Centers for Disease Control
National Institute for Occupational Safety and Health
Advisory Board on Radiation and Worker Health
Hanford Work Group
Thursday, August 13, 2020

The Work Group convened via Video Teleconference, at 1:00 p.m. EDT, Bradley P. Clawson, Chair, presiding.

Members Present:

Bradley P. Clawson, Chair
Phillip Schofield, Member
Paul L. Ziemer, Member

Registered and/or Public Comment Participants:

Rashaun Roberts, Designated Federal Official
Nancy Adams, NIOSH Contractor
Bob Barton, SC&A
Zaida Burgos, NIOSH
Bob Burns, ORAU
Grady Calhoun, DCAS
Joe Fitzgerald, SC&A
Rose Gogliotti, SC&A
Chuck Nelson, DCAS
Lavon Rutherford, DCAS
Tim Taulbee, DCAS

Contents

Centers for Disease Control National Institute for Occupational Safety and Health Advisory Board on Radiation and Worker Health Hanford Work Group
Thursday, August 13, 2020 1

Roll Call/Welcome 4

1. Review of NIOSH White Paper 5

A. SC&A Presentation 6

B. Work Group Discussion 9

2. Co-Exposure Model Application 20

3. Petitioner Comments 29

4. Path Forward 29

Adjourn 32

Proceedings

(1:01 p.m.)

Roll Call/Welcome

Dr. Roberts: Well, it's one after 1:00 Eastern Time, so we'll go ahead and get started. Good afternoon or good morning, everyone, depending on where you are. Welcome to the Advisory Board on Radiation and Worker Health. This video/teleconference is for the Hanford Working Group.

My name's Rashaun Roberts, and I am the Designated Federal Official for the Advisory Board.

Now, before we move into group business, let's go ahead and start with our roll call and also address conflict of interest. And I will speak to that with respect to the Members of the Board who sit on this Work Group. In order for a Board Member to sit on the Work Group, they should not have any conflict of interest.

So, with that, let me move into roll call for the Members of the Board who are on the Work Group, starting with our Chair, and then we can go in alphabetical order.

(Roll call.)

Dr. Roberts: Thank you very much, and welcome to you all again. Let me just go over a couple of additional items before I give the floor over to Brad Clawson, who chairs this Work Group.

In order to keep things running as smoothly as possible, and so that everyone speaking can be clearly understood, if you're on the telephone please mute your telephone, unless, of course, you need to speak. If you don't have a mute button, press *6 to mute. If you need to take yourself off mute, press *6 again.

If you're on Zoom, your mute button is at the

bottom of your screen at the lower left-hand corner. You want to check that periodically to make sure that you're staying off mute if you're not speaking.

The agenda and the presentation and memo that are relevant to today's meeting can be found on the NIOSH DCAS website. All of these materials were sent to Board Members and to other staff prior to this meeting.

With that, let's go ahead and get started. And I'll turn the meeting over to Chair Clawson.

Chair Clawson: Thank you. I appreciate that response. Nancy, maybe, could I get you to put up the agenda that we're going to follow, if you could, for us?

Ms. Adams: Sure. Just one sec.

1. Review of NIOSH White Paper

Chair Clawson: With that being said, while Nancy's getting that done, I do have to admit, it's only been a few months, but, Bomber, you've changed a little bit. I hate to say anything about your gray hair coming in, but it is sure good to see all of you. It's been a while, it's been interesting, and it's been an interesting time, but I appreciate you taking the time out of your day to able to be work on this Work Group.

There we go. So, if you all will go over this, we're going to go on and review NIOSH White Paper so everyone can kind of see where we're at on this.

And I'll probably start out with you, Joe. I believe that it was your responding to NIOSH's White Paper that they had, and give them an opportunity.

That also being said, if you're not speaking, though, we need to have mute on this. A person's got a background kind of bouncing back and forth in there.

So I'll turn this over to Joe. And I'll let you get

started with that, Joe.

A. SC&A Presentation

Mr. Fitzgerald: All right. Just bear with me here, let me see if I can get this up. Can everybody see that?

Chair Clawson: Yes.

Mr. Fitzgerald: Good. And let me know if anything goes amiss. I realize this is a bit of a pilot test.

You're going to recognize a lot of these slides, because essentially we covered quite a bit of ground in the April Work Group meeting. The Work Group ended up closing six of the eight outstanding SEC-related issues at that meeting.

So I'm going to tread lightly on the issues that we've pretty much addressed and the Work Group felt that it had enough basis to close. So I'm not going to dwell on those, but if there's anything that you want to spend more time on, clearly just let me know and I'll pause on those.

At any rate, this is essentially a status report, mostly with more depth on a couple of the issues that we were not quite ready to recommend closure in April, but we are now feeling like there's sufficient basis to recommend that. So, that's how it's going to be set up.

Okay, so, anyway, as far as background, you've seen this before. Essentially, we're filling out what's left of 1984 to 1990 in SEC-00226 with the last Class being defined and approved a few years ago for the named contractors. Essentially, construction subcontractors. It was a subcontractor at Hanford for which there was some bioassay monitoring issues, and that was one of the bases for that. So this is really for the balance of the named prime operating contractors for that time period.

So, as Brad mentioned, we did get a White Paper in January. We met in April, we provided more or less

a status response of where we stood, even though the report wasn't prepared yet. And, on that basis, the Work Group felt like it could act on that information and closed six of the eight.

What we're doing here is talking about the actual report that we ended up issuing on June 24th, which not only documents the information we gave the Work Group in April, but also provides the remaining information that we promised at that Work Group meeting for this particular session.

Okay. This is in the NIOSH report, I won't draw too much on that. There's four issues dealing with radionuclides of concern, and four what I would call more programmatic issues dealing with Hanford's programs and procedures that we were seeing as still outstanding.

I might mention that we followed a particular process with Hanford that I thought was pretty productive. I think, between NIOSH and SC&A, we agreed from a consensus standpoint on what SEC issues were, in fact, remaining and what aspects of those issues needed to be addressed in terms of information and data capture, and to then address those as we went. That's pretty much the process that we followed. I thought it was pretty comprehensive.

Here's, again, the issues in particular. And the two issues -- and we'll get into this -- that we felt needed more information from NIOSH's data captures were the U-233 issue, for which we had a couple questions that we posed, and the Building 324 leaks in terms of the actual bioassay data that might be available for those incident reports. So, those were the two major outstanding items.

And we did a review on data access and completeness, but, just to clarify, this is not, certainly, the review that NIOSH would be doing for its co-exposure modeling development. This was more of a cross-comparison with the various databases to establish there were no obvious

discrepancies between what was in those databases and what was being reported in terms of internal dosimetry. So that was more of a comparison to see if there were any discrepancies. That's a little different than looking at sufficiency of data, which, of course, is part of the coworker model development.

I'm going to go through these relatively quickly, but I want to note that, on thorium-232, I think both SC&A and NIOSH agreed there was no obvious evidence of process use and operations with thorium. But there was a due diligence effort to look at the data and the information we could find onsite and through interviews just to ensure that that issue -- which, of course, that issue figured in the previous SEC -- that there was no carryover into this time period.

And I think the process, the review, established that that was, in fact, the case: there was no evidence of thorium-232 processes or chronic exposures, actually, after the 1970s. So, that was closed at the last Work Group meeting.

Highly enriched uranium. There, again, was some evidence of usage, and the issue that we were keying in on, that it was unknown -- and this was in the NIOSH report -- unknown how frequently such operations involving enriched uranium took place. But I think the bottom line that I think we settled on was that, even though there was not specific information on the frequency and the nature of some of those operations, we agreed that the routine bioassays that were implemented at the facility and across the site would have detected U-235 if it were, in fact, an exposure potential. And we established that through the reviews that we have done. The Work Group chose to close that issue in April.

Okay, 233 -- and there's a little typo there, that's possible sources of U-233 intakes at Hanford as the issue. Again, there was no obvious evidence, but we

did pick up from interviews and some documentation that there was some question about whether scrap solutions of U-233 at PFP might be an issue, and some mention of possible applications, bench scale applications, of experimental work in the 300 Area. And that was picked up in the process of doing onsite reviews.

I think, again, NIOSH did a pretty comprehensive scrub of source terms in terms of U-233 and the others, from the White Paper kind of more broader conclusion about the U-233 not being the source term of concern. And our clarifying question, in which we discussed back in April, was we would like more specific information pointing to the two questions that we had posed earlier, these two specific questions on PFP and the 300 Area.

And, from that, the Work Group had asked NIOSH, and NIOSH agreed, to provide a little bit more information, which was done in a memorandum which was issued on May 21st, which went into some more detail, went a level lower, in a sense, of talking about whether it was likely that the scrap solutions would be an exposure source. Same thing with the possible experimental work.

Again, the material accountability records, as well as additional documentation on usage, process usage, were useful in just establishing whether you could actually identify any source terms.

So, based on that additional clarification, we're recommending that issue, in fact, be closed by the Work Group. That's Issue 7 on U-233.

Any questions on that? We kind of left that open from the last meeting.

B. Work Group Discussion

Member Ziemer: Joe, this is Ziemer. Can you clarify, I'm trying to remember why we didn't close it. Was it just the lack of specificity on the issue, that we wanted a little more detail?

Mr. Fitzgerald: Exactly.

Member Ziemer: I was trying to remember from last time,

Mr. Fitzgerald: Yeah. In the White Paper, I think NIOSH provided a perfectly fine broader answer, but we still had some specific issues with those two locations that were cited. I think it was through some interviews, as well as some documentation, that was suggestive of a possible source term. Nothing conclusive, and we were hoping for more specific information from NIOSH, which we got in the May 21st memo. So, yeah, you're right, more detail.

Chair Clawson: Well, I feel good with it, Joe. I know that when we last talked with it -- and I guess I'll turn it over to the other Work Group Members and see if they have some issues on it. I would say we can go ahead and close on that one. We just needed further clarification on those areas. So I'm good with it if everybody else is. Paul or Phil?

Member Ziemer: Yeah, I'm good with it now, Brad. And let me also ask: are these additional details going into the main database description now? Or have they been put in the -- I forget the title of our issues database.

Mr. Nelson: Yeah, Dr. Ziemer. This is Chuck Nelson. I have updated the Board Review System.

Member Ziemer: Yeah, the Board Review System.

Mr. Nelson: Are you able to hear me?

Member Ziemer: Yeah.

Mr. Nelson: Okay. What I was going to say is I've updated the Board Review System, and I've also attached the memo that we provided to the Work Group which specifies additional areas that SC&A was inquiring about regarding scrap solutions and experimental work.

So, that memo, we felt, was responsive to it, and apparently SC&A also agrees. But, yeah, to close a loop on the documentation, it is in place on the BRS.

Member Ziemer: And that's true of all the issues now?

Mr. Nelson: Yes.

Member Ziemer: At the last presentation we had the information. I don't think that it was fully recorded at that time. That's part of the reason we wanted to have this meeting where we had it down in black and white on the details. Thank you.

Chair Clawson: Phil, do you have anything, any questions, or are you good with it, too?

(No response.)

Mr. Fitzgerald: Just as further background, these radionuclides of concern were nuclides for which there wasn't routine bioassay. But there was also a conclusion that it wasn't any evidence; it was in process use, that the source terms were actually in active use. They may have been there, they may have been storage, like U-233, but they weren't actually being handled.

So, much of what I think Chuck's group -- and we participated in some of the interviews -- was just to establish was the material in a form and a location for which exposure potential would not have existed or would have been very minimal. And, if there was any exposure, it would have been incident-related, and it would have been bioassay information in that regard.

So, a lot of it comes around to kind of a review. In this case, there just isn't any operating source term, so we thought that kind of crossed the T.

Chair Clawson: Well, that was -- we're more worried about N Reactor, correct?

Mr. Fitzgerald: Not necessarily. You know, N Reactor, you had some skin exposure. We'll get into that as an issue. That was closed by the Work Group last time. But for these radionuclides of concern, a number of these figured in the last SEC, and it was more of a confirmatory process after 1983 to actually establish whether these materials were actually in processes and active handling at Hanford.

They may have existed, and the MC&A records may have actually established that, the inventory records, but a lot the work that was being done in the review was looking at the handling and the exposure potential. In all these cases I think it was pretty clear that it wasn't an operating source term. If they existed, it was in storage or not available for exposure.

Chair Clawson: So, Chuck, let me ask you a question, or Joe, whoever. When we were interviewing the people, who were we using, who were we interviewing with? Because part of the issue that I saw was we were interviewing RCTs from PUREX, which wouldn't have been involved in a lot of that.

Mr. Nelson: I can give you, like for uranium-233, some specific examples. Let me make sure I quote this right. I got my notes here. For U-233 and scrap solutions, we interviewed with a former Plutonium Finishing Plant manager. And we also interviewed a former MC&A officer for that area, as well.

So, it wasn't necessarily always due to RCTs, but it was also the people that ran the organizations and the people that had documentation of their actual inventories of material. That's just an example for U-233.

There were other instances where we interviewed supervisors, as well, and people that worked in that area during that timeframe. That was our target.

Chair Clawson: I just want to make sure that we

were targeting the plant that we were looking at. It just kind of read a little bit funny to me.

Mr. Nelson: We also, when we were interviewing people, we asked the question, is there anybody else that might have more intimate information during this time period? And we followed those leads down, as well. SC&A was involved with that, with those interviews, when we did those.

Chair Clawson: Okay.

Mr. Fitzgerald: Yeah, I might underscore that the interviews were pretty crucial because the MC&A records, the inventory records, certainly established that these nuclides were present, but I think the interviews went a long way, whether it's a HP tech, whether it's a supervisor, even an operating contractor, it established that there was no active handling and there was no history, at least from their recollection, no history of leaks or incidents from which they recalled the exposure occurring.

And if there was some incidents, I think some of these folks were also very clear about the kind of response and follow-up that the HP staff undertook, including bioassay. So, I think that was the level of reassurance that helped on the question of exposure potential. A lot of times records and inventory information was confirmatory about the presence, but it didn't speak to what may have been the day-to-day or the operating experience during that time period.

Chair Clawson: Okay. Phil, do you have anything to say?

Or not. Okay.

Mr. Fitzgerald: That's a good lead-in for neptunium. Neptunium is likewise exposed, but I think the basis for establishing that there was, in fact, no evidence of chronic intake, as this suggests, was really directly from the operating staff in those operations at PUREX and the supporting facilities where we

certainly knew neptunium existed in solution.

But in terms of how the workers were protected in terms bubble suits, in terms of protective gear, and what work they did and the lack of evidence that there was any chronic exposure associated with maintenance that went on over the years. This material was, in fact, stored beneath PUREX in tanks, but ,again, based on those interviews, certainly there was no evidence that there was any concerns or any exposure going on in a chronic way. So, that was a basis for our recommending closure, and the Work Group did close that April for neptunium.

Okay. Those are the four radionuclides of concerns. We had some programmatic questions, one of which was STCs, the special tritium compounds. This has come up at a lot of the sites, and pretty much the Site Profile highlighted that, in fact, STCs were potentially present, and it was Tritium Target Program.

And what we had done in April was indicate that, based on our review in conjunction with NIOSH, we agreed that there was no evidence that we could find that post-irradiation exams of these parties took place at Hanford in this timeframe. And we looked at if there was any evidence on those operations. And if there were, in fact, activities that might have involved some exposure to STCs, of course there's a protocol and a document, I forget the number now, but a OTIB that addresses how dose reconstructions in terms of STCs would be handled. On that basis, the Work Group closed that issue back in April.

And, Brad, I just skipped over that. Sorry about that. You mentioned N Reactor. Yeah, so, skin contaminations at N Reactor were, in fact, a big question, because we did find evidence that those took place in the '84-'90 timeframe. This is -- I think it was a pretty clearly understood issue, and what we were looking for, and what NIOSH was

looking for, was clear evidence that the program monitored possible skin contamination coming from the splashing of the process waters on workers, and whether there was sufficient data to support dose reconstruction of skin contamination for those workers that may have had that kind of dose.

And I think it's pretty clear that there were -- and this is something that NIOSH surfaced, that there was considerable documentation, in fact, before 1984, on how those exposures were being followed. And they had skin contamination forms that we used routinely to estimate skin dose for workers that may have been exposed.

And there was, in fact, in the database, sufficient skin dose -- not skin dose data, but certainly exposure data that could be used to support dose reconstruction. So we recommended closure, and the Work Group thought that there was enough information to close that finding back in April. That was closed.

The next one was a question about internal monitoring with minor rad incidents. I think it was pretty clear, based on the record, that, in terms of major exposure incidents, there were pretty good records of investigations and events reviews, as well as incident bioassay records. But the question that was raised was whether somewhat less major radiological incidents were equally addressed as they occurred. And I think this was more of a programmatic question, since that was not as clear as we would want it to be from the Site Profile.

And, based on NIOSH's White Paper and the information that's provided, it was pretty clear that you're talking about a maturation process, that by the 1980s, compared with the previous SEC in the '70s, the incident reporting for all radiological incidents were more comprehensive than were being implemented more effectively than in the past.

And we were looking for specific examples of

incident reports, and we were relying on interviews with the HP staff and others to establish, essentially, what was the practice by the '80s, and whether that was mature and whether one could satisfy this question of all radiological incidences being addressed. Not only the major ones, but also the minor exposures as well as intakes. So we recommended closure and the Work Group did close this issue back in April.

Building 324 leaks, this is the final of the eight. This was an outstanding issue from April, more because we had not had the chance. We got the White Paper in January, started reviewing that in February, and we had this meeting in April. And this was the one issue that we had not quite completed our review, so we wanted additional time.

That was the loose end on this one. And we did finish our review, and did review the three incidents that were cited for Building 324 in the White Paper. And two of the incidents, as I recall, and Chuck can correct me, no bioassay was even warranted under the circumstances. And on the third certainly there was a full investigation.

So, based on that, we didn't see any deficiencies or any questions of an unmonitored internal dose associated with the incidents involved. This is, again, Building 324 leaks. And so we now recommend closure on this issue.

Just going back, this is more a due diligence question. Certainly, we didn't see any issues of adequacy and completeness of internal monitoring site-wide for Hanford, but, in terms of Building 324 were you had a substantial rate of chemical work, where there were some leakage incidents, we wanted to be thorough about whether or not the incident-driven monitoring was, in fact, effective for that facility.

So, I think, again, NIOSH did a good job in terms of establishing that the follow-up by the staff was pretty comprehensive and could serve as further

evidence of the maturation of the overall program at Hanford.

Anyway, we did finish that review and we would recommend that the Work Group close this issue.

Chair Clawson: I understand. Any of the other Work Group have any questions on this?

Member Ziemer: I have just a comment, that I noticed, in the actual SCA report, although you indicate that you agreed with NIOSH's conclusion, the report doesn't actually make a recommendation for closure on this, although your slide says that. Just a minor point. I'm looking at the report on page 11. It says you agree with NIOSH, as the slide indicates.

Mr. Fitzgerald: Yeah, sometimes it --

CHAIR ZIEMER: And I understood that to mean that you recommend closure, but the report doesn't actually make a recommendation.

Mr. Fitzgerald: Yeah, sometimes in the analyses, the report analyses, we defer to the Work Group on the question of closure, and in the presentation we actually make the actual recommendation. So that might just be part of the reason.

Member Ziemer: Well, on the other ones, as your report indicated, you recommended closure. It's just a minor detail. I agree with recommending closure.

Mr. Fitzgerald: Okay.

Chair Clawson: Sounds like we all agree on that. That's kind of like one of those dangling participles.

Member Ziemer: I wasn't looking for those, Brad.

Chair Clawson: Well, it's just in, but anyway, we'll just do our due diligence on this. Phil, unless you've got something to say, we'll go ahead and recommend this be closed.

Mr. Fitzgerald: Okay, that was sort of, I'm not sure they're the big eight, they're certainly eight SEC issues out of quite a few. I think there were almost 20 or so for Hanford that remain from about three years ago. So, that constitutes all eight of those issues. With that, there are no specific SEC-related issues that are left that are unclosed for Hanford.

We serve as a, it's something we do for all the SEC sites, we do look at data adequacy and completeness. I want to have Ron to actually, Ron Buchanan, are you on? I didn't see you introduce yourself. Maybe not. Okay. I'll go ahead and fill in for Ron.

We want to look at the adequacy and completeness, not from a data sufficiency standpoint or the adequacy of this dosimetry technology, which is, I think, a lot that feeds into the co-exposure model. What we want to look at here is just the databases and whether or not, if we look at REX, which is the Hanford electronic dose database, SRDB and NOCTS databases, whether or not you could go from one to the other and establish that they were consistent and there were no obvious discrepancies in terms of frequency.

We also want to look the ROCs, the radionuclides of concern. A lot of what I think the White Paper that NIOSH issued certainly made the case, is that for the ROCs, you essentially had no chronic exposure and therefore you did not have routine bioassays, although you might have some incident-driven bioassays.

We wanted to certainly review the ROCs from that standpoint, and also confirm that, yes, what we were finding were in fact event-driven, that all this kind of jives, that we looked across these different databases, they're consistent in terms of the frequency and the basis for the bioassays ever being done.

That's what we did there. And, again, I just want to clarify, this is not the adequacy and completeness

review that we go into a co-exposure model development process, but it's something that we like to do as another part of our assessment. So, that's what this is. And again, we didn't find any discrepancies.

Member Ziemer: I have a question on that. It may be for Brad, or for you, does the Board need to take action on this? Or the Work Group, rather?

Mr. Fitzgerald: Action on?

Chair Clawson: On the data adequacy? Isn't that more of a Site Profile issue, Joe?

Mr. Fitzgerald: No, actually, NIOSH is going to provide a pretty good scrub on this question when it develops the issues, and of course Chuck may want to speak to this, or Tim may want to speak to this more. I think this is part of their presentation, but the one probably outstanding item for Hanford is the coworker model. Part of that coworker model, based on the guidelines, is to establish the adequacy and completeness of the data upon which that is based.

So that's going to be the more comprehensive looking at the sufficiency of the data to support it, looking at the adequacy of the actual dosimetry. So, I think this was more of a comparative review of the databases and looking at the nature of the bioassays that we're, you know, there's claims being made in the review on the ROCs, on the frequency and the source of the bioassays. We wanted to confirm that by first-hand review of the databases. That's what this is.

But I think that the Work Group will certainly need to look at the coworker models that will be coming down the pike in a year or two on Hanford, and certainly be cognizant of the data completeness and adequacy question that will be in there.

Mr. Nelson: That's great, Joe. This is Chuck. Just to let you know, that is part of one our agenda items

and I was going to give it some detail with regard to our exposure evaluations, so we are going to address that.

Chair Clawson: Okay. Thank you.

Member Ziemer: So this is just sort of an update for now.

2. Co-Exposure Model Application

Mr. Fitzgerald: This is a review of that issue in the context of the SEC questions we just talked about, like the ROCs, the radionuclides of concern, will they in fact be event-driven by virtue of what's in the database, and if we were to look at one of those nuclides and find evidence of routine bioassays, that would kind of undercut that argument that clearly there was a process that was leading to somebody doing routine bioassays.

So it was more or less a validation process for the other issues in the White Paper. Whereas, and Chuck will get into this, whereas what NIOSH will be doing is a much more comprehensive redo to support a coworker model.

Anyway, finally, this is a process of looking for evidence to the contrary. It's kind of an interesting question. You put up some hypothesis saying, we don't believe there's any evidence of chronic exposure or programmatic issues that would not allow you to dose reconstruct and so, this has been a process of looking for exceptions, looking for evidence to the contrary, and we would concur at this stage, and it's taken, as Brad knows, as everybody knows, it's taken some years to see if we could find some evidence to the contrary.

I think it's been a pretty rigorous review, and I think we can say we have not found any evidence to the contrary for that time period. So at this point, we're in concurrence with NIOSH's conclusion.

Any questions overall? This, again, is a filling in the

holes from the last presentation in April, but I think we're pretty much completed on this now.

Member Ziemer: I think it might be helpful just in the record, I think it would be helpful if the Work Group basically recognized or agreed with the overall conclusion, for what it's worth here. In other words, we agree with SC&A's conclusion, agree with NIOSH's conclusion, that nothing has been found contrary to the determination in SEC-00201.

Chair Clawson: Paul, I would agree with that, but I still want to be able to see what the completeness and data adequacy for the coworker model. I'd like to, I agree with what's being said here, I think there's still a little bit due diligence that we need to be able to do, and a few more questions before I say that I'm really happy with everything.

Member Ziemer: Yeah, and I don't think that supersedes the issue of data adequacy. It's simply dealing with this particular conclusion in terms of the SEC, if I'm understanding that correctly. Joe, what is your view on that?

Mr. Fitzgerald: Yeah, I think one has to qualify our concurrence, and it's the conclusion as presented in the White Paper for the issues that are identified in the White Paper, but very clearly for those workers that are unmonitored, one needs a coworker model to be established, developed and established, and obviously the Work Group hasn't seen that yet. NIOSH hasn't finished it yet.

So, we concur with what's certainly the resolution of the SEC issues in the White Paper, as indicated in the White Paper, and on the BRS, but as Chuck will go over here shortly, the coworker models for Hanford have yet to be finished and that's a pretty major component, I think, of dose reconstruction. That would be the qualifier, and I'll defer to NIOSH on that.

But this would be more of an agreement or concurrence on the outstanding BRS items that

we've been carrying in the matrix now for so many years for Hanford, and I think it's certainly an accomplishment to be able to close those out and just have the coworker model as the remaining item.

Chair Clawson: I agree with that, Joe. Thank you. Do you have anything else, Paul, or Phil? If not, I'm going to turn it over to you, Chuck.

Member Ziemer: Well, just quick, again, this is the overall conclusion of all, this whole set of issues relating to the particular fact that dose reconstruction was feasible from '84 onward, I guess, for employees of the prime contractors as defined in the class definition. So this overall conclusion of this exercise, we could have just gone through the last couple meetings.

I'm comfortable as long as we don't lose sight of having this in the record, but it would seem to me a little strange to have an overall conclusion by our contractor and not act to it in some way.

Chair Clawson: Well, I agree with what you're saying, Paul, and I agree with what their conclusions are that they came up with. There's still that one little last hurdle that I wanted to get. Completeness and data adequacy is always the overarching issue, especially in dose reconstruction part of it. I concur with what Joe has put forth with us to us, and I agree with what they're saying. We still have work to do too, though.

Mr. Fitzgerald: Yeah, I would say that, Brad, if you were to present this on behalf of the Work Group at the full Board meeting, we would probably modify, I can see where this could be misconstrued, and I understand what Paul's saying, too, that this needs to be qualified by the fact that the coworker models have not been developed and issued yet.

So this probably is too sweeping a statement. It needs to be qualified. I accept that.

Chair Clawson: Okay.

Mr. Fitzgerald: It's provided in the context of the White Paper, but as written, it could be interpreted to be much broader, which I think, as you were pointing out, the Work Group hasn't acted on the coworker models yet.

Mr. Rutherford: Brad, this is LaVon. I just want to say the co-exposure issue is a global issue, as you know, because of SRS and INL. We're in the process of updating all, and ultimately if we determine that we can't do a co-exposure, and even if there isn't a petition open, we can move forward with an 83.14 if it's appropriate and if we determine that co-exposure's not available.

So I don't, it's obviously the Work Group's purview on how, and the Board's purview, on how you want to handle this. I just want to let you know that even if you closed out this SEC, going forward with the co-exposure model and revising the co-exposure model, we still have that path forward for the 83.14 process to close that out.

Again, I'm just throwing that out there. Obviously it's the Work Group's decision on how they want to handle that.

Chair Clawson: Thank you, LaVon.

Member Ziemer: I think it's good, Brad. This is in the record, in any event, and I don't think, I'm comfortable if we don't have to take any formal action on it at this time.

Chair Clawson: Okay. I agree with what Joe was saying about this. To me, this is kind of a little big end, and, LaVon, I appreciate you telling us, letting us know that. I realize that. But we have got a little bit more that we'd like to be able to do, but with that being said, Chuck, I think you're up.

Mr. Nelson: Okay. I was going to cover, and am going to cover, we've actually been beating it up

pretty good here. But I'll start pretty basic, for those that aren't familiar with co-exposure evaluations.

Back in March 6, 2020, we issued a co-exposure implementation guide, that's DCAS-IG-006. That was Rev. 0. The purpose of this, for those that don't know, is it provides guidance for the valuation of personal monitoring data, to be used in dose reconstruction for those unmonitored workers.

I know a lot of the Work Group Members have been involved in other sites, such as Savannah River and Idaho, so they know how involved these coworker evaluations really are.

The team has been working on schedules for each of the sites, and prioritizing them with ORAU's schedule, and so we do have a schedule for Hanford. But we have not yet started a co-exposure evaluation for Hanford. The projected start is December of 2020, so here in a few months. The completion date is October, that's a projected completion date, is October, 2022.

They are very involved, and there's a lot of steps in them, and like I said, those of you that have been involved in them, you know how involved they are, and it is a key thing to be looking at. Like Bomber mentioned, if during the performance of these coworker evaluations, if we determine or discover any dose reconstruction feasibilities, NIOSH will issue an 83.14 to establish an SEC class. So, I think we've talked about a lot of that, but I wanted to touch on that.

Now the other question is, so what issues do we have remaining at the site? The Board Review System, we entered all the issues, and it includes all those that Joe has discussed earlier today, but there's some other issues. Many of them are tagged with co-exposure. They say, okay, this will be completed when the co-exposure evaluation is complete.

Obviously we haven't started that yet, and that will be coming forth. So there are actually eight issues remaining, and they're all tied to co-exposure. And it's all going to be covered under the manner of process that you do have a coworker model, a co-exposure, I want to say coworker because that's the old terminology, but co-exposure model.

Those are open issues. They will be handled because, like I said, these are very detailed investigations and evaluations.

Then, regarding other open issues, we have two Site Profile issues. I'll touch on those. Maybe fill out a recommendation, we'll see how it goes.

There's two remaining Site Profile issues, Issue 8 and 18. Issue 8 is an intake estimation for recycled uranium. SC&A found some data in '70 and '72, and felt it would be more climate-favorable than what we have in our Site Research Database.

That right now is an item that is not closed out. Once the Site Profile is updated and there is some concurrence, that can be closed out.

Issue No. 18, that's the other Site Profile issue, the other two. This one retains external exposure geometries, the use of appropriate correction backers for different jobs. If you've been involved in other Work Groups, this comes up all the time on many other sites. It's essentially an overarching complex-wide issue and it applies to many sites beyond Hanford.

It's discussed quite often, so one recommendation I might have, or maybe I could throw something out and the Work Group can discuss it, is that we move Issue 18, I don't know that it has to be in the Hanford Board Review System as an issue, because it's an overarching issue, and once it's settled outside of any other Work Group, then it would apply to Hanford and other sites. I did want to throw that out.

Let me just finish up by saying once all these SEC issues are resolved, the Site Profile will be revised. As most of you know, when you do revise a Site Profile, then all these different developing issues and investigations we've done, there's going to be a lot of changes. For those that don't know, when you do changes to a Site Profile, you do a Program Evaluation Report and it looks at all the changes and how they might affect dose reconstructions. That's coming down the pike.

I basically wanted to cover what the co-exposure model is, what our current schedule is, and also say, here's the outstanding issues. They are the big ones, as Joe like to call it, the big eight issues. SC&A and the Board have agreed to close those out.

But as Brad mentioned, you do have these co-exposure-related issues that NIOSH is going to take upon themselves, and we're going to do a complete evaluation of that, and we'll have the ability to establish an SEC class if we do determine an infeasibility for that period of time.

Then we do have these other two Site Profile issues, one of which, in my opinion, can go to an overarching complex-wide issue, but that's for the Board to decide. That's what I had to talk about.

Chair Clawson: I understand that overarching issue, and I do agree with you that when we get that problem solved, it's going to probably take NIOSH quite a bit because they're going to have to go back, and probably we've had this at almost every site, if I remember right. I guess maybe I'll let, Paul, what do you think about taking No. 18 and moving it to the overarching issues? I just don't want to lose track of it.

Member Ziemer: The whole point of doing overarching issues is so that the full Board doesn't end up doing the same thing multiple times for every site. For the Board to move that, I think it takes a recommendation from the Work Group that it be considered for an overarching issue, and I

suppose that could be done at the next meeting, if we wanted to make the recommendation.

It seems to me that it's a good thing to do. I guess the other half of that is the Subcommittee on Procedures actually active right now? Rashaun, do you know what their schedule is? The Subcommittee on Procedures that is handling overarching items?

Dr. Roberts: Actually, we don't have a meeting scheduled right now. So nothing in the immediate future.

Dr. Taulbee: This is Tim. I can speak a little bit to, behind the scenes on that. I know there is some work actively going to try and schedule one, kind of consolidation of issues, and I'm thinking about what things we can begin to address. I would expect that we would be getting with Rashaun, probably within the next month, to begin the scheduling process for a meeting. But we're not quite there yet.

Member Ziemer: Tim, do you recall on Issue 18, dealing with the external exposure, isn't the Subcommittee already handling that from at least one other site?

Dr. Taulbee: I believe so, but I'm not a hundred percent sure on that.

Member Ziemer: I was thinking maybe from Savannah River, but --

Dr. Taulbee: No, I don't think it's Savannah River, but I do think it's another site. I'm not a hundred percent sure on that. I'd be speaking out of turn if I gave an opinion on it. Sorry.

Member Ziemer: I mean, if it's truly overarching, it should be fairly obvious what other sites would have the same issue.

Chair Clawson: I thought we had this as a --

(Simultaneous speaking.)

Chair Clawson: Well, let's just, I appreciate, Chuck, you calling that out to us. I think we're going to have to get back to more of a functional mode to where we can actually address quite a few of these, because it's been pretty hard to get all of us together as it is. We may address that down the road. We'll take that into consideration, but for this time, I think we'll just sit where it's at and be able to proceed on from there.

It is truly an overarching issue. You're going to have to take care of that throughout all of the sites, so I don't have any problem with just leaving it where it's at for now, and we'll just proceed on from there.

Member Ziemer: I don't think it's urgent, but we don't want to let it sit if there is a, if the Subcommittee's already working on this issue, we'll just add this to their hamper.

Chair Clawson: Right. Seems like each site has its unique part of that, though, too. That's kind of what's making this, these overarching issues kind of interesting to me, is this site is this certain way, you go to another site and there's just a little bit of a difference, and boy, trying to tie those all into one, I think will be pretty --

Member Ziemer: I think that's true. Almost for the overarching issue there are some site-specific portions to it, but overall approaches should be comparable, let's put it that way.

Chair Clawson: Right. And then we'll be able to then, each site with their unique nuances on that, we'll be able to address the other part of that. That's what I can say. Anything else that we need to go over, Chuck, at this time?

Mr. Nelson: No, I thought the most important thing was the co-exposure model evaluation since that's outstanding. It's going to take quite a bit of time to do it, and we just wanted to let the project, the Work Group, know where we were with our current schedule on it. It's a long pole in the tent.

Chair Clawson: Yes, it is. It's one of the main ones in there, too. I would appreciate if I could have maybe, like, just, it doesn't have to be every month, but maybe every other month or something, just give me a status update of where that's at. I get asked a lot of questions about the Hanford site, so if you could do that I would appreciate that.

Mr. Nelson: Will do. Definitely.

Chair Clawson: Anything else, Joe, that we need to go over at this time?

Mr. Fitzgerald: The only thing is the last item, which is the path forward for the full Board meeting.

(Audio interference.)

Member Ziemer: Rashaun, we're not hearing you, I think you're muted.

Mr. Fitzgerald: You're on mute.

Dr. Roberts: Oh. I'm sorry. Can you hear me now? I just didn't want to skip allowing any petitioners who may be on the line to comment, or add to the discussion, or ask questions.

3. Petitioner Comments

Chair Clawson: That's a very good point. I guess we'll throw that out, if we do have any petitioners on here, this is their opportunity to be able to discuss anything, if they'd like. Are there any petitioners on like that would like to speak to this? Without any being heard, I'll proceed on with the path forward, and I believe that's back to you, Joe.

4. Path Forward

Mr. Fitzgerald: I think Rashaun was asking about presentations for the full Board meeting, and my only comment was that perhaps you might want to update the full Board on the proceedings. We had a Work Group meeting in April, Work Group meeting this month, so actually a fair amount of activity with

Hanford.

I'd certainly be glad to summarize this, in not, certainly, the detail that we just gave today, but something that would be suitable for the full Board to bring them up to speed as to where things stand right now, and to reflect what remains, which is essentially the coworker model of development.

I would maybe work up something short, relatively short, for you in conjunction with Chuck, so this is something that SC&A and NIOSH could agree on that we can provide you. We'd have to do this relatively soon, I think, Rashaun, right? Probably maybe this week. Rashaun?

Dr. Roberts: Sorry, I keep forgetting to take myself off mute. Yes, that would be perfect. No pressure.

(Laughter.)

Dr. Roberts: By probably next Wednesday I would need to start distributing materials and things like that. I know that doesn't give you a lot of time.

Mr. Fitzgerald: Yeah, we have to also get it cleared through the process.

Dr. Roberts: That's right.

Mr. Fitzgerald: So, what I'll do is try to turn something around, Chuck, for you, by tomorrow morning?

Mr. Nelson: Yes.

Mr. Fitzgerald: And you can do it, you want to do it in terms of editing it, and once you and I agree we can cycle it through for clearance, and then back to Rashaun by, probably by Monday. Would that be suitable?

Mr. Nelson: That sounds good, Joe. You think you would just use, like, a template of what you used today?

Mr. Fitzgerald: Nothing that detailed. I think, Brad, correct me, this is up to you all, obviously, but certainly you want to account for the issues that have been closed. Not in the level of detail that we've been going through in the Work Group, just to provide the status for the full Board and sort of a big picture of what this means and what's left. I think that would make some sense. But it's up to you, obviously.

Chair Clawson: Yeah, it doesn't have to be anything big. We've been dealing with this one for a lot of years. I think it will be just something short and sweet, and be able to bring the rest of the Board up to where we're at, what we're dealing with and what our path forward is. But also to be able to bring the public up, so they know where we're dealing with on the Hanford site.

With that being said, I may have to have you fill in for me, Paul, because I don't know if I'll be able to participate in that at night yet.

Member Ziemer: I'd be glad to do it. We're just talking about a few slides, right, Joe?

Mr. Fitzgerald: Something that would be suitable for the full Board and the public. A little higher level.

Member Ziemer: I'd be glad to do that, and if anyone has questions, I'll tell them Joe will be onboard to answer.

(Laughter.)

Chair Clawson: Joe and Chuck.

Member Ziemer: Or Brad. I'll leave Brad's home phone number.

Mr. Fitzgerald: That will be plenty of help. Again, I think a lot's been accomplished, so I think this is more or less to let people know that this has reached a certain point. There's still some left, but a lot has been done. So I think that would be the

tenor of the report.

Chair Clawson: That sounds good to me. Anything else that needs to come before this Work Group, or anything that needs to be said, questions? Without hearing anything, as I've said, it's been good to see you all. I never thought I'd say it, but I kind of miss our camaraderie with each other. Stay safe, we'll talk soon.

With that being said, I'm done.

Adjourn

(Whereupon, the above-entitled matter went off the record at 2:11 p.m.)