U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
CENTERS FOR DISEASE CONTROL
NATIONAL INSTITUTE FOR OCCUPATIONAL
SAFETY AND HEALTH

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ADVISORY BOARD ON RADIATION AND
WORKER HEALTH

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SUBCOMMITTEE ON PROCEDURES REVIEW

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TUESDAY
APRIL 28, 2015

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The Subcommittee met via teleconference at 11:00 a.m. Eastern Time, Wanda I. Munn, Chair, presiding.

PRESENT:

WANDA I. MUNN, Chair
JOSIE BEACH, Member
PAUL L. ZIEMER, Member

ALSO PRESENT:

TED KATZ, Designated Federal Official
DAVE ALLEN, DCAS
BOB BARTON, SC&A
HANS BEHLING, SC&A
KATHY BEHLING, SC&A
RON BUCHANAN, SC&A
STU HINNEFELD, DCAS
PAT KRAPS, ORAU Team
LORI MARION-MOSS, DCAS
STEVE MARSCHKE, SC&A
JOHN MAURO, SC&A
DAN MCKEEL
JIM NETON, DCAS
STEVE OSTROW, SC&A
MUTTY SHARFI, ORAU Team
SCOTT SIEBERT, ORAU Team
JOHN STIVER, SC&A
ELYSE THOMAS, ORAU Team

T-A-B-L-E O-F C-O-N-T-E-N-T-S

P-R-O-C-E-E-D-I-N-G-S

(10:59 a.m.)

MR. KATZ: So, welcome, everyone. This is the Advisory Board on Radiation and Worker Health. It's the Procedures Review Subcommittee.

And in doing roll call, let me just discuss, since I know my Board Members are on that are going to be joining us, the ethics part of this. For any discussion about Hanford, Wanda and Josie have conflicts. So they'll be recused from any discussion, if there is any, of any Hanford matters. I'm not sure that there are.

And the same for Dr. Ziemer. Paul will be recused from any matter concerning X-10 or, I think, LANL after 2000. And I don't think there should be any matters there either, but just to cover that.

So, I don't think we need to do roll call otherwise for the Board Members. We know they're here. Let's move on to the NIOSH/ORAU Team and do formal roll call.

(Roll call.)

MR. KATZ: Okay, then the last thing to mention is that the agenda is posted on the NIOSH webpage for this meeting and any related materials that are available. And Wanda, it's your meeting.

CHAIR MUNN: Thank you much, Ted. And thank you all for being here so promptly. That's appreciated. I want to point out that Ted is operating without benefit of the Live Meeting screen today. So as we are going along, please be extra careful to make sure that you delineate exactly what we're talking about for the record, and for Ted's ability to follow where we're going.

As you all know, we're going to lose Josie at 3 o'clock Eastern Time and so we're going to try our best to get through our fairly abbreviated agenda before that time.

If we're all set to go, then I'd like to ask Lori and all of you if you have any additional comments with respect to where we are with the Board Review System right now? And thank you to Lori for getting me to it, with our upgrade on our IT, the system at CDC. That's helpful. Thank you, Lori.

Anyone have any comment with respect to where we are, and whether we need to be paying special attention to something? I think we're in good shape.

MR. KATZ: And before we do that, can we just ask everyone to mute their phones? Because someone has a lot of static that's making it hard. So, press *6 to mute your phone unless you're speaking. Then you can press *6 again to take your phone off of mute. Thanks, everybody.

CHAIR MUNN: Not sure whether that helped or not. Now, as we were saying, any comment with respect to the status of the Board Review System?

(No response.)

CHAIR MUNN: Lori has sent us a note in terms of where the NIOSH updates have taken place. And Steve, do you have any comment with respect to where we are?

Now I'm not getting any information at all. I'm not hearing anything --

MR. MARSCHKE: I was muted. I

followed Ted's advice and I was muted. Can you hear me now?

CHAIR MUNN: I can now hear you, yes.

MR. MARSCHKE: I haven't used -- to be honest with you, Wanda, I haven't really used the BRS very much recently. I don't know if Kathy has used it more recently, or Steve Ostrow, or somebody else in SC&A. But I haven't had the opportunity, or the need, to actually utilize it very much recently, so I'm not in a good position to give you much of an evaluation.

CHAIR MUNN: As long as we're getting what we need from it, I think we're fine. Anyone else with any thoughts on where we are with the BRS?

(No response.)

CHAIR MUNN: I take that as a good sign. I'm very happy with it myself. And despite the fact of our struggling now to get back to Live Meeting, I'm not quite sure what's going on there, but hold on just a moment, I'm almost back. Now I think I'm back. Yes, there's the agenda. Good. Thank you, all.

Let's start with OTIB-54. I believe NIOSH is going to talk to us about Finding 5, am I correct?

DR. NETON: Wanda, this is Jim. I'm going to lead it off, but I'm going to rely on Dave Allen for some support here, because he's a little more familiar with some of the intricacies of this issue than I am.

CHAIR MUNN: Thank you, I appreciate that.

MEMBER ZIEMER: I'm still hearing a lot of clicks on this. Are others hearing that noise?

CHAIR MUNN: Yes. It's quite bad.

MR. KATZ: Yeah, I don't know what to do other than we can all hang up and dial back in and see if that doesn't sort it out. It sounds to me like an electronic problem, like someone has a cell phone by their phone or something. I don't know what it is, but if you want to try that, we can all dial by in.

CHAIR MUNN: Perhaps that would be a good idea. It's certainly annoying and it seems to be

continuing. So, I would suggest that we all do that. Let's give ourselves three minutes, hang up, call back.

MR. KATZ: Very good.

(Whereupon, the above-entitled matter went off the record at 11:07 a.m. and resumed at 11:09 a.m.)

DR. NETON: Okay. This is Jim. I guess I'll pick up where I left off.

CHAIR MUNN: Yes, thanks.

DR. NETON: Finding 5 had to do with the use of the modification of the release fractions that were used in OTIB-54. If you recall, we modified them by a factor of ten for the fission products, the particulates, with the thinking that under normal conditions it might more accurately reflect the conditions of what was available for release.

We issued a White Paper on this in December 19th, 2014. And everyone, I'm sure, has had the chance to review. And that White Paper was a comparison to determine if one set of release

fractions was more favorable than the other. And as usual under these analogies, the answer was: in some situations, yes; some situations, no. Although the White Paper did a very good job, I think, outlining --

(Telephonic interference.)

CHAIR MUNN: Oh, who just did that?

DR. NETON: I don't know.

CHAIR MUNN: Okay, go ahead. Sorry.

DR. NETON: The White Paper didn't come to any conclusion about what we're going to do. And I suggested at that meeting that we were going to stick with the modified release fractions. And in the BRS we placed a couple paragraphs, although it only came out as one paragraph in the BRS; sometimes when you cut and paste, it takes out some of the formatting.

But, anyways, that discussion was an attempt to draw a conclusion that we were going to use the normal, the release fractions that we modified, because they're more representative of what we believe are the exposures under normal

working conditions.

It talks a little bit about that, under certain scenarios, we use fission products using gross beta results that may not be favorable. But then if you bring in the whole body counts and compare them, it would reverse the situation, make them less favorable.

So, overall, there's no one-sided way that you could use this to be claimant-favorable. And we're sticking with the opinion that, since we believe that the conditions that these are used under, which is normal operating conditions, the release fractions we've used are more appropriate.

That's sort of it in a nutshell. I guess we can discuss it from here.

CHAIR MUNN: Alright. Steve's trying to get to the finding on the matrix here so that we can read the wording that was actually placed on the record. We're almost to it.

DR. NETON: Yeah, that's it.

CHAIR MUNN: There we go. I don't think we need to read it aloud. We have it on

screen.

DR. NETON: I think I've summarized it fairly well.

MEMBER BEACH: Remember, Ted doesn't have Live Meeting.

CHAIR MUNN: Yes, I'm aware of that.

DR. NETON: I wonder if Ted can get to the BRS, though --

CHAIR MUNN: He does have the BRS. Yes. Is there any comment that needs to follow Jim's summary?

DR. MAURO: This is John Mauro. Jim, I appreciate your putting it on the BRS. And in fact, Ron Buchanan and I and Steve Ostrow read it this morning. It was very brief. And we see what you're saying and we understand the situation.

And we agree with your summary. That certainly there can be circumstances where, you know, one mix, one set of release fractions, is more claimant-favorable than the other. And I know from the previous White Paper, a very, very comprehensive analysis was performed to try to get

a grasp on those conditions, you know, what would be what?

And, you know, I guess we're really in a place where we recognize -- and Ron, please jump in also. I know that you've looked at it, and I just read your memo to me related to this. And it looks like we have a circumstance where we're not trying to do scientific research and develop some advanced methods that address every nuance of a circumstance that we encounter. We have to look for common sense, workable solutions.

I guess the only concern, if that's even a good word for it, is that if there are -- the argument that the release fractions, DOE's release fractions, versus NIOSH's release fractions, the argument that one's an accident and one isn't, certainly that's part of the mix.

I'd go as far as to say even the DOE release fractions for accidents are crude representation of release fractions. So, we're in an arena, I guess this is where, we're in an arena that it is -- the way I look at it is you can't --

it would be a mistake to try to guild the lily. I mean, you really can't do much better.

It'd be the knowledge of how these fission products will release fractions for these particulates, the rutheniums and the iodines and the cesiums and strontiums. The reality is, it's a construct. Whether you use a DOE construct or you use a NIOSH construct, you've got to pick one in order to get through the day. And there's no right answer here.

And the only place I come out is that, in the construct that NIOSH has selected, could there be circumstances where really the differences could be substantial?

I hate to, you know, keep on this case given the circumstances we're in, but the only -- I think that going from gross beta measurements in the urine and trying to reconstruct what the person might have inhaled at some point in the past is very difficult. And I have to say that you've done everything humanly possible to come to grips with this. And the release fraction issue is one of

those issues that you really can't say you know what the right answer is. There is no -- no one knows what the right answer is.

So, I'm in this difficult position to say, I don't think I'm right, but I don't think I'm wrong. I think we just have a difficult circumstance. And as long as, you know, there's a sense that there might be some circumstances where the difference in release fractions, let's say, really could be important. And I think your previous report, the White Paper that came out, may have provided some insight to that. You know, that for this particular organ, for example, a type of cancer, it really does, it could make a big difference. I don't know if that emerges from the previous White Paper. So, I mean, that's my take on where we are.

Ron, is there anything you'd like to add? Because I know you looked at it also this morning.

DR. BUCHANAN: Yeah, this is Ron Buchanan, SC&A. I have in the past worked mainly

on the workbook to see that it provided the right answer, so I was kind of on the sidelines as far as the main guts of OTIB-54.

And so I was brought in on this earlier this morning, and so I've just taken a very preliminary look at it. And I guess my question, and John has brought this up sometimes in the past, on the release fraction -- and, Jim, I guess I have this question for you or someone that knows.

We're not really contending whether the DOE fraction or the OTIB-54 fraction is correct or the best one to use. I guess my question by briefly looking at this, why weren't the release fractions based on the amount of material actually in the fuel, as opposed to assigning them all, like, .01, or whatever the number is?

It looked like that would've been more representative and not as organ-dependent. Is that an answerable question?

MR. ALLEN: This is Dave Allen. I can take a stab at that. As I recall with this entire document, the release fractions are essentially

the fraction of that isotope that gets into the air and becomes respirable. But the amount of nuclides in a particular reactor, that was based on some ORIGEN runs.

DR. BUCHANAN: Well, when we have a gross beta, let's say we've got 100 counts of beta, we divide that out, the way I understand this is done, is that iodine is part of that, and then all the others -- the cesiums and the rubidiums and everything -- are assigned an even fraction of that, where it looked like it should be assigned on the amount that's available in the normal operating when they reprocess fuel, not the accident scenario. We're not talking about that now.

And so that all, like, the cesiums and such, they would be based on what was in the fuel, rather than all assigned the same release fraction. Is that correct?

MR. ALLEN: Well, if I understood you right, then, no, it's not quite correct. Those release fractions are not a fraction of the gross

beta in the air. It is a fraction of, like, say, the cesium activity in the reactor, or the strontium activity in a reactor that is released. Those all add up to make the entire beta activity available to be inhaled. Does that answer that question?

DR. BUCHANAN: Okay, well, say you got 100 counts per minute, or 100 counts from beta activity. Is the cesium and rubidium and everything given the same fraction? Or are they based on what's present in the air?

MR. ALLEN: Well, there's a several step process, I think is why I'm not quite understanding the question. As I understand OTIB-54, what it did was determine the activity fractions of a lot of different isotopes in a variety or reactors. And then those release fractions were applied to each of those isotopes. Some release easier than others. You know, some are volatile, some are particulate.

And then what was released from each particular kind of reactor was totaled to come up

with what essentially would be a total activity. And the amount of each nuclide, the fraction of each nuclide was determined from that. I believe that's Table 7-3 in the OTIB. So I still think I'm not quite getting your question.

DR. BUCHANAN: Okay, well, I guess, if you've got 100 counts beta, is cesium assigned, like, ten counts, and rubidium ten counts, and some other ten counts? Or would cesium, if there's more of it in the air, it would be assigned 20, and rubidium five. And so are they assigned even, or depend on what the concentration would be in the air of that total beta? Because that's generally what they've been using, it seems.

MR. ALLEN: As far as from air, I believe that is Table 7-3 in the OTIB. There are activity fractions for a number of nuclides based on a strontium basis, as well as on a cesium basis.

DR. BUCHANAN: Correct.

DR. MAURO: This is John. I was thinking about this. And a way to simplify it so that you -- because when you think about all these

isotopes, and they're different; some are refractory, some aren't. Some are the high boiling point and a low boiling point. And the complexity of it and the fact that we're dealing with ratios, you know, the relative amounts of each isotope in the air, not the absolute amount.

I say, well, let's make this really simple. Let me try this out, it's a thought problem. Make believe we're working with material that is only strontium and cesium. That's it. And we know that cesium is a little bit more volatile than strontium.

And one could say, well, if you had the same amount of cesium and strontium in a lump, you know, that's sitting in front of you in a glove box. And you wanted to know, well, what do you think the relative amounts of cesium would be to strontium in the air?

Intuition would say, well, you probably, given that you started with the same amounts you know, you probably would expect the total number of the amount of activity of airborne

cesium to be somewhat higher than airborne strontium. Okay?

Now, so, therein lies your relative amount. So, but in fact what you're assuming is, no, we're going to assume they're both the same. You know, the total amount or the concentration, airborne, for both cesium and strontium are the same.

Now, let's think about two different ways. Let's think the person is inhaling some of this material. Now, by making the strontium -- you're in effect giving the strontium more weight than probably it's due. It should have lesser relative amounts than cesium. But by doing that, what happens is, and you assume they're 50-50 airborne, and you inhale that. What you're going to do, is you're going to overestimate the amount of strontium that's been inhaled. And, of course, the amount, I know you're starting with the activity in the urine.

And I would agree, right off the bat, that by doing that you're giving more weight to the

strontium than it's really due in terms of gross beta. You know, both of them are beta emitters. Both have betas, you know, and by giving more weight to the strontium than it's due, you're going to certainly overstate, overestimate the dose to both.

Then I reverse the question. Okay, so, no doubt that what you did by giving them both the .01 release fraction, I think that was the number, there's no doubt, in this little thought problem, that you're being claimant-favorable.

And if you went the other way, you know, the DOE way, where the strontium would be .001, it's less claimant-favorable when it comes to, let's say, cancers that where strontium goes to that organ, like bone cancer.

Now, let's reverse the question, then say, okay, let's say we're talking about another cancer, one whereby the dose is to muscle. And I don't know, there are, I think it's called, liposarcoma. I believe that's one of the cancers that developed in the muscle of the body. And it's

the dose to the muscle now that becomes important.

And in the circumstance that I just described, you would be giving relative -- I think you would end up in a circumstance where you'd understate the dose to the muscle tissue and the reconstruction of, I think it's called, the liposarcoma.

And under those circumstances -- see, I tried to simplify it -- you would probably not be claimant-favorable because you've given, you know, more weight to the strontium, which does not necessarily go to muscle, while cesium does uniformly go throughout the body, to the muscle.

Now, so, when I think about that simple problem, it tells me that, yes, there can be circumstances where your mix, as opposed to DOE mix in terms of the release fractions, could result in something that's not claimant-favorable.

Now, this little story I just told, which I think conceptually is easy to grasp. Is it a valid concern? Is it a good example of the challenge that we're all faced with in dealing with

these release fraction questions?

DR. NETON: John, this is Jim. I think you're going back to the original discussion we had, which is why we wouldn't use, run it both ways?

And the answer we tried to convey here is that the fraction scenarios that we're using are more typical, or more appropriate, for the conditions under which this TIB is being applied, which is things like fuel handling, dissolution, waste management operations, where the fuel has been out of the reactor for some time, and the short-lived, the gases and the volatiles that are typically short-lived, are largely gone. They're not really appropriate to be assigned at that point.

So it's the conditions under which we're using this is the issue here. Not whether one set of doses is higher for using more release for gases and volatiles versus particulate. It's about what is really in this irradiated fuel that the workers were handling?

And under the conditions for which this

TIB is applied, again, which is dissolution of materials, waste management issues, the fuel is somewhat older. It's not like in the reactor under a current flux of neutrons generating all these fissions, you know, gases and volatiles, you know, that stay there only for short periods of time.

DR. MAURO: Well, okay, so --

DR. NETON: That's, to me, the way to look at it.

DR. MAURO: And I accept that. That is, what you're really saying is -- listen, to go back to my cesium and strontium example, which simplifies it where you can sort of get your head wrapped around it. You would basically say it's not so unreasonable to assume that they would both have a similar release fraction, because they both would be there. You know, they're not going to decay away, they're not going to volatilize away, because, you know, the differences in volatility isn't that great.

But in general we know that cesium fundamentally has a lower boiling point than

strontium. But you're saying under the conditions that you're working, where it's really what might become resuspended might be more related to a mechanical process whereby you're handling the material. And as a result, it's not the temperature and the volatility of the element that's truly of concern, because the more volatile ones have gone away. I'm trying to make your argument. I'm trying to help you with your argument.

DR. NETON: You're doing good so far.

DR. MAURO: Right. So, okay, we're going to change the paradigm to say, no, no, no, the real process that's at work with the guy handling fuel is the mechanical handling of the fuel is going to result in some type of airborne radioactivity. That's going to be the controlling factor that generates the aerosols, the solids, more so than the fact that one radionuclide has a different boiling point than another radionuclide.

If that's the case you're making, I'm okay. In other words, you're going to more of a

mechanical, except for the very volatiles, everything else you're really going to treat it as if this stuff is becoming airborne.

DR. NETON: And I think we can acknowledge that there may be circumstances where this may not be appropriate, and we would deal with it on a case-by-case basis.

DR. MAURO: I'll tell you, if everyone around the table, so to speak -- see, I'm just trying to find a way to make it okay with me. And what I just described makes it okay with me because you're not working with these -- and this would be the idea. You're not working with fuel where it's so hot that the difference in the boiling point between the different elements, particulates, solids, is going to be the driver determining the release fraction.

It's going to be more likely the mechanical handling. And within that context, it makes sense to me.

DR. NETON: And it's more than just the boiling point, John. It's also the decay of these

materials. They have typically have shorter half-lives, the gases and the iodines.

DR. MAURO: Well, yeah. They're gone. What I'm doing really is I'm moving the really volatiles and the short-lived out of the picture. And you just saying, listen -- and I'm going right to the heart of the matter, in my mind. And the cesium and strontium are like your perfect example, because, you know, one is a little bit more volatile than the other. But maybe volatility is not the driver here in distinguishing what the release fractions would be. Maybe the release fractions is more along the -- for these kinds of radionuclides, which are solids, you know. And I think the boiling point for cesium, you've got to go to 600 degrees centigrade before it becomes, you know, comes off airborne.

All I'm trying to do is find a way to become comfortable with the simplifying assumptions that you've decided to adopt, so that we could create a record that shows that we've given this some thought. And, I mean, I'm okay with that

line of thinking if everyone else is okay with that line of thinking.

CHAIR MUNN: Well, our charge as a Subcommittee here is to try to identify that these issues are being addressed by the best available science. The information that I'm hearing tells me that full consideration is being given to the science that is being applied to the circumstances under which this particular OTIB will be utilized.

Unless I'm hearing something from someone that leads our Subcommittee to the assumption that this is not the best available science for these circumstances, it sounds to me as though we're near agreement.

MEMBER ZIEMER: Well, I've got one question I'd like to have clarified. This is Ziemer. Maybe, Jim, you can clarify this, and it relates to Ron Buchanan's question.

Are the actual fractions that are used -- I know you're saying the volatiles and all are gone -- are the actual fractions that are used even fractions, or are they nonetheless proportional to

be the amount of each nuclide which has been formed during the --

DR. NETON: This is Jim. I think that -- Dave, correct me if I'm wrong -- it's the fraction of the amount of radionuclides that was formed.

MEMBER ZIEMER: Which would make more sense. So you're not doing what Ron said, or suggested, and that's saying that the amount of strontium and cesium, everything is equal. It's proportional to what is actually formed in the process?

DR. NETON: Correct.

MEMBER ZIEMER: In that case, I'm fine with the proposal.

DR. BUCHANAN: This is Ron Buchanan. Yes, I agree. That was my question and that's what I wanted clarified. Thank you.

CHAIR MUNN: Do I hear any disagreement? If not, can we close Finding 5?

(No response.)

CHAIR MUNN: Hearing no objection,

Steve, will you please indicate on the BRS that the Subcommittee has heard the concerns that were expressed, and agreement was reached and the Finding is closed.

MR. MARSCHKE: Wanda, I've got this far. Could you repeat?

CHAIR MUNN: Oh, yes. Were expressed, just period. The issue is considered resolved. The Finding is closed.

(Pause.)

We're now going to Finding 9, the workbook review. I trust you have all seen Ron Buchanan's evaluation that was made available to you. Ron, I'm assuming you have this?

DR. BUCHANAN: Yes. I have this, Ron Buchanan, SC&A. I'll just give you a very brief history. The workbook that goes along with OTIB-54 had some -- we were to evaluate it and determine if it worked properly. And we had done this over the last year or so, and we found several errors. So, NIOSH has been working on that.

And we've went back and forth, and I

think at the last meeting the situation was that it worked okay, except when you wanted to use an air concentration. And then it gave an overestimate, because it gave no fractions. It just put a factor of one for everything.

And so they worked on that and then I tested it again and found out that it did work okay. And the way I did that was I -- of course, there's an infinite number of possibilities, and so I selected the three examples at the end of OTIB-54 which used a minimum processed beta, a maximum processed beta, urine, and an air concentration of cesium, I believe.

So I went through and I checked those, and they worked properly. I even went back and checked the urine ones and they worked okay. And so, at this point, I find that OTIB-54 Workbook matches the current OTIB version and had no problems with it.

CHAIR MUNN: Any thoughts or comments? If not, I am pleased to assume that we may close this item?

MEMBER ZIEMER: This is Ziemer. I agree we should close it. I reviewed Ron's paper and everything looks to be in order to me.

CHAIR MUNN: Excellent. We'll wait for Steve to finish our Finding 5 closure.

(Pause.)

MR. MARSCHKE: It doesn't seem to want to close the finding.

CHAIR MUNN: Oh, really?

MR. MARSCHKE: Lori, do you have any ideas?

CHAIR MUNN: Status says closed.

MR. MARSCHKE: Does it? It won't let me out of here.

CHAIR MUNN: The BRS says captured, Steve.

MS. MARION-MOSS: Steve, I'm not quite sure what's going on.

MR. MARSCHKE: If I go back to the main document, if I just break out and go back, it shows me that Finding 5 is still in progress. So it's not taking what I -- let's see.

I'll take an action item, Wanda, to close 5, and --

CHAIR MUNN: I think that's appropriate. Yeah, let's see if we have any better luck with 9.

MR. MARSCHKE: Want to try 9?

CHAIR MUNN: Let's try 9 to see if it's a systemic problem or if it's just something odd about Item 5.

MR. MARSCHKE: Based on the SC&A review of the -- I don't know.

CHAIR MUNN: Based on the SC&A review, the Subcommittee has closed this item.

MR. MARSCHKE: Okay, am I doing this right? No.

CHAIR MUNN: It's doing the same thing?

MR. MARSCHKE: Yes, it puts me in a loop here.

CHAIR MUNN: We'll go on to the two procedures that --

DR. OSTROW: Excuse me, Wanda. Steve Ostrow. It turns out we actually have another item

for OTIB-54. That's Finding No. 2, that for some reason, probably my fault, didn't get on the agenda. That's a short one.

CHAIR MUNN: That's what?

DR. OSTROW: It's Finding 2.

CHAIR MUNN: That's what we had originally, right?

DR. OSTROW: Maybe. Maybe I got people confused on this. This was a question -- this is about the downselect from the initial seven reactors that NIOSH was considering to the four reactors then ended up with, four representative reactors.

We reviewed their large reactor report. And we didn't have any problem with the downselect. However, we did make the comment that the OTIB didn't provide sufficient documentation on how the downselection was done.

NIOSH came out with a short White Paper, a five-page White Paper, that was attached to the BRS on April 21st, that addressed this issue. And the White Paper has two tables in it that show the

isotopic mix for fission products and activation products for all the reactor cases that were run.

And this is back-up to how they did the downselect from the seven to these four reactors that are supposed to be representative. I reviewed it, and I think that this is sufficient for SC&A to say we did our due diligence and I think NIOSH provided enough information to justify their downselection.

So I recommend that Finding No. 2 be closed.

CHAIR MUNN: Thank you, Steve. I'm sorry. I personally did not review anything about Finding 2 because perhaps I misunderstood the communications that we were having with respect to what was considered open on the OTIB.

DR. OSTROW: Yeah, I might have created some confusion on that.

CHAIR MUNN: Did anyone else on the Subcommittee have an opportunity to review that?

MEMBER ZIEMER: Well, this is Ziemer. I didn't review it, but my notes from last time

simply indicated that NIOSH was to provide summary information for item. And I guess that's what they've done here, that's what they have now. I believe it was just a matter of making sure that the summary information was practically there or available.

CHAIR MUNN: Yeah, my notes had told me that we still were going to look at that group of findings in OTIB-54 but --

MEMBER BEACH: Wanda, I reviewed a paper that -- I believe it was a NIOSH paper response to SC&A's Finding 2 on OTIB-54 Revision 1. The paper's not dated, so I know it was a recent paper, but I don't know what date it came out because I just printed it.

CHAIR MUNN: And I don't either.

MEMBER BEACH: It was on Finding 2.

CHAIR MUNN: Yeah, I saw something before I started pulling things together for this meeting, but I have not seen Steve Ostrow's paper that he's just discussing here.

Does anyone have enough concern about

this, based on the information we've just been given, that you feel additional time is needed to take a look at the verbiage? We were near enough to a resolution when we last reviewed this.

DR. OSTROW: Yeah, at the last meeting, after we reviewed NIOSH's really big report, we issued a fairly big report in response.

CHAIR MUNN: Right.

DR. OSTROW: We had no problem with the conclusions for Finding 2, we just requested some additional backup information, tables of the nuclides that they looked at. And NIOSH did that in their short White Paper.

CHAIR MUNN: I think that's what I saw. Alright. If there's any concern about our closing this now, speak now.

MEMBER ZIEMER: I think NIOSH had indicated verbally what we're seeing in writing here anyway, so --

CHAIR MUNN: Yes, we've already reviewed that.

MEMBER ZIEMER: -- if you'd rather get

that from the record, so I'm comfortable with it.

CHAIR MUNN: Josie?

MEMBER BEACH: I am too, Wanda.

CHAIR MUNN: Very good. Steve, will you please indicate that all concerns have been addressed? The Subcommittee has closed Finding 2.

MR. MARSCHKE: Wanda, I'm writing down all the changes I have to make and so I will do that once I talk to Lori and we figure out what's going on here.

CHAIR MUNN: Good. Alright, thank you much.

DR. OSTROW: So, at this point, pending NIOSH issuing another revision of the OTIB perhaps in the future, all the findings have been closed.

CHAIR MUNN: That places the entire OTIB now out of our hands.

DR. OSTROW: It's off the list now.

CHAIR MUNN: Yeah, that's good.

DR. OSTROW: Off the books.

CHAIR MUNN: Excellent. And Steve will see to that too.

Alright. Now, I hope that you all have the PROC-90 and PROC-92 information from our last meeting that you've taken a look at. We had to postpone taking a look at that because of the length of our agenda last time. I think they're relatively brief.

And NIOSH, Lori, are you going to go that? Who's doing the presentation for NIOSH on these two procedures?

MS. MARION-MOSS: This is Lori. We have an ORAU representative online. Pat, are you on?

MS. KRAPS: Yeah, Lori, I just jumped on.

MS. MARION-MOSS: Before we get started, I just wanted to remind the Committee, basically an overview of these two procedures, starting with PROC-90. I believe PROC-90 addresses our CATI process. Currently in the BRS we have several in abeyance findings that the Committee had not gotten around to closing out.

This procedure has been revised for

quite some time now where NIOSH has attempted to address the Committee's concerns and issues. So, Pat, ready to start?

MS. KRAPS: Well, just real briefly, we've revised both Procedure 90 and Procedure 92, twice since the first revision, which I believe is where the findings stemmed from.

CHAIR MUNN: Yeah, I believe they were.

MS. KRAPS: And in addition to that, based on the Working Group and comments made on the CATI script specifically, the script was revised and approved by the OMB. And the original revision to that was in February of 2010.

CHAIR MUNN: So it's been a long time since we actually debated any of this?

MS. KRAPS: Yes. So, my point being, between the revision to the CATI script, which you all went into for several months, in addition to both procedures having been revised twice since the original revision, I think we should be in good shape.

CHAIR MUNN: Good. Does anyone have

any concern? I trust everyone's had an opportunity now to take a look at the revisions and see whether anything jumps out at us. They are markedly different in several respects to the original issued document, which, as has been pointed out to us, we chewed on rather thoroughly for a number of months.

As a matter of fact, over a period of a year and a half, two years, we worked on trying to make these as claimant-friendly and as easy to follow as possible.

So, do I hear any concerns from any Member of the Subcommittee with respect to the new revisions that you've now gone through? Paul?

MEMBER ZIEMER: I'm trying to recall whether we actually did anything side-by-side to make sure that all the concerns, original concerns, were in fact taken care of.

Actually, it's been a couple months since I went through this and everything looked fine to me at the time. But I think we didn't lay it side-by-side with the old document.

CHAIR MUNN: Do you feel that's necessary?

MEMBER ZIEMER: I don't know. I'm asking the question as to whether we have any concerns about the original issues and whether we feel they were taken care of.

CHAIR MUNN: Well, I did not review each of the findings, actually. I felt that we had gone over them very thoroughly at the time that we were spending a great deal of focused energy on them. But by going through --

(Simultaneous speaking.)

MEMBER ZIEMER: So, to what extent were all -- the comments that were raised originally have been incorporated here in some way or another or addressed, as you understand it?

CHAIR MUNN: As I understand it. Have any of the SC&A folks taken a look at this?

MEMBER ZIEMER: I'm not sure they were actually tasked --

CHAIR MUNN: I don't think we actually asked them to do it. And the question arises for

us whether we feel that's necessary, do we truly deem that's necessary. I personally have not gotten --

MEMBER ZIEMER: I think this is a matter of making sure that the original concerns actually show up. That's something we can do ourselves. I'm just saying I haven't actually done it.

CHAIR MUNN: No, nor have I. Have you, Josie?

MEMBER BEACH: No. I've read the reports, but I wasn't involved originally. I think it would be a good idea to task SC&A, or to take the time ourselves to look at it, if tasking is not what you want to do. But I think we should take the time to review it.

CHAIR MUNN: Well, actually, I don't think tasking is truly called for, because what we're doing here is ascertaining that the final product, which we have in our hands now, in both cases, that the final products meets our personal requirements for what we want to see done during

these interviews. And they've been vetted through more than one organization. And they've met the requirements that we stipulated when we first started going through these.

So, the bottom line here is, unless some Members of this Committee have seen something in these revised documents that gives them pain, that does not meet the criteria for interacting with the claimants that we feel is appropriate, then, from my perspective, we're done with it.

But if anyone saw anything in either of these two that you felt was inappropriate or was not adequate, more than adequate, for the purpose it's derived, then let me know. If I don't hear anything, then it's going to be my recommendation that we close these two items on our BRS.

MEMBER ZIEMER: Yeah, these two items are actually a little different than many documents, in that these go, I think, to OMB and get approved.

CHAIR MUNN: That's correct.

MEMBER ZIEMER: And they have been

approved by OMB and are in use.

CHAIR MUNN: Yes, that's correct.

MEMBER ZIEMER: Were we to make any changes, it would require, I think, that process to occur all over again. As I said, I read through them and I didn't see anything that raised concern.

So, although I haven't laid it side-by-side with the other -- we had concerns with the original document, but I didn't see those concerns this time, so I'm comfortable with, in a sense, closing these. There were not technical issues on these. These were issues of how we interacted with the claimants. And I think I'm comfortable with the new document.

CHAIR MUNN: They're fully administrative and I, too, am comfortable. Josie?

MEMBER BEACH: Yes, reading through the documents, preparing, I am comfortable with those documents.

CHAIR MUNN: Good. Steve, will you please add these two procedures to your list of items which have now been closed by the

Subcommittee?

MR. MARSCHKE: Okay. Wanda, can I ask a question?

CHAIR MUNN: Yes.

MR. MARSCHKE: There's a number of different categories of findings here. A number of them are in abeyance, which I can close with no problem whatsoever.

Some of them, at least one or two of them, are identified as "addressed in finding." And if that's one of the findings that we had in abeyance, I assume we can close those findings as well. And then there's at least one finding that is transferred someplace.

CHAIR MUNN: Where does it say it's transferred to?

MR. MARSCHKE: And it's Finding No. 16. It says it's transferred. I don't know if there may be other ones or not. And I don't know what the Subcommittee wants to do with those.

MS. MARION-MOSS: Steve, this is Lori. That particular item is actually transferred to the

other procedure, Procedure 92.

MR. MARSCHKE: Oh, it's transferred to Procedure 92. So if we close them under Procedure 92 then we should be able to --

CHAIR MUNN: Then we're closing that item.

MR. MARSCHKE: We can close it here as well.

CHAIR MUNN: Exactly.

MR. MARSCHKE: Okay, so there would be some tracking down, I guess to make sure you know all the interconnections are correct.

CHAIR MUNN: Do we have anything other than that particular item that says transferred? Everything else, I believe, is either closed or in abeyance.

MR. MARSCHKE: We have these --

(Simultaneous speaking.)

CHAIR MUNN: The "addressed in finding," as far as we are concerned, we've already made that determination. And if we're closing the entire set of findings, then that closes

automatically.

MR. HINNEFELD: This is Stu. At least one of those "addressed in findings" refers to a finding in either another finding in the same procedure, or it refers from 90 to 92.

CHAIR MUNN: Yes.

MR. HINNEFELD: And so, I mean, I think the "addressed in findings" probably are all addressed by closing the findings in the two documents. I mean, the two are kind of related, and they relate back to each other.

CHAIR MUNN: Yes, they are. And in our parlance, addressed in some other finding literally it takes them our plate. It means when we close the other finding, they're automatically gone.

MR. MARSCHKE: Okay. So, basically the goal is to go through and make sure that all the findings in PROC-90 and -92 have been closed.

CHAIR MUNN: That's correct.

MR. MARSCHKE: And if I have any questions or anything that stumps me, I will inform

the Subcommittee.

CHAIR MUNN: Right, please do. Very good.

Now we are ready to address PER-31, I hope. And that was our carryover also from our last time. NIOSH, who has the action there?

MR. HINNEFELD: Well, I mean, we're just going to give a status report. This is Stu. We're just going to give a status report on 31.

This is the Y-12. Yeah, it's the Y-12 TBD revision. And the finding really that we're working on is the comment about in vivo results reported in units of milligrams.

And so we've been in contact with Y-12 trying to understand, get some calibration or other information that may help us understand how they made that interpretation. And we've had one back-and-forth. They provided things that were from a different era; they were more recent, so they weren't helpful.

So we're going back and there's also potential that there's some air sample data down

there that may have to replace the thorium, or that may be useful for thorium dose reconstruction -- in other words, thorium air sampling data -- that would be used in place of the in vivo which the Site Profile now describes.

So, that's kind of the nature of the finding, is that, hey, this is your Site Profile, which you've just revised, that says you're going to use thorium in vivo data to reconstruct thorium doses, but the thorium data are reported in units of milligrams, and how you going to interpret that, you know, in terms of what are the radiological components. And so that's what we're trying to sort out. And as of yet, our only status is we're still trying to get the information needed to sort it out.

CHAIR MUNN: Okay. So we really don't have any change in status here.

MR. HINNEFELD: That's correct.

CHAIR MUNN: We're still open. And are we anticipating that we'll have any change in status by the time we meet a couple months from now?

MR. HINNEFELD: Frankly, no.

CHAIR MUNN: Okay.

MR. HINNEFELD: You can leave it on the agenda and we'll report whether we have any change in status or not, but I think it would be unlikely in a couple months that we would have the results.

CHAIR MUNN: Alright. Let's see if we can continue to carry that. I will just assume that it will show up on our agenda next time and until we are able to resolve at least some portion of the concerns we have with that.

If that's the appropriate understanding, we'll just move on to PER-45. SC&A.

DR. H. BEHLING: Yes. Let me briefly ask John Stiver: are you prepared to show the different reports that Kathy had forwarded to you on behalf --

MR. STIVER: Yeah, this is John Stiver. I can go ahead -- which one do you want to pull up?

DR. H. BEHLING: Okay, the one that really is the dominant one is the document that was

issued back in March 24th, 2015. And that's really my response to NIOSH's review of the findings.

MR. STIVER: Okay.

DR. H. BEHLING: For Aliquippa Forge.

MR. SIEBERT: I apologize. This is Scott Siebert. I'm just questioning, is that report in the BRS somewhere for us to look at?

DR. H. BEHLING: I don't think so, no.

MR. SIEBERT: Okay, thank you.

MR. STIVER: Okay, Hans, the one I have is pulled up is the one you said was dated August 2014.

DR. H. BEHLING: Yes.

MR. STIVER: Okay.

DR. H. BEHLING: No, that's not the one. The original review of the TBD, which was the document that prompted PER-45, Aliquippa, I may want --

MR. STIVER: Alright. I found it, never mind. Sorry about that.

MEMBER BEACH: Hans, you said that's the March 24th one, correct?

DR. H. BEHLING: Yes. Yes, it is.

MR. STIVER: Hang on just a second, I'll get it.

DR. H. BEHLING: It was just a few pages. But I also have -- in that document, I have NIOSH's response to the eight findings and the two observations as an Attachment 1. And, John, I may ask you to at least show one of the pages which involves the Finding No. 5, which is very critical to my presentation.

MR. STIVER: Okay, can everybody see the memo?

CHAIR MUNN: We can.

MR. STIVER: Okay.

MS. K. BEHLING: Excuse me, this is Kathy Behling. Scott, would there be a way to get this -- probably not, I guess. I apologize for not posting this on the BRS.

MR. SIEBERT: That's okay, I already tracked it down. Thank you.

MS. K. BEHLING: Okay. My apologies.

MR. SIEBERT: That's okay. Thank you.

DR. H. BEHLING: This is Hans. As a quick reminder to John Stiver, I do want to also ask you to be able to prepare the page that comes out of the revised TBD for Aliquippa Forge that shows Table No. 5. Or, if you don't have that, you can use my response to that review, and it's Table No. 3. And I can give you the pages.

Either one will suffice. Table 5 out of the revised TBD for Aliquippa Forge, or, in my review of that document, it's Table No. 3, which is a facsimile or the duplicate of Table 5.

MR. STIVER: I'm not quite sure that I have that, Hans.

DR. H. BEHLING: Let me see, because that's kind of critical here. Do you have available the actual review of -- my review of PER-45?

MR. STIVER: Yes.

DR. H. BEHLING: If you do have it, it's on Page 19, and it's Table 3. Just so that you have it available.

MR. STIVER: Yeah, I just want to make

sure I've got it cued up here. Okay. There's a Table 3, annual internal and external exposure --

DR. H. BEHLING: Exactly. That's correct.

MR. STIVER: Okay, I've got it ready.

DR. H. BEHLING: And I will ask you to put that in in a few minutes.

MR. STIVER: Okay. Alright.

DR. H. BEHLING: I guess for Ted -- I don't know exactly when he said he doesn't have access to the screens. I'm probably going to be a little more careful in identifying things that will obviously be important to you to know.

So, let me start out by just giving a very, very brief piece of information regarding the background for this. In August 2014 -- and that goes to what's currently on the screen. I'll read that. "In August 2014, SC&A submitted its draft report, *A Review of NIOSH's Program Evaluation Report DCAS-PER-045, 'Aliquippa Forge TBD Revision*.'"

And in that review we identified two

observations and eight findings. If it's okay with everyone, we'll skip the two observations and really address the eight findings.

CHAIR MUNN: Absolutely, please do that, Hans. The observations are secondary for us.

DR. H. BEHLING: Yeah. In response to our findings, NIOSH prepared a document that was dated January 23, 2015, which is enclosed in this document that's being shown right now as Attachment No. 1.

During a teleconference meeting that took place with the Subcommittee on February 18, 2015, SC&A was tasked to review and comment on NIOSH's responses to those eight findings. And that is, by and large, this particular report that you are looking at right now.

Before I continue on this report, which is really the protocol for elaborating on how I propose to resolve these issues, let me just quickly go back just a little bit and give you some relevant background information.

Starting in January 1947, Aliquippa Forge was under contract to the AEC to produce uranium rods from uranium billets that had also been produced at this facility by rolling. And the rolling operation at Aliquippa Forge ended on March 30, 1949. And that's an important date to remember when I talk later on about what we are doing here and what the TBD revision really addressed.

But the AEC contract, although the rolling operation ended on March 30, 1949, the AEC contract ended only in February 28th, 1950. And that again is a critical date to remember.

For dose reconstruction, NIOSH assumed that the residual period extended from March 1, which is the day after the AEC contract ended, and extended from March 1, 1950 through December 31st, 1987. And a second period from January 1, 1989 to December 31st, 1992.

So you have, in essence, a year missing in those two periods that are considered residual periods. And the importance of that is that in 1998, beginning in 1998, the storage activities

began in Building No. 3, which is really critical to this whole PER-45.

And it was in Building 3 that was essentially used for the rolling operation and the likelihood that residual contamination might remain at elevated levels during the residual period.

And I will briefly read something quickly here from the TBD. Again, a few statements that are critical to this whole issue of my review. And on Page 15 of the TBD I quote the following: "Interim remedial actions were taken from October to December of 1988 to enable additional restricted use of Building 3 for expansion of a small forging operations." So they continued doing some work there in Building No. 3. "And the controlled areas were established to prevent access to contamination." So they realized there was contamination in Building 3 in 1988.

And the scope of the remediation action that took place in the later part of 1988 was also described on Page 22, Section 5, of the TBD. And

they state the following: "Interim remedial activities were conducted by BNI in 1988 by removing contaminated materials and equipment and placing a barricade around the remaining contaminated area. DOE noted that access to the contaminated areas was not allowed."

In subsequent Page 24, the TBD also states the following: “In addition to general exposures from residual contamination, two cleanup efforts, one in 1988 and the second one starting in 1993 to 1994, were performed and could result in additional exposure. The 1988 effort was limited to Building 3, and occurred in November and December of 1988. Vacuums were fitted with high-efficiency particulate air, HEPA, filters to clean the floors and walls. Contaminated bricks and soil were removed as necessary. In addition, respiratory protection equipment was used to reduce the likelihood of inhaling contaminated particulates. Further, workers were required to wear lapel air monitoring that were analyzed every 24 hours.”

And then it goes on to say that the decontamination techniques that were applied in 1993 and 1994 were much more aggressive than in 1988. In addition to HEPA vacuuming, which was the main method for 1988, mechanical shot blasting, concrete saws, jack hammering were employed, et cetera, et cetera.

So the point here is that there was a preliminary or interim remedial action taken in 1988 that, as I've just described, involved decontamination of walls and floors, removal of certain equipment, materials, and also vacuuming and removing soils that could be removed with limited effort, not by means of jack hammering, et cetera.

And that's important because one of key elements in my findings was the issue of the 1988 cleanup activity that were not necessarily considered in terms of the methodology that was used to approach the effort to establish internal and external doses for the residual time period from 1950 through the 1990s.

So, anyway, from the foregoing statements, SC&A concluded that, one, the interim remedial action of Building 3 may have allowed Building 3 to be released for at least a limited scope, not unrestricted use, but for restricted use only. But also may have also been less than the extensive contamination that was taking place in 1992 and 1993.

So, from what I could divine from these statements, was that the interim remedial activity may have resulted in some reduced contamination activities as was measured in 1992, which is a very important point in time.

Also the removal of contaminated equipment may also reduce the external dose rates. And this will obviously be an issue that I'll discuss in a few minutes.

So, let me do something here. John, if you could identify Table 5-1, or Table 3 in my report -- I think you said you had Table 3 from my report -- and bring that up.

While we're waiting for John, let me go

back and say, our review, or my review, of the revised TBD for Aliquippa Forge identified eight findings, I'd already mentioned. And that all of these findings related to assumed model parameters and methodologies used by NIOSH to devise annual internal exposures from inhalation and ingestion and external exposures from both penetrating and non-penetrating exposures as a result of residual radioactivity that may have remained between the time periods of 1950 and 1995.

So, when you look at Table 3 here, which is by and large the same table that appears in the TBD, you will see four columns that start with 1950 and go all the way into 1995.

And the first column is the derivation of internal exposures resulting from inhalation. And you see, obviously, the metric there is picocuries uranium per day. The second column is ingestion of the material which is due to the inhalation by a constant. And the third and fourth columns involve penetrating exposures in rem, and non-penetrating from beta radiation.

And so this is really the entire revision of the TBD, because it's strictly confined to the issues of the residual time period that starts in 1950 and extends into 1995.

And so at this point, John, I would probably ask you then to go back the report that I wrote, and stay with Page 1 at the bottom because I want to point out a couple things there.

When I looked at the findings and assessed them, all but Finding No. 4 are really linked to two things. And they are at the bottom of the page: NIOSH's derivation of the starting air concentration that NIOSH defines as 0.211 dpm per cubic meter in 1950. And, two, the use of this value for deriving a source term depletion rate of 1.15 times ten to the minus four per day.

And those are the two critical findings that I believe NIOSH, at this point, is going to concede based on their response to the eight findings that I had identified.

The reason why they are likely to resolve all of the issues is the following. If we

go to the next page, you will see the methodology that NIOSH used. And here's the crux to the issue.

On top on that page, I will read for those who may not have access to the screen. After the end of AEC rolling operations, a July 1949 survey was performed. The survey indicated that the maximum air dust concentration, taken during normal operations in the furnace area, was 5.9 micrograms per cubic meter, which translates to 8.94 dpm per cubic meter.

Now, when I looked at that data and I looked at the actual document from which those numbers came from, I came to a very different conclusion that NIOSH did originally in their write-up. I realized that that value was likely to represent an air concentration that's representative of the residual period. This is in contrast to what NIOSH assumed.

They assumed that this was still part of the operational period, and they in essence then decided to start the assessment process by deriving an air concentration that was based on a very

different number. They actually then used the number of 8.94 dpm per cubic meter, and then decided to actually allow that number to represent an operational air concentration value that would then be allowed to exist for a period of one year, settle to the surface, and then by means of resuspension factor, that is -- I'm now in the second paragraph there.

Actually, by a deposition velocity of 0.00075 meters per second, remain there, and then using a resuspension factor of one times ten to the minus six per meter, came up with a derived air concentration that was identified in that line there that says 0.211 dpm per cubic meter.

So in essence they start out by assuming that, in 1950, the air concentration based on the original value of 8.94 dpm per cubic meter, but not using that number as an air concentration, but deriving an air concentration by assuming that that activity was settled for one year, allowed to stay on the surface, and by means of a resuspension factor they came up with a value that was 42-fold

lower. And in the process, they used that as their starting point.

And then as a back-end, they went, as you go further down there, they derived a 1992 value by using a survey measurement that started out at 350 dpm alpha per 100 centimeters squared. And then, again, converting the activity to per meter squared, and then using the same resuspension factor one times ten to the minus six, came up with the conclusion that in 1992 the air concentration was now at a value of 0.035 dpm per cubic meter.

So, now you have essentially two data points. One that derived in 1950. And as I mentioned before, again, you can look at the Table, the starting point of air concentration 1950 was 0.211 dpm per cubic meter. And in 1992, by way of a contamination level, they derived an air concentration in 1992 of 0.035 dpm per cubic meter.

So, using these two points, they derived a source term depletion value -- which is now towards the bottom of that paragraph, and I highlighted -- at 1.15 times ten to the minus four

per day. So, using two air concentrations, one in 1950 and one in 1992, they derived the depletion rate, source term depletion rate, and then calculated the air concentration that would have existed, based on these two data points, between 1950 and 1995.

And that is what John showed you earlier, Table 5-1 in the TBD, or Table 3 in my document.

Well, as I said, when I looked at the data, I came to the conclusion that that potential air concentration in 1950 should have been 8.94, rather than 0.211, or 42-fold higher.

And so not only -- and we can go now go to, in fact, John, if you can show Page 4 of Attachment 1. It's NIOSH's response to Finding No. 5.

(Pause.)

Now let me locate, there it is. Okay. Finding No. 5, for those -- I won't read it, unless the court reporter would prefer me to read it, but I'll assume everyone can see this. The Finding No.

5 is my finding that says I personally believe that the starting air concentration for 1950 should have been 8.94 dpm per meters cubed.

And to that, obviously, you can read NIOSH's response now that says we agree. And if anyone wants me to read it for the record, that's fine, but for those that have access to the screen you can see what NIOSH's response is. And I'll give everyone thirty seconds to quickly read it and convince themselves that my finding was obviously approved.

CHAIR MUNN: Yeah, the key sentence there is the last one there. NIOSH considers the 1949 air sample itself representative of the start of the residual period and will revise the Site Profile to use 8.49 dpm per meter squared as the starting point for the residual period.

DR. H. BEHLING: Yes. And now the concession really is not just the fact that the starting air concentration has increased 42-fold, but also the fact that you now have to realize that the source term depletion value that was defined

for the lower value has now to increase obviously, too. Because you're now going from 8.64 dpm as a starting point down to the value in 1992, which means that there is a much increased change in slope of the linear loss of activity that defines the airborne concentration.

So, by default, by virtue of accepting that particular value, my starting value, you also have to agree to the fact that, with the new starting air concentration, you will have to also change or revise your source term depletion value.

And that's very critical to this whole issue here, because it affects all -- the entire Table 5-1 now has to obviously change, because all of these values are driven by the air concentration between 1950 and 1992. And that involves the inhalation dose, the ingestion dose, internal ingestion dose, and the external expose to penetrating and non-penetrating, because they were linked.

For penetrating radiation, the starting point -- or the point, really, of value

that became part of Table 5-1 was the dose rate that was the maximum dose rate that was established in 1992. And then that was back-extrapolated by the same source term depletion rate that now has to change.

So that in essence, between accepting Finding 5, and the need to revise the source term depletion value in accordance, you've changed all four dose estimates of Table 5-1, from internal inhalation, internal ingestion, external penetrating, and external non-penetrating.

Now the only thing that remains an issue that I had identified as a finding was the fact that NIOSH had not addressed the issue that the 1988 interim remediation action has impacted both the air concentration that they derived for 1992 as well as the highest maximum external exposure rate.

And I have conceded that we may not be a position to make a change. In other words, if the 1988 remedial action had actually reduced the source term contamination levels that became a major component in deciding what the residual air

concentration would have been for 1992, as well as the dose rate, I can't provide you with any guesstimate as to what the change would have been.

In other words, by accepting 1992 which I'm going to do, we're probably essentially underestimating the air exposures that were now believing as 1992 would have potentially been changed by realizing that in 1988 the remedial action did in fact cleanup some of that activity. That if that 1988 decontamination actually had not taken place, we would have observed both a higher air concentration and residual contamination levels for external, but we can't really look back and make a change to that.

And so we'll accept the 1992 value and linearly extrapolate, straight down, without stopping at 1988 and saying maybe that would have been a higher value up to 1998, rather than defaulting to '92 without considering the changes introduced by 1988.

So that's pretty much what I'm proposing to do here if NIOSH is willing to accept

the fact that the starting air concentration is 42-fold higher than the one then had issued.

And then using that higher air concentration for 1950 and revising their source term depletion rate, I think we will end up with changes to Table 5-1 in all four categories that I believe could probably turn out to be a favorable change and resolve the eight findings that I identified.

As I said, the other finding on the last page of my write-up addresses briefly the issue of Finding No. 4, which I had identified as maximum concentration that was observed in the same document that established the 8.64 dpm per cubic meter of air concentration.

And that was a measurement that was taken during the clean-up in 1950. And was confined to a sweeping activity in a specific location. And I'm going to concede that that's possibly a number that's real, but it is an episodic event that may not apply to the air concentrations that would have potentially affected the people

during residual periods.

So I feel that Finding No. 4 can be looked at, as the highest value observed, but it's not necessarily an activity that is a continuous activity or an activity that is throughout the building so I withdraw Finding No. 4.

CHAIR MUNN: Okay. NIOSH do you have a comment with respect to Finding 5?

DR. NETON: This is Jim, we have no problems with making the changes we indicated to Finding 4, and also the corresponding changes in the depletion rate, and subsequent doses that are estimated.

It was clearly just an error on our part, you know, interpreting that sample. This was listed as an operational air sample, it might have been taken during uranium operations, when in fact it wasn't. It was taken after clean-up had occurred.

So Hans is right, we're going to make those changes.

CHAIR MUNN: All right. In my mind,

that puts Finding 5 into abeyance.

DR. NETON: Well actually, I thought all of them went into abeyance.

CHAIR MUNN: And withdraw Finding 4. The others can all go into abeyance.

DR. H. BEHLING: As I said when I looked at Finding No. 4, it was just an observation I made when I tried to verify that original number of 8.64 dpm per cubic meter. And then I identified that 180 was just very, very high, and an increased number of course.

But I also concede and I agree with NIOSH that that would probably not be appropriate to apply here because it's too episodic with floor sweeping, and it's not likely to really affect the air concentration and the doses received in the residual time period.

DR. NETON: Yes, maybe we could close Finding 4. And then put the other findings in abeyance.

CHAIR MUNN: Yes, we will close Finding 4, as having been withdrawn. And we'll indicate

that the others are in abeyance and that NIOSH will revise the original document accordingly.

DR. NETON: Sounds good.

CHAIR MUNN: Any problem with those instructions to do? Steve.

MEMBER ZIEMER: This is Ziemer, I agree with that, also thank Hans for his work in clarifying these issues.

DR. H. BEHLING: I realize this is somewhat complex and I was hoping that these people could following the basic narratives in explaining why I think this could be easily resolved. And I think NIOSH's willingness to concede the air concentration in 1950 really let the door open for resolution of all the other findings.

CHAIR MUNN: I certainly appreciate that. Josie, do you have any comment?

MEMBER BEACH: No. No, I agree with the discussion.

CHAIR MUNN: All right, very good. I'm assuming Steve will work with getting the appropriate wording with that onto the BRS after

we find out how we can best do that.

The question now is whether, I think we will go ahead and break for lunch right now. We're a half hour ahead of schedule and that's very good. We'll probably need that half hour this afternoon. Can we split the difference here and give ourselves and almost 45 minute lunch break instead of either a 30 minute or a one hour one?

We don't want to take the full hour because of the time limitations we have on our closing time. But if we can go until 1:15 return time. Is that agreeable to all concerned?

MEMBER ZIEMER: Ziemer here, does that give Josie enough time?

CHAIR MUNN: Back from lunch at 1:15, that will still give us, yes. Josie's going to be with us until 3 o'clock your time.

MEMBER ZIEMER: Well, thanks.

CHAIR MUNN: So eastern time. Is that correct, Josie?

MEMBER BEACH: I actually have until 3:15, so.

CHAIR MUNN: Okay. So that's good. I think we'll be in good shape. If we'll return at 1:15. All right.

MR. KATZ: Sounds good, thanks.

CHAIR MUNN: Thanks, much. Bye-bye.

(Whereupon, the above-entitled matter went off the record at 12:36 p.m. and resumed at 1:18 p.m.)

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

(1:18 p.m.)

CHAIR MUNN: Then let us begin our deliberations this afternoon with PER-43. We have, my record says we have three findings outstanding. And NIOSH.

MR. HINNEFELD: Jim, do you have that one?

DR. NETON: I'm sorry, yes. I was daydreaming here.

CHAIR MUNN: That's good, I'm glad somebody can.

DR. NETON: Can we bring up our responses on the BRS? We did provide, I think there were two findings on this one?

CHAIR MUNN: Well, I show three, but maybe there are only two.

DR. NETON: I'm pretty sure this one has two.

DR. H. BEHLING: No. There's three, this is Hans Behling. There are three findings.

DR. NETON: Okay, well, we'll bring

them up then.

DR. H. BEHLING: Although, Jim, the first two findings are interrelated.

DR. NETON: Yes.

DR. H. BEHLING: So you could consider two findings, because finding one and two are linked to each other.

DR. NETON: Right.

MR. MARSCHKE: Which finding do you want, Jim?

DR. NETON: The first one.

MR. MARSCHKE: The first one is closed.

DR. NETON: Oh, what am I looking at then?

MS. MARION-MOSS: Well, the first finding, this is Lori. The first finding is two, in the BRS.

DR. NETON: Okay, well, maybe there are just -- well, okay, can we bring up the response? I think there's a response in there, it's pretty short, I believe.

CHAIR MUNN: Yes, I think Lori posted

those, I believe --

DR. NETON: Yes, but there is a response. I thought we had a response in here for this?

MR. MARSCHKE: That's the response. DOE, DOL has the authority to specify cancer, NIOSH does not.

DR. NETON: It's so short, I couldn't see it. It seems a little bit abrupt but really this is a very complicated case because this is a PER that was bringing back cases because some of the organs that had to be reconstructed based on ICD-9 code had changed.

One of them was, this particular ICD-9 classification of [identifying information redacted], which is [identifying information redacted], primary cancer of the [identifying information redacted]. The new TIB says, it should be reconstructed for any [identifying information redacted] surfaces. And keep in mind this is, [identifying information redacted] is a primary cancer.

Department of Labor sent this over incorrectly, with a designation of [identifying information redacted] as a primary cancer. When in fact it was actually a secondary cancer from the original [identifying information redacted] cancer, the primary [identifying information redacted] cancer that was identified previously.

So in reality, this case should not have been forwarded up for dose reconstruction, except that the secondary cancer of the [identifying information redacted] qualified this case for compensation under Part B, as part of the SEC for this site.

If it sounds odd, but secondary [identifying information redacted] cancer is qualified, it's a qualified cancer hidden under the SEC in this program. There are reasons for that I won't go into, but it is.

So the second time this was sent over for dose reconstruction, was really not to see if it deserved compensation under the Part B for $150,000, but if the case also now qualified for

medical benefits since it was already in the SEC.

Again, they sent it over as a misidentified [identifying information redacted], even though it was clearly a metastatic cancer. I'm not sure what the fix is for this though. Again, we don't make these calls. We do make every effort to identify, you know, cases where there's a clear disconnect.

In the PER process it was done correctly. It picked it up as a [identifying information redacted], and reconstructed as [identifying information redacted], and it still wasn't compensable for medical benefits at least under the program.

So I've racked my brains here. I'm not exactly, I understand the nature of Hans' finding but I'm not sure what corrective action there would be on something like this.

DR. H. BEHLING: Can I make a comment here, Jim?

CHAIR MUNN: Please do.

DR. H. BEHLING: The reason I mentioned

it, it goes back to my write-up here that involves Exhibit 3, and Exhibit 4 on behalf of this finding.

And Exhibit 3 was part of the record, and it was written by Dr. Ronald E. Goans, who was the medical reviewer in Exhibit No. 3. I don't have it up on the screen here for people to see, but I'll read it for you where he writes in the memo, and this was dated April 6th, 2011.

He says, "I have reviewed claim [identifying information redacted] and supporting documents. In NOCTS we have the following notations." And he goes on, "In my professional opinion, the [identifying information redacted] tumor metastatic to [identifying information redacted] is a secondary metastatic tumor, undifferentiated from the primary [identifying information redacted] tumor of the [identifying information redacted].

I think the ICD-9 code for the primary appears to be correct and I have not tried to change the ICD-9 code for the metastatic tumor. I will be happy to do so if you choose, but I generally

do not change ICD-9 codes on my own."

In Exhibit No. 4, this was --

DR. NETON: Well Hans, can you stop there for one second? I think you're under the impression that this was a DOL physician?

DR. H. BEHLING: I have no idea, but he was --

DR. NETON: Actually he was a contractor.

DR. H. BEHLING: Well I don't know who he is, but he was obviously the medical reviewer.

DR. NETON: Well he's our internal medical reviewer, because when this case was originally reconstructed, the [identifying information redacted] required an internal medical review.

DR. H. BEHLING: Yes.

DR. NETON: Not to determine whether it was metastatic or not, but to determine which part of the [identifying information redacted] would be reconstructed.

DR. H. BEHLING: Okay. But in Exhibit

No. 4, it was a note to reviewer, and I'm going to ask a question here. A person by the name of Jodie Phillips on April 7th, 2011, writes the following. "Note to reviewers. Based on the email from Dr. Goans stating, the [identifying information redacted] tumor metastatic to [identifying information redacted] is a secondary metastatic tumor, undifferentiated from the primary [identifying information redacted] tumor of the [identifying information redacted], the internal organ applied to the [identifying information redacted] was the same as that applied to the [identifying information redacted], i.e., [identifying information redacted]." And so my question is, who was she? Who's Jodie Phillips? Is she DOL?

DR. NETON: A program constructor.

DR. H. BEHLING: Oh?

DR. NETON: Yes, someone on our dose reconstruction staff. She followed Goans' advice saying, I'm going to calculate this as a [identifying information redacted].

DR. H. BEHLING: Okay. So why was it given the [identifying information redacted] ICD-9 code?

DR. NETON: Well, that was incorrectly applied by the Department of Labor.

DR. H. BEHLING: Okay. I mean, I just looked at that, and I said this is something that needs to be looked at.

DR. NETON: Yes, I understand what you're saying. And in all reality, this case should have never been -- well, it should have been sent back and said, we're not going to reconstruct a secondary cancer.

If it was properly sent over here as a secondary cancer, with a secondary cancer ID, we wouldn't have reconstructed it. It wouldn't qualify for another reconstruction.

But Labor identified it incorrectly even though they recognized it was metastatic, they coded it as a [identifying information redacted] primary [identifying information redacted]. And that's how the PER was carried out correctly.

Now I do acknowledge there's an error here. But I'm not sure what the corrective action is in this situation.

CHAIR MUNN: I think what's being said is, whether there is or is not an error in terms of the ICD-9 code, this is established by some authority other than ours.

And we have no authority to change what that authority has chosen. We have to assume that to be the bottom line with what we have to deal with. That's my interpretation.

DR. H. BEHLING: And I agree Wanda, but you know this is not the first time I personally have identified issues that involve the DOL, and we've been told this is outside of our purview.

But I think in some instances, I believe Ted has taken upon himself to notify them and say, there is an issue here that you may want to look at. We can't resolve it for you, but if you agree with our concerns, you may change something. We've done that obviously several times in the past.

MR. KATZ: Right, Hans, that's correct. I just, the one thing I'm unclear about is to whether that is, there's any appropriate action to take here is, would it matter anyway?

DR. H. BEHLING: There really won't. Ted, no it would not matter because the chances are it would reduce the PoC, because --

MR. KATZ: Right, that's what I thought I understood, thanks Hans.

DR. H. BEHLING: Yes.

MR. KATZ: So then in this case there is no reason to communicate with DOL about it. There's an error in the system, but it's not of any practical significance. I think now that we understand the whole mess, I think you can just close it because there's nothing, there's no remediation to do that might help the claimant.

DR. H. BEHLING: No, there isn't, as I say they had an initial PoC for this that went significantly up to 35 percent and had the revision not been introduced, we would have stayed with the original PoC which was much, much lower.

So no, there's nothing you can do at this point other than to maybe say, there's an issue here that may affect other cases as well, and I think maybe the medical reviewer involved in this maybe we should be more careful about acknowledging the change or whatever his recommendation was to change the ICD-9 code.

MR. KATZ: Yes.

CHAIR MUNN: But even --

MR. KATZ: The medical reviewer was internal, so that's a NIOSH business, but seems like then really you could just button up, there's nothing more to do here.

DR. H. BEHLING: Yes.

CHAIR MUNN: I believe that to be the case. Paul, do either you or Josie have any contrary view?

MEMBER ZIEMER: It seems like it needs no further action. I think we just close it. Understand there wasn't but there could have been an issue particularly if it had changed the outcome, but I think we let it ride.

MEMBER BEACH: Yes, I'm fine with that too, Wanda.

CHAIR MUNN: Very good. This being, I'm assuming we have not automatically resolved something marvelous with respect to the BRS over lunch time, and so we will add to Steve's charge following our meeting to indicate that agreement was reached that we have no authority to change ICD codes, and the item was closed, Finding No. 2 was closed.

And we go onto Finding No. 3. Who has the action with No. 3? We in both cases, I think we were expecting a response from NIOSH.

MS. MARION-MOSS: Jim, this is for the same case I believe.

DR. H. BEHLING: No, I think we're still on the last one here, we have to go one step further. This is PER-043-04 Subtask 4, is the response from NIOSH.

CHAIR MUNN: Oh, so I'm in error, it should be --

MS. K. BEHLING: Excuse me, this is

Kathy. There's two additional ones I believe, no?

DR. H. BEHLING: No, there's just the next one. It's PER-0043-04 that --

MR. MARSCHKE: What happened to 03, Hans? The reprogram one --

DR. H. BEHLING: I think we just took, yes that was, that took care of that one.

MR. MARSCHKE: Both of them? Two and three?

DR. H. BEHLING: Two and three, yes. There were as I said up front, you know, the Finding No. 1 and two, that I had were linked to each other. That says there was an error here in the assignment of a metastatic cancer for a revision.

And the Finding No. 2 if the intent that metastatic cancer be recognized as such, there wouldn't be a need for a dose reconstruction. So the two were, Finding 1 and two in my write-up were essentially linked. And I think Jim needn't address those two together.

DR. NETON: Right. I'll agree with that. Okay, this next one has to do with a medical

review in the new TIB that, I think it was for [identifying information redacted] cancer, it's [identifying information redacted]. And could either go [identifying information redacted] or [identifying information redacted] cancer, I think is what that was. And we selected [identifying information redacted] in this case.

I think it said a medical review should be done. And our position was that in the PER process, it's expedient to just, if you can do the dose reconstruction with the [identifying information redacted] which produces a higher PoC and the cancer is still below 50 percent, there's no need to stop the process and go get an independent medical review to move the case forward. And that's basically what we've done here. So that's our position.

(Simultaneous speaking.)

DR. H. BEHLING: Yes. Can I comment on that? As I said, I sort of get, I agree with you if it had gone over 50 percent you would have had another review of this process, but is that a

guarantee?

In other words, you know, SC&A's not necessarily always saying let's go for the highest dose, if it's not the correct dose or the correct PoC. I looked at this and I looked at the [identifying information redacted] that was there to essentially provide the constructor to say get a medical review if necessary, if they're surprised.

And in this case I decided that it was warranted because it looked like an [identifying information redacted] type of cancer based on what I see. And in your response, you sort of said first, NIOSH disagrees for several reasons. SC&A has no indication that a medical review would have resulted in [identifying information redacted] -- well, we don't know that until you have a medical review.

So your opinion that we don't know if it would have changed anything, of course we don't know but a medical reviewer's purpose is to identify the most appropriate organ that is

potentially subject to the evaluation of the dose.

And secondly, when you say, while SC&A may emphasize the phrased, appropriate internal organ in [identifying information redacted] of OTIB-05, NIOSH would like to emphasize the word, should. This word indicates it's not necessary in every situation to obtain a medical review, as the case here.

Well, you know, I looked at -- I'm very sensitized to the issue of shall, and should, as it's usually written in various documents. And first of all I consulted the American Collegiate Dictionary that says the word, should, denotes duty, proprietary, and expediency. Also it gave a synonym and the synonym for should in accordance to the American Collegiate Dictionary, is the word, must.

So that when you look at again, the definition of must, it in turn says, "To be bound by some imperative requirement, to be obliged or compelled to do something." And then I went further because I'm very sensitive to the DOE

documents that use the word should, shall.

And in looking at the DOE documents, that is the DOE radiation manual that actually has a very extensive citation of the meaning of should. And I can read to you the wording that occurs in the DOE RadCon manual that says, "The word should, means the contractor has the responsibility of either following the provisions or demonstrating technical equivalency by an alternative solution."

In other words, unless you have a reason that is a very strong worded reason why your approach is superior to the compliance of directives, that says, or uses the word, should, you should not simply ignore it.

And so I looked at that and both on the basic of definition, I sort of think perhaps the medical review of this case should have been conducted. That would have potentially eliminated the whole concept of using the liver as a higher dose and higher PoC value.

DR. NETON: Well, I think we need to look back to the reason -- what's the purpose of

the PER? Is to have the Department of Labor to send back any claims that would go over 50 percent given the change in a procedure or document.

In this case, it was very easy to triage this and demonstrate that the case did not need to be sent back, by using the [identifying information redacted] instead of going out and getting a medical review to come back with a lower PoC value.

But I think it's just part of the process here that, you know, there's no reason to go and get the medical review. The purpose of the PER had been fulfilled using the higher organ dose. I mean, the point of the triage of the PER is which cases need to come back? This case, it was decided, didn't need to.

DR. H. BEHLING: Now, I guess I wasn't aware Jim, that the medical reviewer first does the higher organ dose to calculate dose in PoC. And only if it's over 50 percent is there a real need to reassess that, to determine whether or not the right organ had been in fact identified?

But in fact it could have been

[identifying information redacted] which would have meant you would have had to go through the process all over again.

MR. HINNEFELD: This is Stu, can I offer something here? If this case had come to us for dose reconstruction, then that's what we would be under. If this was a dose reconstruction report, then we should certainly have gotten a medical review.

Because even, we don't want to say it's an overestimating approach to use [identifying information redacted], and then a guy gets another cancer. And then have to explain later on, we really shouldn't have used [identifying information redacted].

So, had this come over for dose reconstruction, we should have gotten that review. That's not why it came over. It came over for us to determine if there was a chance this could exceed a greater than 50 percent PoC, given our change in dose reconstruction approach.

If that's the reason it came over, it's

perfectly fine to say, well, what's the highest dose, and therefore highest PoCs? What's the highest PoC this thing could have? And if that comes out less than 50, then you can say we don't need it back. And we don't need a medical review.

So there's a different thought process since this came over as a PER consideration, compared to whether, if it came over for dose reconstruction.

DR. NETON: I might just mention that it really didn't come over to us. I mean, this was --

MR. HINNEFELD: No, I understand that but that's why we were looking at it.

DR. H. BEHLING: Okay, yes I agree. Now that I understand this fine point that you just made about, that if it was a straight dose reconstruction, or forwarded as a result of a PER. I didn't realize that there is a difference in your obligation to engage a medical reviewer under those two different conditions.

MR. HINNEFELD: Yes, I think we don't

write it that way anywhere, but from our standpoint it's clear to us that if our objective in looking at the case for a PER, and say is there any way this case can go over 50 percent? And, you know, the potential organs that could be a target organ. If the one that gets the highest PoC doesn't put it over 50 percent, then there's no need to use up the time and the project's money sending a medical consultant to look at the case.

CHAIR MUNN: Good. Can we say that SC&A accepts NIOSH's explanation and the finding is closed?

DR. H. BEHLING: This agrees with me.

CHAIR MUNN: All right. Any objection, Paul?

MEMBER ZIEMER: No. I can live with that.

CHAIR MUNN: Any objection, Josie?

MEMBER BEACH: No, none here.

CHAIR MUNN: Fine. Then after the fact, we will do so. Are other people having trouble with your Live Meeting? Or am I the only

one whose screen has not been functioning properly?

MEMBER ZIEMER: I'm seeing okay.

CHAIR MUNN: It looks like I've gotten it back now. But I had it lost for quite a while. Okay, very good.

Thank you. That closes our outstanding findings on PER-43.

The next item I have listed is PER-52. My notes say we have Findings 1 and 2. Should have responses to them. Hold on while we pull up the PER-52, Finding 1.

MR. MARSCHKE: Okay.

CHAIR MUNN: Reading?

DR. NETON: Okay, this relates to guidance for adjusting intakes based on partially monitored versus completely monitored. I think there was a little misunderstanding on SC&A's part, as to what we were talking about and I think it's completely understandable.

If you look at the, what is this, OTIB-54? No, PER-52, if you look at that, the document that assigns internal dose, there's a

table that is based on gross alpha in air, gross alpha air samples, that assigns intakes by year to workers.

And that is, the table said, it should be assigned to workers who were unmonitored. And that's true. However, this site had a unique situation where there's three potential radionuclides that they could have been exposed to, uranium, thorium, and plutonium. And remember that we only have gross alpha in air.

So let's say for example, a person has monitoring data for uranium, then we would use that bioassay data to calculate an intake in picocuries per day, and assign that intake based on the monitoring data.

And then take the difference in the 95th percentile gross alpha air sample, between the 95th percentile gross alpha in the table, subtract the intake that was calculated from the uranium intake, and assign the thorium, or plutonium exposure based on the remainder to which ever nuclide gives the higher dose.

So it's a little confusing, but that's really what's done here is to accommodate the fact that really the people in this plant were exposed to three possible radionuclides.

And in some cases, we have what we call partially monitored exposure, and that would, partially would typically mean we would have some uranium data and reconstruct that. But we still need to reconstruct the balance of the dose that for intake that would be assigned using the table.

There's one other piece of this which was really an error that was left in the template, and I forget what that referred to. Can you guide us a little bit on this, Steve?

DR. H. BEHLING: I can take you, Jim, I can cover that issue. I think it's because that was part of my confusion. I think you were referring to a second bulletin on Page 11 of the document that says, "For completely unmonitored workers, unmonitored exposure should be based on the geometric mean intake." There are no geometric mean values defined in Table 2A, 2B, 2C,

and that's really what threw me off when I --

DR. NETON: That was a cut and paste there on our part, and that's been resolved. The template, it's already gone from the template, so. But the other difference between partially monitored and completely monitored, I think I kind of explained how that works.

DR. H. BEHLING: Yes, and Jim, I agree with you, had Table 2A, B and C stated intakes for partially monitored, unmonitored operators, I would have understood what followed, the guidance that you just made reference to, or explained.

But when I looked at unmonitored, there was no reference that this also applies to partially monitored. And then that's what threw me, in addition to the recommendations using the geometric mean value when there was no GSD value identified in the tables.

DR. NETON: Okay. Yes, like I said, we've already, that's already been corrected in the template, the inclusion of that sentence that talked about the GSD and geometric mean and the GSD.

DR. H. BEHLING: Yes.

CHAIR MUNN: So is our status now, SC&A accepts the NIOSH response?

DR. H. BEHLING: Yes.

CHAIR MUNN: Item closed for No. 1. Now can we go to Finding No. 2?

DR. NETON: Okay Finding 2, Mutty are you on the phone? I think, Mutty Sharfi, I think --

MR. SHARFI: I am.

DR. NETON: Maybe you could take a stab at explaining --

MR. SHARFI: Sure.

DR. NETON: -- this one, please?

MR. SHARFI: All right, Finding 2 is, there's a table in the template that covers the associated radionuclides, especially with plutonium intakes. And it seemed that the comment is, assuming that this is listing the alpha rated nuclides, within current, really just saying for gross alpha intake what would you assign in a ratio to the gross alpha intake?

So though plutonium-241 is listed in the ratio of how it's assigned to the gross alpha intake, it's not implying that plutonium-241 itself is an alpha emitter. That's why the sum of the ratio is actually greater than one, and otherwise if it was considered a true alpha emitter, then the sum of the ratios would be one.

DR. H. BEHLING: Again, I understood that right away too. I mean, I looked at the table. And this table is in reference to the 12th percentile fuel grade plutonium mixture. And it lists obviously four radionuclides of which Pu-238-239, and americium-241 when you add then up they obviously establish the unity of 100 percent.

And I realize that the Pu-241 alpha at 14.2 couldn't possibly be part of that, so I realized it was just really a misleading use of plutonium-241 as an alpha, whatever that means. And I realized it has to be included in the dose reconstruction.

So I'm fully aware and then I just brought it to your attention so that maybe the

designation of Pu-241 as an alpha emitter is just something that you want to potentially avoid.

MR. SHARFI: I don't think the intention of the table was ever to insinuate that Pu-241 is an alpha, though it isn't assigned, the dose from Pu-241 is assigned as an alpha dose, because the majority of the dose from plutonium-241 is from the americium-241 indicates it.

DR. NETON: Yes. I think, isn't there a colon there? It's like plutonium-241, colon. alpha?

MR. SHARFI: Yes. Alpha, colon, Pu-241.

DR. NETON: Right.

MR. SHARFI: So it's showing the Pu-241 ratio to the alpha intake.

DR. NETON: It's a ratio. I mean, it's a colon, not an alpha, you know.

MR. SHARFI: Yes, but the table -- I've yet to have a DR misunderstand, so I mean, on my end I haven't had a confusion that we're insinuating Pu-241 is an alpha emitter.

CHAIR MUNN: Okay. So undoubtedly as a part of the basic training, that would be received, that would be seen and understood correctly. Haven't had a problem with this, it sounds like.

Is that acceptable, Hans?

DR. H. BEHLING: Yes, as I said, I also recognized it right away that it can't be assumed, or it's not assumed to be an alpha emitter just by looking at the three other radionuclides, which total up to 100 percent.

So that you know it's obvious, I just thought that perhaps we could avoid mistaking use of that particular number, by someone who may or may not necessarily come to that conclusion.

CHAIR MUNN: An abundance of caution is always appreciated. Does anyone have any objection to our closing that with the same statement as our previous findings?

(No response.)

CHAIR MUNN: If not, then we shall do so after the fact. And we will move on to PER-47

which my notes tell me has four outstanding findings, one through four.

DR. NETON: Right. And I think, this is Jim, I'm going to rely on Mutty to carry the water on this one as well.

CHAIR MUNN: All right. What's the, I'm sorry, what's the site on this one?

MR. SHARFI: This is the Grand Junction --

CHAIR MUNN: This is the Grand Junction one, okay. Thank you.

DR. NETON: Mutty, are you still there?

MR. SHARFI: Yes, I'm here. I'm trying to re-read the findings on them.

DR. NETON: This first one has to do with the exclusion of the measurable, non-measurable data for deriving the 95th percentiles.

MR. SHARFI: Okay, so in the findings, and Kathy can correct me if I misstate what their point was. In the Evaluation Report they do a summarizing table of the data, really of the

non-measurable and they provide the statistics of the above zero reported values.

But when we did the full, kind of you want to call it coworker analysis to do dose assessment, we looked at the entire data set as a whole. So of the 528 data points, only the 118 of those are actually reported above zero. Only about seven of those are actually reported even above 50 millirem.

So you could already see all the, for that particular year, that for 1985 which was the one they gave the example of in their full findings. They concluded there is a very low exposure threshold, or not threshold, it's a general exposure rate that's shown in the dosimetry data for the site.

So to us, it felt that there's no real basis to stratify the data and exclude the non, the zero data from this data set, rather than it indicates that the actual external exposures are actually probably low. And that the data set should be looked at as a whole.

So basically the assessment was just done as a whole data set using OTIB-20's guidance on how to calculate external coworker exposure.

DR. H. BEHLING: Can I make a comment?

CHAIR MUNN: Yes, do.

DR. H. BEHLING: Well, what really brought me to this whole issue was, I was aware of some data involving the Grand Junction issue for external exposure. And I didn't even know at the time that I used it, and I made my initial finding that the data that I was looking at came out of the Grand Junction SEC Petition Evaluation Report.

And that in turn, we used for external only the 118 people who had exposures of measurable value. Okay? And when I realized that in the write-up for, your write-up here, that for Grand Junction, the data was 118 measurable dosimeter responses for 1985, were co-mingled with 410 measurements that were below detection.

And that's, two things came to my mind. Why is there a difference? Why did NIOSH for the purpose of the SEC Evaluation Report, only select

the 118 cases for 1985 that had measurable? And then for the TBD decided to include 410 non-measurable below LOD values?

And that, so the inconsistency between what NIOSH reported in the SEC report, and then in the TBD report struck me as something that needed to be looked at. Why is there a difference? Why would you cite one set of data for the SEC Petition Evaluation Report and another one for the TBD for dose reconstructors?

And sometimes I do have to question when you look at, and I realize in today's world sometimes the abundance of caution gets you to monitored personnel that you know up-front are not going to be exposed anyway, but they become part of an average value that tends to dilute the real numbers for those who probably should be definitely monitored.

And therefore when you do dose reconstruction on people whose exposure you're trying to assess in retrospect, you may show, change then by using data where the majority, 80

percent, when 80 percent of the data were used to calculate the potential exposures involved people who didn't have measurable exposures.

And so this is -- and I went through that in my exhibits where I looked back -- in fact, the reason why I came into this whole discussion is because it was at the urging of Ted, who said, you can't make these statements without necessarily looking at these numbers.

Because I initially cited this as a conditional finding, because I couldn't reconcile those numbers that came out of the SEC Petition Evaluation Report against the numbers I saw here.

And when I guess, NIOSH supplied me with the original data, and only then I came to the understanding that the difference resulted from the inclusion of 410 people out of a total of possible 528 monitored people, who had exposures that were non-measurable. And that's the genesis of this finding.

I mean, this is an arbitrary decision to include or not include. I just wonder why the

SEC Petition Evaluation Report shows only to include the 118 people in their assessment?

MR. SHARFI: I mean, the Evaluation Report, that table's just summarizing the positive data. In the dose reconstruction plan, I can tell you that the reason why they're all included is, if you look at the total data even if you talking about that there's 400 below detection, there's actually less than, about one to two percent that's actually barely above 50 millirems, which is barely above detection.

So really 98 percent of the entire people monitored are right at the detection limit in 1985. So to exclude, to say that there's you know, a large source of people that had non-detects are not part of a distribution, when 98 percent of the were right around detection, I did not see a reason to say that I need to disclude these people from this overall data set.

DR. NETON: Yes, this is Jim. I haven't looked at the Evaluation Report recently but it sounds like, and I think Mutty's probably

correct, and it is correct that to characterize the data, not necessarily present what we would use as a coworker model.

MR. SHARFI: Correct.

DR. NETON: There's a difference there. I mean, characterize what the exposures were versus, you know, how are you going to reconstruct the doses for unmonitored workers? And we've done this numerous times in the external world, you know, 50th percentile with or without the full distribution as applied. I've forgotten exactly how we do that right now.

And if a person were in a job category that required to be monitored, looked like they should have been monitored and weren't, then they clearly get the 95th percentile of dose. They're not short changed necessarily as you indicated.

There's some movement afoot as you know, in the draft implementation guide there. A world of how we're going to go back and relook at some of this stuff. But right now, I don't see anything inconsistent here with what our current

procedures specify.

We've done numerous, numerous reviews of doses of coworker models and we don't, I can't recall when we've ever thrown away all the zeros, or the non-detects.

CHAIR MUNN: Is that reasonable to you, Hans?

DR. H. BEHLING: Well, again, we're dealing with something of a subjective issue here, and I will default to NIOSH's decision to include them. But I guess one could argue the point, but it wouldn't resolve anything. So I'll simply default to their interpretation.

CHAIR MUNN: Okay. Any comments from any of Subcommittee Members?

MEMBER ZIEMER: No. Clearly, it's true that for the coworker models we generally have used all of the data. Might have been monitored individuals even which is non-detectables.

I don't recall on the SEC Petition but that was simply a compilation of, I believe it was just a compilation of what the actual exposed

individuals had got, was it not?

When used to, was it used in an attempt to bound, or what was the issue there?

MR. SHARFI: The DR was just to summarize the data that was available, it wasn't to be used at all.

(Simultaneous speaking.)

MEMBER ZIEMER: Yes.

DR. H. BEHLING: Paul, your question, for the SEC Petition, as I said they only used the data for the 118 people with positive exposures for the 1985. As opposed to the full 528 individuals who were monitored in total, of which 410 did not have measurable doses.

MEMBER ZIEMER: Then how was it used? Or was it just used to show exposures, or?

MR. SHARFI: It was just presented. It wasn't used at all.

MEMBER ZIEMER: It wasn't used. So I don't see any inconsistency of the actual use of the distribution for dose reconstruction.

CHAIR MUNN: I don't think there's

anything else we can do with this, correct?

DR. H. BEHLING: Yes, as I said, Wanda. With Jim's and Mutty's explanation, if this is the policy to interpret data differently between SEC Petition Evaluation versus dose reconstruction, then there's no argument left.

CHAIR MUNN: All right. We will see that that one also is closed. Our next finding would be Finding 2 and the same PER. If we can go to that one, Steve?

Finding 2, here it is. There's a new response from NIOSH.

(Simultaneous speaking.)

CHAIR MUNN: Mutty, would you like to expand on that?

MR. SHARFI: Sure. This is a little bit similar in the sense of the data. This is about neutron dose. In this case we did a compilation of the neutron dose.

There's very little neutron dose, the site really mainly had a neutron exposure for people using, all the geologists that used logging

sources and stuff like that.

I provided some SRDB's to show really when they actually had a routine operation that we would likely see neutron exposure.

So what we did is we calculated the geometric mean and the 95th percentile for the neutron data from the REMS database. And then we actually apply it site wide to all claimants.

Even though most workers would likely have almost zero with no potential for neutron exposure, it was difficult to always place them with somewhere. We give everybody at least the geometric mean dose.

And for geologists that likely would been actually using that they, but we found that most geologists would have been monitored for neutrons. If they happened to be unmonitored we used the 95th percentile for those exposures.

DR. H. BEHLING: This is Hans. I agree with the fact that this is somewhat similar, but there are also some differences on this one.

In total there were a total of 81 for

the year in question, 1986, that I chose to assess. There were 81 neutron dosimeters distributed, of which 15 dosimeters had an exposure that was part of the compilation of dose with less than LOD over two.

Normally we regard that as something that in itself would be corrected. Where we say, when you're below LOD, you end up usually using a factor of LOD over two, period.

And in addition to 15 of the 81 neutron dosimeters, a total of 14 neutron dosimeters were below LOD, 40 millirem, and as I said 15 dosimeters were less than LOD over two.

Only 26 out of the 81 neutron dosimeters had registered doses greater than LOD, or 40 millirem. And one of the things that I looked at was, that we're really concerned mostly about geologists.

These are the people who carried obviously the neutron sources for doing measurements. And based on the fact that for 1986, we had 26 neutron dosimeters with LOD greater than

40, and I realized that the geologists at Grand Junction would have probably been very few in numbers, so what you're really looking for is a very select group of people.

And I have no idea how many geologists would have been there at the time, or how many geologists would have been represented by the actual dosimeters that we're looking at? Would they have been part of the 26 that were greater than the LOD?

And if that's the case I would again, tend to think that you're diluting the potential exposure to a geologist where we're looking to assign the 95th percentile. So by including in among the 81 dosimeters, 40 that were below LOD, and 15 that were less than LOD over two, and you're trying to potentially assess the exposure to a very select and few people who are qualified as geologists, you're somewhat diluting their numbers.

DR. NETON: But Hans, you're assuming that all these geologists were unmonitored. And

they were trying to reconstruct dose to unmonitored workers here. With no monitoring data.

I find it hard to believe that only geologists were unmonitored. Or mostly geologists --

DR. H. BEHLING: No, I wouldn't say that. But in our table as I incorporated into my write-up. We have obviously geologists pre-1981 and geologists '81 through '85. And the measured dose is assigned to them at a 95th percentile value.

So on the assumption that there were some geologists, otherwise we wouldn't make that an issue. You would probably expect a dose that's possibly at the higher end among the 26 people whose dosimeters were greater than 40.

DR. NETON: But this is a slightly complicated issue because honestly geologists use these devices offsite, which is not really covered exposure. We don't know where they used them. We're assuming they used them onsite, but by and large, most of the geologists were doing work offsite. They're not even really a covered source

of exposures.

So I don't know, it's hard for me to think that we're missing large exposures to geologists that had no badging. And you know, we're defaulting to assigning the entire site population, some small you know, neutron dose based on what we have for the monitored people, who were probably mostly geologists.

I don't think it's, I think it's fairly claimant favorable in my opinion.

DR. H. BEHLING: Okay. I just had a hard spot with using even dosimeters that were below LOD over two as credible dosimeter readings.

DR. NETON: It's all available. I mean, I don't know whose, that's --

DR. H. BEHLING: I mean, normally we don't accept those numbers even when we do dose reconstruction for missed dose. We always assume when there is a registered dose, let's say of five millirem at a time when film dosimeters had an LOD of 40, we used to default to LOD over two that says, instead of getting the registered dose of three

millirem, we give them 20 millirem.

So that we usually do make some consideration to extremely low values as being not numbers that you want to necessarily assign to anybody.

DR. NETON: I don't necessarily think that's true. I mean, if we'd had incomplete, uncensored data set, I think we would use it. We've done that in the past.

DR. H. BEHLING: Well, I know for a fact during dose reconstruction when we have someone who was given a dosimeter dose of let's say ten millirem, external whole body, and we realize that at that time there was a LOD value of 40, we usually default to, in fact I think you've written it into your procedures, that you default to LOD over two as opposed to giving a lower value than LOD over --

DR. NETON: There's a difference between doing a dose reconstruction assignment and constructing a coworker model though.

DR. H. BEHLING: Okay.

CHAIR MUNN: So where are we?

DR. H. BEHLING: As I said, earlier, this is strictly my interpretation. And I admit that I'm not always going to be right, or get my way.

CHAIR MUNN: Well, no I think the issue here is that, the difference in the applicability of the approach for different ends.

MEMBER ZIEMER: Yes, Jim, if you're doing an actual dose reconstruction versus doing a coworker model, for the coworker model you use the distribution of the dose, right?

DR. NETON: Correct. We would really use, data that was uncensored throughout.

MEMBER ZIEMER: But you do an individual dose reconstruction, then you doing the LOD over two, right?

DR. NETON: Correct.

CHAIR MUNN: So I don't want to put words in your mouth, Hans. Even though, as you know, I'm always eager to close these. We don't want them closed if the real meat of the issue has

not been --

DR. H. BEHLING: Well, Wanda, considering the nominal differences in doses, I don't think it's worth the argument to continue this discussion. So I will say, let it be as is.

CHAIR MUNN: All right. Very good. Accepted No. 2.

And then we go onto Finding No. 3 which is a question about raw data and documented sources for 569 air sample measurements associated with D&D from '89 through 2006.

MR. SHARFI: Wanda, this is --

DR. NETON: Let Mutty summarize this one. We provided the reference ID for all the raw data. So I'm not sure where we go from here with that. Whether SC&A wants to review these or whether the implication is that we should have put the raw data -- DR. H. BEHLING: Well, did you, I'm not going to argue the point here, but I'm looking at the Technical Basis Document, and on Page 16 it identifies air monitoring data. And in Bullet No. 2, it says,

"569 air sample measurements were recovered for onsite D&D work including both general area and breathing zone samples. These samples can be used to assign doses to D&D workers and other supervisor," et cetera. "If individual bioassay results are not available."

Now, I looked at that and I said, okay, who would go and make -- go through that effort? And your response, you know, you identify all of the different sources that you'd have to go through.

And your response, the raw data for 569 air samples are available in the following SRDB reference IDs, and you list them. There are a total of 16 documents. Do you honestly expect someone to go through that and then reconstruct the doses based on 569 air samples that are contained in these documents?

This was my question.

DR. NETON: You raise a good point here, Hans. I think we're going to have to take this one back and look at it a little closer.

MR. SHARFI: Why can't, we've already done the analysis. So we've pre-did the analysis for DRs to be able to use that data.

DR. NETON: Okay.

MR. SHARFI: So in an individual DR case, they wouldn't have to go and recreate it every time. That's part of -- you know, I mean, there's not a TBD for this site, but as part of the template though to make an official process that we develop for this site.

DR. H. BEHLING: Right.

DR. NETON: Mutty, is this part of the template for that?

MR. SHARFI: I'm assuming so. Hans has been referring to a TBD. I don't think there's a TBD for this site.

DR. NETON: I think it is a TBD.

DR. H. BEHLING: I'm sorry, it's a template. I'm sorry, I shouldn't have referred to --

MR. SHARFI: Yes, I assumed that's what you're referring to was a DR template.

DR. H. BEHLING: Yes, yes I am.

MR. SHARFI: And this is a methodology, so in part of developing the methodology, we went ahead and did the statistical analysis of all that data.

So that is available to the DRs if they need it. You wouldn't individually at every DR go back and recreate it. I agree that would be inefficient.

DR. H. BEHLING: Yes. Should there be some statement here that says, you have the data available for those who choose to use that, those 569 air samples? Because there's no indication here in the template that would suggest that data are available for use in dose reconstruction?

DR. NETON: I tend to, I think I'd like to look at this a little closer. I wasn't looking at it from the perspective that you just communicated.

(Simultaneous speaking.)

DR. NETON: And I think we'll hold off on this one discussion maybe if that's okay until

I've got a better feel for the data have been summarized, characterized, and are being used. I really don't have a good feel for that.

DR. H. BEHLING: Well, I thank you, Jim, because you kept me from striking out. Because I lost the first two. So I'm still in the ball game.

DR. NETON: I think we will eventually, but I'm saying that I don't know enough to, you know --

DR. H. BEHLING: I may have to take my thank you back when you get to that point.

DR. NETON: No, I just need to look at it because I'm not comfortable without having seen what we've done and how we're using it to discuss this intelligently, I guess.

So we'll take a look at it and report back at the next meeting.

CHAIR MUNN: Good, we'll continue to carry Finding 3, with the work that NIOSH is going to review it and report next time.

DR. NETON: Yes, we'll take a closer

look at it, because I wasn't looking at it from that perspective. Okay.

CHAIR MUNN: All right. Then we will move onto to Finding 4, the derivation of intake rates for radium-226 and thorium-230, NIOSH failed to employ activity fractions cited in Table 3 of Attachment A.

DR. NETON: Mutty has prepared a response here and it looks like we do agree that we're going to be overestimating by a factor of two. Mutty, is that an oversight on our part, or is that --

MR. SHARFI: Yes. Okay, this was the one where we ratioed to the total uranium. And really what we should have ratioed to was just the 234, where the total uranium is the site of all three. So in reality we end up resulting in a slightly above factor of two. And we need to go to five or you know, it's a very small fraction of the intake is left.

DR. NETON: So the total uranium activity which is a combination of 238 and 234?

MR. SHARFI: So that ends up, when really you should just be, they're in equilibrium with each other, so they'd be equal to the U-234 intake. So in respect, we end up over estimating the radium and thorium by a factor of two because we're ratioing to the two of them, so.

DR. NETON: That's seems like something that we could fix. I mean we --

MR. SHARFI: Oh yes. That's something we would fix the template and --

DR. NETON: Yes, because the dose is going to go down. But --

(Simultaneous speaking.)

DR. NETON: I think it's a good fight. I think we need to correct that to be technically correct. Yes. So, we appreciate the finding and we'll respond accordingly.

CHAIR MUNN: All right. The template will be corrected. And that will put that item in abeyance, correct?

DR. NETON: I guess, yes.

MR. KATZ: Well that's pretty

straightforward. Why don't you just close it?

CHAIR MUNN: Well that's easy.

DR. NETON: You might want to hold it in abeyance and make sure that we do follow up and do it.

CHAIR MUNN: So it's --

MR. KATZ: Check.

CHAIR MUNN: Very good. We will. That completes PER-47, if I'm not correct someone please tell me so.

And that brings us to our administrative detail. Lori had notified us some time ago that we were going to make as routine, our abeyance items that NIOSH is going to look at on a regular basis to see if there were more items that were ready to close.

Lori, do you or someone else at NIOSH have any information for us this time?

MS. MARION-MOSS: Yes, Wanda, this is Lori. Fortunately for this meeting, I don't have anything to report, to bring forth to the Subcommittee. Hopefully, I'll have something for

the next meeting.

CHAIR MUNN: All right. We will check. The item is going to be on the agenda every time until someone tells me otherwise.

We were, there was going to be some activity with respect to case selection recommendations. Is that correct?

MS. K. BEHLING: This is Kathy Behling. I guess I can refer you to a memo that I had sent out on March 16th. And that memo included not only the newer, newly issued PERs, but I also had gone back into the BRS system, this was several months ago, just to confirm that we had put in any place, I looked at all the PERs plus the Subtasks forward.

And if we had already completed those and we didn't have any findings, I wanted to ensure that we put in a finding of no findings.

In that search, I identified -- and if we have the memo available, I'm going to go the actual last page of that memo, which is Page 6, I had identified two PERs that was PER-8 and PER-11.

One had to do with the modifications to

the NIOSH-IREP lung model, that was PER-8. And PER-11 was the K-25 TBD and associated TIBs. We had actually looked at both of these. We've completed everything up until the Subtask 4, and on Page 6, do you all have that memo, Subcommittee Members?

CHAIR MUNN: Yes.

MS. K. BEHLING: Okay. And we had recommended for PER-8 that we may want to review three cases. And under PER-11, we identified perhaps four cases and we have two selection criteria there.

And so I don't know if that's something that you are in a position to task us with today, or if it's something you want to continue?

MR. KATZ: Kathy, can you just remind me, just the lung model. I thought this was one where ages ago we said, this is not necessary to do the case selection for this. But maybe I'm confusing this with a different PER.

Is this something, did we just recently complete the rest of the work for that PER?

Because I thought there was lung model one where there was really no point in the case review, that related to a lung model one.

MS. K. BEHLING: Well, this was done quite a long time ago. And I can go back and check again. I know that initially we had recommended doing three cases, but perhaps we decided that it was not necessary.

MR. KATZ: I'm thinking, I could be confused, but I'm thinking though that there was quite a discussion about that.

MS. K. BEHLING: Yes, there was. Yes, there was.

DR. H. BEHLING: And can I cut in here, Kathy?

MS. K. BEHLING: Yes.

DR. H. BEHLING: Let me shed some light. I reviewed the IREP lung model and came to the conclusion that there was a potential serious error there that would overestimate the Probability of Causation for all the people who would be obviously compensated.

And I reported that to I think, either the full Board, or maybe a Subcommittee group. And they concluded that this was beyond their scope in terms of technicality. And that they would potentially have to go outside the organization to assess this whole issue.

The relative risk model that was used to assess dose as a functional age. And this is the area that I questioned in terms of, is this legitimate? And I think this was obviously something that was done by SENES or somebody else outside who was part of this IREP lung model. And it was never resolved. And so I guess there was reason to not necessarily select particular cases for evaluation based on the outstanding concerns --

MR. KATZ: Hans, but I'm thinking actually the reason we had just, if I'm not confused about which PER we're talking about, I thought the reason we decided there's no point in case selection is because implementation was really, there was nothing difficult. It's perfectly

straightforward, the implementation, which is why there's nothing to be gained by doing a case review.

DR. NETON: Ted, this is Jim. You're absolutely right. I mean, this is a change in the risk models.

MR. KATZ: Right.

DR. NETON: And there's no dose reconstruction involved here. The dose reconstruction is just run using one risk model, and another risk model. Because we combined, you know, we had those two risk models that we now run in every case. And earlier, we only had one. But there is no dose reconstruction at all.

MR. KATZ: Right. Right. So this is that, I am remembering the right PER then, whatever the right situation. So this anyway, the Subcommittee did talk about this and put it to bed that we didn't need cases on this.

And then this one, because these are sort of coming by the same mechanism to forward to the Subcommittee, I would just be worried that the K-25 is another one of those cases. That was

already decided, although I couldn't tell you that for a fact.

CHAIR MUNN: And I don't know either.

MS. K. BEHLING: I agree, never mind on PER-8.

MR. KATZ: Okay. I mean, by all means, Kathy, if you want to check on K-25 and see whether we didn't discuss it already. It just seems like a good possibility that we had already discussed it.

MS. K. BEHLING: Okay.

MEMBER BEACH: Well, Kathy, I was looking at a document you put out December 8th of 2014, and K-25 and eleven, were both listed in that as not being, Subtask 4 not being assigned. Along with Rocky Flats.

MR. KATZ: So right, they weren't assigned but the issue is why they weren't assigned?

MEMBER BEACH: Yes, yes. It doesn't go into that detail unfortunately.

CHAIR MUNN: Yes, it wasn't that they

were not addressed. It was that they were not assigned. Yes.

MS. K. BEHLING: And I can look further into that.

MR. KATZ: Thanks, Kathy --

(Simultaneous speaking.)

MR. KATZ: -- definitely bring it up at the next meeting if that one that slipped through the cracks.

MS. K. BEHLING: Right. And I had simply identified these as I said, as I was going through the BRS system.

MR. KATZ: Yes, I recall that from the Board meeting materials. Right.

CHAIR MUNN: Okay. I think that's correct.

MS. K. BEHLING: Okay. And Wanda, I don't know if you would like me to go on with, continue on with this memo that I sent out with regard to the PERs that had, the newly issued PERs?

And as I said, one that I had identified during this BRS review, namely that was PER-21

which is the Rocky Flats plant dose reconstruction method modifications.

And I know that that was one that sort of caught my attention because I realized that Rocky Flats is a very complex site and I did know that Ron Buchanan is very much involved in everything that's been going on with Rocky Flats.

And I asked him if there was any reason why we had not looked at this PER? And I don't think he could come up with a reason either. So, that is added on Page 3 of this memo that I sent out, along with the newly issued PERs.

And I've highlighted those PERs that I -- and I gave reasons for why I thought they were, of this seven that I have listed here, I've identified actually two, three, four, that I thought might be worth looking at. And let me just spend a little bit of time and I'll ask for some assistance here, I believe.

On Page 5, I also have listed PER-57 which is General Steel Industries. And if perhaps either Bob Anigstein or John Mauro are on the line.

What we had concluded for this particular PER, is that we were very much involved in the revisions of the General Steel Industries' TBD.

And so we didn't -- this is a little bit different from what we've done in the past. But we didn't feel it was necessary for us to do our typical Subtask 1 through Subtask 3, but just go to the case reviews.

And I believe there's a little more detail that perhaps either Bob Anigstein or John Mauro can add, as to why we felt that it was necessary to at least suggest to the Subcommittee that we look at a few cases.

Is Bob Anigstein on the line? Apparently not.

CHAIR MUNN: I hadn't heard him.

MS. K. BEHLING: Okay, John Mauro? They've all abandoned me.

CHAIR MUNN: They left it in your capable hands, Kathy.

MS. K. BEHLING: What I was told is that, even though there is another revision that

NIOSH is working on, on the General Steel Industries, they felt it necessary because they were, and maybe if Jim Neton and even if David Allen is on the line, they can add to this.

They're working on the new additional revision however, they recognize because of changes that have already been made in Revision 1, there were going to be some cases that were overturned. And I think there were quite a few.

Now, based on, I believe, some meetings there had been some concerns that all of these cases are being looked at appropriately, and so that was why we were suggesting that at this point in the process, we just pick a few cases and Bob Anigstein was going to, he said he could present some selection criteria and suggest the number of cases that may be worth looking at. If that's something you would want to consider?

MR. KATZ: Can I just suggest, Kathy, and I think it's a good idea for Bob to -- I mean, because that'll sort of flesh it out. If he wants to put forward case selection criteria and

rationale, then that would give the Subcommittee or the Board, whoever does this tasking, sort of full information to judge as to whether they want to task.

MS. K. BEHLING: Right. So we'll put something in a memo? Would that --

MR. KATZ: Yes, that memo would be great, and I do think it makes a lot of sense exactly what you're saying if they're going to review, it would be just jump right to the case review. Because that would sort of button it up.

MS. K. BEHLING: Okay, very good.

CHAIR MUNN: It would be very helpful. Thank you. We'll look forward to Dr. Anigstein's selection of cases for General Steel.

MS. K. BEHLING: Okay. And I don't know if you all have made any decisions on the newly issued PERs, and considered our recommendations or not? If you would like to discuss that.

CHAIR MUNN: I think we've all taken a look at them. And that moves us onto our next item there. We have had a note from Dr. McKeel about

one of those, PER-58, which I don't think we're ready to address. I believe Ted, you had some information?

MR. KATZ: Yes, this is Dow is asking for, and the SEC Issues Work Group is, we're trying to schedule a meeting now for that Work Group to take up the Site Profile. And then, until we've done that, and looked at the Site Profile, we won't know whether there's value in going further and also reviewing the PER.

So that's the next step and it should be coming pretty shortly. I know Jim has already, Jim, excuse me, Dr. Melius has already just recently, today queried DCAS on readiness, what timing for having a group meeting on this matter. So that should get sorted pretty soon.

CHAIR MUNN: Yes, good. That will work its way out. And PER-55 and -56, both were going to be on our plate for a decision today, correct? Am I incorrect in that? I think I got that out of your memo, Kathy?

MS. K. BEHLING: Oh, I'm sorry. I yes,

actually Page 2 and let's see here, actually there are Page 2, three, and four I've highlighted in yellow those. There are one, two, three, four PERs that SC&A thought you may want to consider tasking us with.

PER 55 was TBD 6000 revision. And there were numerous changes and they were on numerous cases. And that was why we recommended that maybe perhaps selecting that for a review.

Also PER-21, as I said that's the Rocky Flats plant. And then PER-51 is Weldon Springs. Again there were quite a few changes there and a significant number of cases involved. PER-53 is Allied Chemical Corporation and again, numerous revisions and over 200 claims that were initially identified.

And in some of these, I also want to make certain recommendations also because sometimes the selection criteria is not you know, very clear in these cases because of so many different changes. I just was recommending that we may want to look at those, or the Subcommittee may want to task us

with those.

CHAIR MUNN: Do I have any recommendations from other Members of the Subcommittee?

MR. KATZ: Wanda, thinking of those, can I ask maybe Kathy if she recalls? The Rocky Flats, I don't know if this is a very recent one, because at one point we discussed Rocky Flats PER, and I thought, and decided it shouldn't be reviewed until the SEC matters were closed on it. But maybe that's something else not related to this?

CHAIR MUNN: Well, no. I was dragging my feet too, because I was looking at Rocky Flats because there's still so much going on with it.

MR. STIVER: Ted, this is John Stiver. I remember that too. We decided to table that until after the SEC issues were decided.

MR. KATZ: Oh, right.

CHAIR MUNN: Right. I don't think we can go that route yet. And good heavens, I just lost my screen that I had your memo on, Kathy. I don't know what I did with it, it's gone.

MEMBER ZIEMER: I think we have 55, 51 and 53 work that we can act on?

MR. KATZ: Well, Paul, and then Weldon Springs, I'm looking at that and I'm thinking that that is awaiting Work Group progress which hasn't occurred yet on Weldon Springs. And that's ringing a bell too. I'm not sure about that, but I think.

CHAIR MUNN: And I don't remember it, and I've lost my screen, so I don't even know what I'm looking at right now.

MEMBER BEACH: Well, that leaves us with 55, and 53 possibly?

CHAIR MUNN: Fifty five, 53, six, no, 51, 55, and 53.

MEMBER BEACH: Fifty five is the Weldon Springs one, and I --

MR. KATZ: Weldon Springs, I'm almost certain that that Site Profile review by SC&A, the Work Group hasn't met because I think, NIOSH is still doing some work to get ready to respond to that, I think.

MR. STIVER: Yes, Ted, this is John. We submitted that review pretty recently, so yes, I think it was going to be, need to be a Work Group meeting.

MR. KATZ: Yes.

CHAIR MUNN: So 55, and 53. We have any concerns?

MR. KATZ: Fifty five, we just talked about right, isn't that the GSI, the cases where we need to get the criteria?

MEMBER ZIEMER: No, that's 57.

MR. KATZ: Okay, okay, sorry, whoops.

MEMBER ZIEMER: I think 57 is --

MR. KATZ: I think 57 is Dow.

MEMBER ZIEMER: Yes.

CHAIR MUNN: Yes.

MEMBER BEACH: Fifty seven is General Industries, that's the one that's on, we're waiting.

MR. KATZ: Okay, I got them backwards, the numbers. Okay.

MEMBER ZIEMER: Fifty five is the

TBD-6000 in general. And that --

CHAIR MUNN: We need to assign that.

MEMBER BEACH: Yes, so 55 and 53.

CHAIR MUNN: Do I hear any objections to assigning those two?

MEMBER ZIEMER: Yes, I agree what you just named for us.

CHAIR MUNN: If not, then let's do assign those two. Anything else?

MEMBER BEACH: And then I've got a question, it's, Kathy on your memo, that will include PER-8 and 11 on the status of those? Or just eight?

CHAIR MUNN: I think eight, and 11 are issues.

MEMBER BEACH: That's what I thought, thank you, eight and 11, yes.

CHAIR MUNN: So we've already dispensed with those, and they woke them up again.

If there are no other issues before us right now, let's take a look at our calendar. And see when we might expect our next meeting. It

looks as though we do not have a particularly heavy calendar, and so it doesn't look as though we'll need to have anything in the immediately foreseeable future.

Is it the general feeling that we can wait for our next meeting until after the Idaho meeting? Or do you think we should have one prior to that, that is a meeting scheduled in late July?

MEMBER BEACH: No, I agree with that Wanda, this is Josie.

CHAIR MUNN: Okay. First part of August perhaps? How is the first week in August looking for people?

Wednesday, the 5th?

MR. KATZ: Hang in there, please. I need to get there. Thanks. Okay, August, yes, I have no issues with that first week in August right now.

CHAIR MUNN: Okay. Anyone else?

MR. HINNEFELD: This is Stu, I don't have any issues on that week.

MEMBER ZIEMER: I'm clear also.

DR. NETON: But I believe that's the week of the NIOSH Intramural Science meeting. I don't know --

MR. KATZ: Okay.

DR. NETON: I have that on my calendar. That's the 4th through 6th.

MR. KATZ: 4th through 6th. Well, why don't we just go to the next, the week of August 11th?

CHAIR MUNN: Let's take a look at that. How is the 11th? Is that a good day? It is for me.

MEMBER BEACH: That's fine.

CHAIR MUNN: All right. Let's say, August the 11th.

MR. KATZ: 11:00 a.m. Eastern time.

CHAIR MUNN: 11:00 a.m. Eastern. The Committee will meet at that time. We'll be accruing items for the agenda in the meantime.

Is there any other thing that needs to be brought before the Subcommittee at this time?

MEMBER BEACH: No. Thank you, Wanda

for adjusting your schedule to meet mine.

CHAIR MUNN: Well, thank you for giving us a heads up and enough time to do that. We appreciate it.

No other information being forthcoming, we are adjourned. Have a good week everybody and we'll see you in Idaho Falls.

MR. KATZ: Yes, thank you everybody for a good meeting.

(Whereupon, the above-entitled matter went off the record at 2:40 p.m.)