

This transcript of the Advisory Board on Radiation and Worker Health, Idaho National Laboratory/Argonne National Laboratory-West (INL/ANL) Work Group, has been reviewed for concerns under the Privacy Act (5 U.S.C. § 552a) and personally identifiable information has been redacted as necessary. The transcript, however, has not been reviewed and certified by the Chair of the INL Work Group for accuracy at this time. The reader should be cautioned that this transcript is for information only and is subject to change.

US Department of Health and Human Services
Centers for Disease Control
National Institute for Occupational Safety and
Health
Advisory Board on Radiation and Worker Health
Idaho National Laboratory/Argonne West Work
Group
Monday, March 25, 2019

The Work Group convened via teleconference at 9:00
a.m. Eastern Time, Phil Schofield, Chair, presiding.

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Members Present:

Phillip Schofield, Chair
Henry Anderson, Member
Josie Beach, Member
Genevieve S. Roessler, Member

Also Present:

Ted Katz, Designated Federal Official
Bob Barton, SC&A
Ron Buchanan, SC&A
Mitch Findley, NIOSH
Joseph Fitzgerald, SC&A
Rose Gogliotti, SC&A
Megan Lobaugh, NIOSH
Jenny Naylor, HHS
James Neton, NIOSH
Steven Ostrow, SC&A
John Stiver, SC&A
Timothy Taulbee, NIOSH
Tim Vitkus, ORAU Team

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Proceedings

(9:01 a.m.)

Welcome and Roll Call

Mr. Katz: Let me start the roll call.

So, welcome everyone, this is the Advisory Board on Radiation Worker Health. It's the INL/Argonne National Lab West Work Group. And today's meeting deals with INL issues, and we'll get potentially some new material on the burial grounds towards the end of the meeting.

(Roll call.)

Mr. Katz: Okay, so, I'll turn it over to you. Let me just remind everyone to keep their phones muted except when they are speaking. It will help with the audio. And *6 if you don't have a mute button on your phone. And nobody put the phone on hold at any point. Hang up and dial back in.

Thanks.

So, Phil, is there anything you want to say? Phil, maybe you're on mute.

Chair Schofield: Okay, good morning, everybody. The agenda is on the CDC website for those who want to follow along with it.

We're going to start off with the SC&A -- I mean, SEC-00219. Bob Barton put out a paper on that. I assume that's also on the CDC website, I don't know, I haven't checked it.

So, I guess we'll turn it over to Bob, then. This is for the period of 1963 to 1970.

Mr. Katz: Thank you, Phil. And it is posted. Bob has presentations for this and so the next section too, that presentation's not posted yet, but it will eventually get posted.

In the meantime, it was sent to the Board Members and to staff. And, it will also be up on Skype when we get to Skype.

Bob, go ahead.

Verification and Validation of Records to Support
DCAS proposed SEC class SEC 219

Mr. Barton: Okay, well I guess that's my cue here.

As Ted mentioned, I do have some presentation slides. There's no new material, it's all basically talking points taken out of those two reports that are posted on the website and I will try, I'm just sort of going through this to point out where in the report we're discussing it.

So, those of you who are on Skype, can you see the presentation slide up there?

Member Anderson: Yes, I can see it.

Dr. Taulbee: Yes, Bob.

Mr. Barton: Excellent. Okay. And, as Phil said, we're talking about SEC-00219, which is for the Chemical Processing Plant and the time period is 1963 into the first part of 1970. Actually, that's through the end of February 1970.

So, back in July 2015, NIOSH had released Revision 1 of the Evaluation Report. And what it basically did was revise the Class Definition to effectively split it into two periods.

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So, we have this first period from January 1963 through February 1970 and the second period from March 1970 through the end of 1974.

So, the revised Class Definition reads as follows: all employees of the Department of Energy, its predecessor agencies, and their contractors and subcontractors who worked at the Idaho National Laboratory, INL, in Scoville, Idaho and (a) who were monitored for external radiation at Idaho Chemical Processing Plant, CPP, at least one film badge or TLD dosimeter from CPP between January 1963 and February 1970 or (b) who were just monitored for external radiation at INL, at least one film badge or TLD dosimeter associated with the site between March 1970 and December of 1974 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 classes of employees in Special Exposure Cohort.

And I sort of highlight that part A because this is the period we're talking about, 1963 into 1970, when to qualify as to class, you have to have evidence of that external monitoring specific to the Chemical Processing Plant.

On March 2016, the Advisory Board recommended acceptance of the second part of the Class Definition, so that was from March 1970 through 1974 which only required evidence of external monitoring at INL, not a specific badge at CPP.

However, concerns remained regarding the requirement for external monitoring specific to the Chemical Processing Plant in the first part of the Class Definition, which is what we're talking about today.

There's some preliminary investigations into that

Class Definition, it was determined that temporary or visitor badges were not appropriately attributed to the energy employees.

So, when they -- as we go and research the dosimetry records for an individual, they might not be getting all of those temporary or visitor badges which might be specific to CPP, which is always problematic in administering the SEC Class Definition.

So, in response to this, INL/DOE began very significant coding efforts. So, essentially to migrate all that information on those temporary visitor badges into what's known as the INL Dosimetry Index.

This is the system INL uses when a claim request is made and it's basically a printout of all the electronic locations where the individual records for the energy employee are located.

And then, the site will go through and essentially copy those records, put them into one package and then send them along to the appropriate agency, be it NIOSH for dose reconstruction or DOL for adjudication.

So, once all those temporary badges have been appropriately coded and indexed, they should be correctly attributed to each claimant.

So, if that's being appropriately done and all those records are complete, then any SEC determination based on having to have that specific CPP badge, you shouldn't accidentally omit a claim that would normally qualify.

So, while that coding effort was underway, the INL Work Group still had concerns about how effective

this coding indexing effort would be, the implementation of it, and could you still potentially miss a claim that should be included in a class but might be inadvertently excluded if all of those temporary badges or visitor cards associated with that claim were not appropriately being attributed to them.

One of the main problems is that these temporary badges or visitor cards, they really mean the same thing, are basically handwritten on a small index card that's roughly the area of a matchbook and would have the following potential issues.

Just basic legibility issues, like I said, they're handwritten on individual cards.

You might have some name misspellings when the security guard at the gate or whatever -- whoever was filling out the card might have written down the name wrong or they might be variations such as the use of a nickname or a middle initial in place of the first initial.

And then, there's just the standard human error during the transfer of all of these visitor cards, and there are a bunch of them, into the dosimetry indexing system, if there's an error in that process, then you might have a mistake down the line.

So, what we're looking at now, and this is actually Figure 2 on page 7 of the SC&A report as an example of one of these visitor cards. Obviously it's blown up a lot so you can see the details.

And, essentially, what you're looking at is on the left side of this image is the front of the card, and on the right side of the image is the back of the card.

You can see that CPP is stamped right in this section

noting the area. And while this is completely redacted because it contains personal identifying information.

But, you have a name, you have a spot where you can put a security number and you have a spot where you put the employer. You have an issue and expiration date, essentially who authorized the issuance of the card and then the signature of that person.

And then, on the back of the card, you have the results which is that first, it's like a zero with a line coming off the top.

You have another date there which we generally considered to be the read date or it could be the badge issue date, we're not entirely sure on that.

And then, there's another number below that and we're not sure what that necessarily signifies either.

But, again, you can see with these handwritten cards, how there's a possibility that you might have significant legibility issues or things of that nature.

So, the Work Group tasked SC&A with developing and executing a V&V study, that's verification and validation, to determine the effectiveness of the coding effort.

So, we delivered our, essentially, what is a proof of principle of what we were going to propose for a V&V approach in September of 2016. That got discussed at the next Work Group meeting which was in May of 2017.

At that time, it was decided that the proof of principle was fine but the Work Group wanted to expand it so that we had more claims to look at, more badges to

check, that sort of thing.

So, we did that and we presented that to the Work Group in August of 2017.

The full proposal included 228 potential candidates with nearly 1,800 temporary badges that we were able to associate with them. Obviously, that's a huge number and not really a feasible thing to undertake.

So, the Work Group elected to start with the first 30 claims and the 30 claims were categorized by SC&A as being really the most beneficial claims to look at for the purposes of the study. That's really based on how many badges we were able to locate for an individual. We wanted some diversity in employers and job types as well.

So, NIOSH began submitting records requests to INL for that group of 30 claims in the fall of 2017. The request contained a cover letter which contained the following, and this is reading right from the cover letter. And, again, this is contained in our report.

This case is part of a group of 30 cases that are being reviewed in order to evaluate a concern raised by the Advisory Board on Radiation Worker Health.

Although INL previously provided dosimetry responses for this energy employee, we are requesting that INL perform a new records search and provide a full radiological record for this energy employee.

In order to completely address the ABRWH concern, it would be extremely helpful if the full dosimetry radiological record were provided.

Now, based on the first few records that we have received back from INL, it was pretty evident that this

indexing and coding process was not being correctly implemented and that we really just weren't seeing any of the temporary badges that we had located. So, something was going on.

NIOSH notified INL what was going on and tried to ascertain really what the problem was.

Can everybody still see the presentation? I had a weird time out message. Okay, if you can still see it, that's great.

So, NIOSH worked with the same people at INL about this issue and a second records request was made in the spring of 2018.

In July of 2018, we provided essentially a status update. We had received files for 18 of the 30 claimants that we requested records for. So, in July, we gave an interim update of what our results were so far for those 18.

It was very evident in two of the 18 cases that the indexing coding system was still not functioning properly.

One of those cases was missing all of their visitor badges that we had identified. And one case only contained about 12 percent of the visitor badges that we had identified. So, that's -- those are certainly troubling numbers.

So, NIOSH resubmitted records requests a third time for those two claims along with the remaining 12 of 30 that we had not yet received dosimetry records for.

So, we had updated dosimetry records for all of the 30 claims by mid-October of 2018.

The overall results, we went in and evaluated those

files. And so, right now, would be in Section 3 of the report for those of you following along on the website, and that's on page 8.

So, in total, we had 671 temporary badges that we had identified with that group of 30 claims. These did not include any potential name variations which we will discuss a bit later.

Out of those 671, 634 of them, or about 95 percent, were correctly included in the updated dosimetry files.

Half of those claims, so 15 of those 30, actually had all of the identified visitor badges correctly included in the updated dosimetry files.

For those two cases that were resubmitted a third time, again, one case had none of the visitor badges included, so zero percent were included. With the third submission, 97 percent of the badges were correctly included.

The other case which had 12 percent the previous time around, that improved to 96 percent. So, 12 percent up to 96 percent.

So, those two cases that were clearly problematic in August improved to 97 percent and 96 percent, so actually, just over the average for the entire group of 30.

Now, I talked a little bit about the name variations. We found different name variations among 15 of the 30 claims selected and they were on a total of 51 total badges.

Now, we went in and tried to see if those name variations were included in dosimetry files, we found that only 15 of the 51 we had identified were

included, which is about 29 percent.

We also took a look at those updated dosimetry files for name variations that we hadn't identified to see, you know, well, they may not have gotten these name variations, but maybe they captured some different ones. And those would have been not on just CPP records but also temporary badges from other locations, bioassay requests, whole body counts, questionnaires, that kind of thing.

And so, we found additional variations for 22 of the 30 claims for a total of 66 variations in total. So, there were a bunch there that were included in the updated files that we hadn't seen, but some could be expected because we weren't looking at other temporary badges from other locations like TAN, places like that.

What we're looking at now is actually some names, so I'm going to be very careful here. Fortunately, this part is redacted for obvious reasons from the report on the web.

So, for those of you who can see the slide up in front of me, just want to point to a couple of interesting cases, I felt were interesting anyway.

So, Case G and Case J, now these designations have nothing to do with the actual claimant, they're just arbitrarily assigned when we did the study.

But if you look at, for example, Case J, you can see that the two names variations identified are identical and one of them was included in the updated file and one of them wasn't, even though it's the same variation. And that was true for Case G as well.

There are some of the other ones that we're looking at. And, again, so this third column is SC&A had

observed the name variation in the records captured and available to us, but we did not see them in the updated dosimetry files.

The far right column are ones that we had observed in the captured badges and they were included.

So, that's another example of where you have a name variation that's identical and one was included and one wasn't can be seen in Case O.

And, actually, in that Case O, the name variation is - the identical name variation is seen five times, one was not included, but four of them were.

And there's some other interesting ones here, Case V, obviously that's a very unique name and had some pretty significant variations where, you know, if you look at it, you can imagine that it could be the same person or it might not be, we just don't know.

Case Y also has some significant variations in name. Some of them, one of them was included, four of them were not.

So, some of the conclusions from this V&V analysis, and this would be in the concluding section which is Section 6 of the report on page 18, and going into page 19.

Ninety-four point five percent, that's 634 of 671 identified badges were correctly included in the updated dosimetry file.

Now, the observed name variations are not included in that total. That's only if the name was identical to the claim and also we could prove that they were working for the same employer. So, there's sort of two pieces of information, the name and the employer to try to tie the claim to the temporary

badge.

Now, the average among the 30, so that first figure, 94.5 percent, that's just every badge grouped together. But, if we look at it on a case by case basis, the average was 94.3. So, it was essentially the same thing, just slightly lower than the overall.

And, as I said before, about half of the 30 claims we looked at had 100 percent of the temporary badges that we had identified correctly included in their dosimetry records.

The two cases that were identified in July of 2018, again, one improved from 12 percent to 96 percent and one improved from zero percent to 97 percent.

Separate analysis of name variations identified by SC&A showed that just under 30 percent, that's 15 out of 51 were included in the dosimetry file.

As I said before, we had also identified a number of other name variations in the updated dosimetry file that we had not seen in the temporary badges that we used to develop the study. So, the door sort of swings both ways.

Some of the name variations we identified were not in there and the updated files had several name variations that we hadn't identified.

And then, finally, all 30 of the cases that were selected for V&V, we had at least one CPP badge during the period of interest, which, again, was January 1963 through February of 1970.

This is just a placeholder slide to document whatever discussions occur today. And, with that, I conclude my formal presentation, I'd be happy to answer any questions.

Discussion and Recommendations

Chair Schofield: Anybody got any?

Member Beach: Yes, this is Josie. I just -- I appreciate the fact that we've gone from 12 percent up to 96 and zero to 97. However, I'm concerned about the couple that you had to send request information three separate times.

What is being done on INL's end to -- so that doesn't happen?

Dr. Taulbee: Josie, this is Tim, can I go ahead and answer that?

Member Beach: Yes.

Dr. Taulbee: Okay. Josie, what ended up happening in that particular time period was that there was a staffing change that occurred and one of the long-term people who had been working on this project for many years took another job.

And so, in that -- during that transition period, we ended up with a response that got effectively jumbled, that the person who was responding didn't go and pull from the -- basically, they ended up copying what they had sent before and hadn't pulled from the full system.

So, I don't think that would happen again, but I can't say it wouldn't, but that was what effectively happened during that particular time which is why it was caught or which is why we re-requested it and you see this marked improvement.

Member Beach: Right.

Mr. Katz: Other questions from Work Group Members?

Member Roessler: This is Gen. We've talked about this for a long time and I'm not sure I've ever gotten a good answer.

But, what is really an acceptable percentage or what -- or do we have any precedents for this sort of thing that we can go on and say this is good enough or it's not?

Dr. Taulbee: Again, this is Tim. If I could address that, I would appreciate it.

Remember, the initial goal here was to cast a net wide to make sure we didn't miss anybody that was exposed to the plutonium and the transuranics at CPP during this time period which was pretty much confined to the laboratories in themselves. So that was the goal. And the exposure would be for 250 days.

So, in order to do that, that's where we cast this net wide of any badging at CPP and 250 days of employment.

Now, when we did this, all of the routine people there at the sites, those were really easily covered. The badging was on an IBM system, you've got printed names, there's no variation. Everybody's got S numbers, everybody is easily identified.

So, we got this temporary badged group. So, these are visitors to the site that did work there. But, you know, the 250 day employment is a potential issue for many of these workers.

Most of these badges are for less than a week. There are a few that extend out to a month and then in Bob's report, he had one that was 66 days and then there was one that was really long, but I actually think it's a typo.

But, generally, they were -- if you go through these roles as workers, they're all for about a week. There are a few, like I said, that are a little longer.

Now, so what we did was we cast a net wide to where review we would have to have missed multiple badges if you had worked there for 250 days.

Now, you asked about precedent, and if you consider the Mound SEC definition, it's actually quite similar for the radon and SW19.

In that particular case, the net was also cast wide. This would be for a radon exposure in one particular room.

And so, anybody who entered that particular building was supposed to leave a tritium bioassay. And, if you worked there routinely, you would leave two per week.

If you worked there intermittently or you came in as a visitor, you were supposed to leave it at the end of the day.

Does that mean absolutely everybody left a tritium bioassay at the end of the day and always followed procedure? Well, probably not.

But, would it be possible for somebody who worked there for a full year, 250 days, and never leave one? That's very unlikely.

And so, this is very similar to that. Is it possible that we've missed a badge here or there? Well, Bob has demonstrated here that, on average, about 5 percent are not being necessarily identified.

So, would we miss a large number that would preclude somebody who worked there for 250 days? And, again, I would say that's very unlikely from that

scenario.

So, I think there is precedent with the Mound group when you compare it to this particular group.

I hope that answers your question, Gen.

Member Roessler: That does, and I guess I'd want to hear from SC&A whether they feel it's consistent since we have another situation, to me, it seems that we've achieved our purpose and that we can say dose reconstruction can be done.

But, I think SC&A has to give us their thoughts on that or other Work Group Members.

Mr. Katz: Well, Gen, it's not that dose reconstruction can be done, it's we can put people in the class that belong in it.

Member Roessler: Well, yes, it's a group for the particular people, I know, yes.

Member Beach: Can I ask a quick question, this is Josie, before SC&A jumps in?

And you probably said this and I might have missed it. Is all the indexing and coding done now, Tim? Is it complete at INL for all the temporary badges or is that still ongoing?

Mr. Katz: Tim, you might be on mute.

Dr. Taulbee: Sorry, I was.

Yes, Josie, it is our understanding, according to the sites, that they have completed the coding for all of the temporary badges across the entire site.

Member Beach: Okay. And has anybody done any kind of just a random -- well, never mind, that's

probably not - I was just going to say, has anybody looked at it and how that coding was done and transferred and -- but I know that's what we've been doing in this case.

So, just the human error is what I was thinking about and the name variations. But, anyway, I'm good. Thank you.

Mr. Katz: So, Bob, I think Gen wanted to know if SC&A had any other thoughts, remaining thoughts, about this or about the similarity between this and Mound and then have you considered that?

Mr. Barton: Yes, well, I guess I'm not as familiar with the Mound precedent. I would say I don't think that we have the target number or percentage involved when we started out. It was really, let's see what the study tells us.

And, you know, on the summary slide we have about a 95 percent success rate.

The other thing that I would mention to Tim's point about, well, you may miss a couple in there, but are you going to miss 250 days' worth?

The only thing I'd add to that is, this would be in combination with any other SEC employment. And, as I pointed out in the beginning of the presentation, there's an SEC right after this period for CPP that all you need is an INL badge.

So, it could be in combination. It becomes a little bit more likely if you -- if the claimant also had employment during another SEC period for which they qualify for but maybe they don't have 250 days in that period, either. So, that's just, I guess, something to keep in mind.

Now, back to the question, Tim's question of whether, you know, this end result is acceptable or not, I'm not sure if that's really in SC&A's purview because I feel it's really more of a policy question than really a technical one, because as I said when we started out, we weren't starting out saying, well, if we can hit 95 percent then, you know, we're all good to go.

It's really, what is that number and is the Work Group comfortable with that number?

Member Roessler: But that means you're potentially missing five people?

Mr. Barton: No, it --

Member Roessler: Out of a 100, right?

Mr. Barton: It would be five -- potentially missed five badges out of a 100.

Member Roessler: Five badges, yes.

Mr. Barton: Right, yes.

Member Roessler: But, that's just badges, that's just --

(Simultaneous speaking.)

Dr. Taulbee: Remember, the doses and badges were issued for one week. So, missing five, you know, that's only part of the year from that standpoint if that was, you know, if that was the case. Even if they were for a month, all five of them for that one particular person, that's still, that's not a full year.

And you only need one across this six year span to be included in the class. Again, we cast the net wide to make sure we didn't miss anybody who was at CPP

for 250 days.

Member Roessler: Unless you changed the --

Mr. Katz: That was Tim Taulbee. That was Tim Taulbee.

Dr. Taulbee: Oh, I'm sorry, yes.

Member Roessler: Well, because of those numbers and because of the precedents that Tim discussed, I have come to the conclusion that I'm comfortable with this and I think we can proceed.

Chair Schofield: It seems like the percentage possibilities, as Tim just pointed out over a six year period, what we're talking about are extremely minute fractions, if I understand this correctly.

Dr. Taulbee: This is Tim. That is correct. So, I would say it's highly unlikely.

Member Anderson: I would only -- it only needs to be one badge during this six year period to be in the class?

Dr. Taulbee: That's correct.

(Simultaneous speaking.)

Member Anderson: And then, after that, you would have to determine whether they had 250 days?

Dr. Taulbee: Two hundred and fifty days employment anywhere on site.

Member Anderson: Okay. It wouldn't have to be 250 days with a badge?

Dr. Taulbee: That is correct, no.

Chair Schofield: It seems like to me, the margin of

error is so small that I personally don't have a problem with it. I mean, that -- I don't think you can ever actually achieve 100 percent. I mean, you know, for sure. I mean, you know, we're talking about an extremely small percentage.

And it is theoretically possible we might miss someone, but, you know, I don't know how we can guarantee 100 percent for that six year time frame.

Mr. Katz: Yes. And so, on the other side of that theoretical possibility, you also -- we also know, I think, that there are potentially ten of these claimants who are -- until we add this class will not get compensated.

So, they will be on the sidelines. They have to wait on it.

Chair Schofield: Right.

Member Beach: So, what are the likelihood that the claimant turns in a claim and they miss it on the first go around? Is somebody going to ask for those folks at INL to send these records three times so that those potential folks won't get missed?

I guess that's the only thing I'm worried about. And I realize the percentages, it's a small, small chance. But if it's just one person that gets left out because they missed that badge but they still have the 250 days that they -- anyway.

Mr. Katz: Josie, I mean, I think you raise a good point and I just would ask Tim just to elaborate on your question. The other -- given the history here, the experience here, whether we can't sort of -- and I don't mean the Agency, NIOSH, just make some sort of recommendation to DOL about the degree of due care they take in this situation.

Dr. Taulbee: Ted, this is Tim, again.

I mean, we can certainly do that. But here's the -- Josie, here's how I kind of see this process going.

Whenever a new claim is filed, the DOL is going to contact DOE. They're going to do a search and determine whether this person worked at CPP because they really only have to produce one badge for that particular person back for demonstration that they are part of the class.

If they don't get one of those, then DOL's going to forward that claim to us at which time we're going to request the full dosimetry records so we can do dose reconstruction.

So, effectively, it's going to be checked twice from that standpoint, just going through the normal process.

If we go through and we start looking and this person was a contractor that's working in a lot of different facilities, you know, that's something that we can look at closely.

We can also look at the CATI where we do reach out and talk to people.

So, I guess I would say, DOE is going to at least look twice just from the normal flow of process.

And, as far as in this particular case, the only reason we went to a third time, it was -- well, we noted there was a big discrepancy and we investigated and asked them about it and then that's when we found out there was a changeover in personnel and a misunderstanding as to what we were requesting.

So, I really don't think that that would happen again.

Member Beach: Okay, I appreciate that and that does give me a higher level of comfort in looking at it in those terms where it is going to be looked at from DOL and NIOSH. So, I would agree that we should move forward with this.

Chair Schofield: Anybody else have any comments?

Member Roessler: If we do that we --

Member Anderson: And do we have any sense of -- so how many -- I mean, we do a good job of I think this shows that if there's a -- I'm just concerned with the people who make a claim who say they were there. Are they making a claim that they were just there at the plant or that they were actually in the lab area?

So, I mean, are --

Dr. Taulbee: I'm not exactly sure what you're asking, Dr. Anderson.

Member Anderson: What I'm saying is, so, for a claim to be made, the individual has to believe or that they were in the exposed area that we're looking for. And then, we find out whether there was a badge.

So, that would --

Dr. Taulbee: No --

Member Anderson: If they can't find a badge, are we then saying that the individual is mistaken and they were not in the area? Or --

Dr. Taulbee: When somebody files a claim, they're filing the claim of employment there at the Idaho site as a whole.

Member Anderson: Okay.

Dr. Taulbee: And there's many facilities there. So --

Member Anderson: Right.

Dr. Taulbee: And then, to verify the employment, Department of Labor sends a request to DOE to verify that employment.

And then, if they don't have any employment records, which may be temporary, a badge may or may not have employment records, then they give the secondary sources and Department of Labor has a whole series of things that they go and look at from that standpoint.

You know, once they qualify the claim, then it would come to us. But, in that initial request to DOL, what they would be checking then is does this person have any dosimetry for CPP to be part of the SEC?

Because then they wouldn't send us that claim to do dose reconstruction on.

Member Anderson: Okay.

Dr. Taulbee: Does that make sense?

Member Anderson: Yes, I'm just -- yes.

You know, I guess, I'm -- you know, I think this is about as good as we can get.

Mr. Katz: Phil, I think we need a motion then.

Chair Schofield: I'm inclined to go ahead and say let's accept it and go forward with that for people to get into the SEC. I mean, I think it's a reasonable thing since we're only looking for one badge over six years.

Member Beach: So, I'll make a motion that we accept NIOSH's Class Definition for this period.

Chair Schofield: I'll second that.

Member Roessler: I'm in favor.

Member Anderson: Yes, so am I, yes.

Mr. Katz: Okay. Okay, so then, we have a recommendation from the Work Group which brings us to plans, I think we need to speak about then plans of how this gets presented.

We don't have, I'll just note, I have it on the agenda, but the Petitioner is deceased, so we don't -- we will not have Petitioner comments.

But, let's talk about how we present this. I think it makes sense to have Bob do a presentation similar to what he's done here to the Full Board. But, I think it needs to be then elaborated to reflect this Work Group meeting and end with the recommendation to the Full Board with the repetition of the definition.

Does that sound sensible to all of you on the Work Group?

Chair Schofield: It does to me.

Mr. Katz: Right. So then, Bob, if you wouldn't mind taking the lead on that on getting the -- if you would update the presentation to reflect this meeting and the discussion of this meeting and the outcome of this meeting.

And then, circulate that to the Work Group so they can have a look at it before we go ahead and post that. That would be great. Okay, Bob?

Mr. Barton: Okay.

Mr. Katz: Okay. And, yes, and then fine with you to have Bob present?

This transcript of the Advisory Board on Radiation and Worker Health, Idaho National Laboratory/Argonne National Laboratory-West (INL/ANL) Work Group, has been reviewed for concerns under the Privacy Act (5 U.S.C. § 552a) and personally identifiable information has been redacted as necessary. The transcript, however, has not been reviewed and certified by the Chair of the INL Work Group for accuracy at this time. The reader should be cautioned that this transcript is for information only and is subject to change.

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Chair Schofield: No, I mean, I think that's a good idea. So --

Mr. Katz: Okay.

Chair Schofield: I think we're unanimous on backing it.

Mr. Katz: Okay. So, good work and good work, and that's great progress. Thank you.

And, Phil, we're back to the agenda.

Verification and Validation of Records for Existing INL SEC Class SEC 238

Chair Schofield: Okay. We're now going to go on to SEC-00238 which covers the time frame of 1975 to 1980.

Mr. Katz: Okay, that's Bob, again.

Mr. Barton: Similar to the previous one, I do have some slides with discussion points, but once again, they're just reflective of what is already on the web. So, I will be going through that.

And this is SEC-00238, as Phil said, which is 1975 through 1980, that's the full years inclusive. So, January 1975 through December 1980.

And this was part of the 83.14 process and NIOSH presented the SEC to the Advisory Board in July of 2017. And, again, that's for the, again, for CPP, 1975 through 1980.

The proposed Class Definition, all employees of the Department of Energy, its predecessor agencies, and their contractors and subcontractors who worked at the Idaho National Laboratory, INL, in Scoville, Idaho and who were monitored for external radiation at the

Idaho Chemical Processing Plant, CPP, have at least one full badge or TLD dosimeter from CPP between January 1st, 1975 and December 31st, 1980 for a number of work days aggregating at least 250 work days including current solely under this employment or in combination with work days within the parameters established through one or more other classes of employees in the Special Exposure Cohort.

And this, obviously, looks very similar to the Class Definition we just discussed, at least the first part where there is a requirement in there to have a CPP-specific dosimeter.

Similar to the SEC-00219, the concerns remain about the requirement for that CPP-specific badging. So, SC&A was tasked with reviewing the badging practices during that 83.14 period and also developing a similar V&V approach as was used for SEC-00219.

In February of 2018, SC&A delivered its initial evaluation of the badging practices, had several findings of mostly related to -- findings and observations mostly related to standard and routine badging practices.

But there were two findings that were specific to the V&V development approach and these were Findings 1 and 2.

Finding 1, SC&A located temporary badge reports during the period of interest; however, it is apparent that the currently available records are incomplete.

Additional temporary badge reports are likely available at the site but have not been captured due to the focus of previous data capture efforts.

And, as a follow on to that, Finding 2, based on our

review of the limited available temporary badge reports from 1975 and 1980, that should be through 1980, workers who accrued zero measured dose and did not have a permanent health physics badge indicated in the temporary badge report do not appear to be consistently migrated into the official area exposure reports for CPP.

And those official area exposure reports which Tim referred to earlier, they're printouts. They're from an IBM database. So, we're not dealing necessarily with these handwritten records on the actual visitor cards.

But, as was the case in the previous period, if you were a visitor and did not accrue any dose, they did not record you in that system. But they did keep the cards, as it turned out.

So, in September of 2018, NIOSH in conjunction with SC&A went on site at INL to capture -- well, first to assure that the temporary badges are there in physical form and can be captured through V&V analysis.

Those records were captured and uploaded to the Site Research Database in November 2018.

They were contained in 705 PDF files that average about 160 pages each. And so, one page would be the front of the card, one page would be the back. So, that's roughly 80 temporary badges per file.

So, if you do the math, that's quite a large number.

Important characteristics of temporary badges during this period and, important to remember, is that these badges almost universally contained an INL security number, also known as an S number. This is essentially your identification number for the site.

So, whereas in the previous period, we really only had the name and the employer to really go on to match a temporary badge with a claimant. Now, we have a third piece of information that is specific to each claim.

This, obviously, is going to help out any issues associated with name variations because even if there's a name variation, you'd hope there wouldn't be a variation in the S number unless that was incorrectly transcribed in the original badge.

So, a couple of things here. One, we have not been able to find documentation that will show on, for example, a monthly period how many visitor badges were issued at CPP.

And that was a piece of information that we did have for the earlier period, the SEC-00219 period, which allowed us to perform sort of a completeness analysis to say, all right, CPP issued, you know, X number of badges in May of 1963.

And then we look in May of 1963 and we have that X number of badges in hand, we can be reasonably assured that the set of records we're looking at is complete.

But that's not the case, at least thus far, we were not able to find that sort of summary documentation to do that sort of completeness analysis.

So, really, what we're restricted to doing was, let's just see if we find any temporal gaps in the records we have.

In other words, if you had a number of months with little to no visitor badges, it'll be pretty suspect and you might wonder why those badges are not there. And if they are in fact missing or things of that

nature.

So, we went through and did a rough count by month on the captured of temporary badges and we did not find any significant temporal gaps, as you'll see in a moment, there was some pretty significant fluctuations on a month by month basis.

You'll see here on this next slide, there's a chart and that chart appears on page -- so, what we're looking at right now for those of you who are following along online, this is Figure 2 and it's on page 4 of the SC&A report.

So, here's a rough count of the number of temporary badges for this period. As you can see, there can be quite a bit in any given month, you know, over 1,300 in the middle of 1978.

As you can see, there's some fluctuation, but there's no significant period where you're just not seeing any badges. So, that's really what we're looking for, you know, do we have reasonable number of badges on a monthly basis? This was a standard dosimetry cycle. Or do we see any gaps?

And, based on what we interpret from -- and show in this chart, we don't see any reason to think that there are potential temporary badge gaps, at least on a temporal basis.

So, for claimant selection, we, again, closely mirrored the SEC-00219 V&V approach. We wanted some diversity in job classification.

Also, obviously, the total number of badges that we can identify with a given individual is helpful. The more badges you have, the more -- well, the more badges you have to check.

And then, the requirement that I didn't mention earlier, but this is also part of the SEC-00219, claimant selection, that they'll require a revised dose reconstruction, either because they don't meet 250 days or they have a non-presumptive illness and so wouldn't qualify or would have to have a dose reconstruction performed for medical benefits.

And this last criteria was actually not part of the SEC-00219. I actually went through and tried to find some claimants who had covered employment in the previous period that -- when I say previous period, I mean 1970 to 1974, but didn't have 250 days.

So, they might have a significant employment in one of the SECs but not 250 days, but if they were found during the 83.14 period, it might bump them up a little bit to the top. So, it's sort of a specific case study.

So, at the time we did this analysis, there are 1,100 claims that had some covered employment during the 83.14 period. Almost 400 of them would require that revised dose reconstruction, again, based on the covered illnesses. And about 50 percent of those 400, we were able to identify just by name in the captured temporary badges.

Now, I mentioned that these temporary badges have S numbers, but unfortunately, there's no reasonable way to search through the claimant population and populate a list of S numbers. We'd have to actually physically go into each file and pull those out manually.

So, we'll -- our first run through this to try identify potential candidates, we're really just looking at the name.

So, the proposal suggests 30, again, just like the

SEC-00219 period for an updated records request. Again, that's consistent with the earlier analysis.

Four of those 30 had fit that final criteria that I just mentioned, unless they have SEC employment in other periods, but not the full 250 days.

And so, there's the potential that if their 83.14 badges were missed then they would also miss out on the SEC designation. So those four of them fit that criteria.

The remaining 26 were based primarily on the number of visitor badges we could find. But that did include a pretty diverse set of job titles including engineers, administrative, laboratory, various construction trades.

So, among the 30 suggested claims, we have 639 total visitor badges to check.

Now, in addition to the 30 that we're suggesting for updated dosimetry, what I did was I went back and I looked at our 30 claims from SEC-00219 to see if any of them had visitor badges during this later 83.14 period.

And, as it turns out, seven were found in both periods. And those seven had about 105 total visitor badges between them.

These could be either used to replace some of the 30 that we're suggesting for updated dosimetry or to augment them.

And one of the benefits of looking at these claims is we already have their updated dosimetry files. So, it would not require any additional research or work done by the site personnel in putting together an updated dosimetry because we already have it in

hand.

So, to summarize the proposals, again, one thing to keep in mind is that almost all these badges have security numbers. So, again, that's that third piece of information we can use to correctly identify that the person on the visitor card is the claimant.

We don't have that site documentation to indicate how many temporary badges were issued in any given period, so we can't really do that full completeness analysis like we did for the SEC-00219 period.

So, again, we did a rough tally of the badges by month to see if there are any significant temporal gaps which we did not identify in our judgment.

Again, this is just kind of interesting that we have 50 percent of the claims that fit the criteria for V&V selection, so there were 400 in total.

We found almost half of them, at least identified by name, so CPP had a lot of visitors during this time.

Again, we're -- we identified 30 claims that we would suggest for updated dosimetry requests and those cover a total of 639 total temporary badges. And that 639 can be compared to the 671 that we had for the earlier period. So a pretty similar number of badges to check.

Again, there's the seven additional claims that had already had requests done as part of SEC-00219. And, again, those could be used to either augment or in place of some of those 30 claims that we are suggesting for updated requests.

So, in total, the V&V evaluation could cover 37 total claims and 744 individual badges.

And that's the end of this presentation. It was a little bit briefer, but I'd be happy to answer any questions.

Discussion and Recommendations

Member Roessler: Well, Bob, this is Gen. Am I off mute?

Mr. Katz: Yes, you are, Gen.

Member Roessler: Okay. So, you've given a lot of numbers, a lot of statistics here, but it seems to me your bottom line is to say that, after your review, you don't see any problem with identifying claimants in this particular situation.

Mr. Barton: Well, this is essentially the proposal for the V&V evaluation. What we did is we captured the records ourselves. So, in the Site Research Database, we have all these files with just, you know, lists and lists of claimants in them.

And we actually went through and manually matched them up by name to the claimant records we have.

Now, the next step would be, similar to the previous process is to go ask INL put together the full dosimetry records for these people, send it on over and then we can look at what we've identified from our own hard copy records, is INL correctly grabbing those same records and including them in the dosimetry files.

Member Roessler: Okay.

Mr. Barton: So, this is sort of the proposal step, not the evaluation step.

Member Roessler: Yes, okay, thank you.

Member Anderson: Yes, the next step would be to

implement this?

Mr. Barton: That's correct.

Member Anderson: Any sense how long that would take?

Mr. Barton: Well, really, the, I guess, the deciding factor is how quickly INL can turn over these records requests. I mean, you have to keep in mind that they're doing searches not just for this V&V effort, but any claims that are filed and that sort of thing. So, it's kind of dependent -- once they get the files to us, it's a very quick turnaround.

I think once I started looking at the SEC-00219, it was about a month and I had the report.

Member Anderson: Okay, so it's not a long time? Yes.

Mr. Barton: Well, it doesn't take a long time but to get, you know, the records from the site. And that's the deciding factor.

Mr. Katz: Right. The last time around -- oh, go ahead, Tim.

Dr. Taulbee: The last time around, the site asked for us to send them in batches of ten and they would do 60. And they would include them in their typical 60 day response.

So, you are looking at about six months for the site to respond to 30, going up to 37 then you're looking at another two months. So, about eight months for the site to respond in full.

Member Beach: Well, except the seven, they already have, correct?

Dr. Taulbee: Oh, you're right, you're right, I'm sorry,

Josie.

Member Beach: So, it's just the 30.

Dr. Taulbee: Yes, June is six months.

Mr. Katz: This is Ted.

I mean, I wouldn't be too concerned about the six months or the time because this is already an SEC in play.

Member Anderson: Right, exactly. This is just the validation process.

Mr. Katz: Correct.

Member Anderson: I think we ought to move forward with this.

Member Beach: I'm going to agree with that also.

Mr. Katz: Just before we do that, though, does Tim -
- do you have any comments you wanted to make about this? I don't know, maybe not.

Dr. Taulbee: I don't have any comments. I'm actually a little curious as to how it's going to play out. My impression is, is it should be about the same as the other to where about 95 percent of the badges will be correctly identified.

Maybe a few more due to the S number but there's also a potential of people transposing those numbers incorrectly as well.

Mr. Katz: And you're good with that?

Dr. Taulbee: Yes.

Mr. Katz: Great, great.

Dr. Taulbee: I don't see any problems with it.

Mr. Katz: Thank you, Tim.

All right, I mean, that will take you to the vote for this, folks, because this is just ongoing work the Work Group has. So, it sounds like you're all in favor. I think we've heard from everyone.

Chair Schofield: Yes.

Mr. Katz: Okay, so then, Bob --

Mr. Barton: This is Bob. Just one more, I guess, question for the Work Group. When we go to make the requests for -- updated requests for the 30, do we want to include a similar cover letter sort of alerting the staff that these are a part of a special study by the Advisory Board or do we want to kind of send them in blind?

Member Beach: I --

Chair Schofield: I would send them blind.

Member Beach: I would, too.

Dr. Taulbee: The problem with doing that, though, without giving them any warning is, they have an archive of everything they've sent us before. And so, going in blind, they may not.

They might see, oh, we've already responded to that. Here, just copy it over and not a search in their system.

Member Beach: Yes, good point. I reverse, I think we should send a cover letter.

Mr. Katz: Yes, I don't think it's going to change any behavior other than --

Member Beach: It shouldn't.

Mr. Katz: Okay, then, good. So, we've got that and a path forward for that. Thank you very much.

And, again, Bob, consider yourself with so tasked. Bob and SC&A. That's great.

And we're back to the agenda.

Chair Schofield: You know, I think everybody has already basically said, you know, recommended that we go with that. You know, I think that's the reasonable approach, unless there's something somebody has an objection to.

Mr. Katz: No, I think we're good with this, Phil. And I think -- I mean, we've already covered the Board meeting session plans for the other SEC.

And, in this case, for this, I think it would be good, though, also Bob, if you would append as probably a separate presentation to keep things clear, but if you would sort of briefly give the same presentation but maybe a little bit more concise to the Board on this, much more concise I would say just to let them know that this is going forward, that would be great.

Mr. Barton: Okay, great.

Mr. Katz: Thank you, thank you very much.

And this brings us to the last item which is just to note for the public, if there is any public on this call, this is not a document that's posted yet. Although, I think we'll get this presentation cleared. But, this is an update on the NIOSH work, DCAS work related to the Burial Grounds which is an area of interest to the Board and to NIOSH as well.

And, Tim, this is your item.

DCAS Evaluation of Dose Reconstruction Information for Potential Exposures at the Burial Grounds

Dr. Taulbee: Okay. Currently loading up the presentation here. Can you all see it?

Member Beach: It's loading.

Mr. Katz: And, Board Members, I forwarded this to you this morning. I wasn't here Friday, Saturday, whenever it was I received it from Bob. But you should have it by email as well.

Member Beach: Yes, I have it.

Mr. Katz: I mean, from Tim, sorry. I don't mean Bob.

Dr. Taulbee: Okay, does everybody see it?

Member Roessler: Yes.

Member Beach: Yes.

Dr. Taulbee: Okay. All right, and so, what I'm going to talk about here is the evaluation of the INL Burial Grounds or the radioactive waste management complex. And this is the post-1970 period. This is after SEC-00219.

And, before I get started here, I really want to recognize the work of Mitch Findley, he did a tremendous job of going through hundreds of documents and pulling this all together and organizing it.

So, a little bit of an overview, I'll give a little bit of background, some of the changes in mission, but I'll focus mostly on the next two, the waste retrieval projects and the bioassay monitoring and then wrap up with the conclusion.

So, if you recall from March 2017, when we closed -
- or we finished our evaluation of SEC-00219, this was closing out the remaining open periods that we did through the addendum.

We indicated that we would continue to evaluate the Burial Ground exposures outside of the SEC-00219 evaluation period.

And the reason why, why are we doing this? Well, we knew there were some large-scale drum retrieval operations in the latter of 1970 through modern day.

And we indicated at that time, if we knew that we would pursue expanding the class under the 83.14 process.

So, this is kind of our evaluation of, hey, do we need to do something about this work going on in this post-1970 time period?

And these two photos is what I showed during that presentation that had given us some pause.

When we were doing our research, closing out SEC-00219 for the Burial Grounds up until 1970, we ran into some work here of them retrieving buried waste in the 1977 time period.

And seeing people up intimately close with these drums, and, you know, potential for contaminated soil gave us some pause as to were these workers monitored?

So, that was what started this particular evaluation.

So, talking about the Burial Grounds or the radioactive waste management complex, this became its new name in the 1970s. And the reason it became this waste management complex was it was composed of several different operations.

The first being the sub-surface disposal area, or the SDA. This is the old Burial Ground. This is where they would dig pits and trenches and dump waste in it and cover it up.

And so, it was a really simple -- pretty simple operation. Digging through clean dirt, you dumped radioactive waste in it and you cover it back up.

But, in 1971, they began to change the operation. DOE directed them to no longer bury transuranic waste, that they would just store it above ground.

And so, they opened up the transuranic storage area, or the TSA, which is different from Transportation Security Administration, but you'll hear me say TSA throughout this entire presentation.

They also had an additional administration and operations area. And, by the way, the TSA off to the right, the photo there, this is a pad where they would pour asphalt down and they would stack the drums coming from Rocky Flats and then, when they were done, by the way, there were sheets of plywood over top of them, then they would cover them up with dirt. But, they were above ground to where they could easily be retrieved.

You didn't have the problem of flooding which was one of the early issues in the 1960s with the Burial Ground.

In the fourth quarter of 1975, RWMC got its own dosimetry designation. As we've been talking about with CPP, prior to that time period, it was dosimeter badges being issued at the individual facilities.

Prior to that time period, all of the badges for the Burial Grounds came out of the central facilities area.

But, in the fourth quarter of 1975, they started to get their own -- they got their own designation.

The next series of slides here, I've gotten -- trying to show how the RWMC changed over the years here.

And this is 1970. This is the close of the SEC period and you can see there's not much going on here.

You've got the triangular area in the background there. That's the actual sub-surface disposal area, or SDA. And then here in the foreground, you've got some of the TSA pads just beginning to be filled. Okay? So, this is 1970.

Six years later, there's a lot more operations going on here. You've got that initial pad is now full and covered and they've started another TSA pad there in foreground.

And then, the middle of the screen, you've got the initial drum retrieval, one of the waste retrieval projects I'll talk about and then, in the background, you've got the early waste retrieval as another one I'm going to talk about.

And, off to the right, you've got the first permanent structures being built out there at the site. These white domes are actually air support weather shields that allowed them to operate during all weather, rain, snow, et cetera.

And so, that's -- those are inflatable buildings that were movable. But, the ones off to the right were permanent buildings.

So, we fast forward to 20 years roughly, you can see RWMC is changing dramatically. The TSA area is growing significantly and with permanent buildings to store these drums coming from Rocky Flats. They're

even beginning to build a super structure over top of one of the TSA areas in order to retrieve drums.

And you've got some construction beginning there in the right corner.

Can you all see my mouse moving?

Mr. Katz: Yes.

Mr. Barton: Yes, I can see it.

Dr. Taulbee: Okay.

This area here would be where Pit 9 would become.

And what you can see back in this area in the center is where those early waste retrieval projects were being done, they've been covered up. There's nothing else being done there.

Going through and looking at looking at RWMC today, here you can see that big building is completed. And this is all the Pit 9 type of area.

And, again, there's still not much area -- not much else going on back in this other area.

So, in the 1970s, you had some projects that were started, these waste retrieval projects from 1970 through 1978. And they were conducted to investigate the retrieval of waste in preparation for production scale retrieval programs that I've got listed here at the bottom like long term storage waste retrieval project which was recovering the waste on the TSA pads and sending it to WIPP.

And then, buried waste retrieval projects that are still active today like the Pit 9 work.

These were all issued after these three retrieval

projects. I'm going to talk about these individually here.

The first one, the solid waste retrieval project 1971, then we'll go to the initial drum retrieval which is '74 to '78 and then the early waste retrieval from '76 to '78.

So, the solid waste retrieval in 1971, the AEC requested a series of solid waste retrieval tests on Rocky Flats waste buried in the sub-surface disposal area to gain insight into problems that may arise from large scale retrieval operations.

In the first phase, AEC requested retrieval of three specific drums that were suspect of containing excess amounts of plutonium. They wanted to go in and see if they could find these three drums.

The only found one of the three drums that they were looking for. But they did move several hundred drums looking for these three specific.

They collected soil samples to determine the soil contamination concentrations. Most of the soil samples were less than ten picocuries per gram.

However, some were as high as six nanocuries per gram of plutonium.

And here's a photo from the solid waste retrieval test and here, you can see where these drums that they were investigating here were neatly stacked. And they'd dug out here in the center and moved looking for, like I said, those three specific drums.

And then, the second phase was the retrieval of multiple waste drums, 16 for transport to the ARA hot cell for detailed sorting and sampling studies.

And retrievals were focused on removing drums from

Pit 2 which was 12-year-old stacked waste, that previous picture showing stacked waste, Pit 5 which was 7-year-old dumped waste and Pits 10 and 11 which was only 18-month-old stacked waste.

So, Pits 10 and 11 were relatively newly placed then they were stacked. So, these would be new drums. There shouldn't be much deterioration on them.

Pit 2 would have more deterioration. And then, Pit 5 was just dumped waste.

The figure off to the right shows how they were taking soil samples around these drums. This would be Pit 5 because you can see the drums are clearly not stacked. They're just kind of dumped in there.

And the highest in this particular group here is 12 picocuries per gram of plutonium in the soil with most of the interior being less than 10.

And here is a picture of those dumped drums. In fact, I actually think this photo might be related to that previous figure of soil concentrations just given the kind of general configuration.

But you can see what it was that they're investigating here in Pit 5. And when they did pull the drums up, they just bagged them and send them over to the ARA hot cell.

During the solid waste retrieval, anti-C clothing was worn, coveralls, shoe covers and cotton gloves. They did set up air samplers. They were utilized continuously with one sampler placed upwind and one sampler placed downwind. Filters were changed daily and they were analyzed for gross alpha.

Only one of the excavation sites, Pit 5, had airborne concentration of detectible significance. And that was

6.75 times 10 to the minus 12 microcuries of plutonium per CC which comes out to about 3.4 DAC.

And this was over a 3.75 hour work period.

Keep in mind that they didn't do this work continuously over this time period. It was a short period of time over one year that they investigated these three areas.

Respirators were worn by workers and whole body counts of principal workers at the site showed no detectible plutonium uptakes.

Pit 5 was also the only site where detectible contamination was found on peoples' shoe covers.

So, where that dumped waste was is where there's a particular hazard, potential serious hazard.

Health physics monitoring records noted in their summary reports that the Eberline instrument PAC-1S was inadequate to measure contamination in the field.

Smears were counted and a scintillation crystal detector were required to detect most of the contamination that was encountered.

And this is consistent with the interviews that we heard from workers that the PACs just weren't that good for finding contamination in the field. The smears were much more efficient and they did take smears on materials.

They also wore half face respirators. At that the time, they considered these to be satisfactory in preventing worker inhalation of plutonium.

Whole body counting using special detectors for plutonium showed no detectible Pu intake of the main

workers.

The drums that were sent to the ARA hot cell for evaluation, the highest smear on the outside of the drum was a 100 counts per minute.

And from this initial solid waste retrieval, they concluded that the best approach was to use dedicated teams to do this. As people gained experience with it, it became more efficient and people knew what they were doing.

And that was the solid waste retrieval project that took place in 1971.

Starting in 1974, the initial drum retrieval project. And the IDR was designed and implemented to demonstrate the safe retrieval and packaging, and transfer to interim storage of drums containing transuranic waste, buried from 1968 to 1970.

On the drums that were retrieved were from Pits 11 and 12. So, this is those pits that had recently been buried, 18-month waste coming -- 18-month buried waste coming from Rocky Flats.

And so, the goal was to dig them up from the pits that they had been put in and move them over to the TSA pads. And here, you've got a photo of the TSA pad that they're removing them to.

So, what they were effectively doing in 1970 is when DOE instituted they had to bury all the transuranic waste above ground, well not bury it, but cover it for retrieval to send to WIPP.

So, what this project effectively did was move the waste from -- move that early cut off back to 1968 because they recovered those drums and put them on TSA pads.

Initially, they would use an 83-gallon over-pack drums and then they changed to use cargo containers that held 72 drums. And that's these white containers that you see off to the right. Those are full of drums. And so, that was their new method of packaging these drums.

And this is a big project. Previously, we talked about them looking for three drums, but moving a couple hundred drums. And then recovering 16 drums to send to ARA.

In this particular project, they exhumed and retrieved 20,262 drums. So, this is the big operation that took place. And that is that photo that I showed early on and that was the operation.

This was IDR that was going on. Again, this is inside that air support weather shield. And we can see that the back there in the background is picking up those cargo containers where they put them on the trucks.

And you can see that a forklift was picking up a couple of trucks -- cargo drums, loading those into those cargo containers and they would drive them out.

There was health physics monitoring during this as indicated. The guy on -- the individual on the left there is working with an air monitor, a CAM. And then, on the right, they're doing surveys of the drums. And, again, you see the half face respirator there and they're wearing shoe covers and coveralls for the operation.

During this particular retrieval monitoring, as I indicated, the air support weather shields erected over the retrieval areas, anti-C clothing was very similar to the previous solid waste retrieval that carried half face respirators.

The instrumentation then had survey instruments but they also used gas proportional for counting smears.

And all the workers included in the RWMC were on bioassay measurements at the end of this particular project.

The figure on the right shows the number of intact drums. And, again, keep in mind that these drums had only been in the ground about 18 months, so they hadn't been there very long.

And what I find also interesting is that there were some drums with fixed external contamination, but not removable contamination based upon the smears.

The number of breached drums was actually quite small when you consider that, when you consider the total there is less than 5 percent.

And then, there were some drums, it looks like about 600, 700 of them that weren't even TRU drums. They didn't contain enough transuranic waste to be considered TRU.

So, that's the initial drum retrieval project. Now, I'm going to talk about the early waste retrieval project. So, this would be that tents, air support weather shield in the background of that figure that I showed you of 1976.

And the purpose of this particular retrieval project was to investigate problems associated with large scale removal of TRU waste from primarily Pits 1 and 2 and develop methods and equipment for safe retrieval of the TRU waste, develop repackaging methods, and to determine the risks and hazards for long term waste exhumation projects.

Pit 2 was chosen because it was open during the 1962 flood and it was expected to reflect the worst possible conditions for retrieval.

And, during this project, only 306 drums were retrieved with 205 of those being severely breached. So, again, this was the case where I was talking about the stacked waste that had only been in the ground for a short period of time and they had, you know, it was very relatively easy to remove and to get and the drums were not breached.

Here, you're looking at a very large number of breached drums. And so, this is quite hazardous work.

And one of the excerpts from health physics was that although alpha contamination levels greater than 2 million counts per minute were frequently encountered, available equipment and established safety and operating procedures were effective in protecting personnel and the environment.

So, this is very high level work. And you're not talking about picocuries, you're talking about millions of counts per minute.

But how did they do that? Well, inside of this outer box here, this is the air support weather shield. And then, inside the air support weather shield, they had another building and that's this particular square that I'm showing here.

And this was called the operating area of confinement. It was a modular metal building within which the actual waste was retrieved and performed.

They had a three cell change booth to get into this particular area. This particular building had HEPA filtration on the outside of it. There were 10 CAMs

being operated continuously, six inside of this OAC, two inside the air support weather shield, and two on the HEPA filtration line on the outside of that building.

And so, this is a picture of that building inside a building. Okay? And here, you can see that change, that three stage change area. And this would be for vehicles and the backhoe to come in and out of when they moved that particular building and so that they could be counted in this particular area. Okay?

So, this is inside the building during operation. And what you can immediately notice is that the people here are wearing bubble suits. So, this is how they were able to work in millions of counts per minute and not have any significant intakes.

It's because everybody inside there is on supplied air and inside a bubble suit.

The large area right here on the back, mostly I want to just focus on this little rectangular area. This is the air line, think of it as a mobile hood, if you will, of pulling air away from the dig site through this ventilation system here that went out to the HEPA filtration. Okay?

So, this is where they had two CAMs on the outside on this line looking for, if they dug into something here it would set off those CAMs out there so then they would know that they were getting into something that was really significant.

Here's another photo. Here you're seeing two individuals down in the pit that's been dug. And here's that same ventilation system being pulled. And here's the health physics technician working with the instrumentation.

The other thing I'd like to point out here is that in

1976, they had a contamination event inside this OAC where they lifted up a drum that was leaking and they ended up, in setting it on the soil, contaminating more soil that hadn't been contaminated before.

As a result of that, they started using a tray that they would set the drum in to capture any liquids that were coming out of it before they put it into their waste container or their overpack.

And then, they started using this tarp as well to try and prevent contamination, to prevent spreading liquid from the drums that might be leaking out when they pulled the drum out.

This is the condition of the drums that they were digging in. You can see these things are a mess and, you know, obviously, leaking and crushed and just general debris.

So, this is a very hazardous type of operation.

When they got done with one particular area, they did move this building. And, in this particular case, they had so it was cut in half and then they would move one half with a crane and move the other half, put it back together, hook up the ventilation system again. Put down their tarp, move their stuff back in and dig in another location.

The operating and confinement building was surveyed as the conditions warranted. Like I said, as it -- when it was moved, there was an excerpt from 1977 where they finished the survey to the building and items and moved everything out of the OAC.

Operations secured during the move. They surveyed the sticky step off PAD and there was no detectible beta, gamma or alpha contamination and surveyed the crew at the end of the day and everything was

okay.

Based upon the interviews that we conducted, it would take weeks to move this OAC to a new excavation area due to the time required to perform the contamination surveys of the building and the equipment.

So, this wasn't something that they just kind of haphazardly did. They took their time and moved these things. This is why, over that two year period, they only retrieved 300 drums.

Part of this evaluation, we did conduct 12 worker interviews. And this is with SC&A out at the site. We interviewed two heavy equipment operators, one laborer, two health physics technicians, a health physicist, three engineers, two managers, and a scientist.

And one of the things that was from the interviews was there was a consistent response on questions on waste retrieval projects.

Everybody pretty much described the waste retrieval the same way. They all indicated there's a small dedicated work force. The work performed was with a focus on safety.

PPE was used during the -- and radiological monitoring was modified based upon the anticipated hazards. And that's evidenced from the photos there.

If you look at the IDR, those new drums that were being buried or that were being recovered, people are just wearing coveralls and a half face respirator. Around their necks is an escape device.

But then, when you got into the buried waste with very high levels of soil contamination, or dumped

waste I should say, high levels of contamination, they switched to bubble suits.

So, they were changing based upon the hazard that was being presented.

During the interviews, everyone indicated there was continuous health physics coverage of any work activities at RWMC.

They also indicated that the health physics guys were the first ones in each morning and the last ones out checking to make sure everybody was clean coming out.

There's high reliance and confidence in the health physics staff. And some of the equipment operators indicated that, and the laborers, that actually preferred to work at the RWMC as opposed to other areas.

So, this gets us to the bioassay monitoring for this particular operation. 1977 was the first round of bioassay screening program which led to a second round. And, eventually, led to a routine program there at the RWMC.

From the initial evaluation of nine workers and 16 of the 59 analysis that were performed were statistically positive at the 3 sigma level.

INL concluded that the results do not indicate any cause for alarm or a need for further modification of the program. But they felt there was insufficient data to make meaningful assessments -- assessments of dose or a judgment of the effectiveness of the contamination controls.

So, what they did was they expanded the program. They did a three-month data gathering program and

recommended based on the initial low-level positive results that all 18 RWMC workers and the 12 EWR/IDR workers were given the top priority but all of the workers would be sampled.

So, here's the results from the first round of bioassays. And what I want to point out here is that, if you look at just the urine results, there's only two positive results, one for plutonium-238 and one for americium-241.

Most of the positive results, 14 of the 16 were in the feces, a feces sampling of the workers. Okay? And they got the two -- the highest urine result was .24 DPM of americium; the highest fecal results from this initial 9 was 6.22 DPM of americium.

The highest fecal result with the expanded group in April of 1978 was 30 DPM for plutonium.

So, what kind of doses are we looking at? Oh, wait a minute, before I get to the doses, we should talk a little bit about the assumptions made in the calculations.

The highest activity that were detected in the in vitro bioassay, both the urine and the fecal, were from the americium-241.

The intakes -- so, Mitch calculated the intakes using americium-241 as the indicator radionuclide -- pardon me -- using americium-241 as the indicator and it would have been 8:1 plutonium to americium ratio.

This comes out of Table 5 of the Hanford Technical Basis Document.

If you go and you look at the ratio of plutonium-239 to americium-241, and the highest activity fecal

sample, for the largest intake, that ratio was actually 7:1 which substantiates the ratio of using 8:1 which are a little more claim favorable.

Assumed a chronic intake of Type S material, 5 micron particles, from January 1st, 1971 through December 31st, 1980, so this is a ten-year period.

Next, I'm going to show you five intakes were calculated, but the top two here were clearly larger than the rest. And the top two were both HP techs during the drum retrieval projects.

And so, here's the particular doses. And what you'll notice is the calculations were done based upon 10-year weapons grade plutonium and 20-year weapons grade plutonium.

And the reason we did both here was this would be 1978 and the waste was buried in prior to 1962 at least for the EWR waste retrieval. So, from that standpoint, you're in between 10 and 20-year-old plutonium, closer to 20-year-old.

But assuming the 10-year-old weapons grade plutonium because the americium hasn't grown in it enough at that point or hadn't grown anymore at that point, I should say.

We actually end up with higher doses based upon the 10-year assumption.

And, here, you can see that the total effective dose over the 10-year period is 300 millirem. In our program, we don't use total effective dose, we use organ doses. But these -- so, you've got bone surfaces and the lung which would be the highest organ doses for these particular intakes.

And what you can see is that Worker 1 and 2, they

had 3.4 rem and 2.7 rem, 2.8 rem, respectively.

After those doses dropped by an order of magnitude for the next three highest exposed workers. Okay? So, Worker 1 and 2, as indicated before, were HP techs that were working in there. And, as we learned from the interviews, they were first in, last out. So, these are the guys that were present there for the longest period of time and had the doses that are greater than everyone else's within there.

But, overall, these doses are really quite low. And that's from a monitoring standpoint. And that's because of the sensitive nature of the bioassay analysis that was done.

So, in summary, the solid waste retrieval test, there's no bioassays that we have for this particular group. Although, we haven't been able to actually identify exactly who did that particular work.

But there was air monitoring that indicated a few DAC for just the Pit 5 retrieval.

But they did do whole body counting for those individual workers. But, again, we are not exactly sure who they were. We'd have to go through all the whole body counts from that time period to try and identify them.

But one of the things I'd like to point out is this was done in 1971. Well, currently, we have designated an SEC class for CPP for March of 1970 through December of 1974 for all externally monitored workers.

Because, remember, this is that time period where you could wear a single badge across the entire site. You didn't have to pick up a temporary badge or anything going into CPP or any of the other areas.

So, it is possible that some people working down at the Burial Grounds could have gone up and especially heavy equipment operators or labors and worked at CPP. So, they're already part of the class here.

So, we didn't spend a huge amount of effort trying to identify who would have been involved in that in that particular operation.

We did focus on the initial drum retrieval and the early waste retrieval just to below, again this is a small, dedicated work force.

There was bioassay monitoring of the work force. We've talked with those workers. These are relatively low internal doses.

So, our conclusion is that we don't -- NIOSH does not plan to pursue an 83.14 evaluation for the Burial Ground Radioactive Waste Management Complex post-1970.

This conclusion was drawn after an exhaustive document review, bioassay data review, personnel interviews, and a review of the photographic images which clearly demonstrates that the waste retrieval projects were performed with a heightened sense of awareness of internal exposure potential due to the nature of the work.

And you can see that again with the differences in monitoring from the IDR project which was relatively clean waste that has been dug up and where people were just wearing coveralls and an escape respirator versus the full bubble suit for the areas where there was millions of counts per minute of alpha contamination.

But the bioassay data that's available on this small work force, we believe the internal dose

reconstruction is feasible at this time.

And our plan is to incorporate this information into the technical basis document so if there is somebody who doesn't have bioassay and indicates that they worked on these projects, we believe from the interviews that, like I said, this was a small, dedicated work force. But if somebody did get substituted in or out, we do feel a small coworker model based upon this bioassay would be appropriate to assign.

So, with that, I'll be happy to answer any questions.

Discussion and Recommendations

Member Beach: Tim, I don't really have -- this is Josie. I don't really have any questions, but I thought it was interesting on Slide 3, your fourth bullet said, if you needed to pursue expanding the class under the 83.14 process, you would.

And then, at the last couple of slides, you indicate that you will not be.

Why did you add that bullet on Slide 3, for what reason would you pursue 83.14?

Dr. Taulbee: Okay. Slide 3 is taken directly from a March 2017 presentation to the full Board.

And so, that was what we'd indicated then and that was the only reason that it's on there for that reason.

Member Beach: Okay.

Dr. Taulbee: Is that -- but that kind of carryover of why we did this evaluation.

Member Beach: Okay. I just found that interesting and was curious. Thank you.

Dr. Taulbee: Okay.

Member Roessler: This is Gen. So, what is the next step on this?

Dr. Taulbee: Well, our next step for this particular time period is to incorporate this into the TBD. But we're actually not going to update the full TBD until the SEC issues are all closed out.

So, this just goes on the list of us to include in there, into the internal TBD. Because, as you know, we do have a lot of other open issues that we're addressing with regards to SEC-00219 at this time.

We also have a report on the pre-1970 time period for the Burial Grounds to response to SC&A's comments on the Burial Grounds and that is under development and actually on the -- mine and Megan's desk to review.

So, that's where we are with this and going forward. Does that answer your question, Gen?

Member Roessler: Well, I was just wondering at what point SC&A would review your presentation?

Dr. Taulbee: They would review it under the TBD once that is released.

Member Roessler: Okay. Okay, yes, that answers my question.

Member Beach: So, if we agree that these are all TBD issues, is that correct? Has SC&A even looked at this time period for post-'70 for the Burial Grounds?

And is there a White Paper out for this period, Tim? Or is it just the Evaluation Report?

Dr. Taulbee: The Evaluation Report only goes

through 1970.

Member Beach: Right.

Dr. Taulbee: And the SEC only goes through 1970. So, we don't have any SEC going beyond 1970 for the Burial Grounds.

Member Beach: How about a --

Dr. Taulbee: It's just --

Member Beach: Is there a White Paper out for this time period other than your slide presentation?

Dr. Taulbee: No, there's not.

Mr. Fitzgerald: Yes, Tim, this is Joe. Good morning.

Dr. Taulbee: Good morning.

Mr. Fitzgerald: Yes, so, your mention of the pre-'70 ER work is a good segue to what I wanted to say, because I've said this before.

I think the -- there are some issues on the post-'70 which we've raised in our pre-'70 ER review which, you know, obviously, you're going to provide a response for.

But my earlier comments on that May 2017 report, we saw some questions that overlap into the post-'70 time period and something that would have implications for that period as well, in the early '70s at least. And we raised them in that report.

So, for the Work Group's benefit, the kind of issues that we would want some answers for that would have implications for the period that we just talked about, would presumably -- also would be addressed in this response that Tim and his staff have prepared

and are in final review for.

I'm not sure whether the Work Group wants to go into those now. It's sort of a chicken and egg thing. I mean, I think we would need to see what the NIOSH response is to those issues as contained in the pre-'70 ER review before we would know whether we would have an issue with this current presentation for post-'70.

And some of these questions go into things like the smear counting in the early '70s, alpha monitoring in general, the state of the health physics program, special monitoring when you're talking about breached drums. And these are all issues that we cited that go into the late '60s and may have implications for the early '70s.

So, I guess my question for the Work Group is, do you want to reserve that discussion for that response? Because, again, we will prepare a full response to whatever NIOSH prepares for that period.

And, at the same time, we can also address those issues as they apply to the post-'70 presentation.

Now, all we have is the presentation slides. And, actually, I have not been able to view those here. But assuming we can get those, we can at least include that in our response.

Again, these issues, understandably, I think, would follow forward into the early '70s as well as the pre-1970.

The first thing I would say is that the focus of the INL management with the retrieval project clearly was an upgrade from the previous Burial Ground management. And I have no disagreement that, you

know, when we're talking about bubble suits and the level of monitoring that went on with some of the high level waste retrieval, we're talking about a much different circumstance. But there were other operations in that post-'70 period which I think would still fall into the same kind of questions that we had in the pre-'70 time period.

So, I'll defer to the Work Group on how you want to address that but it might be useful to tackle some of these questions on post-'70 in the context of pre-'70, even though the post-'70 is being portrayed as a Site Profile issue. We would still want to examine that from an SEC context as part of the pre-'70 review.

So, it's certainly up to the Work Group.

Member Beach: Joe, thank you. This is Josie, again.

I agree with what you're saying. And I don't -- I mean, while I think SC&A should comment on the earlier time frame, I think there are questions in this post-1970 time frame, especially when you look at the bioassay data.

I guess I was surprised how many exposures there were even though Tim said they were low, I agree, there were still some exposures and I think that the work -- that SC&A should be looking at this now instead of just waiting for that report from NIOSH.

That would be my opinion is to look at these slides and possibly dig into the background information of this post-'70 while we're waiting for that report.

Mr. Fitzgerald: I guess, you know, Tim might want to respond, but just the back -- the information or data that backs up the presentation slides may be such that they may not necessarily be readily available in a form that he would want or NIOSH would want us

to review.

So, I guess I'll ask Tim where he sees this.

Dr. Taulbee: Well, I mean, we could provide the data to you, that's not a problem from that standpoint. But writing a White Paper which, again, we could do if that's what the Work Group requests, but it's, you know, it's an issue of resources here and focus.

Member Beach: Tim --

Dr. Taulbee: We're trying to --

Member Beach: Tim, I wasn't suggesting that you write a White Paper. I know you're answering the question for the '52 to '70. What I was suggesting is we didn't wait for you to finish that before SC&A looked at the information in this post-1970 slide presentation.

I wasn't suggesting you write a White Paper, just to be clear.

Dr. Taulbee: Okay. All right, I understand.

Well, the bioassay data, again, is something that we can certainly provide, that's not a big deal. The slides are pretty well referenced as to where we got the information from. So, and everything's in the SRDB.

So, there isn't any other areas. So, if you want to just have SC&A look at it, that's possible.

Mr. Fitzgerald: Okay, that would be fine. Just how soon, and this is always a loaded question, how soon would the pre-'70 response be available do you think?

Dr. Taulbee: I would think within the month, not March, but by the end of April. We should have that

reviewed and back over to ORAU or back over to Mitch hopefully by the end of this week but I'm not sure it's gone through a final ADC, that type of thing.

So, it probably would be about a month.

Mr. Fitzgerald: Okay.

Josie and the Work Group, I would say, yes, we can get started on the -- if the Work Group wishes -- we can get started on the post-'70 review with the provision of the bioassay data. And, you know, start digging into that. And assume that the pre-'70 Burial Ground response will be forthcoming, you know, in that, you know, little later but certainly in the same time frame.

And perhaps it would be helpful for us then to respond to the Work Group and NIOSH with, you know, with a response that address the Burial Ground RWMC as a whole. That way, we're not parsing it, you know, on both sides of 1970.

But since there are some common issues that we want to raise, and I still think would be a pretty timely response assuming we can see the other material before, say, May.

So, in real time, we could be starting to do the post-'70, include pre-'70 and have something hopefully prepared and get back to the Work Group by say 60 to 90 days. Would that be acceptable?

Chair Schofield: Yes, sounds good to me. I mean, I agree with Josie's statement that, you know, by getting started on this now, I mean, it puts us a little more ahead of the curve.

Mr. Katz: Yes, this is Ted.

Let me just check on one thing, though, Joe and Bob,

since I know there's overlap in terms of your staffing for SRS and INL.

And that's -- I don't think we would want this to get in the way of all the work that needs to get done with the heavy lift I think you have ahead of you to get SRS in shape hopefully for August.

So, can you please keep that in mind when you schedule this out in terms of, you know, where the staff that are doing both SRS and INL work.

Mr. Fitzgerald: Yes, I think, clearly, SRS has a longer history. So, when that becomes available, we'll have to give that first priority, front burner.

I still think, though, we can keep this moving with that in mind.

Mr. Katz: Yes. I'm going to -- it is available, though, right, Joe? I mean, I'm not sure what you mean becomes available. But --

Mr. Fitzgerald: Well, no, there's certainly the models are available, but the -- I don't recall an issuance on the RWP piece of this unless I missed it lately.

Dr. Taulbee: No, the RWP piece has not come out yet, but the coworker models are out.

Mr. Fitzgerald: Right, right. And we're already looking at that. So, you know, I'm -- the second piece of that --

Mr. Katz: Right.

Mr. Fitzgerald: -- the RWP, when that's forthcoming, we'll give that certainly priority. And keep the August meeting in mind.

Mr. Katz: Okay, good, thank you.

Chair Schofield: Ted, I've got just one question for you.

Mr. Katz: Sure.

Chair Schofield: As I was -- I went back over the last matrix for INL, I was wondering if we could task them like SC&A look at it and just kind of update it, where we stand with that.

I mean, we're starting to almost get this octopus approach, you know, one arm's going here, one arm's going there.

Mr. Katz: SC&A's already done most of that, I think. They've already sent a suggested updated matrix I think over to DCAS who are looking at that.

But they already spent about six weeks or four weeks of labor on just that.

Chair Schofield: All right. I guess somehow I missed that. I don't know where I missed it.

Mr. Katz: I mean, they didn't send out a note to the Work Group about this, but it was in their monthly report. So, I caught it there so that's why I happen to know that they've actually embarked on that work.

And Steve has done a lot of that work and John Mauro has been checking his work.

Chair Schofield: Okay, all right. I apologize, but like I said, I just thought we're kind of getting spread out a little bit here and where are we --

Mr. Katz: No, no apology, Phil. So, again, I wouldn't have noticed but for their monthly report.

Chair Schofield: Okay.

Dr. Ostrow: Hi, this is Steve.

Just what Ted was saying, we have done a draft set of BRS entries. I think there's like 41 for the TBD and we have a bunch for the SECs.

We finished the BRS draft and we sent it like a week ago to NIOSH to review just because some of this involves them also, their responses.

And as soon as we get a response from NIOSH whether it's okay or any corrections, we're going to post that on the BRS.

And, hopefully, going forward, it'll be easy for everybody to track where all these issues are.

Mr. Katz: Right. So, ahead of the curve, Phil.

Dr. Ostrow: We hope so.

Mr. Katz: Yes, yes, no, and thank you, Steve, for all that labor. I know it's a lot of work.

Dr. Ostrow: Okay, thanks.

Dr. Lobaugh: Steve, this is Megan.

Chair Schofield: Okay, and thanks for that update. I do appreciate it.

Dr. Ostrow: Okay, thank you.

Dr. Lobaugh: This is Megan.

I just had a question. So, Steve, what you came across was only the TBD issues?

Dr. Ostrow: That's right, before we can like to go to -- I think we have the TBD and let's see, today is Monday. Maybe by the end of this week, we'll send something similar for the SEC issues. We're keeping

the two of them separate.

Dr. Lobaugh: Separate? Okay. I'm assuming -- I believe the BRS has some of the SEC issues in there.

Dr. Ostrow: Yes, it just has for the INL SEC-00219. And what's actually written in the BRS is, it's very skimpy. I mean, it identifies the issue, but it hardly says anything, so we expanded on it to make it a little more readable.

Dr. Lobaugh: Great.

Dr. Ostrow: Anyway, you should be getting it like in another couple of days and, you know, feel free to comment on it, add to it, subtract, whatever.

Dr. Lobaugh: Great, thank you.

Dr. Ostrow: You're welcome.

Mr. Katz: And, for everyone, if they didn't catch it, I don't think a note went out about this to everybody or maybe it did, but Megan is taking over as lead for INL and Argonne West as Tim has new duties taking for Jim Neton in about a month or so.

So, are there any other questions about this work?

Mr. Fitzgerald: I guess just to clarify with the Work Group then, is that a path going forward then to get the bioassay data and to -- and the presentation slides and to begin working on that part?

Member Beach: Yes, I believe so.

Mr. Fitzgerald: Okay, then, we'll look for that from Tim and I guess the, again, the slides will be posted or can you send those over, Tim? I'd like to --

Mr. Katz: Joe, I've already sent them. I didn't send

them to you, but I definitely sent to I guess Bob and John Stiver.

Mr. Fitzgerald: Yes, I think it's at the -- I can get them to send them to me.

Dr. Taulbee: Joe, I actually sent them to you on Saturday as well.

Mr. Fitzgerald: Oh, okay.

Dr. Taulbee: You should have them.

Mr. Fitzgerald: Okay, thank you.

Dr. Taulbee: And we'll get the bioassay data over to you.

Mr. Fitzgerald: Appreciate it, thanks.

Mr. Katz: Okay, then, I think it's -- if there isn't anything else, I think we should be ready to adjourn.

Chair Schofield: Anybody got any last questions, comments?

Member Roessler: Nothing here.

Member Beach: No, nothing here.

Adjourn

Mr. Katz: So, thank you. Thank you, everyone for the both the good work, Tim, Bob, and also for the good questions everybody, my Work Group Members.

And then we're ready to adjourn. You're adjourned until we have a Santa Susana meeting at 1:00 today.

Chair Schofield: Okay, well, thanks for everybody's participation.

This transcript of the Advisory Board on Radiation and Worker Health, Idaho National Laboratory/Argonne National Laboratory-West (INL/ANL) Work Group, has been reviewed for concerns under the Privacy Act (5 U.S.C. § 552a) and personally identifiable information has been redacted as necessary. The transcript, however, has not been reviewed and certified by the Chair of the INL Work Group for accuracy at this time. The reader should be cautioned that this transcript is for information only and is subject to change.

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Mr. Katz: Yes, see you in the afternoon.

(Whereupon, the above-entitled matter went off the record at 10:56 a.m.)