a motion that the Board accept the proposed Class of all atomic weapons employees who worked at the

King Avenue facility owned by Battelle Laboratories in Columbus during the period from April 16, 1943 through June 30, 1956 as an SEC Class.

MEMBER CLAWSON: Second.

CHAIRMAN MELIUS: There is a second from Brad. Any further discussion?

Then I will ask Ted to do the roll call, please.

MR. KATZ: Dr. Anderson?

MEMBER ANDERSON: Yes.

MR. KATZ: Ms. Beach?

MEMBER BEACH: Yes.

MR. KATZ: Mr. Clawson?

MEMBER CLAWSON: Yes.

MR. KATZ: Dr. Field?

MEMBER FIELD: Can you hear me, Ted?

MR. KATZ: Yes, perfectly.

MEMBER FIELD: Yes, I just want to go on the record that people on the line were not able to hear most of the presentation. It

was totally blank, just totally turned off, but I will vote yes.

MR. KATZ: Mr. Gibson? Okay, still absent.

Mr. Griffon?

MEMBER GRIFFON: Yes.

MR. KATZ: Dr. Kotelchuck?

MEMBER KOTELCHUCK: Yes.

MR. KATZ: Dr. Lockey?

MEMBER LOCKEY: Yes.

MR. KATZ: Dr. Melius?

CHAIRMAN MELIUS: Yes.

MR. KATZ: Ms. Munn?

MEMBER MUNN: Yes.

MR. KATZ: Dr. Poston?

MEMBER POSTON: Yes.

MR. KATZ: Dr. Richardson?

MEMBER RICHARDSON: Yes.

MR. KATZ: Dr. Roessler?

MEMBER ROESSLER: Yes.

MR. KATZ: Mr. Schofield?

MEMBER SCHOFIELD: Yes.

MR. KATZ: Ms. Valerio?

MEMBER VALERIO: Yes.

MR. KATZ: And Dr. Ziemer?

MEMBER ZIEMER: Yes.

MR. KATZ: And it is unanimous. The motion passes. I will collect the absentee votes after this meeting.

CHAIRMAN MELIUS: And, Ted, can I suggest that if we are going to continue to have problems with the lectern microphone that we ask the presenters to sit at the table and use one of these microphones?

MR. KATZ: Actually that problem wasn't a lectern problem. It was connectivity -- a phone -- an entire phone system problem.

CHAIRMAN MELIUS: Okay.

Since we have two SECs coming up directly after lunch and those are timed, I thought we would at least try to get started on some of our Board Work Group sort of business and other business between now and noon, and then at noon we will break for

lunch.

And the first thing I would like to do -- I am going to ask you, though. You are not ready now, so will you be ready this afternoon? Okay.

Mark Griffon will not be able to be here tomorrow. So we need to get in the Dose Reconstruction Subcommittee report and then Procedure Subcommittee report will be a little longer also, so I am going to put that off until this afternoon or tomorrow morning.

First let's start with the dates for the teleconference and meeting. And, Ted, do you want to go through that?

MR. KATZ: Sure. So I've just given you the date ranges for the next teleconference that we have to schedule. We already have it -- I don't know if anybody wants to be reminded when our meetings are already scheduled, but if that is helpful, I can do that, too. One second.

So going forward, what we have

scheduled is a February 7th teleconference. That is 11 a.m. March 12th through 14th, we are meeting in Augusta. May 2nd, another teleconference. It is again an 11 a.m. start time.

MEMBER ANDERSON: What is that, again, May?

MR. KATZ: May 2nd, May 2.

MEMBER ANDERSON: Okay.

MR. KATZ: And then July 16 through 18, Brad's country, Idaho Falls. So that is what is scheduled. And that is July 16 through 18.

I'm sorry, May 2 teleconference 11 a.m.

So we are scheduling out another teleconference and another meeting beyond what we have here. And the right date range for teleconference is September 2nd through 6th or 9th through 13th. Normally we do the middle of the week for the teleconference. So the Wednesday would be the 4th, I think.

CHAIRMAN MELIUS: I can't do the 4th.

MR. KATZ: But are other days that week okay for folks?

MEMBER MUNN: The third.

CHAIRMAN MELIUS: The second is Labor Day.

MR. KATZ: Right.

MEMBER MUNN: Okay.

MEMBER ANDERSON: I can't do the 4th either.

MR. KATZ: So the 5th -- how is the 5th?

MEMBER MUNN: Good.

MEMBER ANDERSON: 9/5 it is.

MR. KATZ: Is the 5th good for everyone here? And on the phone, Bill and John? That is just teleconference 11 a.m. September 5th.

MEMBER ROESSLER: It's okay for me.

MEMBER POSTON: This is John. As

far as I know that is okay.

MR. KATZ: Okay, that is all three of them said okay. Okay, so let's do that, then. September 5th at 11 a.m.

All right, then. And then for the next face-to-face meeting after that, the right date range, I am giving you a number of options here, October 15th through 18th, the 21st through the 25th and then the 28th through November first. So those are the full weeks.

The first week, the first day, the 14th is Columbus Day or something.

MEMBER MUNN: Columbus Day.

MR. KATZ: So that is a federal holiday. Well, I am not an expert on federal holidays, but I think that is right.

MEMBER BEACH: Ted, I am out for October totally.

MR. KATZ: You are out for October entirely? Okay.

MEMBER MUNN: Is the preceding

week --

MR. KATZ: Well I think we may have to live without you, Josie, because that puts us really far out of our range, otherwise, of when the Board can meet in a timely way.

MEMBER FIELD: Ted, would --

MR. KATZ: I'm sorry, Bill?

MEMBER FIELD: Yes, would another week work that month? I'm going to be away at that time.

MR. KATZ: You are out for the month of October, too?

MEMBER FIELD: Just the week of the 14th.

MEMBER MUNN: The week of the 14th.

MR. KATZ: So okay, that is fine. But then there is October 21st through 25th --

MEMBER FIELD: Yes.

MR. KATZ: -- or the 28th through November first.

So the 21st through 25th, does that work for you -- well, that is difficult. The first week of October is almost impossible because that is the beginning of the fiscal year and we can't really travel then.

MEMBER MUNN: Oh yes, that's right. We don't have any time before that to prepare, either.

The second week, the week of the 7th is doable?

MR. KATZ: I mean that is also sort of dicey for the same reasons. It is very difficult to travel very early in October in the federal world.

MEMBER RICHARDSON: What did we do last year?

MR. KATZ: Last year we met in September. That is just too soon after the previous one. If you want to stretch it out, we can push further into -- then we have to push into November, which we can do.

MEMBER MUNN: That is a long

stretch.

MR. KATZ: It's a stretch, right, but we will do what we have to.

Because the last meeting is July 16th through 18th, the previous meeting.

MEMBER MUNN: Yes, that is a long time. It tends to make for a hard schedule.

So the end of that second week, like 9th, 10th and 11th is still pushing all the federal folks too hard, is it?

MR. KATZ: It's not pushing federal folks. It is just you may not have systems in place to be able to travel in. So we just shouldn't do it then.

MEMBER MUNN: So is October 16, 17, 18 doable for most people? That is still not good for David, and Bill said he couldn't be here, right?

MR. KATZ: So we have two Board Members right now saying they cannot meet in October, basically. So do we have other Board Members who can't as well? Because if this is

a widespread problem, then we will push into November. I mean that is the other --

MEMBER ANDERSON: Do you have any idea what will be -- I mean would they be presenting anything?

I mean do we have any SECs coming up?

MR. KATZ: We don't know the agenda.

MEMBER ANDERSON: We don't have any idea.

CHAIRMAN MELIUS: Who knows.

MR. KATZ: That is too far out to guess the agenda.

CHAIRMAN MELIUS: We barely --

MEMBER ANDERSON: I know.

CHAIRMAN MELIUS: And we are usually half wrong.

MEMBER ANDERSON: Right, yes.

CHAIRMAN MELIUS: Right, LaVon?

MEMBER FIELD: Ted, would the week of the 28th work?

MR. KATZ: The week of the 28th works for -- I have heard from two people who can't meet that week as well, David Richardson and Josie Beach are out that week as well.

CHAIRMAN MELIUS: And Henry and I and Dick Lemen come back from a faraway place I dare not mention. We are out like the weekend before and getting back before Wednesday can be tricky.

MR. KATZ: Well why don't we push it to the next week in November, then? So it is a longer stretch but --

CHAIRMAN MELIUS: I can't do that.

MR. KATZ: Oh, you can't do that either.

CHAIRMAN MELIUS: I have the Wednesday --

MEMBER ANDERSON: So the week of the 14th is -- I mean, that would work for us.

MEMBER MUNN: But that is out for David --

MEMBER ANDERSON: Two, yes.

MEMBER MUNN: -- and for Josie and out for Bill. Bill said he is --

MEMBER ANDERSON: Bill, too?

MEMBER MUNN: Yes.

CHAIRMAN MELIUS: Why don't we do this more formally. I think --

MR. KATZ: Informally.

CHAIRMAN MELIUS: Well no, formally in the sense of let's get actual dates. Can people email? Do like from the October through early November, and let's really count who is available and who is not.

MR. KATZ: Okay.

CHAIRMAN MELIUS: And we have got some Board Members --

MR. KATZ: That's fine. We will do this by telephone.

CHAIRMAN MELIUS: Yes, or if you want to do a survey and we will talk about it again tomorrow if you can get --

MR. KATZ: Okay, and so for you, Jim, it sounds like the week of the 28th is

the only viable one of these?

CHAIRMAN MELIUS: No, the week before, I think. Early in the week.

MR. KATZ: Oh, the 21st, okay. All right. We can do this by phone -- I mean, by email.

CHAIRMAN MELIUS: I mean I do think the Board is big enough now that coming up with a common date that everyone is available is going to be very difficult.

MR. KATZ: Right.

CHAIRMAN MELIUS: So it is trying to minimize who is -- the number of people that have to be absent from the meeting.

MR. KATZ: Right.

CHAIRMAN MELIUS: Again, I do also get worried that if we are not careful we are going to have quorum problems.

MEMBER KOTELCHUCK: By the way, what is our quorum?

MR. KATZ: Your quorum is ten.

MEMBER ANDERSON: And does the

quorum count if people have to abstain?

MEMBER ZIEMER: Sure.

MEMBER MUNN: Sure, it does.

MEMBER ANDERSON: Okay.

MEMBER MUNN: It sounds as though the 21st is the logical --

CHAIRMAN MELIUS: I don't know what we would do if they all abstain.

MEMBER ANDERSON: Well I mean if they have to recuse themselves, then is it a different number we use?

CHAIRMAN MELIUS: There has got to be some rule for that someplace.

Anybody want to volunteer a Work Group report? Brad, you were smiling and you didn't do what you were going to ask me. I thought you were going to ask earlier.

So go ahead.

MEMBER CLAWSON: Yes, I wanted to kind of sit down and discuss about Pantex. As many of you know, back in August 24th, 2011 we deferred 1984 through 1991 and the bioassay

that was taken in 1989.

Since that time and I guess I am going to ask NIOSH officially and so forth, I talked to LaVon earlier, but we basically, we have been out there a year and a half waiting for this data, the problems at the site and so forth like that. I am basically at the point where, you know, how much longer do we drag this out.

We have still got the earlier years that we are going to have to evaluate, but I wanted to proceed on with these later years. So I guess I officially wanted to ask LaVon or Stu, whoever wanted to respond to it, where we are physically at.

MR. RUTHERFORD: Okay, is this on?

I talked to Brad a little earlier. It does not look like we are going to get any additional data from Pantex for that '84 to '90 period. So what we have indicated is that we are going to stick with the analysis that we have already previously provided and let

the Work Group make the decision and the Board whether that is sufficiently accurate or not.

And so the only other thing we are doing is trying to get a hold of the subject matter expert to discuss some of the neutron to photon pairing and that is it.

MEMBER CLAWSON: Okay. So as far as Pantex is going there, SC&A is waiting for this and, Joe, you can correct me if I am wrong, but they have started in to evaluating NIOSH's stance on this bioassay. And that is correct? Okay.

So we are going to be able to set up a Work Group now and as soon as SC&A gives their evaluation and gives a process to be able to give to NIOSH so we can sit down and have a Work Group meeting and discuss these later years, we still have the earlier years, too that we are working on and be able to sit down and find out the information, where we're at on that.

So just so everybody on the Board,

because they have been brought up to speed, if you remember last time they said they had found 320 boxes or something like that of data. We were waiting to evaluate that. It appears that they can't find this. And so we are proceeding on with their stance on the bioassay information that they would be able to back extrapolate for.

Any questions on our path forward?

CHAIRMAN MELIUS: So if I understand correctly and just to make sure for the record, that you will then schedule a Work Group meeting and come back to the Board with a final recommendation on both the early years and the latter years or just the latter years?

MEMBER CLAWSON: It depends on the information that we have gotten on the earlier years. There is still some possible data collection. This is, I mean when we are talking about Pantex, Medina/Clarksville kind of fall into it because it is part of the same data.

But the one that we are mainly focusing on is the latter years and that we will be able to bring to the Board the latter years and possibly the earlier years, too.

CHAIRMAN MELIUS: So we will schedule that for our next Board meeting, which will be the full meeting. Okay.

MEMBER ZIEMER: Brad, can you or LaVon clarify? Is the information not available because they can't find it or because it's classified?

MR. RUTHERFORD: No, it is actually -- and I want to clarify. What we are looking for is we are looking for these area access logs for that period. And they searched for them, and they didn't find any. We actually had identified documents that we thought indicated that they did this. They had done this in the past from the '84 to '90 period. Well, they searched. They couldn't find them. And then we started to talk to a subject matter expert to see if actually they

did these or not. Either way, nobody is finding these records.

CHAIRMAN MELIUS: Any other questions on Pantex? Okay, thank you.

I'm just going to start going through the list. Brookhaven?

MEMBER BEACH: Brookhaven has not met since my last report. However, I did talk to Grady last week, and he has got some information on the SEC side. He asked me about splitting it up because we were working on the final years of the SEC time frame and the Site Profile. So I am thinking for the first part we should see something the first of 2013 and then in February for the Site Profile issues. So in the next couple of months for Brookhaven.

CHAIRMAN MELIUS: Thank you. Any questions for Josie? Fernald?

MEMBER CLAWSON: Fernald, we have been waiting, and Stu was going to give me an update on this. They have -- it is coworker -

- construction worker model. Earlier, Mark Rolfes said that he would have it in a December time frame, but Stu came back and said that that was a little bit too optimistic.

SC&A has had two papers that were out. Since that time, they have been processed. They were cleared. And I believe the Board should have received those. And we are still waiting on NIOSH. And I guess I will leave it up to Stu of where we are at on that.

CHAIRMAN MELIUS: Stu, the question was for you as to where we are with Fernald.

MR. HINNEFELD: Okay, that is on our work coordination document that we put together for the meeting. January of 2013 is the expected completion date for the coworker effort and the first SC&A paper, which had to do with placing people in buildings for using DWAs, I think.

And then the second paper they delivered was the mobile -- use of the mobile counting from '78 to '88. It was the second piece of the mobile counting. We don't have a date on that yet, but we are trying to accelerate that and get it about that same time as well. January is a little optimistic. We are working to get those two products, a response to those two products also. One should be ready in January. We don't have a date yet for the mobile counting.

CHAIRMAN MELIUS: Any questions on that? Go ahead, Brad.

MEMBER CLAWSON: As soon as we get a confirmed date, and we will probably set this up because we have to have so much time to be able to set up a Work Group meeting, we will have a Work Group meeting set up for that.

CHAIRMAN MELIUS: Thank you for that.

Hanford, we have an ongoing set of

SEC petitions that we have been evaluating. Arjun, do you want to sort of give an update? Because I think you can explain it better than I can.

DR. MAKHIJANI: Thank you, Dr. Melius. Arjun Makhijani here.

You have already voted on the one SEC-155 this morning. The SEC-57-2 has been under research since last June, I think. Since you granted the last extension of the SEC to `83, we have had a little bit of difficulty in getting our document requests because of budget issues and so on at Hanford. We think those are resolved, but I think it will be the middle of the July meeting before we will be able to -- so we will be able to complete the work and have a Work Group meeting in the spring, I hope, but it is taking a little longer than I anticipated.

CHAIRMAN MELIUS: Thank you. Any questions on Hanford?

And last but not least, Idaho.

MEMBER SCHOFIELD: Nothing to update at this point. We are still kind of waiting on paperwork.

CHAIRMAN MELIUS: And I don't have the NIOSH document in front of me but are those -- are we still on schedule for I think it was early in the spring or something for --

MR. RUTHERFORD: Yes, early spring.

CHAIRMAN MELIUS: Okay. Again, a reminder in July we do have -- when the snow melts we will be in Idaho. So we will, I guess, plan a -- I'm on that Work Group. That is why I am saying we. We would plan a Work Group meeting.

MEMBER KOTELCHUCK: What city in Idaho?

CHAIRMAN MELIUS: Is there a city in Idaho? Idaho Falls. It's very nice.

MEMBER MUNN: They have built cities in Idaho?

CHAIRMAN MELIUS: Henry brings his

fishing rod and --

MEMBER ANDERSON: There is one stop light.

CHAIRMAN MELIUS: Hopefully get the fishing license.

MR. KATZ: And just for the record to be clear for SC&A, when we have those new papers from NIOSH, we will have SC&A review those. Okay? As soon as they are out. Thanks.

CHAIRMAN MELIUS: Okay, so it is noon. We are scheduled to break. We will break now, and at 1:30 we will come back promptly at 1:30 to start with Savannah River. Okay, thanks everybody.

(Whereupon, at 12:02 p.m., a lunch recess was taken.)

A-F-T-E-R-N-O-O-N S-E-S-S-I-O-N

(1:33 p.m.)

CHAIRMAN MELIUS: We will get started here. Before we start with Savannah River, I will give Stu Hinnefeld a chance to clarify something that came up this morning about some of the first 10,000 cases. I think we have got a better understanding now and he wanted to leave it on the record.

MR. HINNEFELD: Yes, thanks, Dr. Melius.

I was able to email back to the office and get a response about those three initial cases in the first 10,000. So there were three cases that were initial, meaning they haven't been done yet. And so I emailed back to get the status of that, to find out what those cases were. It turns out all three are fairly recent reinstatements of cases. Two of the cases had been pulled and one had been administratively closed.

And so administratively closed --

it was originally a prostate case, so the dose reconstruction is probably non-compensable -- and the claimant opted out, just didn't sign the OCAS-1 form, just kind of opted out of the process. So we administratively closed the case. So there was never a dose reconstruction. So it stayed in that initial status.

And then, recently, that claim was reinstated with a survivor and an additional cancer. So it just came back to us pretty recently. But it shows as an initial because there was no dose reconstruction completed the first time because it was administratively closed.

The other two were similar except that those were pulled instead of administratively closed. They were pulled before a dose reconstruction could be done. One was pulled for SEC, although it didn't seem to have any SEC cancers. And I suspect, Dan, it stayed pulled because it appears that

the claimant, the Energy employee, passed away because it was reinstated recently with CLL, an additional condition, and with a new survivor. So presumably that is what happened there.

The third one only had CLL, was referred to us erroneously, originally, and then was pulled because it didn't have a covered condition. And now that CLL has been added as a covered condition, it was reinstated. So all three are pretty recent reinstatements.

CHAIRMAN MELIUS: Thank you for that clarification. As I have told Stu, part of my question was I thought we had cleared those already and I was surprised that there was still three.

I guess we succeeded too well in doing that and didn't give you time to clarify.

The next thing on our agenda is a new -- I guess it is an addendum to the

Savannah River evaluation and Tim Taulbee again.

MR. KATZ: So while Tim is getting ready, let me just check a couple things on the phone. One, let me check and see whether I have Dr. Field, Poston, and Roessler on the line.

MEMBER FIELD: Phil, I'm on the line.

MEMBER ROESSLER: This is Member Roessler.

MEMBER POSTON: I'm on the line.

MR. KATZ: Okay, great. We have all three of you. The other thing I would just like to ask for everybody on the line is please mute your phones. If you don't have a mute button, press star and then 6 to mute your phone. But the vast majority of people listening on the line are not muting their phones and that contributes to the problem that people have been complaining about, which is we have been losing connection. And part

of that problem is that technical glitch that we don't really understand here. We hope we sorted it out. We changed out some hardware and so on. So we hope this won't be a problem going forward. But in any event, it is important that you all mute your phones, please. Thanks.

DR. TAULBEE: Okay, thank you Dr. Melius and the Board.

For the next talk, it will be the Savannah River Site Special Exposure Cohort Petition Evaluation Report. This is the third addendum regarding thorium exposures in the post-1972 time period.

Before I get started, again, I want to recognize my team that was working on this. This was led by Mike Mahathy from ORAU. He did the lion's share of this particular effort, including data captures and the writing of the report. He was assisted by Billy Smith, Sam Chew, Jack Beck, Rowena Argall, and Pat McCluskey. So I just have the

privilege of presenting this to you today.

A little bit of an overview for those of you who may be new to the Board -- and this has been going on for quite a long time. The original petition was received in November of 2007. We presented to the Advisory Board in December of 2008, the Evaluation Report. At that time, we reserved thorium exposures.

In May of 2010, we presented an Evaluation Report entitled Addendum #1 and this was regarding thorium exposures. This was to the SRS Work Group.

In January of 2011, the Work Group and SC&A gave us comments back on our addendum. And the most significant Work Group finding at the time was potential thorium work in other areas that were not addressed in the Evaluation Report.

The Addendum #1 focused on the 300 areas at the Savannah River Site, and we really didn't address other areas. And so we

went back and did further research, more data capture, to address those other areas.

In February and in May, actually, of 2011, we gave updates here to the Board. In August 2011, in SRS Addendum #2, NIOSH, we recommended adding a Class of thorium-exposed workers in the 773-A and TNX areas to the SEC from January of 1953 through October of 1972 and proposed identifying the Class based on dosimeter badge location.

At that same time, we indicated that more research was needed in the post-October 1972 time period, because we had really focused in the early time period and we hadn't done any data capture from the latter time period.

In December of 2011, the Advisory Board partially concurred with our recommendation. However, you all recommended expanding the Class to include all workers at the Savannah River Site.

In March of this year, the Health

and Human Services Secretary added the Class of all workers at Savannah River from January of 1953 to October of 1972 to the SEC.

Last month, we issued our third addendum to the SEC, and hopefully our last, regarding thorium exposures to cover the time period of October 1972 through December of 2007. So we are really only looking at the modern era here, or what I will the call modern era at the Savannah River Site.

So our recommendation to the Board is we believe reconstruction of thorium exposures is feasible and the doses can be reconstructed with sufficient accuracy for compensation purposes from October 1972 through December of 2007.

So how did we reach this conclusion? Well, there is really five key areas that I want to talk to you today about. First, I want to start with a very low inventory or source term, its minimal use in certain defined locations, our knowledge of

the processes that were being involved, and then the radiological controls that were in place, and then I will discuss an alternate bioassay data method.

So, if you recall, back in August of 2011, this was a plot that I showed you of the thorium inventory on-site from 1954 up through 1972. And you can see that in the 1960s with those thorium campaigns, the actual inventory peaked at around 120,000 kilograms on-site. And then, as the thorium was shipped off to Fernald, the inventory decreased significantly in the '71 to '72 time period.

I also presented in August 2011, in that Addendum, this particular graph which showed this would be thorium in production or received. All that we had at that time period was a waste management report discussing the thorium inventory. And they had a fairly large inventory, 6,000 kilograms to 8,000 kilograms. But then they had another column that they said in process or in use. And so

that is what this particular graph was. And we didn't quite understand or know what was going on in this.

So what was happening in 1977 with 2,000 kilograms? We felt we needed to go back and do additional research, look at those inventory, or try to find the inventory reports -- which we did -- and uncover what work was going on in this time period.

So like I said, we went back. We looked at the inventory reports. Mike Mahathy did a fantastic job on this, of capturing all of this data from microfiche from 1972 to 2007.

We also looked at the Savannah River Laboratory and Works monthly technical reports. And here SC&A assisted us there in the vault. John Stiver particularly helped us out there, reviewing, going through these monthly reports, looking for what thorium work was going on.

We also looked at radiological

surveys that we were able to find during this time period for these buildings that we identified where thorium work was going on.

We looked at whole body count data and then another bioassay method.

What we learned was that large spike that you saw in that previous graph in 1977 was the receipt of spent thorium fuel into the receiving basin for the offsite fuels. So let me explain what the receiving basin for offsite fuels was.

This was a collection, a spent fuel pool, a large spent fuel pool that collected fuels from offsite, not Savannah River's primarily, but from other locations, Elk River, for example, the sodium research experiment at Oak Ridge, and other commercial facilities would send the fuel to Savannah River and they would store it in the basin.

In the lower corner here, you have a picture of the RBOF. And the operations in this particular basin would be to receive a

cask of spent fuel, in some cases thorium spent fuel, and it would be repackaged in the basin. It would be taken out of the cask and then put into storage racks or into a different storage container.

All of this is done underwater because this is spent nuclear fuel. One, it is thermally warm due to the irradiation process. So it is emitting significant quantities of gamma radiation. So the water is used as a shield.

The thorium fuel is encapsulated and now underwater. So it kind of got double encapsulation here with the thorium. So there is really no potential for exposure to this thorium there at Savannah River, at least from an inhalation standpoint.

And then as you can see in the center picture there is where the stored spent fuel is.

So if you look at the entire inventory on-site from 1953 up through 2007,

this is what it looks like. This is after we captured the additional inventory information and actually tallied it all up where all the thorium was on-site within their inventory records.

From 1972 through 2007, that predominant area that you are looking at there is the receiving basin for offsite fuels. Some of it is in L Basin as well as K Basin. When you strip out that water-stored thorium that doesn't have a potential for exposure, this is what the thorium inventory looks like. And as you can see, by 1972 the inventory is virtually gone. It's actually not gone. You just can't see it on this graph because of the scale is up here to 100,000.

If you look down here, this first notch here would be zero to 5,000. If you look from within that first notch up to 1,000 -- or amplifying this graph by 100 times -- this is the inventory that they had on-site. And from here you are looking at from 1972

time period up through about 1983 or 1982 time period, you are looking at around 100 kilograms, kind of on average, a little more, maybe 120. 1982 to 1989 you are actually looking at about 20 kilograms on-site. That was the inventory.

In the 1990s, it actually jumped up. And so what is going on during that time period? I will talk about that here in a minute. So there is more thorium on-site in the 1990s than there was from 1972 to 1989 here on-site. And this is after we went back and captured these inventory reports.

The inventory reports are actually monthly reports. What we presented in the ER was just a snapshot of each year on June first. Okay, these do fluctuate some within the inventory. It does go down to as low as like four kilograms in one month and then maybe up to 175, whereas here it might be showing just 100 or something like that.

So they do move around a little

bit. But here you get the general feel for how much thorium there was on-site. We have these records going back month to month. Very different from what I presented earlier before lunch, where we have an incomplete inventory at Battelle. We don't exactly know how much material. We only had partial data. Here we have complete data through the entire time period, month by month by month.

So when you look at the total inventory of thorium, what was available for research and what was waste and storage, the vast majority of it was waste and storage there on-site. In fact, less than one percent of the actual thorium on-site was actually available for potential exposure.

So now let me talk about the locations where the thorium was located. 773-A was the research laboratory that we had talked about before. And this is just '73 through 1980. In the ER report, we go all the way through 2007 and discuss each of these

locations. And what you will see is that some of them drop out completely. They go to zero inventory. But the bulk of the thorium here that you can see, as I have mentioned, is in the RBOF, 6,000 kilograms. It jumps up here in 1977 to 8,000 kilograms. That was that big spike. And you also have some here in the K Basin and L Basin, and these actually continue on. And then it all gets shifted to the L Basin the latter years.

773-A running around 100 kilograms, down to 80, back up to 100. 235-F, 0.9 kilograms. I mean, very small quantities of thorium being used.

So when you look at the locations and you look at it over the whole time period of all non-storage area -- that means non-radioactive material or non-spent fuel pool -- versus the 773 area, you can see that by 1982 or 1983 time period here, virtually all the thorium on-site was there in 773-A being used. Okay? That is a large radiochemistry

laboratory.

So now before I get into the process knowledge component of this, let me first talk a little bit about thorium nitrate and I should have added thorium acetate here. But these are commonly used in chemistry laboratories. And in fact what I have got up here is just an example. This is the Chemical Safety Manual for the Pennsylvania School System in December of 2010. Under the radioactive chemical section, they list thorium nitrate of one of the chemicals that could be potentially used.

I contacted the radiation safety officer at the University of Cincinnati and asked how much thorium is there being used there at UC in their chemistry laboratories. It is not much. It comes out to about 1.1 kilograms of thorium nitrate, thorium acetate.

So it is a commonly used material at radiochemistry laboratories. Savannah River Laboratory was a big radiochemistry

laboratory. This was their job. This is what they did. They had multiple fume hoods and areas where they could use these types of chemicals.

So from these Works technical reports and the Savannah River laboratory reports, we were able to gather more information about the process of what they were working with.

In 1972 the Alpha Material Laboratory used thorium oxide as a surrogate for plutonium-238 testing in glove boxes. So for those of you who know a little bit about plutonium-238, it has a very high alpha activity. In fact, about 16 curies per gram. So if you take a hundred-gram sample, you are looking at 1,600 curies. That same hundred-gram sample of thorium is effectively 0.01 millicuries. So you are looking at six orders of magnitude difference in the alpha activity between the plutonium-238 and thorium. Thorium is much safer to use, especially if you are

developing a process.

In certain scenarios, thorium behaves like plutonium in a process line. And so they were using thorium as a stand-in for plutonium so that they can make changes without contaminating the entire area. Once you introduce that much plutonium to a glove box, it is basically contaminated. You will never get it clean again. You will end up packaging it up if you have to make changes to it.

So they were using thorium as a stand-in, again, inside a glove box.

In 1973, you have got gram quantities of thorium dioxide shards were used in 773-A hot cells to test vapor deposition. This is inside the hot cells behind several feet of glass using manipulator arms. So again, very low potential for exposures, unlike the process that I described earlier today there at Battelle, where they are rolling and handling thorium and forging

thorium, heating it up and hitting it with a hammer and creating dust. Here you have thorium inside of hot cells, inside of glove boxes.

From 1977 to 1980, you have the Alternative Fuel Cycle Technology Program and the Thorium Fuel Cycle Technology Program. Here is where there was actually multiple research projects going on during this time period. So let's look at some of those.

They are in mechanical grinding of thorium oxide in the high-level caves. Again, using manipulator arms to get to it. So very low potential for exposure, or zero actually.

Study of the effects of heat treatment on thorium oxide. Testing on the conceptual THOREX flow sheets. They were looking at modifying their previous THOREX that they did during the thorium campaigns when they are extracting uranium-233. They were doing this with Elk River fuel in the high-level caves. So again, this is

irradiated fuel, high gamma activity. You are not going to get close to it. You are working with manipulator arms behind shielded walls.

They did an analysis of off-gassing -- this is tritium off-gassing -- of the spent thorium fuel from Elk River. This is where they took some of the Elk River and they cut it in the high-level caves again.

Hanford prepared and encapsulated 30 fuel rods of 80 percent thorium dioxide and 20 percent uranium dioxide for irradiation at SRS. SRS received the rods in 1979, stored them in a cage in 773-A. We have also found where they took a few of the rods down to TNX area and put them in their fluid flow testing. These are encapsulated. There is no potential for exposure. And were measuring fluid flow around them for putting them into the Savannah River reactors.

The program was canceled in May of 1980 before any of these could be irradiated. So they were never used. They did some

testing on them. They didn't do any cutting on them, that we could find. They just simply did some fluid flow testing. So again, we are looking at encapsulated material, controlled much different than this morning, as I mentioned with Battelle forging and creating dust from thorium.

In 1980 at the plutonium-238 fuel form facility, thorium was again used as a surrogate for some of the work in the hot cells at the PuFF facility. It was also used as a doping agent for iridium welding agents.

As part of the Galileo Project in 1987, thorium was used as a surrogate for plutonium during process testing. This is primarily when you are putting things together and you are using thorium mostly because of its density and its weight, it is very similar to plutonium so that you can use it from that standpoint without the worry of plutonium-238.

From 1995 to 2010, and here is where you saw that increase of the thorium

inventory, this was for defense waste stabilization. This is where thorium was used as a surrogate for plutonium and other radionuclides to test the methods of how to stabilize waste, how to do vitrification effectively, as well as other stabilization methods.

So kind of in summary, if you look at the use from 1972 to 2007, I have kind of broken it into five different eras here. From 1972 to 1975 you have got storage and surrogate. Average inventory is about 158 kilograms. And the activity is 15.8 millicuries of activity.

1976 to 1981, this was that alternate fuel cycle and thorium fuel cycle program. The inventory actually decreases a little but here is where there was more actual studies going on. Most of it was in the hot cells, from what we can tell. In fact, we really haven't found any that were outside the hot cells, based upon these monthly reports.

They are all discussing the cutting inside the hot cells or inside the glove boxes.

From `82 to `89, very low inventory, an average of 38 kilograms or 3.8 millicuries of alpha activity.

From 1990 to 2003, it jumps back up 200 kilograms. And even in that high years there, 1990 to 2003, we are only looking at about a quarter of the inventory of Battelle that I talked about this morning. So we are way down on the actual inventory and the process is much more controlled and not a physical manipulation of the thorium in an open air type of environment where people could be exposed.

And then the defense waste research really kind of tailed off there at the end and we are down to very low quantities, around five kilograms.

So now let me talk a little bit about the radiological controls from 1972 to 1990. Savannah River Plant Radiation

Contamination Control Manual, DPSOP-40, and the Savannah River Laboratory had their own Radiation Hazards Technical Standards. But in these manuals, they covered work in regulated areas investigating radiation and contamination incidents, protective clothing, injury, radiation exposure control, internal radiation exposure control monitoring. Again, to contrast with this morning, there is no records at Battelle of any of these types of procedures in place for handling radioactive material. At Savannah River, they are very well developed by this time period, 1972 through 1990.

From 1991 to 2007, they implemented the new radiation control manual, and they called it WSRC-5Q, in 1991 to comply with DOE Order 5480.11. It was updated to comply with the 1992 RadCon Manual, the 1994 RadCon Manual. And then in 1995, to comply with 10 CFR 835.

So we have control procedures in

place from 1972, and then once we got into the time period of 5480.11, they tracked right along with the orders that were coming out of DOE on how to upgrade and control their radiation environments.

Other information that we have found. We have collected samples of contamination surveys. This morning I presented a few from Battelle that we could find. Here we have thousands of radiation surveys that we have laid eyes on. We collected samples of some of them, so the Board can look at them and see what kind of information is covered. From 773-A, M Area, 235-F. Again, these are the areas that we identified from the inventory reports of where the thorium was located.

We have also collected samples of air monitoring in some of these same buildings. There are more contamination surveys and air sample results that are available in electronic format.

Post-1990, I think it was around 1990, they started digitizing all of their surveys. So now you can go online, when you are on-site anyway, and search their database of radiological surveys and look at them. You can recover them and pull them back individually, electronically. So they have a very nice system now for recovering modern radiation surveys.

So let me switch gears kind of a little bit here and talk about radionuclide activities. And this is 1994. This slide is a little misleading, but the emphasis is really on what was their main hazard, what were they worried about in 773-A? This particular graph of activity shows all activity, including waste. And you are looking at thorium-232, an activity of about four curies. Actually in 773-A, in this time period, there is only 17 millicuries of activity.

But the general feel here is you

are looking at plutonium-238, that example I gave before, that six orders of magnitude of alpha activity difference. That was the real hazard. That is what the health physics folks were controlling for, the plutonium-238, the curium-244, and the americium-241. Those were the activities that they were most concerned with. That was why they were doing all these surveys. That was why they were controlling the environment.

So the final topic I want to talk about is an alternate bioassay data. There is a large number of workers in 773-A that were monitored for americium, curium, and californium, because that was the hazard. As I showed on the previous graph, that was where all the alpha activity was. These were the people that they were wanting to monitor.

We have about 17,000 bioassay samples of these americium, curium, and californium bioassays. So we have a large data set.

When we started looking at the details of the method and the development of the coworker model this past summer, it revealed that thorium would come through in the analysis and the alpha emissions of thorium would be counted as if they were americium, curium, and californium.

When you look at the methodology that was published by Butler and Hall in Analytical Chemistry in 1970, this was their words. This is pulled out of that report. This is them talking: "A procedure was developed for sequential extraction of plutonium, neptunium, and uranium with tri-isooctylamine (TIOA), followed by extraction of thorium, americium, curium, berkelium, californium, and einsteinium with bidentate. Compared with previous methods, the new procedure is simpler, required less analysis time, and gives better recovery. And recovery of americium-curium-californium in 250 milliliters of urine or 200 grams of feces was

90 percent."

They went on to say, "All alpha-emitting actinides from thorium through einsteinium extract, indicating an excellent gross alpha analytical procedure. The data show that in analysis of americium, curium, and californium any contaminating plutonium, neptunium, or uranium must be removed. At this laboratory," -- this is Savannah River Laboratory -- "thorium, berkelium, and einsteinium are not present in biological samples in sufficient quantities to require separation or routine identification by alpha spectrometry."

In other words, the thorium that was left in there, along with the einsteinium and berkelium, did not cause a problem with false positives. They weren't seeing it. It wasn't causing a problem and so they didn't bother extracting it. So, effectively, these bioassay samples labeled as americium-curium-californium contained thorium, einsteinium,

and berkelium as well.

So why weren't they worried about the thorium? Well, when you look at the volume in the activity, the mass, 200 kilograms, as you have seen, is 20 millicuries, so it is low alpha activity. Small volume, 200 kilograms is approximately ten two-liter bottles of thorium dioxide. So imagine a two-liter bottle of Coke, that would be 20 kilograms. Ten of them is virtually the entire inventory in the Savannah River Laboratory. From a volume standpoint, you are looking at very small quantities.

They were working with those quantities inside of the glove boxes, inside of the hot cells, using it as a surrogate for plutonium within their processes, whenever they were developing them.

773-A is a fairly large building. You have got a very small volumetric source term within that area. This is why the authors didn't feel that this was of concern.

And then in addition, they weren't seeing it as a false positive showing up in the bioassay. They were having many zero, a large quantity of zero data. So it didn't seem to be affecting.

So if workers were exposed to thorium, they would have been seeing a lot of false positive. We have been seeing a lot more of this data coming up positive instead of zero.

They made no effort to remove the thorium contaminate from the urine samples. As I indicated why, the activities were so much lower. It wasn't viewed as a significant contaminant, mostly because it was used as a surrogate within glove boxes, within hot cells. And it was far less hazardous than plutonium when you are working with it inside of a glove box and you have got to open it up, and change your process, change a particular vessel, cylinder or something out of there. If you have introduced plutonium initially, you

would never be able to recover that. You would have to bury it. You would have to dispose of it as basically true waste.

Using thorium gave them a lot of advantages. It was safer to use and so they did so.

So effectively what we have with these americium/curium/californium bioassays samples is an alpha urine bioassay sample that does not contain plutonium, uranium, or neptunium. Those were extracted out by the TIOA method. Everything else was left in there. It does contain thorium, americium, curium, californium, einsteinium, and berkelium.

So what does this data look like? Well, if you plot it, the alpha activity, this is urine alpha activity from the earlier years, you can see it is fairly significant of around one dpm per day from this bioassay data.

By the time you get to 1972 to

1973, the data are actually indicating virtually no activity, very low concentrations. This is also corresponding with a decrease in the curium, californium campaigns that were occurring and so people were working with it less. But again, you don't see any large activities.

What kind of doses do we get from these type of bioassays? Well, from 1972 to 1994 -- so we are looking at a 22-year period -- from Type M material, the bone dose is 18 rems. So we are looking at less than a rem per year during this time period to the bone from Type M thorium.

Type S is 80 rem. Over a 20-year period you are still looking at around 4 rem, which is below occupational limits, and for an organ dose, it is way below occupational limits.

Why did we stop in 1994? Well, in 1995, Savannah River Site started using alpha spectrometry, not gross alpha counts. They

actually began to phase it in around 1992-93 time period. But by 1995 they were only using alpha spectrometry. Thorium wasn't one of the alpha energies that we have any indication they were analyzing for.

So the americium-curium-californium combined analysis is really only valid from 1972 to 1994. Post-1994 we must use the whole body count data. We can't use that bioassay method anymore.

So what do the doses look like when we switch to this latter 12-year period? The doses go up, quite significantly, actually. The bone dose comes out to an average of around ten rem per year. However, Type S because if it gets stuck in the lungs, it is going to be counted in the whole body count or it would be easily seen, the doses actually drop down to around 15 rem over this 12-year time period. So we are looking at around a little over a rem per year.

So the doses aren't unreasonable

from either the bioassay method or the whole body count, from a dose reconstruction standpoint. And keep in mind this latter time period is during the radiological controls of 10 CFR 835, where we have concluded by this time people who should have been monitored were monitored.

Well, how can we verify that? Well, you really can't completely verify it but we do have some evidence of this. In 2004, during remediation work of a thorium-contaminated concrete pad down in the TNX area, in order to monitor the workers, they were concerned about the whole body count not being able to see low enough levels, per 10 CFR 835, they put air samplers, lapel air samplers on the workers that were working down there. So we had that air sampling data.

So it looks like that they were complying with 10 CRF 835 in monitoring of workers who should have been monitored during an activity that could have generated airborne

activity.

So in summary, we start with a very low inventory, less than even what I was talking about this morning with Battelle. There is more inventory in the 1990s and 2000s than there were in the '70s and '80s, which is unusual. Most of the thorium on-site was actually stored in the spent fuel pools, where it was waste. And by waste, I mean buried in the burial grounds areas. That is included in that inventory.

Minimal use in certain defined locations, mostly in 773-A, especially post-1983.

Our knowledge of the process: mostly used as a surrogate, except for the tests that they were conducting for the alternate fuel cycle. Again, this contrasts dramatically with what I presented this morning as far as our knowledge of the process. You have got a physical process, beating on thorium, rolling it, lots of dust

being generated. Here we are using it as a surrogate in glove boxes. When we do cut on it, it's in high-level caves. So very different process, very different exposure potentials.

Radiological controls are also very different. They have procedures in place. They have routine monitoring of the workplace, daily surveys going on. These are available. We only captured samples because there is really too many to capture. Air monitoring data is available and we have an alternate bioassay methodology that was actually monitoring the workers, even though they weren't intending to effectively monitor for thorium. We can look at and re-analyze it for thorium in this time period. And it doesn't result in doses that are really impossibly high. These are reasonable doses.

So as a result, our feasibility finding is that thorium between 1972 and 2007 we can reconstruct the thorium doses.

Our recommendation for the period October 1, 1972 through December 31, 2007, NIOSH finds that radiation dose from exposure to thorium can be reconstructed for compensation purposes.

And with that, I will be happy to answer any questions.

CHAIRMAN MELIUS: Board Member questions for Tim? Yes, Paul.

MEMBER ZIEMER: Just to clarify the record, I notice you have a health endangerment indication on the last slide that this is one where you say you can reconstruct dose. So --

DR. TAULBEE: Effectively, that should be no.

MEMBER ZIEMER: -- for the record, you don't do health endangerment determination. Isn't that correct?

DR. TAULBEE: That is correct. It is an error.

MEMBER ZIEMER: So that should

just be blank.

DR. TAULBEE: That is correct.

MEMBER ZIEMER: Thank you.

CHAIRMAN MELIUS: Other questions? Any of the Board Members on the call have any questions?

MEMBER FIELD: This is Bill Field. I just wanted to ask a quick question. I'm sure I know the answer but I just want to ask it anyway. It's that there is a lot of discussion of thorium. And my assumption is there is no concern about exposure to thoron and decay products during this period.

DR. TAULBEE: During this time period, the thorium that was available that we have been able to see from the process knowledge is mostly inside of glove boxes and inside of the hot cells.

The flow of air within 773-A was always from the cold areas of the building in to the hot areas of the building, into the hoods, into the glove boxes, and then in to

the high-level caves. So the flow of radon or thoron would be away from the workers during this time period, and up the stacks.

MEMBER FIELD: Okay, that was my question. I just wanted to verify that. Thanks.

CHAIRMAN MELIUS: Any other Board Members on the phone who have questions?

(No response.)

Okay. Yes, David?

MEMBER RICHARDSON: I was wondering, I don't think I understood two slides where you have doses for Type M and Type S. Could you just talk me through those?

DR. TAULBEE: Sure. Okay, we will start with the first one. Type M and S are different solubility classes for how quickly they clear the lungs. Type M would mean it would clear the lungs fairly rapidly and the next place that thorium primarily goes is to the bone. So the lung dose is low and the bone dose would be higher, due to this

monitoring method.

The dose is basically dependent upon the frequency in between your monitoring -- your data points as to how high that dose would be. What we end up doing is we fit a chronic exposure from, in this case, 1972 through 1994, based upon that bioassay data that we had. And so the area under the curve is effectively the dose that we come up with.

So for this case, for Type M it comes up quite rapidly and then it levels off. And then that area comes out to about 18.6 rem.

With Type S material, it stays in the lungs longer. So you have a slower buildup of that chronic exposure curve. So that residence time of the thorium in the lungs irradiates the lungs more than what it does the remainder of the tissue.

What ends up happening is your urinalysis relies on it coming out of the lungs, being in the systemic system and then

being excreted. So that is why under Type M, you will see the doses are lower in general than the Type S because it stayed in the lungs longer. And so by the time it reaches the systemic system and hit the urine, there is that lag time and that's what's giving you the dose. Does that make sense to you?

MEMBER RICHARDSON: Yes, I am understanding some parts of it, but maybe not all parts of it.

You had discussed this in terms of an average dose per year.

DR. TAULBEE: No, these are total doses.

MEMBER RICHARDSON: Yes, but when you were talking through it you said --

DR. TAULBEE: Oh, okay.

MEMBER RICHARDSON: -- well, this would be, if I am recalling right, like a rem per year.

DR. TAULBEE: For the bone dose, yes. Now --

MEMBER RICHARDSON: How are you -- I guess, this is --

DR. TAULBEE: It actually changes on a year-by-year basis, okay? I was being simplistic from the standpoint of using an average of that total dose divided by time. Each individual year would be slightly different, okay, depending upon the intake of the curve that we fit based upon the biological data that I showed in the previous graph, on that graph. So this is the data that we are fitting from 1972 through 1994. Okay?

Typically, in certain years, especially with Type S material, it is going to be higher in certain years than in other years. So I was using a gross average over the time period. And so when you take 18 rem divided by 22 years, it will come out to an average of a little less than a rem per year. Some years could be as high as two rem, that type of thing. What ends up happening

in, I believe, the lung of this particular model, the maximum that it comes up in any year is, I want to say like 4.6 rem. That is the maximum for that lung, that 80 rem. So it is higher than four but it is on that same ballpark. It is just an average that I was using as an example.

MEMBER RICHARDSON: So this is -- I am still a little -- this is a hypothetical for somebody who had the bioassay data for americium-curium-californium from the previous slide.

DR. TAULBEE: That is correct.

MEMBER RICHARDSON: All right.

DR. TAULBEE: What we did is, we took --

MEMBER RICHARDSON: Projecting forward an calculating their cumulative dose for a single individual under this hypothetical exposure scenario?

DR. TAULBEE: Yes, what we did is we took the americium-curium-californium data,

this alpha activity, and assumed it was all thorium. Okay? So all that alpha activity, that is what we assumed, and we calculated based upon the biological models of excretion for thorium. Because they are different for americium, for curium, californium, and thorium. They are all different. We assumed it was all thorium and then calculated the cumulative dose from '72 to '94.

MEMBER RICHARDSON: Okay, thanks.

CHAIRMAN MELIUS: Any other Board Member questions? Go ahead, Jim.

DR. NETON: I am struggling here. I think I might understand Dr. Richardson's confusion.

My understanding, the cumulative dose a person received from a chronic exposure over that time period using the data model as Tim suggested, of course it would be to the lung and the bone. There are other organs that would be arrayed, depending on the cancer. But I think what is not shown here is

that exposure would continue off in time until the person developed a cancer. So this would be just for that snippet of their work history but it would obviously be a larger exposure depending on when the cancer occurred in relation to their work activity.

CHAIRMAN MELIUS: One thing you -- this is a comment in general -- you seem to have gotten away from for a while and you were doing sample dose reconstructions, hypotheticals that at least completed some of these assumptions when it was presented to the Board. And I think it would be helpful to go back to that earlier format, which at least was a little bit more complete.

I'm not saying this was inaccurate but sometimes when you do it quickly, and you are probably so close to it Tim, that is a little hard. Some of us that are standing back, we are trying to understand what you are presenting and what is going on. And I think that was a little better format and I think we

should follow through on that for future reference.

And a number of the reports now, I think you have been doing a good job on sort of the quality of the data and so forth. But then again, others seem to get away from that. Some of it is the circumstances of the situation but again, I think that is helpful to have that explicitly addressed in your reports.

Any other questions?

MEMBER SCHOFIELD: Tim, I have just got one quick question. I assume you looked for a database of incidents or anything like that. What kind of numbers did you see from any that might have been recorded?

DR. TAULBEE: For the incidents, there is two different scales. Actually, there is more like three or four different scales of how they reported the incidents. Major incidents were listed under the special hazards investigation reports. Those were

high level incidents, very large incidents that resulted in loss of time or money. That was significant viewed by DuPont at that time period. So that is one level of high-level reports.

What we found is that other incidents are buried within the monthly technical reports and the Savannah River monthly reports. There is a health physics section in there where they discuss the incidents have happened from very small spills that occurred in this laboratory with a few hundred dpm or a few thousand dpm type of levels, all the way up to really the special hazards investigations. So you see a wide range within them.

With regards to thorium, we didn't really see anything as far as incident when we reviewed all of those monthly reports or the special hazards investigations.

MEMBER SCHOFIELD: Okay, thanks.

CHAIRMAN MELIUS: If there are no

further Board questions, I believe the Petitioner Representative would like to make some comments. Mr. Anderson?

MR. ANDERSON: Thank you, Chairman Melius. My name is David Anderson. I am the Administrative Manager for the Law Offices of Bob Warren, who is the lawyer for the Petitioner, [identifying information redacted]. Can you hear me alright? I am authorized to speak for the Petitioner.

The last time I addressed this Board was almost exactly a year ago when you were reviewing Addendum 2 of the Evaluation Report. For those Board Members who are new or were not present at that time, let me review by commenting on the confidence with which NIOSH presented that Report regarding the thoroughness and reliability of their methods and data and, thus, their recommendations to the Board.

But when we looked more closely at these methods and data, we discovered alarming

levels of inappropriate extrapolation and even exaggeration, as well as significant gaps in their database. Consequently, the Board voted to override NIOSH's proposed Class and established a different broader one.

I mention this because we are struck once again by the confidence with which Dr. Taulbee's experts make this case while, once again -- at least in our preliminary examination of Addendum 3, because we have only just received it -- we already spot plenty of inconsistencies and potentially significant inadequacies, especially regarding thorium inventories, accurate and thorough identification of potentially exposed workers, and air sampling and bioassay monitoring data.

There certainly is a lot of detail presented here, including a very large body of new information added since the last addendum. It all looks very impressive and thorough but we are already convinced that, as before, a closer look will reveal significant gaps. In

fact, we think this report probably reveals as much about what NIOSH does not know about, than what it purports to know.

Of course, without the underlying documentation, it is impossible for the Petitioners to make a determination about the validity of NIOSH's evaluation. To that end, we have already filed the first of several Freedom of Information requests with the CDC, which is apparently our only means of obtaining many of these documents.

However, due to the incremental pace of the FOIA process, we and the Petitioner will probably receive these materials months after the Board has already voted on the Petition, which is why we feel that we it is critically important that the Work Group refer this evaluation to SC&A for a careful review of the underlying evidence NIOSH has relied on, as well as the model for dose reconstruction that NIOSH has proposed.

The Petitioner, [identifying

information redacted], as well as the other Petitioners, certainly deserve the right to expect sufficient accuracy with regards to the handling of this petition and report.

So thank you very much.

CHAIRMAN MELIUS: Thank you for your comments.

Okay, Mark, you are head of the Work Group. Do you have a recommendation to how we should follow-up or further comments?

MEMBER GRIFFON: Yes. I actually agree with the proposal by the petitioner that I think as the Work Group Chair, I recommend that we bring this back to the Work Group and ask SC&A to review this report. There is a lot of detail, a lot of new data here and a new proposed approach. So I think we have to consider it at the Work Group level. That would be my proposal.

CHAIRMAN MELIUS: Does anybody on the Board disagree with that?

MR. ROWE: This is Gordon Rowe. I

am one of the signers of the petition. I would like to say something, if I can.

CHAIRMAN MELIUS: Go ahead, Mr. Rowe. We weren't aware that you were going to be on the line.

MR. ROWE: Okay. This Evaluation Report, I just received it, and it is quite lengthy. I am concerned about the technical issues that are involved here, and I would like to request that this report be given to SC&A so that they can analyze it and come up with their opinions, if this is possible.

CHAIRMAN MELIUS: Thank you, Mr. Rowe. We appreciate it. The silence on the Board was indicating that nobody was objecting to that, after Mark's suggestion. So I believe that is what we are about to do.

I just have one question for Mark or maybe this is for SC&A. There are a number of other recent reports from NIOSH that have come through and a couple that are still apparently in progress. As I recall, there

are six or seven that were assigned a while ago and they are all coming due. I just wanted to make sure that if we were going to assign work to SC&A that we also look at these other situations. There is americium, neptunium, coworker models reports, a mixed fission products report, and others. And I just don't know what hasn't been assigned yet.

MR. STIVER: Dr. Melius and the Board, this is John Stiver from SC&A. I can say that we have been reviewing the radionuclide-specific coworker models as they become available. At this point, we are reviewing the neptunium model, and we are waiting for the thorium model to come out, which as we see today is now available.

In conjunction with that, we are also reviewing Report 53, which is the Stratification of Coworker Data Sets that is common to all these different cohorts.

MR. ROWE: Also, I would like to request, if I can, in the future if

communications, or additional information, additional reports, I would like to request that they be sent sooner so that I could have more time to go over the report before the meeting and before the reports are made public on the phone line or whatever.

CHAIRMAN MELIUS: We understand the concern, Mr. Rowe. And I can also assure you that we would not take action if we thought you had not had ample time to review or petitioner had not had time to review the report and be involved in this and, therefore -- and we will also be having our next meeting in March in Augusta. So we will be able to --

MR. ROWE: Meeting in March in Augusta?

CHAIRMAN MELIUS: Yes. What are the dates, Ted?

MR. ROWE: All right. All right, I appreciate the information.

CHAIRMAN MELIUS: Yes, March 12th, 13th, and 14th, in that time period. So

probably at least two of those days in that time period we will be in Augusta.

MR. ROWE: The 12th, 13 and 14?

CHAIRMAN MELIUS: Yes, correct.

MR. ROWE: All right, thank you.

CHAIRMAN MELIUS: We will let you know in more detail when we pin down the timing and so forth.

MR. ROWE: Okay. All right, thank you.

CHAIRMAN MELIUS: And we will let you know when they meet to discuss this also.

MR. ROWE: All right, thank you.

MR. STIVER: Dr. Melius, were there any other questions for us at this time?

CHAIRMAN MELIUS: No, I just wanted to make sure that all the recent upcoming reports between now and next meeting get assigned to SC&A. I don't think I necessarily need to go through the whole list here. There is a revised report for 0054. According to the schedule, it is awaiting Tim

Taulbee's review. It's sitting on his desk or in his inbox, more likely. So whenever that gets cleared, so we can just keep this process moving. I know it is complicated with a lot of different reports but some prioritization to those. Thank you.

Okay, that concludes our discussion on that addendum. Everybody thank Tim for his presentation.

We have some time before we are scheduled to break, and I would like to have this to discuss the ten-year review, and I believe that people had questions for Stu that we didn't get to, if you can remember. Sure. Sure, questions from this morning?

I hope I didn't overwhelm everybody with my question.

MEMBER KOTELCHUCK: Did we vote?

CHAIRMAN MELIUS: No, we don't need to vote if we are referring it, assuming that is by sort of acclimation, since no one objected to Mark's -- yes.

Yes, Loretta, go ahead.

MEMBER VALERIO: Mr. Hinnefeld, I just need clarification. If the OCAS-1 hasn't been signed and the employee passes away and there is no additional cancers, if the survivor then has to file as a survivor, do they just sign the OCAS-1 on behalf of the worker or does it have to go through dose reconstruction as a survivor claim?

MR. HINNEFELD: No, it -- well, in order for the survivor to establish the status as the claimant for the case, they do have to file an application with the Department of Labor and verify that they are a survivor. And there are certain other things, like identifying other survivors with equal status. So that has to be done. And at that time then Department of Labor would reopen the case and send it to us for dose reconstruction. We would offer the claimant the opportunity to be interviewed, the survivor now, if they felt like they wanted to be. They can decline.

We'd offer them. But if that interview doesn't then tell us anything that we felt like was not considered in the dose reconstruction that we were done, if we had gotten that far, then it would proceed at pace. You wouldn't have the whole dose reconstruction process again.

As I understand it what you described was it was done up to OCAS-1. In other words, a draft dose reconstruction was done it was to the energy employee but before it could be closed out, before the OCAS-1 could be signed and returned and then the final sent that the energy employee died and then a survivor stepped up.

There is some of the application process I described has to go through, but the dose reconstruction wouldn't change unless the survivor provided new information that hadn't been addressed previously.

CHAIRMAN MELIUS: Any other questions for Stu on the ten-year review?

Okay, good. I guess time erases. Okay, thank you, Stu.

Mark, are you ready, or would you rather wait until the 4:45 slot? Okay, so we will have Mark do his Dose Reconstruction Review Subcommittee report. Then we may have a few more questions after that.

MEMBER GRIFFON: All right, I will give the report and then the other Members of the Subcommittee can answer the questions. How's that?

All right, we had a meeting on November 27th, our last Subcommittee meeting, and a number of items were discussed. One was the items related to the ten-year review. And we followed up on a few things such as the -- we got an update on the DCAS blind review findings. And just as a refresher, DCAS has put into place a blind review process internally, where they are selecting, I always forget the number of cases, but I think it is two per -- one per week. Yes, one to two per

week. Anyway, on an ongoing basis, they are looking at these in blind fashion, reviewing them in parallel with ORAU and comparing results. And they are putting together this data in a database and giving us periodic updates on the Subcommittee.

So this is very useful to have this blind review going on and also feeding into our Subcommittee to give us a sense of what is happening.

It is a little too early to look at sort of aggregate findings on that, but they do have a fair number now that have gone through the process. I think 27 have gone through the entire process, and they have 70 cases selected overall.

The second item was they gave us an update on some of their QA/QC I guess procedures or programs put in place and this is on the ORAU side, they gave us an overview of their test plan for V&V of dose reconstruction tools.

And then we also had a fairly lengthy discussion on the peer review process that is done in-house. So these are all related to the QA/QC issues that we were supposed to follow-up on.

The peer review process, again, it has changed over time. And now more recently they have what they call a PR, a peer review feedback log, and they are tracking certain categories of errors. And we are interested in trying to following that. Again, looking at it in aggregate to see what they are finding in-house as they do the peer reviews. And also getting a sense of -- we wanted to get a sense at this last Subcommittee meeting of how this process has been changed over time. So it has gotten a lot more, I guess systematic in the recent past as to where they are beginning to collect this stuff in a database. Early on they were doing peer reviews, but the data wasn't being collected or categorized in aggregate. So we sort of

had -- didn't have a good sense of what was happening internally, at least being able to track it.

So we think that they have definitely improved that process, and that is part of what we wanted to see on the Subcommittee.

The next item we talked about was the blind reviews that we've done -- SC&A. We have only selected two in all this time. And one question was put to the Subcommittee is do we want to continue the blind reviews? What can we get out of these blind reviews? So we had a discussion about it is a small sample but we do have two cases that have gone through blind review. And the Subcommittee came to the conclusion that we think the blind reviews are worthwhile, even though DCAS has an internal program, we think having some number of blind reviews that we do independently is still a useful tool. And it is also useful to do in the two methods that

they did this first round, which was one method where they have the SC&A dose reconstructors follow the exact procedures that NIOSH will go through. And the other is more of a best health physics practices approach. So they did it both ways, and it was a useful exercise to see sort of the uncertainty in the final numbers, I guess both internal and external doses.

We agree, I am not sure we pinned down a number, but we said something like four to six for the next year seemed to make sense, and then maybe reassess once we had a little larger sample of how much we were getting out of this. So that is where the Subcommittee stands as far as reporting back to the Board on that issue.

Another item we were asked by the full Board to look into was what we have termed the look-back, and we've picked basically a number of cases that were done at one site, in this case it happened to be Rocky

Flats, and we wanted to look back and see the original reviews that were done by SC&A, did they flag certain things. In other words, if something ended up being in an SEC, was that issue flagged in the original dose reconstruction report. And part of it is to see what we are finding out in our dose review process, but part of it is also the concern about how we are reporting our results. Are we saying that all these cases look great when in fact several of them ended up being in an SEC? It might be a little misleading to our audience that we are reporting to.

So in the Rocky Flats case, we had I think these numbers are accurate, I believe they had eight cases and six of those cases ended up eventually being in the SEC. And I think that the main headline out of this is that the findings that we had did not flag the SEC issues. However, when you went back to the SC&A case reports, they have a general section where it is linked to the open Site

Profile findings. And in those cases, they did recognize that, yes, in fact, we still have an open issue about neutron dose reconstruction and the SEC for Rocky Flats was based on the inability to reconstruct neutron dose. So it was flagged, but it wasn't sort of captured in the findings. It wasn't in the full -- in the body of the report.

And that led to a discussion on the Subcommittee of how best to track all these -- you know not to sort of lose track of things. And that ultimately led to a discussion of me putting the Subcommittee matrices into a Wanda Munn-like database, reluctantly.

MEMBER MUNN: We hope.

MEMBER GRIFFON: I think it will -- and we are making plans. Even this morning we had some emails going around about what fields we need in that database, et cetera.

So the idea would be that because it seems like what is happening is we have the

Dose Reconstruction Subcommittee, most of the findings are related to QA/QC type of issues, other issues that are identified, but the bigger issues, the more science issues are being investigated and explored and resolved at the Site Profile or SEC level. So we have to link those things, and we have to make sure we don't lose track of them. And it seems that putting all these things in a database makes a lot of sense. So that is where that discussion went.

Let me see. I guess the last item was a discussion of the review procedure itself. If you recall, some of you recall anyway, that we drafted a Board procedure for dose reconstruction reviews. And as we looked back at the initial draft, it was pretty clear that we sort of evolved from there. We are not - some of those principles we are following, but, for instance, we had a basic and advanced review, and it sort of morphed into something in-between for all the reviews

that we do. So we don't really select the basic or advanced. We have got one level of review.

What we have offered to do is the Subcommittee is going to re-look at that language, redraft the procedure really to reflect what we are doing. We feel that the approach is sound right now, as long as we make sure that we don't lose track of these bigger things that are really being conducted on the Site Profile level. But there is a benefit for the Dose Reconstruction Subcommittee to continue to look at these QA/QC findings because we do find a number of them.

So we will continue to go down that path, which is, there is also one distinction there, which is for some of the AEC sites we have something that we have started to call mini Site Profiles and this is where basically it is a small site. In some cases there is not even a Site Profile

document. So we asked SC&A to treat it as if they are reviewing the whole site, even though it is one case, because likely we won't see that at any other point. There won't be a Work Group established or any other level of review. So we treat it as like a mini Site Profile or as a Site Profile. So that would be what I would have termed for the advanced review, the more drill down and look into all the issues, rather than just that specific case.

But for the other cases, we are going to continue to review them as we have been, which is to say to make sure that NIOSH is tracking their procedures and making sure that what they have done is in accordance with their own procedures and the numbers are all there, everything adds up. With one note, that if they find something that just leaps out and wasn't necessarily on a previous Site Profile review, they certainly want to flag it. But that is sort of the approach that we

think we should have going forward.

And I think we need to, you know, we have started similar language, sharing some of the language, but we need to redraft this procedure and circulate it to the Board and maybe have the Board vote on once we have finalized it and can adopt it. But that is sort of how we were thinking.

And I think that is it.

CHAIRMAN MELIUS: Any of your Work Group Members have -- turn off your mic.

MEMBER KOTELCHUCK: The blind reviews were -- certainly gave me, as a relatively new Board Member, a lot of confidence that there was really quite a good improvement in the reviews that were made in the blind review. It just gives you confidence.

Also, for the upcoming blind reviews, I think the two blind reviews we have done, one was, I believe, skin cancer and the other was -- was it lung cancer? There were

two types of cancers, and the other four or five we are going to be doing in the course of the next year, we will choose so that there will be different kinds of cancers, just to kind of go across the spectrum a little bit. Although, hopefully that should not create a difficulty. That should be -- I don't expect that there will be problems with a particular kind of cancer. Let's confirm that by sampling different cancer types.

MEMBER GRIFFON: Yes, we did -- I forgot. Thanks, Dave.

We talked about possibly modifying the selection for the blind reviews. One thing we also note is that I think one of the cases, because they are blind, NIOSH might have done an overestimating approach so that numbers might look quite different than what SC&A came up with up when they were doing a best estimate approach. But since they were blind, then we could do what would be -- so one thing we talked about was possibly

modifying the way we selected these cases.

CHAIRMAN MELIUS: Yes, I would just -- I have one comment, which is I would argue for doing the six blind reviews this year. They are labor-intensive, but we really lagged in doing them, and I think it would be important that we do more rather than less. Because we will never get sort of a statistically valid sample of whatever. But I think we really need to just move that forward a little bit to see how much we will really learn from them and understand, particularly with this compared to this other change in the process that you are going through in terms of not losing key findings. That would be my only comment.

MEMBER KOTELCHUCK: In fact, we were saying that we have done two. The folks, the staff folks there thought that they could do four over the course of the year, one each quarter and that was realistic. So we figured that we would have a half dozen by the end of

the year. By the end of the next year.

CHAIRMAN MELIUS: I've never heard SC&A refuse work. I haven't heard SC&A turn down doing something, but again, you are closer to it. But if possible, or feasible, let's try to get the six in. I think it would be helpful.

And also our resolution of these tend to lag and it just -- I think if we are going to really learn something and make sure we have a good process, we should sooner, rather than later.

MEMBER GRIFFON: We will have to get Mauro --

MEMBER ZIEMER: At the front end of the process, we had SC&A estimate how much it would actually cost to do the blind reviews. You have done two now. John Stiver, can you or one of the staff tell us how close the estimate was so we know whether we can afford the six that Jim has referred to?

MR. STIVER: Yes, we had had this

discussion at the November 27th meeting about the costs. You know, an optimistic estimate would be about 100 hours. It was about similar to a regular review. But due to the additional work involved, it would probably be about twice that as a ball park figure, when you are really looking at doing a full-blown blind, it always involves a lot more work. And you know, we also have the two different types of approaches. So my guess would be probably about 150 as a ballpark. But it definitely is larger than 100. But certainly having said that, six would not be an insurmountable goal for a year. We could certainly do that. We just have to reallocate people to that particular task.

CHAIRMAN MELIUS: I bet I can get him up to a dozen.

I mean seriously in my mind, and again, it is just my person opinion, if that has to come at the expense of other reviews, then so be it. I just think we have lagged in

doing these because they are complicated. And I think they really pose some issues in terms of how to do them, and I think we would benefit from pushing ahead a little harder on those.

While I have the opportunity, I would like to recognize or acknowledge a former Board Member who has joined us, Dr. Roy DeHart. Welcome. He has been away for several years.

(Applause.)

CHAIRMAN MELIUS: Roy, you have been away for several years, same issues, same -- you could have just sat up here and joined right in and not miss a beat. The same sites we have been talking about.

Why don't we take our break. We need to get back here at 3:15 sharp and we will start on GSI. Thank you.

(Whereupon, the above-entitled matter went off the record at 2:51 p.m. and resumed at 3:19 p.m.)

CHAIRMAN MELIUS: Okay, our next issue on our agenda is the GSI/SEC petition. And I believe I have a big hint here, I think Dr. Ziemer is going to start off then, Dave Allen? Okay. So go ahead, Paul.

MEMBER ZIEMER: Thank you, Dr. Melius, I'll report on the activities of the TBD-6000 Work Group, particularly with respect to SEC Petition 00105 for General Steel Industries.

Also it may be useful to make sure that the petitioners are on the line and able to hear. You want to check on that? Or can we just ask if the petitioner and co-petitioner are on the line?

MS. JESKE: This is Patricia Jeske, I am here.

DR. MCKEEL: Hello, this is Dan McKeel, I'm here.

MEMBER ZIEMER: Okay, thank you. I wanted to make sure. I know we've had sound trouble today. But I wanted to make sure

that, at least we're able to hear at this point.

So I will report on the activity of the TBD-6000 Work Group, from our last meeting, and also then Dave Allen will make a brief presentation on behalf of NIOSH.

Part of this is just to review, because I've given reports at the last two full Board meetings on the activities of this Work Group, with respect to GSI. But let me remind you first of all of the timeline for the use of radioactive sources and radiation producing devices at General Steel Industries.

The periods of interest are the operational period which began January 1st 1953 and went through June 30th of 1966. I have added on this slide, for convenience, a point which is during the operational period where I've identified the date at which the GSI folks applied for their original Atomic Energy Commission License, that occurred on March 7th, 1962.

The license actually was issued May 21st of '62. And then the residual period is from July 1st, '66 through December 31st, 1992. And then I note here that there was a DOE cleanup period January 1st through December 31st of 1993.

Now let me summarize the action that this Board took in September at our last full Board meeting, just to refresh your memory.

At that time I reported that both NIOSH and SC&A felt that it would make sense to review some other datasets involving the handling of uranium metal to ascertain whether there was a better surrogate dataset for the GSI situation.

And we're talking about surrogate data for the handling of uranium that would lead to airborne activity and hence to internal dose.

So at that time the Board asked NIOSH to examine possible alternate surrogate

datasets, which would be followed by an SC&A review, for determination of internal dose component for both the operational and residual periods.

And let me also remind you that the original dataset that came from TBD-6000, was one for which it had been determined, or for which there was question about whether or not it was a suitable surrogate for the GSI situation.

So the Board didn't take action on the SEC petition at that meeting but rather deferred action until the next full Board meeting, which is this meeting here in Knoxville, today.

The Work Group met on November 28th, this past week or so, and let me summarize what the Work Group did and then I will also summarize the formal votes that were taken.

First of all we reviewed the NIOSH proposal for air sampling at AWE sites that

represented the handling of uranium in various forms. And I'm talking only about the handling processes, not he other types of uranium activities such as rolling and milling and cutting and grinding and so on.

Then the Work Group reviewed the SC&A evaluation of the NIOSH proposal, and again we're talking here about a dataset that might be considered a suitable surrogate. The Work Group also reviewed additional comments, or received additional comments, from the site expert and the petitioner. We also have written comments from the co-petitioner at that meeting.

After discussion NIOSH agreed to some modifications that were suggested by SC&A that grew out SC&A's review of the NIOSH White Paper. And the Work Group acted then on the proposed use of the air sampling data for the operational and residual periods and I'll summarize that action in just a moment.

Also the Work Group voted on the

overall NIOSH recommendation on SEC Petition, 00105. Now this is really redundant in a way because I had reported to this Board earlier what those actions were, but we, for clarity, reiterated our voting.

And then finally the Work Group confirmed that all the SC&A finding on Petition 00105 had either been closed or transferred to Appendix BB as non-SEC issues.

So I have four recommendations that have come out of the Work Group meeting of November 28th.

Number one, the Work Group recommends that the Board accept the NIOSH proposal that it can reconstruct internal dose for the operational and residual periods. And that the surrogate data criteria have been met. And the four Work Group Members voted on this, there were ayes and no nays.

Secondly, the Work Group recommends that the Board accept the NIOSH proposal that it can reconstruct doses for the

"earlier" part of the operational period, January 1st, 1953 to April 18th, 1962. That vote was three ayes and one nay.

And let me also insert here that this date was, in a certain sense, I don't want to call it arbitrary, but it's not a part of the original petition. But the Work Group realized that there appeared to be two sort of differing time periods in terms of what may have been the level of radiation safety controls at this facility and therefore it was appropriate to consider them separately and vote separately on them.

This Board may wish to break them up the same way or not. That will be up to you, but I'm reporting how we voted on it.

For the later operational period, this is Recommendation 3, the Work Group recommends that the Board accept the NIOSH proposal that it can reconstruct dose for the later operational period, April 19th, 1962 to June 30th, 1966. The voting was three ayes,

no nays, one abstention.

And then finally the Work Group recommends that the Board accept the NIOSH proposal that it can reconstruct dose for the residual period, July 1st, 1966 to December 31st, 1992. The vote was four ayes and no nays.

Now I thought it would be appropriate for you to hear a little more detail about the actual surrogate data proposal that NIOSH made as it has finally be modified with their consideration of the SC&A review.

I also have available, and I just show it here, as reminders, from the presentation at the Santa Fe meeting of June 20th. And, Mr. Chairman, I'll leave it to you or the Board Members whether or not you want me to do that.

And I could do that now or after Dave presents his material from NIOSH. Or not do it at all, it would be a reiteration of how

the issues on the SEC petition were closed or transferred to Appendix BB Issue Matrix. And basically it would be a repetition of what was covered in the June 20th meeting.

CHAIRMAN MELIUS: How do the Board Members feel? Would it be helpful to have Paul run through those?

MEMBER MUNN: I'm fine.

CHAIRMAN MELIUS: Fine which way?

MEMBER ZIEMER: If it's material that you already have and I know it's been redistributed to you. And you have the slides themselves.

CHAIRMAN MELIUS: Okay, why don't you go through it? Because I think it helped set the context for some of the decision making also.

MEMBER ZIEMER: Okay, you want me to do that before you hear from Mr. Allen?

CHAIRMAN MELIUS: Yes, because Dave's really speaking to just one of the issues, if I have this correct.

MEMBER ZIEMER: Right. Okay. This is additional background on the petition itself. It was submitted in February of 2008, qualified for evaluation May of 2008. The Evaluation Report issued by NIOSH October 3rd, 2008. SC&A review, January 24th, 2009.

I have here the original proposed Class Definition and the Class as evaluated by NIOSH. I'll simply read the final Class as it was evaluated, "All individuals who worked in any location at the General Steel Industry site, located at 1417 State Street, Granite City, Illinois from January 1st, 1953 through June 30th, 1966 and/or during the residual period from July 1st, 1966 through December 31st, 1992.

So here were the issues in the Issue Matrix. Issue 1, dealt with lack of radiation monitoring data for the, what I now have called the earlier period, 1953 to 1963. There was concern about specific incidences, there was concern about assumptions for

reconstructing doses from radium sources. Concerns about training monitoring and other controls during t his period.

Ultimately NIOSH and SC&A agreed the doses could be bounded based on source size information and reasonable assumptions concerning work practices. And the Work Group voted at that time, in terms of the Matrix, two to one not to recommend SEC status for the early period on the basis of this issue.

Issue 2 was incomplete monitoring of workers from '64 to '66. Film badges had been provided for only betatron workers and radiographers, no film badges were used outside the betatron building. And I might say parenthetically it was agreed that there were exposures outside the betatron building.

Ultimately NIOSH developed the model for bounding doses to individuals working outside the betatron room and SC&A agreed the doses could be reconstructed during this period.

Third issue, lack of documentation. The original concern dealt with lack of information on isotopic radiography sources, lack of information on monitoring data and lack of evidence of an effective radiation safety program.

After identification of sources and additional information on practices, SC&A agreed with NIOSH that bounding can be done.

I might add here, again parenthetically, that much of the additional information that we received on the radiographic sources, particularly in those early days, came from the petitioner who located many documents that were helpful to the Work Group. Or I should say the co-petitioner, Dr. McKeel.

Issue 4, film badge dosimetry dependence on photon energy and exposure geometry. The concern was that film badges under-respond for certain geometries and energies.

The final resolution of this is that the modeled doses for the betatron workers exceed the maximum film badge values that were reported, even for the energies and geometries that produced the highest film badge readings. SC&A concurred with this and the Work Group closed that issue.

Issue 5 was lack of validation of models of radiation exposure to betatron operators. The initial concern was that for the period when the film badge reports were available the measured and the modeled exposures did not agree.

The ultimate resolution was that later models, which eventually were normalized to the film badge data, did end up providing a reasonable agreement and both NIOSH and SC&A agreed that external doses could be bonded with sufficient accuracy through the use of the MCNPX simulations. And the Work Group closed that issue.

Issue 6 was the underestimate of

external exposure to unmonitored workers. The concern was based on early models that focused only on radiographers versus non-exposed plant and office personnel. But the current models now assign exposures to all workers, including exposures originating from betatron and isotopic sources as well as support activities, and all workers would be covered by one or another part of the modeling.

Issue 7, does reconstructions not based on best available science. The concern was actually an error in the calculation plus the difference in the model codes used by NIOSH and SC&A. This was not an SEC issue, it was resolved in the later models that were used by NIOSH and SC&A and the issue was closed.

Issue 8, incomplete model use for exposure assessments. This was a concern similar to the previous issue. It involved the omission of neutron doses in the original NIOSH model. And that was resolved in a

similar fashion, similar to Issue 7.

Issue 9, underestimate of beta does. The concern was based on neglecting what is known as the Putzier effect as well as omitting skin dose who were not betatron operators. The Putzier effect actually it will be addressed in the Appendix BB revision. It's been agreed to. The skin doses to other workers are addressed in the most recent NIOSH models.

And finally, Issue 10 was lack of consistency in assigning external exposures. This concern originally focused on an error in the NIOSH calculation, an error in the early model. It was not an SEC issue and this item was moved by the Work Group to Appendix BB in 2010 and subsequently closed.

And then I put, at the end here, just a summary of those ten issues. Those that have been closed and those that have been transferred to Appendix BB. And that completes my presentation. Do you have

questions now Dr. Melius or shall we proceed with Mr. Allen?

CHAIRMAN MELIUS: Actually if it's okay with everybody else why don't we proceed with David Allen and then we'll come back and ask you both questions.

MEMBER ZIEMER: Yes.

CHAIRMAN MELIUS: Now we're ready to go and Dave Allen will be presenting. Speak directly into the mic, people are having trouble hearing from that mic.

MR. ALLEN: Okay, is this close enough? Okay, once again my name is Dave Allen. I'm here to give a very brief presentation on the use of surrogate data at GSI for uranium airborne concentrations.

Just a short background as far as the airborne at GSI. I want to remind you that the reason GSI is a AWE is that they performed X-ray examinations on uranium metal for Mallinckrodt. They did not correct defects or do any other type of manipulation

with the metal other than to position it for the X-ray, take the X-ray and then remove the metal and ship it back to Mallinckrodt.

Even at that there is potential for some amount of uranium airborne from handling the uranium and corrosion products on the surface of the metal. In order to estimate that airborne it was necessary for us to use surrogate data.

Originally, in the Appendix BB, we used surrogate data from TBD-6000. This was intended to be a bounding estimate since we didn't have a real good number on simply handling cold uranium metal. This was looked at by the Work Group, SC&A and others, and decided it was not representative. And, as I said we agreed, we felt it was a bounding estimate.

As a result the Work Group asked us to see if we could find data that was more appropriate to what they did at GSI. Dr. Ziemer presented that at the Board meeting,

the last full Board meeting, and the Board agreed that we should go back and see if we could find some additional data. And the data was to be representative of simply handling cold uranium metal.

We went back and we conducted a research to try to find some data that was more representative. We had a small amount of data that was representative prior to that. Between that and what we were able to add to it we were able to come up with 37 air samples that we felt were representative of the work at GSI.

The forms of uranium they were handling, uranium metal, that they were handling and these various air samples includes slugs, derbies, billets and dingots, and this is a wide range of sizes of uranium metal.

We presented that to the Work Group in a White Paper and also analyzed the data and showed that it was not dependent on

the mass by any means but, much to my surprise, it was not really dependent on the surface area either. As it turned out we were getting a similar amount of airborne from each of these types of uranium regardless of the size or the shape.

Once we sent the White Paper to the Work Group SC&A reviewed the White Paper and the data and presented their review, which included several additions, deletions and adjustments to the data that we presented.

During the Work Group we discussed this. Most of SC&A suggested changes were accepted, a few were not. And that resulted in essentially a third dataset. Once the meeting was over we took this third dataset that was agreed to and analyzed it, and I've put the values on the slide up here.

You can see that the one that says final is essentially the hybrid dataset that we settled on during the Working Group meeting and it does fall between the other two, the

values you get fall between the other two datasets.

Also in the White Paper where I presented this data we evaluated the data against the Board's surrogate data criteria and our determination was that the criteria was met. In SC&A's review they also reviewed the data against the surrogate data criteria and they came to the same conclusion.

During the Work Group meeting on November 28th the Work Group voted and also agreed with that. And that's all I have on that.

CHAIRMAN MELIUS: Okay. Do we have questions for either Paul or Dave? Again, the order of this will be Board Members will ask questions about the presentations. We'll then hear from the petitioners. And then we'll, well we actually have a motion from the Work Group to consider, so we would then move on to that. But this is the time to ask sort of technical questions, we're not going to

talk about what actions we'll take at this interval until we've heard from the petitioners. So, Brad, you're first.

MEMBER CLAWSON: You know, in following this and trying to keep up with what's going on with this, and I don't know who I'd address this to, if it would be to you, Paul, or what. But what data do we have from 1953 to 1962, because my understanding was is that we really had no data out there?

MEMBER ZIEMER: For the early period the reconstructed dose would be based on modeling. What we do know is we know the number and activities of the radium sources that were used for radiography in the early days. We do have information on the betatron in terms of its energy and output, and also the location.

So the modeling is what this would be based on. I'll let Dave speak to it additionally as well. But in the hierarchy of data, or the hierarchy that we use for dose

reconstruction, obviously the top tier would be personnel monitoring. We do not have that for the early period. We do have source information and that's what the models are based on.

Dave, do you need to add to that? And maybe Bob Anigstein, who's here from SC&A can also comment.

MR. ALLEN: I would agree. I just wanted to add that we also had information from some of the workers as far as what techniques they were using et cetera.

MEMBER ZIEMER: For example, the use of the radium sources they used the fishpole technique. So you have a radium source in open air whose strength you know in terms of curies and you have to make some assumptions on distances and also on exposure times.

Also it turns out that the modeling that they used even makes assumptions to the effect that workers could cross the

boundaries and penetrate the radiation limiting ropes during exposures. And part of the modeling assumes that people walked through there and we assigned doses for all workers assuming that they walked through these things as well. And so that's the kind of thing that's done. But we don't have direct monitoring data.

MEMBER CLAWSON: I guess, you know, and this is just my personal opinion, I'm sitting here looking at we had a 8314 for Patel Energy that came in there and they had a fair amount of data. And I'm looking at this from '53 to '66, which we really have no data, and we're assuming that we've got it right.

But as we've found in many of these sites, I guess, I feel really, I was kind of surprised that we didn't have a SEC for these earlier years, '53 to '66. I really, you know, we can put models out there, we can do everything like that. But in my personal opinion all we're doing is taking an

educated guess at what was really there.

We know some source terms but we don't have all the facts.

CHAIRMAN MELIUS: Josie.

MR. ALLEN: Could I say one there, Dr. Melius? I did want to point out that the radiation doses that we're getting, the external radiation dose from these sources, the purpose of it was for radiography. So in order to get an actual X-ray of a piece of material the radiographers have to know what the source strength is and how long to shoot it.

So the techniques you use in order to get the film, essentially they are calculating how much dose the film is going to get in order to perform their job. Granted, we don't have all that information but it does tell you that there was some type of control over this and they did have some kind of idea what they were doing there.

And then we also know the source

strength and the techniques that they were used, according to the people in that timeframe.

MEMBER CLAWSON: And I appreciate that and I hope you understand after being a radiographer for ten years I know that my equivalent dose, if I wouldn't have had a film badge, they could make an estimate for me but I bet you they would be off by a substantial amount because of the unforeseen things. The different thicknesses in the metal. The different process.

And you also, when you do radiography, you have a density that you have to match on this. So I'll give you an example of a half inch pipe that, because it's extra, extra heavy wall, would take over 37 shots to be able to do one weld or one spot in it.

So this is my issue that I have and others may not, but I'm sitting here looking at no data for these earlier years, at all, and I see us guesstimating. And I just

feel uneasy about it. To tell you the truth I was really surprised that we didn't have an SEC at least for the earlier years.

CHAIRMAN MELIUS: I would just correct you, Brad, we have data. I think what you're saying is we don't have monitoring data and I think you need to be specific about that.

MEMBER CLAWSON: I stand corrected.

CHAIRMAN MELIUS: Josie.

MEMBER BEACH: Okay, as you know I was on the Work Group and one of my biggest issues was from the 1953 to 1958 time period. There's no real source term data and NIOSH intends to back extrapolate source term data from '58/'63 time period to that period of time and I don't feel that that's plausible or favorable.

There's a couple other things about the safety practices, but Paul already talked about those so I won't get into those.

But there were questionable safety practices back in the earlier periods. And there's no validation for that model in the very early periods.

CHAIRMAN MELIUS: Any response from Dave or Paul?

MEMBER ZIEMER: I don't have any particular response. I mean part of the issue on models is how well they do what we're wanting them to do. And what this model is intended to do is to do an upper bound, so it really is a very generous model based on what sources they had available.

And it's quite true, radiographers don't have the best safety record anyway. We know that from experience. And I think over the years AEC and NRC has had trouble with radiographers whose practices have often been questionable.

And so the question is do you have a model which will do fair bounding of not only those radiographers, but the rest of the

people in the field and in the plant who may be exposed it and may not even be part of the radiography group. And that's what the model is intended to do.

So SC&A and NIOSH have looked at these models extensively, and Board Members, and we don't all agree on sort of the end point on these things. So there's certainly room for disagreement.

And I'm just saying that to me those models do adequately bound, or if you want to use the term with sufficient accuracy, I believe they're extremely generous to all of the workers and those who were in the plant and do fairly bound what they could have gotten from those early sources.

But I don't dispute the points that are made. I think they're valid points as well.

CHAIRMAN MELIUS: What did you say you'd been doing for ten years, Brad?

MEMBER CLAWSON: And I agree with.

I guess my issue is the source term. You know, and fishpole radiography was basically outlawed because of the reasons that you spoke of. But I think if we're dealing with this with good source term and we're trying to reconstruct 40 years ago or something else like that and so much can be missed in it, my personal opinion is that there is such a gap there.

If we were lucky, everything is based on if we have the right source terms that are our there. And I do agree with you on the radiographers, because we have lost sources.

CHAIRMAN MELIUS: David Richardson, I think you had a --

MEMBER RICHARDSON: Yes, maybe some of this discussion has helped clarify. I wanted just to follow up with Josie's comments, because you had raised an issue of lack of information on the source terms for a certain period of time. And it wasn't clear

to me, I was wondering whether you were talking about source terms for internal exposures or external exposures. Is it this issue of the radium sources?

MEMBER BEACH: Yes, the external.

CHAIRMAN MELIUS: Yes, Mark.

MEMBER GRIFFON: Dave or Paul, I'm trying to compare the FUSRAP Report to your most recent model and, you know, not that I would expect from an operation like to have really significant internal doses, but I'm wondering if you did any analysis to see that those numbers were consistent?

I'm seeing, you know, the one that caught my eye was the 3,000 to 4,000 picocuries per gram in or around the vacuum, industrial vacuum in the facility. And then there's also a measurement of I think it's like 36 micro-hour per hour 75 feet outside the building.

I guess my point here is I'm wonder if those levels of contamination, now

that survey was done in 1990, 30 years after the operations are over. If that level of contamination is consistent with what could have come off the, you know, what you've described as pretty non-intrusive type of activities?

MR. ALLEN: We didn't do anything above what, Dr. Anigstein for SC&A did a type of analysis, I think what you're talking about. But we did get information that the facility was power washed and cleaned up at least two different occasions between the cover period and the FUSRAP Survey and that throws a major monkey wrench in back-extrapolate 40 years. That answer your question?

MEMBER GRIFFON: No, not really. But it's what you know, right? I mean, I don't know if SC&A has a comment on that, if they looked into that issue at all. Anybody?

MEMBER ZIEMER: Well I don't have the answer but let me reframe it. Mark is

basically asking if the proposed model for internal does, which is the new surrogate data, air concentrations, and keep in mind what would happen would be that those would be used to establish contamination levels on the floors and eventually airborne, from suspension, whether those values are with the contamination levels found by the FUSRAP people.

And I think sort of the lynchpin of this would be if the FUSRAP, after all this cleaning, were finding levels that were higher than predicted by this model that would give cause for concern. Does that frame it correctly, Mark? I think it's what you're really asking. Is there any kind of consistency.

If the FUSRAP models are lower than what you would get from the NIOSH model then one would feel a little more comfortable. If I can put it in those terms. And I don't know the answer to that. And I don't know if

Bob Anigstein, Bob is pow-wowing with one of his colleagues so I don't know if he's even heard the question. But, Dave has an initial response.

MR. ALLEN: Yes, I mean in order to do that you have to essentially make some assumptions that the contamination is evenly spread through the surface, et cetera. And I think, you know, you said you saw the FUSRAP surveys and there were deposits or locations of pretty fixed contamination. It was not evenly spread.

Most of it was less than detectable, but there were areas where contamination was fixed into the concrete and they actually had to scabble this concrete to get this contamination loose.

And that is the other thing that ends up, between the power washing and the fixed contamination, as far as how much time it took to reduce it to that level and then it stopped reducing because it was fixed, is

another variable that makes this comparison very difficult to make.

So I mean essentially you could take the data that we've got, spread it around the floor, as we would model, but then concentrate it into certain locations and fix it after a certain point in time and yes you could come up with the same numbers. But is that analysis really very valid?

CHAIRMAN MELIUS: Henry.

MEMBER ANDERSON: Yes, I'm always a little bit concerned when I hear that it's a generous exposure. And my question to that is how unrealistic is it? I mean it may be, and we've had this discussion numerous times, bounding because it's well above what it may well have been. But that's not a real realistic measure.

We do have any sites where we've had this kind of, I mean the radiography has been used before it was outlawed. Brad, but I mean do we have any measurements from any of

those that would tend to say these assumptions and this, I mean the modeling I can understand.

You can look at the model and say yes, the model is an appropriate model. The problem is what you feed into the model is what predicts what you get out. So how much over do you think it might be? I mean, if you look at a confidence interval you're confident that it's an upper bound, but how far above what would be a confidence interval is it?

MEMBER ZIEMER: Before I respond to that directly, let me make sure that when we're talking about the models that we understand that there are several different pieces. The internal dose issue, which was the sampling, that's in a sense sort of the smallest piece of anything.

If you look at what the outputs of all of this are. The external dose is the driver of concern at this facility. And on the internal, even if you took the FUSRAP

numbers, which we don't take anymore because of this cleaning and so on, but even if those turned out higher this is almost trivial compared to the external numbers.

So yes, it's an interesting exercise. But if we're concerned about worker exposure those external ones need to be the driver. So I assume you're talking about the external models?

MEMBER ANDERSON: Yes.

MEMBER ZIEMER: You obviously have to make assumptions, we know the source terms, we know the number of curies of radium, or millicuries actually of radium. I forget the numbers here off the top of my head. But we have that source term information. You have to make assumptions about the processes, the numbers and times of exposure and so on.

So yes, you can be reasonably conservative on that. You can go overboard and say the sources were out all the time, which is not plausible. So we, I think the

NIOSH, SC&A and the Work Group, have looked at what we would, those who think you can do this, think are reasonable claimant-favorable approaches to that kind of modeling.

And there's uncertainty. But also keep in mind that when you build the uncertainty into that distribution and go out to picking the 99th percentile on the numbers it becomes extremely claimant-favorable.

I think Jim Neton maybe had a comment or was going to add?

MR. ALLEN: Yes, I think I can add one thing to that and that is, there is one piece of reality check to the modeling in those earlier years. And that was in a 1962 application for a radioactive material license that GSI submitted.

And in the application they said their past experience, no one had exceeded the limit in effect at the time. And on average they were less than 25 percent of the limit. And that gives you kind of a bound.

As far as where their normal exposures are, no we don't have the records of that but we have the statement in their NRC application. And that is essentially where our model is coming out is between the 25 and the one times of the limit.

MEMBER ANDERSON: So did they do measurements and they're just not available?

MR. ALLEN: Yes, according to --

MEMBER ANDERSON: Okay, I'd forgotten that. Yes.

MR. ALLEN: That was anecdotal according to one of the radiographers, he said they always had badges.

MEMBER ANDERSON: Okay.

DR. ANIGSTEIN: I think I can clarify a couple of questions that were asked. One by Mr. Clawson about the different thicknesses required different exposures. What they have in the AEC documentation is a statement by the supervisor that they did, that they did ten exposures per shift. That

was about the maximum.

And the AEC onsite inspector checked the shot records and he made an entry in the site visit report that said that is correct. He confirmed that ten shots per shift was in fact what they did.

And so based on an interview with the one worker who actually did radiography during that period, during half of that early period from '57 through '62 with the radium sources. He gave a very detailed account of how he handled the source. He handled the source at the end of this fishpole. And if you take the most claimant-favorable, so if he said well it was three to six feet away from his body.

So if you say, okay let's take three, so they took 12 to 15 seconds for each shot, for the actual transfer of taking the source out of the shield. Carrying it over and putting it behind the steel casting. So if you take the maximum of 15.

And then the rest of the time he stayed in a small concrete room, it was partially shielded, at a distance from where the sources were. So the model that SC&A proposed as an alternative to the NIOSH, which we differ only by a factor of two which isn't bad, to fed into account, where we had the exposure duration.

We had the exposure duration of the source, dangling at the end of a stick. Exposure duration of him sitting in the little office waiting for the exposure to finish, for the fill to be exposed.

So this was based on, this was not just made up, this was based on real information. And then in addition the same worker submitted his exposure record during that period. It's just a summary but it showed that he had, if I remember correctly, 9.1 rem over 18 quarters.

And then the complication is this was not his full-time job. He did this on

weekends. But he had an estimate of how many days a year he worked, or he said he worked. Almost all weekends, maybe 90 percent of the time, one or two shifts.

So if you combine that and extrapolate it to a full-time worker you end up with something between, I'm just going from memory now, but something say between ten and 20 r per year.

And then if you combine that with his statement that, as Dave said, on the application that nobody every exceeded the AEC limit, which started out being 15 rem per year and then would be a maximum of 12, all three coincide.

It coincides with the model, it coincides with the exposure record, it coincides with the statement. And the statement was based on film badge records. Now those film badge records could not be recovered.

But it was based on film badge

records which the AEC would have had access to so it would seem unnecessary for them to have made a false statement when the inspector could have checked those records. So anyway I just wanted to clarify that part.

Is there anything else I can clarify while I'm here?

CHAIRMAN MELIUS: Josie has a question.

DR. ANIGSTEIN: For me?

MEMBER BEACH: Yes, I just want to clarify, that worker that you were talking about was a part time worker. He started in, what 1960? And he only worked --

DR. ANIGSTEIN: No, he was a, no correction. He was a full time employee of GSI.

But his regular job was working in a laboratory. So he mooned, his radiation, his radium radiography was something he did on weekends to earn extra money.

MEMBER BEACH: Okay.

DR. ANIGSTEIN: But he had been qualified as radiographer in the previous job, in another place I think maybe he also moonlighted in addition to GSI work. But so it's not as accurate I'd like to have a regular full time worker.

But again, there were three different calculations which came within a 50 percent of each other. So let's see, according to his account he started work in '53, he went into the Army in '54, came out in '56.

But if you look at the record where it said there were 18 quarters of exposure, ending as of the beginning of '62, that would have placed him at the beginning, at mid 1957 as starting his radiography work.

MEMBER BEACH: Okay. And so he's the only one we've got an interview from during that time period? No full time radiographers?

DR. ANIGSTEIN: We don't have any.

MEMBER BEACH: Okay.

DR. ANIGSTEIN: I mean time being what it is, they're gone. But he was the only one who kept a record and also had a very clear memory of what happened.

But yes, it is based on one person's account. I agree with you.

CHAIRMAN MELIUS: Thank you, Bob. I'd like to go to the Petitioners now.

DR. MCKEEL: Dr. Melius, can you hear me, this Dan McKeel?

CHAIRMAN MELIUS: Go ahead Dan.

DR. MCKEEL: All right. Good afternoon to the Board. Dr. Melius has restricted me to ten minute presentation to highlight the 38 White Papers of mine I have sent to the TBD-6000 Work Group and Board between 2007 and 2011. The 38 papers total 539 pages and I therefore must rely on the Board having read these papers, only some of which were discussed in detail in the Work Group meeting.

Often the Work Group simply acknowledged receipt with no further discussion of the content. And numerous of my GSI public comments have also been added to the written record.

CHAIRMAN MELIUS: Dan, can you hold up a second. We're having trouble understanding you. So --

DR. MCKEEL: Well what is the problem Jim? I mean my telephone, I can hear you all very well.

CHAIRMAN MELIUS: Are you on a speaker phone?

DR. MCKEEL: No I'm not.

CHAIRMAN MELIUS: Are you on a cell phone?

DR. MCKEEL: No, I'm on a regular hardwired land line.

CHAIRMAN MELIUS: Okay. Then just go ahead.

DR. MCKEEL: And I'm speaking as loudly as I can without screaming.

CHAIRMAN MELIUS: Okay.

DR. MCKEEL: Okay. So point number two, at September 2012 Board meeting in Denver, I presented slides showing that only six important pieces of real measured, external or internal monitoring data have been identified for the GSI Illinois site as follows.

A series of 1958 to '66 AEC MCW purchase orders to do betatron NDT X-ray work. No POs have yet been discovered for the 1953 to early 1958 period.

A 1962 NCC limited radiologic survey of the two cobalt-60 sources in Building 6.

A 1968 radiologic survey by GSI personnel of the new betatron building with a larger cobalt-60 gamma source.

Two, 1962 to 1963 NCC radiation film badge reports from two workers. Eight-nine GSI radiographer Landauer film badge report 1963, 1966.

These data represent only three percent of the total annual workforce of about 3,000 workers. And they are all males doing a single job out of hundreds of jobs at the plant. Ten percent of the GSI workforce was estimated to be female.

Uranium dust concentrations were measured in and around a small industrial vacuum in 1992 in the old betatron facility, during the DOE/FUSRAP uranium cleanup that closed the residual period.

Three, all the other monitoring data at GSI is either surrogate or model using MCNPX. NIOSH and SC&A have no betatron data, surrogate or measured, from any site. And this would be necessary to validate their computer model results.

I should say in commenting on what has just been said, they also had no data on two of the, actually three of the sources at GSI. The iridium 192 for the 250 kVp portable X-ray machine.

These key data seem not to exist. GSI is an absolutely unique site in the regard of using betatron 24, 25 MeV X-ray machine to examine uranium.

Four, a slide we showed in September shows very disparate SC&A and NIOSH computer modeling results over time, comparing 2008 to 2012 data, and between the two entities, model agreement ranges between two-fold and 12-fold between entities with some concerning ratio reversals.

The peer review literature standard for validating computers models is that agreement with real measured data should be plus or minus 10 to 20 percent, not 200 percent.

Five, the SC&A revised GSI SEC-105 issues matrix I received, was dated November the 30th, 2012, two days after the TBD-6000 Work Group met.

And other GSI SCC matrix version, dated December the 5th, has been posted for

this meeting. Those matrices have not been discussed by Dr. Ziemer's Work Group.

Now I want to address the November 28th, 2012 TBD-6000 Work Group meeting draft transcript. The DFO Ted Katz provided to me last Friday.

My two GSI Petitioner colleagues, Pat Jeske and [identifying information redacted], carried the ball at the November 28th meeting. For reasons I made clear in a protest letter Ted Katz read into the record and then speculated to all of you.

Today I stand by every word in that letter. The GSI Claimants have been treated very unfairly by the TBD-6000 Work Group.

The SC&A August 2012 analysis of Allen 3, NIOSH AWE surrogate studies, failed to meet four of five, Board surrogate data criteria. However, by some magical reason that baffles the GSI Petitioners, on November 28th, 2012 SC&A had reversed positions

completely.

So that by now five of the seven Allen-DCAS sites satisfied all five Board surrogate data criteria. I strongly support the SC&A August analysis for the following reasons.

The Allen surrogate data sets are not comparable to GSI uranium operation or the forms of uranium used. To be specific, GSI only used Mallinckrodt ingots, uncropped dingots, betatron slices and some billets. The surrogate Allen-NIOSH site used uranium dingots, billets, derbies and plugs but no dingots or betatron slices.

B, the surrogate sites did not perform 24-25 MeV betatron X-ray radiograph on their uranium. That is why the AEC was actively collaborating with GSI in 1952 to improve X-ray images even after the first betatron was put into operation in January of 1952.

C, the DCAS surrogate sites have

not been stringent justified. Allen admits this saying he will be the justification and revise Appendix BB at some undefined time in the future. This is not acceptable. NIOSH needs to be able to demonstrate stringent justifications today, before this full Board votes on GSI SEC-00105.

Seven, six GSI SEC issues were moved to the Appendix BB issues matrix, as was mentioned at the 11/28 Work Group Meeting. These issues were definitely left open, I'm sorry, were deliberately left open to be resolved and closed later in 2013. This is poor decision, because they were still SEC issues originally, that needed to be resolved prior to the final SEC recommendations.

8-A, there is zero monitoring of uranium air intakes or urine uranium bioassays or GSI external beta and neutron doses for any GSI site worker 1952 to 1993. SC&A and NIOSH admit this fact.

8-B, the only film badge data for

GSI is for radiographers 1963 to 1973. The Landauer GSI film badges only read photons. Radiographers only wore their badges part time, 97 percent of the GSI workforce of 3,000, covered in the SEC 105 Class, were never badged. They should have been because betatron activated castings were all over the plant. And many times, up to 400 shots had to be administered for the huge casting.

Number 9, TIB-70 surrogate data is not appropriate for modeling GSI residual period uranium intake. The TIB is based on known start values that steadily decline.

In GSI there were periodic uranium dust resuspension cycles due to power washing, both of the betatron buildings, renovation construction at the new betatron facility and new operations within Buildings 6 through 10 along the transport pathways for uranium. All this was presented and agreed to by all parties at the August 28th, '12 TBD-6000 Work Group Meeting. TBD-70 does model this

scenario.

Ten, the Petitioners have submitted three DOE documents that prove GSI betatron AEC Mallinckrodt operations, were underway during November and December 1952. Those documents have been available since 1998 in the ORO RHTG unclassified database and are on the FUSRAP website, as IL.28-5. And as a ORAU data capture dated April 4th through 8th, 2011.

We circulated this key information to the Board, the Work Group, SC&A, NIOSH and DOE on October 19th. And to DOL on December 5th and 10th.

The 1952 GSI betatron AEC collaboration data should have resulted in changing the GSI operational period start date from January 1, 1953 to November 1952 long ago. We hope this will be done soon.

Final Point 11, Member Beach on 11-28-12, offered a motion to recommend approving the GSI SEC for 1953-1962. That

motion died because there was no seconds by the other three Work Group Members. Dr. Ziemer's slide presentation for today omitted that important fact.

In closing, the TBD-6000 Work Group, NIOSH and SC&A have had five plus years, since June 2007, to fully resolve all Appendix BB, Rev 0 issues.

The SEC 105 deliberation has taken four plus years to come to this point. The Petitioners, the fifth vote in this drama, from the outset have recommended this Board approve an SEC for GSI from 1953 to 1993. We urge the Board to do the right thing and pass this approval vote today. Thank you.

CHAIRMAN MELIUS: Thank you Dan. Is the other Petitioner on the line and wish to speak?

MS. JESKE: This is Patricia Jeske.

CHAIRMAN MELIUS: Yes.

MS. JESKE: And I just want to let

the Board know that I stand behind Dr. McKeel 100 percent. And I represent the Claimant.

He alone or collectively, I mean no one alone or collectively has put the time and energy into this SEC like he has. He was commended for his work by our speaker today, however, the outcome of that research they don't agree upon, even closely.

So these are the things that I'd really like to see the Board take all of this into consideration and yes there are a lot of pages to all his reports over the years. But he did summarize it quite well today.

And I do hope and pray that the Board sees that SEC Petition is approved. Thank you so much.

CHAIRMAN MELIUS: Thank you very much Ms. Jeske. Board Members, that was quick.

We have an active recommendation from the Work Group that's come forward. So that's essentially a motion and second to

essential turn down the SEC and to accept the NIOSH evaluation for the production and for the residual periods, operational and residual periods.

So I guess that's open for discussion now. If you continue to have questions, technical questions we can address those also. Yes, David? Oh, sorry.

MEMBER RICHARDSON: I want to go back to the external dose just for a point of clarification. Are there models for external dose or is there a model for external dose? And let's focus on the pre 1964 period.

Is there a single model or multiple models?

CHAIRMAN MELIUS: Go Dave.

DR. ALLEN: There were multiple sources of radiation, there are multiple models. There were Radium 226 sources, but they also had the betatron starting in '52, I believe the first one was built.

And we also handled several

different scenarios as far as the model. One of the reasons we're calling them models, we had the radiographers with the fishpole technic and they described that to us.

But we also had people saying they put up boundaries and where they put the boundaries up. But that they weren't always obeyed, sometimes people walked throughout them.

So we had a separate model for people working near and walking through the area versus a radiographer out in the plant. And they also had a radiographer room in Building 6.

It was a cinder block room. So we have a separate model for when they're radiographing in that room.

MEMBER RICHARDSON: Okay. So you've described a number of exposure scenarios that are highly contextual.

And I guess my question is, at the end of the day, for somebody who's a worker at

General Steel in a year, are you deriving an estimated value for that work or for that year?

Or are you contended that you can place people into amount of time using a fishing pole or on a building at a given elevation?

I guess I'm going back for clarifying that. Is there a model for a dose in a year or are there models for scenarios which require you to understand people's locations and activities?

DR. ALLEN: It ends up being yes and no. We develop models based on several different scenarios from what the previous workers were giving us. And then no, we can't place people in a specific location.

So we were going to choose the highest of those scenarios and give that to everybody. With the exception of radiographers, those that we know did radiograph have their scenario, if it were

higher.

And I'm not sure that is in all situations. In some cases it's the non-radiographers that were higher and we would put everybody in that.

MEMBER RICHARDSON: There are scenarios were the external dose for your bounding is higher for a non-radiographer then it is for the radiographer.

DR. ALLEN: Yes.

MEMBER RICHARDSON: That's because people were standing, these are people who are above elevations outside of shielding or what were those scenarios?

DR. ALLEN: I think the, the one that comes to mind is the betatron for certain type of shots they did do. The radiographers in the control room had more shielding between them then somebody working in the tin building where the equipment was sent into the building.

It was kind of a labyrinth shield

design, but they didn't always use it as designed. So they could have had more scattered radiation coming down that tunnel then the radiographers got in the control room.

MEMBER RICHARDSON: And there's a list of radiographers or you, how does a claimant establish that they were doing that task?

DR. ALLEN: Primarily we use the telephone interviews when we conduct a telephone interview for a claimant. But if we don't know then we will go with the highest one. That's been our modus operandi in the past on this.

MEMBER RICHARDSON: So in the absence of information, the default is that everybody at the facility, currently under the proposed dose reconstruction strategy is a radiographer, unless there's an exposure scenario which leads to a dose higher then that, that a radiographer would have received?

DR. ALLEN: That's how we've been doing it in the past on the existing Appendix BB and that's how we intended to continue.

MEMBER RICHARDSON: And this scenario you were describing was something on the order of 10 to 15 rad per year for the radiographers?

DR. ALLEN: No.

MEMBER RICHARDSON: I'm sorry, absentee information?

DR. ALLEN: I honestly don't recall the numbers. There was so many numbers, but I think that was a bounding one that Bob Anigstein put out there as it couldn't be higher then this at one point. But that wasn't the estimate as I recall.

MEMBER RICHARDSON: What are the factors that lead that to change? It's basically you're just going to have a value for radiographers per year, right?

Because you're assuming the exposure conditions are invariant over this

period?

DR. ALLEN: Well we are assuming the exposures conditions change. One of the other scenarios was actually the X-raying of the uranium versus the X-raying of the steel.

We have a purchase order with the number of hours a year they worked with that. And that varied over the years. So that is taken into accounting for the external as well as internal dose.

And I do believe there is other variance, but there was so many different things we've looked at for this one. I couldn't tell you exactly where we are right now.

MEMBER RICHARDSON: Okay. But so now here on this report we're talking about, so for '53 to '54 are we, again this is just for clarification. Is the assigned annual exposure the bounding scenario exposure in the absence of information, something like 15 rem for 1953 to '54 and 12 rem for '55 to '62 for

everybody at the facility?

DR. ALLEN: I am sorry, I just don't remember the number of the top of my head. I don't believe it was quite that high though. It is in the number of rem.

DR. NETON: This is Jim. I mean that's in the ballpark, but this is one of the issues that has SC&A and NIOSH have not come to full agreement on the exact bounding value.

That's become what we would consider a Site Profile issue. So at this point it's in that range but the exact value that would be assigned has not been officially determined.

Although we both agree that it can be bounded, you just have to decide which set of assumptions are more appropriate. So we do this very often in these Working Group meetings, where in principle we agree it can be bounded.

There's enough data there to do this. But one has to eventual decide which

value is the more bounding.

MEMBER RICHARDSON: But we're bounding at something over a grade per decade?

DR. NETON: Yes, it's in that range. I mean it's, and like Bob Anigstein pointed out, it is not inconsistent with what we've heard from this person who was a radiographer, has badge readings and what they had reported to the NRC and what the exposure limits were during that time period.

So there were high exposure rates documented, there's no doubt about. So these are not what I would consider implausible high doses. They're high, but not implausible high.

CHAIRMAN MELIUS: Any, Phil, yes.

MR. SCHOFIELD: Yes, if all these different models you have, how do you pigeon hole a person into which model?

DR. ALLEN: Essentially, like I was just saying, we don't. We pick models, scenarios based on what various workers have

told us.

If they're worried about some people working on the roof of that building, they're worried about some people may have walked through the boundaries of the radiography, some people may have been working right outside the wall of the radiography room in Building Number 6. So we modeled all these with the intent of picking the highest one knowing we would not be able to place somebody at a particular spot.

CHAIRMAN MELIUS: Any other comments or questions? Yes, David.

MEMBER RICHARDSON: I don't think I've encountered a situation where I would think making an SEC is in some sense, claiming in favorable. I mean that the proposal is to suggest doses that are of such magnitude that I would hope that most cancers would be compensable given or I mean I could be wrong, but I'm starting to imagine like if somebody works here for ten years and we project a 120

rad to them, that under an SEC you're covering a smaller set of cancers then not.

And have we bounded at such a high level that it's more favorable not to. I just hadn't imagined I guess this scenario that we're talking about. And it still isn't clear to me.

We're suggesting that there are people who are not radiographers who have, is that table bounding for the radiographers and yet there are some people who are going to assign higher doses yet, then that 12 to 15 rad per year?

MEMBER BEACH: Yes, it's very generous.

CHAIRMAN MELIUS: First let me answer the, excuse me, let me answer the first question and then you can do the second. First of all, your first question, there are past incidences and I can think of the Bethlehem Steel where essentially and possible Blockson also, where essentially the SEC and the dose

reconstruction method that was proposed was essentially a wash.

Either one probably would have compensated equal numbers. And it might have been different sites and different years and something like that, but there's nothing certainty and the exposures of the facility were high enough potentially that, either one.

And where that line is, is difficult. And at some point I think, and Henry pointed out, there are circumstances in time that we felt that the assumptions being made were so high that it really wasn't feasible.

Now in this case they're at least telling us there's at least some, very limited data, but some data would say that those are not unreasonable doses, dose estimates that we're doing. So do that.

But it can, I mean there's not a lot of examples like that but there are some. And we've encountered it before and it's a, I

think we have to sort of go back to then, do you think that's there possible to do dose reconstruction, yes. Yes, Paul, I'm sorry.

MEMBER ZIEMER: And I just want to state that I don't think we should make the decision based on the idea that this is high enough so it doesn't matter. It still needs to be based on, is it a reasonable bounding or not.

And I think you agree with that. You're quite right. The models as I've seen them so far are pretty generous, as I've suggested.

And based on that external, there's very little additional contribution from the internal, regardless of what those values are for the handling of cold uranium. That has almost no impact on the external.

The other things is and it may not be clear but it maybe either, well maybe Jim or David Allen can explain this better. But if I'm a claimant and I come in and I say, I

worked these three years, I think David your question was, what do I get assigned as a dose?

And if I'm a radiographer there's a certain value, but we know that there's other people who handle this stuff that weren't the radiographers and had direct contact. And so they end up getting assigned some pretty substantial doses, were as the radiographers were often in the shielded facility.

And at least in the later years had film badges which could be used for at least that part of the operation. They weren't allowed to take their badges out to do other things outside of the betatron rooms however, so there's some work they may have done that was not covered by the badge and that would have to be modeled as well.

But I don't know, Dave did you make it clear what you would do? Okay, so I'm a worker, you've learned that I worked in

these years, what happens?

DR. ALLEN: Well I guess I would do a telephone interview with everybody and they'll generally tell us what type of work they did. And sometimes they know, sometimes it's survivors and they don't know.

MEMBER ZIEMER: Say we don't know.

DR. ALLEN: If we don't know then we go through the possible scenarios. We do not know who all the radiographers were in the earlier years, so we had no choice but to assume the worse. Unless we know something else.

A lot of time survivors don't know exactly what their loved one did. But they might know they were a lawyer or accountant or something and generally won't give the really high doses to someone like that if you have another scenario.

But if we don't know we give them worse case. We always give the benefit of the doubt on those.

CHAIRMAN MELIUS: Dave.

MEMBER KOTELCHUCK: Yes, I partially agree with Paul. It doesn't matter how generous the, our best educated guesses and estimates are.

What I think we have to be able to defend is that if a person is benign, we have to be able to say that, we have to be able to justify if a person is benign. I still fell it's getting back to Brad's.

That in the absence of reliable exposure data it seems to me that claimant favorability would simple say, that in that early period we should do an SEC. Even though I believe that the models that have been developed are well done, internally consistent, but there just isn't the exposure data there that we can rely on.

DR. ALLEN: Can I make one statement Dr. Melius?

CHAIRMAN MELIUS: Please.

DR. ALLEN: Before you make a

decision like that based on claimant favorability, remember there are quite a few that are not SEC cancers.

And also remember this is external dose that we're talking about. There is a very good chance that you could be, it could be non-claimant favorable in this case to not make those early years in SEC.

Basically you end up with a lot of skin cancers and etcetera that can get dose and do get compensated for external dose that you would be eliminating their source of external dose in the early years.

CHAIRMAN MELIUS: So we're not a either or. We're not trying to figure out who's going to benefit and so forth.

I would just say one response Dave to keep in mind, is that both the Act and the regulations allow for the use of, do not require that there be monitoring data. And so we have to be very careful about what we base a SEC on.

And simply the absence of monitoring data is not an adequate basis, scientific basis, for that under that act, under the regulations that we operate under. And so, enough said. Brad.

MEMBER CLAWSON: Well my understanding is, is that this point right now, which ever way we vote on this we, correct me if I'm wrong Paul, but the Work Group and NIOSH hasn't even come up with what doses. I just read SC&A's report and Stu has just commented that, well yes but we haven't agree on this.

So in my opinion right now, we haven't even got the doses that are going to be assigned there.

MEMBER BEACH: Yes we do.

MEMBER ZIEMER: Actually this is true in many SEC cases where it's been determined that dose can be reconstructed. And so we move the issue from the SEC plate to the, either a Site Profile plate or in the

case, Appendix BB.

Where it's been agreed that we have a means of calculating it. We may not have come up with the final number, but we have a process for doing it.

So I don't think this is unusual at all and I think we've done it in many other cases. Perhaps maybe the Chair can help me on this.

CHAIRMAN MELIUS: Yes, I think we have some Site Profile issues going back to some of the earliest SECs that we approved or didn't approve and voted on. And Brad, if did it that way we'd have a large workload and a lot of people waiting.

So again, I don't think that's a criteria. And again, I don't want to indicate whether I agree or disagree with how we should vote on this SEC.

But I would point out that we have a recommendation from a Work Group, we have a lot technical backup information that's been

built up by that Work Group over time. And that for those of you that may not agree with the Work Group's recommendation, I think it's important that we get on the record, legitimate issues that would support an SEC if that's what you believe.

Because there has to be a justification for that SEC, because that's what Dr. Howard will be reviewing in making his recommendation to the Secretary. So there's some burden on us also.

And again, something that we need to keep in mind. Now again, some of these questions had been raised and obviously dealt with, discussed at the Work Group level.

So I'm not saying there's no other information there, but from what I've read and I've read a number of the transcripts and a number of the White Papers and so forth, we have a lot of information that's been used to build and support this information. Mark, then Phil.

MEMBER GRIFFON: Just two points. And I didn't seem to generate a lot of traction in my questions on the FUSRAP angle and I take, just to sort of react to what Paul said.

I appreciate that the external dose is, I think you used the word, the driver in this situation. I do however have to point out that often time the way we review these is that you have to be able to reconstruct all doses.

So even then the smaller contributor, the internal dose, we have to be able to do it. So it likely would be a smaller dose but I think I'm still a bit concerned of how, whether these numbers make sense.

And it is a little, I'm not to even sure of the genesis of the material in the vacuum. I don't know if that was created after scabbarding the floor and collected in the process of the decontamination.

I'm sort of review this, that part of it real time. So I'll leave that for now. The other question I had was on the radiography.

It seems to me, I'm just getting a sense of, back to the question of plausibility of these high doses that are in the model. It seems to me a lot of the, and correct me if I'm wrong, but a lot of this history or the operation seems to be based on the interviews of one individual.

And Dr. Anigstein, you reported that he had saved his dose records. Were those dose records consistent with what you're modeling here?

Where they anywhere near the range of what you're projecting with these models? You indicated, yes.

DR. ANIGSTEIN: We're you talking about --

MEMBER GRIFFON: I think you said that the individual that you interviewed, the

operator, had a summary of his dose history or something like that?

DR. ANIGSTEIN: Yes.

MEMBER GRIFFON: I'm asking if they are consistent with the external doses that you're projecting with these ten to 15 rad per year?

DR. ANIGSTEIN: Well let's see. The criteria, I mean three different. One is a statement that no one exceeded the maximum.

The maximum, which implied that somebody might have gotten it. So the maximum in 53 to 54 was 15 rem and after that would have been essentially 12 rem, depending on prior exposure history.

The time and motion study based on this man's testimony, I mean his interview information and based on the records of how many exposures there were per shift, would indicate that a typical would be about, I'm going from memory now, let's say ten. Nine and faction rem per year.

That was just based on ten exposures per shift holding the stick three, holding the source three feet away. Takes 15 seconds to put it in, takes 15 seconds to remove it. So it's counted that.

So that was the second data. And the third data was his exposure records that he had 9.1 rem over 18 quarters.

So we prorate that so it comes out to 2 rem a year. Then you have to make an assumption, did he work 50 days, he could have worked as little 40 days a year or he could have worked as much as a 100 days a year.

Meaning, he worked every Saturday and Sunday for 50 weeks or he did maybe 80 percent of the time one day. So within that range and the reality will be somewhere in the middle, it comes out to something like, and I'm going by memory now, 8 to 20 rem.

So all of these are overlapping. So to my mind that's why I thought it was good confirmation. And then he said and he

testified he, at first he testified, he stated that he always had a film badge even though we don't have, that this was prior to the time that we had the AEC license.

He said he always had a film badge when he did this work. And then finally we have a photograph of a worker in, I say the actual original magazine.

This is sort of their company magazine, 1953 and I had the advocate for the advocates for the workers send it to me, so I saw the original. And very clearly there was a particular worker in 1953, betatron operator, and he wore what looked, for all intensive purposes, looked a film badge on his belt.

And I even mentioned even met, the only thing that you could see is you could see the dark rectangle and you could see the white rectangle. And by going through the ORAU's Museum website of different film badge configurations at that time, I found one film

badge holder that looked exactly the same shape.

So thus again, confirmation that the in factor, when they said we had records they did in fact have a problem.

MEMBER GRIFFON: Well and if you can stay up there for one second. That's good, that's actually, I think that's good to see that it at least supports that these higher doses projected were plausible.

I asked Dave before this question of the contamination in the vacuum. Dr. Anigstein, this is for you still. Yes.

DR. ANIGSTEIN: Okay, sorry.

MEMBER GRIFFON: The contamination question --

DR. ANIGSTEIN: Yes.

MEMBER GRIFFON: Dave Allen suggested that you looked at this issue. Of the FUSRAP numbers compared to what is being modeled by the surrogate data, which seems to be coming from several different sites, from

all and other sites.

DR. ANIGSTEIN: Well the problem with that is, we did look at the, there were two surveys done. One in 1989 and another one in 1993.

The 1993 was a much more definitive survey of the floor of the old betatron building. The new betatron building they said was clean. They could find nothing above background.

Which indicates that most, and that's not unreasonable for two reasons. According to the purchase orders, so they said where Mallinckrodt said we will pay you so many dollars per, at so many dollars per hour for each period of time to do radiography.

The vast bulk of that work was before the betatron was built. The new betatron went into operation somewhere around the end of 1993, which is also when they start the Landauer film badge program.

And from that time on there was,

even though they continued until June 30th, 1996 and that's where I have the operation period they actually were very stingy. They did not give them very much work.

Most of the work was done earlier before the new betatron went into operation. So it would have had to have been done in the old betatron building,

And after, even later my personal opinion is, most likely they did it in the old building because the new one, they were busy doing their steel castings. It was right next to the building where the castings were. So it's reasonable that they would have had the contamination.

It was not possible to connect the air concentration with the reside on the floor because there was one of the petitioners and the advocate said, no someone claimed that there was a cleanup of that building and therefore any data there it will be irrelevant.

We actually tried to back extrapolate and they said no, this would be irrelevant because there was a cleanup. So the fact that, however the air concentration is not the main way the floor got contaminated.

Most of the contamination would come from like chunks of uranium, I would say flakes of uranium that would simply come off during the handling and fall to the floor. And that become airborne.

So the airborne is not a true representation of what's on the floor. So if you ask, is the surrogate data, the number that was agreed on for surrogate data consistent with what was found on the floor?

We haven't actually done that calculation, but my personally estimate is most likely not. If you assume that something came up into the air, fell to the floor and that was the only thing.

But if you add the sloughing off

of the uranium, then certainly it would have accounted for a goodly part. And there was also, in addition because this was actually raised in a discussion earlier today, there was this vacuum cleaner.

Now the vacuum cleaner was in the old building, was most likely used to vacuum up the uranium that had sloughed off. Because if they were doing radiography of steel castings, those would not have been oxidized.

Those were fresh castings and there would probably be very little metal coming off. So the metal on the floor, if it was metal, would have been most likely from the uranium that had been down there during the earlier years.

And the concentration that was found inside the vacuum cleaner, means they took the vacuum cleaner dust and did an analysis of it. Indicates that it was about one and a third percent uranium, was 4 nanocuries per gram of U2-38.

And natural uranium is about 334 nanocuries per gram of U2-38. So you're talking about, is it plausible that the dirt on the floor would have been one percent uranium and doesn't seem totally unreasonable.

Particularly if that vacuum cleaner was used during the time of the heavy uranium use. So it would have been put aside and not needed later. It wasn't that it was reused everyday to vacuum up whatever dirt there was.

So it's not inconsistent, let's put it that way. That's my only point. Is it's not implausible, it's not inconsistent.

And the fact that I reviewed everyone of the record that Dave Allen had, we didn't go out and dig up new records but we reviewed everyone of the records that Dave Allen had come up with. He came up with seven sites for operations.

And we didn't even just look at the ones that he selected, we looked at

everything from that site that was in the nano Site Research Data Base. And that seemed to be a very consistent picture of uranium handling operations.

Anytime that we saw a higher concentration, the data and the reported company had indicated they were doing something, They had just come out of the oven.

It was near an operation which Miles agreed to remove because it was not applicable where they were taking uranium slugs and, basically they were making washers, I'm not quite sure why. But they were punching holes in uranium discs.

Well that clearly would have been an operation which would create a much more disturbance and would not have been applicable. But the one that we screened down seemed like a very consistent and interestingly enough they formed a very uniformed log-normal distribution.

So if you took the 95th percentile of that, the evidence seemed to be there was bounding.

CHAIRMAN MELIUS: Bob, could you please sum up, okay. Phil, do you have another question or?

MR. SCHOFIELD: Yes, as a matter of fact he just touched on it. Okay, I would assume the betatron operators probably had the highest exposure.

So are we going to give, with all these different models, are we giving these other people the 95th percentile of the betatron operators or they going to actually going to be 95 percent of one of these models?

DR. ALLEN: One of the things that kind of evens things out is that the castings were often laid out outside of the betatron room. These were, some of these were very large castings and they would draw out where there wanted the various X-ray shots to be.

And that was typically going to be

done by somebody familiar if not the A betatron operator himself. They also would do this for find and fix and then reshoot bad spots in these castings.

So often this was being done on a casting that was freshly radiograph by the betatron. The thing different about the betatron then a lot of X-rays is that it is high enough energy to actually activate steal and make it radioactive. It will be relatively short lived.

Several minutes for radioactive iron, but that would be the timeframe that these people would be out there working on this. And they also had a policy at GSI, not to wear their film badge out of there betatron building, into this Number 10 Building. Because there were a lot of sparks and they kept burning holes film badges.

So there is a chance these radiographers were actually exposed more to castings near the tunnel where this betatron

might have been. The scatter radiation came down this tunnel to about where they were doing this.

And not to mention, they were working in close proximately to what could have been a radioactive casting for some period of time. And that would have been done at the time when they weren't wearing their film badge.

So essentially much of the higher radiation scenario for non-radiographers ends up being, much of it was also radiographers doing that. So you end up with both of them getting that scenario.

CHAIRMAN MELIUS: Do the Board Members on the line have any questions? Dr. Roessler --

MEMBER FIELD: No. I don't have none.

MEMBER ROESSLER: No, I don't have any questions here.

CHAIRMAN MELIUS: Okay then, just

wanted to make sure we hadn't forgotten you. Any other Board Member, questions?

We have a motion and a second on the floor? Then I guess Ted, call the roll.

MR. KATZ: Let me just be clear about what I'm doing, because we really have three motions, is that correct? Right, we have a motion for the early period and the second period of operation and then residual, is that correct?

MEMBER ZIEMER: I only reported what the voting was on the different periods. I think the Chairman can determine whether that's more then one motion or not.

MR. KATZ: Okay.

MEMBER ZIEMER: We voted on two parts of the active period and then on the residual period. So when we have those separate votes I think --

MR. KATZ: All right, so we just need to be clear what we're preceding on.

MEMBER ZIEMER: Whether we have a

single motion to cover everything is, I think is the Chair's call.

CHAIRMAN MELIUS: Well and the chair, since the motions are not mutually exclusive from the Work Group, I think we should treat this as a single motion. Unless somebody wants to divide it.

And essentially we have a motion to accept NIOSH's recommendation that dose reconstruction is feasible, with sufficient accuracy for both the operational and the residual periods.

MR. KATZ: Okay, so everyone's clear. And so I need to be clear too.

CHAIRMAN MELIUS: Now it's been awhile since we looked at Paul's report.

MR. KATZ: Okay, I'm just going to do this alphabetically. Dr. Anderson?

MEMBER ANDERSON: Yes.

MR. KATZ: Ms. Beach?

MEMBER BEACH: No.

MR. KATZ: Mr. Clawson?

MEMBER CLAWSON: No.

MR. KATZ: Dr. Field?

MEMBER FIELD: Yes.

MR. KATZ: Mr. Gibson, I'm just checking to see, he's been, hello? Okay, now Mr. Gibson's absent. Mr. Griffon?

MEMBER GRIFFON: Yes.

MR. KATZ: Dr. Kotelchuck?

MEMBER KOTELCHUCK: No.

MR. KATZ: Dr. Lockey?

CHAIRMAN MELIUS: He's gone.

MR. KATZ: Excuse me, Dr. Lockey did, he left after the, I think the NIOSH presentation and Dr. Ziemer's presentation. Right, so Dr. Melius?

CHAIRMAN MELIUS: Yes.

MR. KATZ: Ms. Munn?

MEMBER MUNN: Yes.

MR. KATZ: Dr. Poston? Dr. Poston, are you on the line? Dr. Poston? Okay, so I'm assuming he's absent. Dr. Richardson?

MEMBER RICHARDSON: No.

MR. KATZ: Dr. Roessler?

MEMBER ROESSLER: Yes.

MR. KATZ: Mr. Schofield?

MR. SCHOFIELD: No.

MR. KATZ: Ms. Valerio?

MEMBER VALERIO: No.

MR. KATZ: And Dr. Ziemer?

MEMBER ZIEMER: Yes.

MR. KATZ: We have seven yes's, six no's. Is that correct, 13? And absentee Members. So it is unresolved.

CHAIRMAN MELIUS: Mark, I need your Work Group reports. You are not going to escape without doing it. Rocky Flats and LANL.

MEMBER GRIFFON: Yes, for Rocky Flats we did have NIOSH and SC&A and I joined them, went out to Denver to interview, classified interviews with some former operators and employees at the facility, some with lots of experience, 30 plus years'

experience back to the beginning of the facility.

We got quite a bit of information on the tritium issues but also additional information on the thorium strike question. And NIOSH is going to pursue both those issues, and we are hoping to convene a Work Group meeting in January. Is that what you said? February, I'm sorry. Sometime in February we are going to convene the Work Group meeting, and we will certainly make that information available. I know the petitioner is very interested in attending, so we will get that information out there. So that is the brief update.

And then LANL, I don't think we had a meeting since the last Advisory Board meeting on LANL. So I really have nothing to report unless -- yes, help me out here.

MR. RUTHERFORD: Yes, we basically we provided a questionnaire to the site, the thought process being that we have added a

Class up through 1994, implementation of 10 CFR 835 occurred at that time period. So if we understand how the site is doing it now in compliance and how they would be able to reconstruct dose for these, we can work our way back, hopefully, to a period where that would -- you know we could cut that off.

So that questionnaire was developed with the Work Group looking at that and has been provided to the site.

CHAIRMAN MELIUS: Thank you, LaVon, for rescuing Mr. Griffon. No, no, you did well. You are doing fine, Mark.

I am just going to go through the list of Work Group reports. Paul, Lawrence Berkeley?

MEMBER ZIEMER: We have several SC&A reviews that are being -- of NIOSH reports that are being reviewed by NIOSH right now. And as soon as those are completed, and Lara is working on those, we will schedule the Work Group. I think we are simply waiting for

those reports to be completed.

CHAIRMAN MELIUS: Kansas City?

MEMBER BEACH: I'm here.

CHAIRMAN MELIUS: All aboard.

MEMBER BEACH: Okay. So Kansas City has not met, although last week we were in Kansas City for three and a half days. We did some interviews, and we retrieved boxes and boxes of data. So we are now waiting for SC&A's report on that data. And I don't have a time frame for that at this point. But we did have some very good interviews from several gentlemen from the '50s.

CHAIRMAN MELIUS: I would just remind all Work Group Chairs that we have both updated reports from NIOSH and from SC&A on deliverables. They often contain surprises for us in terms of dates -- occasionally -- I don't want to exaggerate -- occasionally have surprises as to when things you thought were forthcoming are actually forthcoming. So please check on those and also make some

differences in terms of obviously scheduling a Work Group meeting. So now is a good chance to pin down John Stiver or Stu or whoever you need to pin down. Go ahead.

MEMBER BEACH: So I will go on the record as saying that Kansas City is not on here yet.

Is it? There isn't a date, though.

MR. RUTHERFORD: I'm trying to pull mine up as quickly as I can.

MR. STIVER: SC&A's is on page two.

MEMBER BEACH: I was looking at NIOSH's. Oh, it is in those little --

MR. RUTHERFORD: Recognize we do not have an SEC petition for this site. So it is only under active Site Profile review.

MEMBER BEACH: Got it.

CHAIRMAN MELIUS: Mound?

MEMBER BEACH: Okay, for Mound we haven't met since the last review of the SEC

data. So for the Work Group we have completed all of our SEC work. I do know there is a date for Mound on the coordination site. The tritides OTIB is due on January 8th either for review. We should see it sometime towards the first of the year, as well as the Site Profile issues, the matrix that we looked at in May. We should have an answer from NIOSH sometime in the January/February time frame. And once we have those, we will schedule a Work Group meeting.

CHAIRMAN MELIUS: Thank you, Josie. Brad, Nevada Test?

MEMBER CLAWSON: Yes, this one we are finishing out the Site Profile for Nevada Test Site. I have spoke with Arjun, and he has got the matrix is gone through and worked up. It is being processed through SC&A, double checking it, and it should be to NIOSH and the Work Group in what, a week or so, or two weeks.

DR. MAKHIJANI: Yes, a little

update, Brad. SC&A is finished. It has gone to DOE about a week back for classification review, and we are waiting to hear back from them. And so if you want to schedule a Work Group meeting, feel free. It should be here in a week or two at the latest, I think.

CHAIRMAN MELIUS: Dr. Roessler, Oak Ridge National Laboratory.

MEMBER ROESSLER: We have our Work Group assigned. I am the Chair. Bill Field is on it, and I think Richard Lemen is the other one. Is that right, Jim?

CHAIRMAN MELIUS: I believe so.

MEMBER ROESSLER: And we are waiting for our marching orders.

CHAIRMAN MELIUS: Yes, and Loretta is on that one also.

MEMBER ROESSLER: Okay, thank you, Jim.

CHAIRMAN MELIUS: Yes, we weren't expecting activity on that yet. We are really waiting on NIOSH.

MEMBER ROESSLER: Okay.

CHAIRMAN MELIUS: And LaVon is shaking his head, but when I ask him when --

MEMBER ROESSLER: He is still shaking his head?

CHAIRMAN MELIUS: He is still --

MR. RUTHERFORD: All right, if you actually look at the Work Group coordination document, it talks about we did some additional data captures for the exotic radionuclides which is going to be complete later on this month. And then we expect to receive those records from DOE in late January. We will have to evaluate them records, and by the time we are done, we'll have some kind of recommendation to the Work Group by May, late May of 2013, for the period after 1957, I believe.

CHAIRMAN MELIUS: Thank you.

MEMBER ROESSLER: I would like to have LaVon send that to me. About all I heard was they will have something by late May.

MR. RUTHERFORD: Does she want me to repeat?

CHAIRMAN MELIUS: Let me repeat because I think this mic works better. Yes, they will have a report. He is expecting the new Evaluation Report May of next year.

MEMBER ROESSLER: Okay.

CHAIRMAN MELIUS: So that would be presented at one of our meetings. And so it is probably really next summer before you really need to get activated to follow-up on that.

MEMBER ROESSLER: All right, thanks.

CHAIRMAN MELIUS: Pinellas?

MEMBER SCHOFIELD: We just had a conference call here in November, and we closed out a few issues but we still have the tritium issue and stuff. And some bioassay we still have outstanding. It may be after the first of the year before they have a chance to do anything with it.

CHAIRMAN MELIUS: Thank you. Portsmouth, Paducah, K-25. Throw Kansas City in there, we have got a real --

MEMBER SCHOFIELD: Yes, we do. We just had a conference call on that. And most of the issues at Paducah, we have closed out. So we still have some outstanding with K-25 and Portsmouth. Hopefully once I get a chance to go back and take a look at the few issues we have left, there again it will be after the first of the year before they have a chance to do anything. Then we can have a Work Group meeting.

CHAIRMAN MELIUS: Sandia, Dr. Lemen isn't here. He unfortunately wasn't able to make it. I don't think there is any activity planned on that. I think there is still some issues. I don't know, Joe, if you or LaVon have anything you want to say.

MR. FITZGERALD: Sam has been the ringleader on that. But we have been accompanying Sam in almost all the data

captures. We are not trying to schedule one for Sandia Livermore. There are records there that are relevant both to the Albuquerque site as well. So that is moving forward.

In fact, we were going to do that in December and the site couldn't host us. So now we are looking at either January or early February. So that is moving pretty solid.

CHAIRMAN MELIUS: Great. Santa Susana, Phil?

MEMBER SCHOFIELD: There we've got some deliverables they hope to get to us in what that would be about April on some updates on the TBD. So then we can schedule a Work Group meeting.

CHAIRMAN MELIUS: David, Science Issues?

MEMBER RICHARDSON: We have not met since our last report. We have been waiting on NIOSH to release the report on dose and dose rate effectiveness factors that SENES had prepared. I don't know when that will be.

CHAIRMAN MELIUS: Do we have a date for that, Jim?

DR. NETON: At the last meeting I reported that SENES was still working on the draft. They were revising it based on current scientific information. We have received that back in-house within the last month, and we hope to get the document out for external peer review very shortly within the next -- within a matter of weeks. We have the reviewers lined up. We just have to have to get the letters prepared and make sure we have got the budget in line to do the work.

CHAIRMAN MELIUS: Okay. The SEC Special Exposure Cohort Committee really our next step is what I talked about earlier. We need to sit down and deal with the sufficient accuracy issue. And so we are expecting to do that sometime whenever LaVon gets his reports to us as promised by the end of January. So probably in February we will meet.

MEMBER RICHARDSON: Could I ask a

question about that? So NIOSH is going to prepare a report for your Work Group on their definition of sufficient accuracy and then you will move from there?

CHAIRMAN MELIUS: No. LaVon you better probably explain what -- there is actually two reports.

MR. RUTHERFORD: Yes, actually what we are doing is we are taking and going back through past recommendations or past decisions and determinations and designations by the Secretary looking at the -- identifying the specific reason. Was it an internal issue? Was it an external issue? And basically summarizing each one of those in feasibility and try to break them down into different categories, something that maybe we can use to recognize something that points us towards the sufficient accuracy.

The other thing we are doing is we are putting together, we recognized early on that a number of our SEC Classes we have added

have been focused on thorium for -- infeasibility folks with thorium. So having these number of infeasibilities with thorium as well as we have a couple cases where the Board has made the determination that dose reconstruction is feasible for thorium, can we pull this into a report that basically looks at what it takes to come up with a feasibility for thorium. So we are coming up with a thorium feasibility report as well. That is scheduled to come out. It is in internal review now but I would say it will be out in late January, as Dr. Melius mentioned.

CHAIRMAN MELIUS: And as LaVon has promised.

The -- what used to be 6001. Henry?

MEMBER ANDERSON: Yes, our group has not met. We are waiting for Wanda's report on TIB-9, which for those of you who don't know TIB-9, it has to do with ingestion rates. What we saw is in the dose

reconstruction for our Site Profile that we are reviewing the assigned consumption rate was, I think, 0.5 milligrams per day and the EPA exposure factors handbook has it well over that. I think it is in the 100 milligram, 50 to 100 milligram range. So our question is that is quite a difference. How is that 0.5 developed and should that be changed to be more reflective of what the exposures may be and have different levels, rather than the assumption that whatever is there is low. And that was the review of TIB-9 to see what kind of recommendation may come out for that that we would then apply to our Site Profile.

But I think it has come up probably in other science as well and it is one of those kind of loose ends that's hung out there for quite a while.

CHAIRMAN MELIUS: Jim?

DR. NETON: I can comment on this TIB-9 issue. This is one of those so-called overarching issues. And I believe we have

come to agreement in principle between SC&A and NIOSH about what we are doing there. We put out a White Paper recently on our approach on TIB-9. SC&A reviewed it. There is one final question remaining that I need to address to the Subcommittee. But I think once we do that, we should have closure on that issue. At least that is my hope.

So by the next time the Subcommittee meets, that should be -- I am hoping it will be closed out.

MEMBER MUNN: They are on the agenda for February.

CHAIRMAN MELIUS: Excellent.

MEMBER ANDERSON: That is DuPont Deepwater that we are working on, for those of you who are intimately familiar with that site.

CHAIRMAN MELIUS: Do you have something to say, LaVon?

MR. RUTHERFORD: Yes, I do have a correction on the Work Group coordination

document associated with the TBD -- former 6001 Work Group, which uranium or whatever, that the date on United Nuclear for providing a White Paper to the Work Group to address -- if you remember SC&A had a concern. It was a Site Profile issue. We are developing a White Paper that addresses that. We have figured out Hans's calculations, and we will have that at the end of January 2013, not 2012 as listed here.

CHAIRMAN MELIUS: You know many of us have trouble with whether to call Henry or Andy. So it is only appropriate that the Work Group have two names also.

MEMBER ANDERSON: We know who we are.

CHAIRMAN MELIUS: We do, too.

MEMBER MUNN: Sometimes.

MEMBER ANDERSON: Sometimes, yes.

CHAIRMAN MELIUS: Last but not least -- until tomorrow. We have another Subcommittee that will report tomorrow but

Worker Outreach.

MEMBER BEACH: I want to point out I made the list but not until this morning.

Okay, so on November 8th we had our last Work Group meeting. The procedures -- and I am going to need a little help from NIOSH -- Procedure 12 was approved. We worked through all of our issues. It is ready to be issued. We were waiting for a final sign-off in NIOSH's corner. So I was wondering if anybody knows if that has been done or not.

MR. HINNEFELD: I don't recall signing it yet, but there is an editing process and things to -- and working it into the loop.

I agree with you, though, it is done. It is put to bed. It is just putting the final changes that were agreed to into a document that is signable.

LaVon tells me our expected completion date is 12/21. So another week.

CHAIRMAN MELIUS: You have got

until a week from Friday.

MR. HINNEFELD: Okay, I can sign my name in that amount of time.

CHAIRMAN MELIUS: It will be under the tree, Josie.

MEMBER BEACH: Okay, so a couple of other things to go over. SC&A proposed changes to the PROC-10 procedure regarding streamlining the worker interview process. NIOSH expressed some concerns that the changes may cause inadvertent safety -- or complications for security. So NIOSH has the action to move that forward to DOE so DOE can take a look at it to see how that will affect the security and get back to the Work Group with comments.

The other item, the Work Group completed its pilot review for Rocky Flats. I know I have reported on that for a couple of meetings. And NIOSH has provided their responses to the recommendations.

Just a couple of bullets. The

whole report is available. It is fairly lengthy but a couple of bullets that I pulled out, SC&A found that in general DCAS was responsive to direct questions or concerns and in most cases, provided a real-time meaningful response or responded in subsequent communications.

SC&A found that many but not all of the technical statements and inputs found their way into NIOSH's technical documents and were adequately addressed. However, exceptions were found which bring into question the full extent of DCAS's responsiveness to Worker Outreach at the time in question.

SC&A recommended five actions for NIOSH, and NIOSH responded to each of those actions in detail and will continue to work to improve their process. That was pretty much the bottom line. If anybody on either side has anything else to add to that report.

That did take a lot of our Work

Group's time, energy, resources, and we were happy to complete that and move to the next phase.

We chose the next site for our review and that is LANL. We have sent out -- or I should say SC&A has sent out a scoping plan recently. That came out in November. We are waiting for NIOSH to give us feedback on that before we make formal tasking. So the scoping plan is out. We have not actually tasked it. So we are waiting to do that. And a couple emails have gone back and forth. So once we think that we have what we need, we will formally task that site.

And then NIOSH continues to brief us on the ten-year plan. I plan to -- we have completed some of our items, but I am kind of hesitating to do a full report waiting to see how NIOSH is -- because it is really their plan. We are just kind of looking at it for the Work Group. So the next meeting maybe I will share what has been completed, according

to what our Work Group has discussed.

CHAIRMAN MELIUS: Questions for Josie?

Okay, why don't we -- our public comment period is scheduled to start at 6:00 p.m. So if people could get back in -- we will take a break and if people can get back here at 6:00 p.m.

As I mentioned tomorrow we will do the Procedures Subcommittee, and that will be sort of an expanded presentation. So I wanted to make sure we have time for that. So we will do that then.

And we will see you all back here at 6:00. Thank you.

(Whereupon, the above-entitled matter went off the record at 5:31 p.m. and resumed at 6:05 p.m.)

CHAIRMAN MELIUS: All right, if everyone would take a seat and Board Members can please get to the table here.

MR. KATZ: No one signed up.

CHAIRMAN MELIUS: Okay, well why don't we still announce? There may be people on the phone. And, Ted, do you want to go through the instructions?

MR. KATZ: Yes, thank you, Jim.

So for this public comment session, just let commenters understand your comments will be taken verbatim like everything else that occurs, all the proceedings of these meetings. Everything you say about yourself, personally, no matter how sensitive, that will all be retained in the transcript. So understand that and choose what you want to say accordingly.

But if you discuss other parties in your testimony or comments to the Board, we will protect the privacy of those other parties. So if you say things that are revealing about them, we will remove as much as we need from the transcript to protect their identity.

And if you want to know the fine

details of this procedure, it is specified on the NIOSH Board site, under the Board section. Close to the top there, there is what is called a Redaction Policy and you can find it there.

CHAIRMAN MELIUS: Is there anybody on the phone that wishes to make public comment?

DR. McKEEL: Yes, Dr. Melius, this is Dan McKeel.

CHAIRMAN MELIUS: Okay, Dan, go ahead.

DR. McKEEL: Okay. Well, good afternoon again to the Board.

I want to respond to several points just made in the GSI SEC session that I feel need to be corrected immediately and put on the record.

The first point is that David Allen and DCAS's suggestion that recommending an SEC for the early years at GSI, 1953 to `62 might actually be a bad thing and be claimant

unfavorable, was the way he put it, is misleading to GSI and other claimants. Larry Elliott, the former DCAS Director, told me the same tall tale way back in 2005. Since then, I have checked out this proposition that seemed incredible to me at the time and it certainly has turned out to be not true in practice.

Compare EEOICPA compensation especially for the GSI and Dow Illinois sister site that are right next to one another. GSI has twice as many claims, cases, and DR completed, yet the total Part B compensation amounts are $10 million plus at GSI with no SEC and a far longer covered period compared to $17 million at Dow with a 1957 to `60 SEC.

I have had it confirmed by many observers that SEC sites do far better compensation-wise, despite the 22 cancer restriction. Mr. Allen speculated on the types of cancers GSI claimants might have, a fact that he doesn't really know.

The second point is that David Allen's answers to Member Richardson's question about non-radiographers being assigned higher doses than betatron doses was not accurate or complete. Between 2008 and 2012, the SEC assigned dose to GSI layout men, a term that Allen did not use once, was 9.2 rem per year in 2012 compared to 0.7 rem per year for betatron operators, based on Appendix BB and their calculations four years earlier.

In 2008, in fact, SC&A's assigned doses to betatron operators in the SEC Evaluation Report were ten-fold higher than for other GSI workers. I have shown these comparative data to the Board. That is covered in one of my slides.

Point C is that Mr. Allen repeatedly referred to NIOSH always using the scenario that gave the highest assigned dose in their dose reconstruction. This is simply not true based on GSI DR that I have seen personally and reviewed. And non-

radiographers often get the lower of the two doses that Appendix BB specified. Everyone is not assigned the betatron operator dose under Appendix BB.

In addition to that, point four, Dave Allen has replied by email that I have seen to a GSI Docket 140 contributor, who I won't name because it will be redacted from the transcript, that the future revision 1, Rev. 1 of Appendix BB, will result in lower assigned total dose for many claimants so there won't be that many reopened denied claims that will be reworked and approved for compensation. Allen's reason given to this contributor, NIOSH will be doing far more best estimate dose reconstructions in the future.

There are many other points I would like to have added to or have rebutted during the session. However, I will reserve those remarks for a later time.

My final comment is, it is a shame that GSI claimants have to wait perhaps weeks

to learn the outcome of today's final vote because some of the Board Members aren't there or have left.

My question to Mr. Katz and the Board, that maybe they can answer now or Dr. Melius, is how will GSI claimants be informed of the Board's final SEC-105 decision? I'm hoping you might give me an answer to that right now so I can pass it on to the claimants.

Then finally I want to sincerely thank all the Members who did do the right thing and vote no to NIOSH's ill-conceived recommendation to deny GSI an SEC today.

Thank you very much for letting me comment.

CHAIRMAN MELIUS: Thank you, Dr. McKeel. Ted will be reaching out to the Board Members who aren't here, but that may involve providing them with transcripts from this meeting for them to review. And so we can't give you a firm estimate now, but as soon as

we have a better sense of how long the transcript will take, as well as how long the Board Members want to -- will need to review and before they can make their recommendation, we will provide that to you. But I expect it will be sometime early next year.

DR. McKEEL: My question actually was not how you will inform me but how you will inform them. Because I honestly don't think it is my job alone to inform hundreds of claimants what happened with this deliberation. So is that the best you can inform me but how would you inform them?

CHAIRMAN MELIUS: Well again, that is only through the public process and there is a ways to go, depending on what the outcome of the vote is.

DR. McKEEL: Okay. So basically they would wait for that.

CHAIRMAN MELIUS: Yes.

DR. McKEEL: So they wouldn't even -- they won't get it from a transcript. Right?

They will have to wait for the next meeting.

CHAIRMAN MELIUS: I'm not talking about -- with the transcript I thought you were speaking about Board Members.

DR. McKEEL: No, I'm talking about the claimants. How will they know? In other words, the process will work its way through, and I understand that. And the Board Members who weren't there will have to get transcripts and other information about what was discussed today. Then they will vote. And I do know that at the next Board meeting, there will be -- it will be put on the record what the final vote was.

But what I am really asking is, will the claimants have to wait until the next Board meeting to learn what the final vote was?

CHAIRMAN MELIUS: The answer is most likely, yes.

DR. McKEEL: Okay, thank you very much.

CHAIRMAN MELIUS: Is there anybody else on the phone that wishes to make public comments?

Okay, hearing nobody, is there anybody in the audience that wishes to make public comments that didn't sign up?

In that case, seeing no one, I believe we are finished and adjourned for the evening. And we will reconvene tomorrow morning around 8:15.

And for the Board Members, plan to be completed by around noontime.

(Whereupon, the above-entitled matter went off the record at 6:16 p.m.)