Centers for Disease Control
National Institute for Occupational Safety and Health
Advisory Board on Radiation and Worker Health
Hanford Work Group
Friday, October 26, 2018

The Work Group Convened via Teleconference, at 2:00 P.m. Eastern Daylight Time, Bradley P. Clawson, Chair, Presiding.

Members Present:

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

Also Present:

Ted Katz, Designated Federal Official
Nancy Adams, NIOSH Contractor
Terrie Barrie
Bob Barton, SC&A
Bob Burns, ORAU Team
Joe Fitzgerald, SC&A
Michael Kubiak, ORAU Team
Jenny Naylor, HHS
Charles Nelson, DCAS
Jim Neton, DCAS
Lavon Rutherford, DCAS
Karen Stevenson

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Proceedings

(2:00 p.m.)

Roll Call/Introductions

Mr. Katz: Good morning, everyone, first of all. This is the Advisory Board on Radiation and Worker Health, the Hanford Work Group teleconference today. The Hanford Work Group hasn't met in a long time and this meeting is a lot about catching up and planning forward. There aren't a lot of materials for this meeting; there is a sort of matrix of issues, and that is posted on the NIOSH website for everyone on this line; on the NIOSH website this program's portion under the Board section, schedule of meetings, so you can go to today's date and then schedule of meetings and find the document that folks will be talking about today. And the agenda issue is just that document, so there's really nothing to the agenda but that really.

So, let's run through -- since we are speaking about a specific site, please speak to conflict of interest when you go, and let's just start with the NIOSH ORAU team.

(Roll call.)

Mr. Katz: All right, then. So we have all our Work Group Members, and all set. Let me just remind everyone on the phone, lots of people who don't normally join these calls, to mute your phone so that your phone doesn't cause any audio problems. If you don't have a mute button on your phone, press *6, that'll mute your phone. And then to take your phone off of mute you just press *6 again. Also, I'll just note, please don't put this call on hold at any point. Hang up and dial back in. If you put it on hold we'll have hold music interrupting the call for everyone else until you get back on, so please don't put it on hold.

And with that, Brad, it's your meeting.

Chair Clawson: First of all, I'd like to welcome everybody out here. It's been a while since we've met as Hanford Work Group, especially with the passing of Dr. Melius. So we're all kind of trying to catch up and that's the importance of this meeting.

I guess from the start, Joe, I guess I'm going to turn it over to you or to NIOSH to tell us where we're at on these outstanding issues.

Mr. Fitzgerald: Well, I think it was a joint effort and I would defer to Chuck since he took the lead in organizing it. But this was request from Jim Melius when he was chair to more or less reconcile both the SEC and Site Profile issues. It had been a long time since the Work Group had met, and given the ongoing activities in terms of the SEC '84 to '90 there was a need to more or less

re-baseline everything and to, in his view, to apprise the Work Group pretty much on where things stood, what issues remain, and to look to the Work Group for some direction given the situation or circumstance that we're in. And so that was the impetus to do this last year and I thought it went pretty well. But I'll go ahead and let Chuck go through it. I mean, we basically worked together in terms of the issues that we had, and where there was a difference we tried to resolve those differences to make sure that the status was clean, and I think we accomplished that.

So, I'll let Chuck go ahead and kind of walk us through this since this is literally his drafting.

Work Group Discussion

Mr. Nelson: Okay, this is Chuck Nelson. What we did is we took all the issues that we thought were outstanding issues, and what we had to do is we had to mine through a lot of the SC&A reports and to see were these issues for the current period -- which what we're looking at is the 1984 to 1990 period -- these were all the prime contractors. So there's outstanding issues there and what we did is we went

through all the SC&A reports and we tried to do a conglomeration of all issues, and then we worked directly with SC&A and said, hey, you agreed that these issues are still valid. You laid them all out with the matrix that was identified in 2011, and a lot of these issues went away with the issuance of previous SECs since 2011. So what you're going to see here is just some background information that talks about the various matrices for which these issues came from. Then from there we went matrix issue by matrix issue, starting with Issue No. 3.

Brad, do you see any need for any background as far as SECs that have been issued to date or anything, or do you want to just stick --

Chair Clawson: No, I actually -- because of what has gone on, because actually what you already said, some of these issues were taken care of with previous SECs, so if we could just run through the SECs that we have and their end dates and where they're at, I'd just like to bring everybody up to speed on that if you would, Chuck.

Mr. Fitzgerald: Yes, this is Joe. One thing I'd add is as part of this process we did reach back, for example, and discuss all these issues, these former issues, the ones that were handed off to me, anyway, from Arjun Makhijani just to make sure there was continuity. There was a real concern that we didn't lose anything in the process, that in fact, he reviewed the matrix as he left it to ensure that that was addressed going forward. So this was a pretty systematic process reaching back prior to 2013, anyway, so covering the last ten years.

Mr. Nelson: Okay, so Brad -- this is Chuck Nelson -- I'm going to go ahead and cover just the evaluations to date from Hanford -- the initial petition was received back in March 2006. The initial ER was for SEC 57-1 and it covered the time period, October 1, 1943 through August 31st, 1946. Then March 26th, 2008 was SEC 57-2 and that picked up really the remainder of the period, so September 1, 1946 to

December 1, 1990.

Now, during that timeframe when that ER was issued, a Class was given from September 1, 1946 through December 31st, 1961 for the 300 area; then January 1, 1949 through December 31st, 1968 in the 200 area; then after that there was in 2009, there was another SEC 00152 where a Class was granted for all employees and that basically include all the dates from the beginning of October 1, 1943 all the way through June 30th, 1972. So when that SEC 152 was issued it superseded the two previous Classes, so now we have a period '43 all the way through '72, those specific dates.

Then in 2012 there was SEC 201, it was a 83.14 and NIOSH determined that there was some additional dose reconstruction infeasibilities. So then at that point the SEC time period was extended through December 31st, 1983 and those specific issues were worked with highly enriched uranium, uranium 233, thorium and neptunium. So, that kind of left us right where we were back in 2015.

So now we're carried all the way through 1983 from beginning of time and then in 2015, specifically June 2015, SEC 226 was issued; this was, again, another 83.14, and that's the most recent one, and that's where it basically covered construction and tradeworkers for the period of '84 through 1990 and said that they were having trouble placing construction tradeworkers in specific areas, they were all over the place and it wasn't a good mechanism for seeing exactly where those guys were. So in order to get those cases going, they implemented that class, which then left the remainder of SEC 57 which we're now wanting to evaluate and are evaluating over the period of 1984 through 1990, and that's for all the prime contractors. That's kind of the history of the SECs at Hanford to date.

So, Sam Glover had Hanford until 2016 when I took over for him when he had moved on to higher

pastures.

Chair Clawson: Okay. So for the construction trades just let me clarify on the SEC; they have a SEC from what time period, the 90s?

Mr. Nelson: Yes, all the way to 1990, which is the entirety of SEC 57; SEC 57 was capped off until 1990.

Chair Clawson: Okay. And the prime contractors are up to '83 or --

Mr. Nelson: Yes, everybody on-site including DOE is up to '83.

Chair Clawson: Okay, just wanted to make sure.

Mr. Nelson: So the focus has been on these issues that we're about to go through are '84 through '90 for prime contractors. So just to go over those, that's going to be Battelle Memorial Institute, Rockwell Hanford, Boeing Computer Services, United Nuclear Industries, Westinghouse Hanford, and Hanford Environmental Health Foundation.

Chair Clawson: Okay.

Mr. Nelson: So if that's enough background, I think is everybody ready to go through these issues?

Chair Clawson: I am. I just -- to be honest, with all these different SECs, my issue was is I was really getting a little bit confused every once in a while on the dates and stuff. So it's sufficient for me. Anybody else on the Work Group need any more clarification?

Member Ziemer: No, that's good. I think we can move ahead. Member Schofield: I think so.

Chair Clawson: Okay, so go ahead.

Mr. Nelson: Okay, and Joe, feel free to project on these as we go. I'm pretty much going to read what we laid out and what we agreed upon, and I think the consensus or the idea of this meeting was to go

through these issues -- previously the matrix issue read one way, but as we are looking at the '84 to '90 timeframe, then we felt a need to reword some of these so we could focus on the issue at hand and say, okay, here's what we're really evaluating in this time period for the prime contractors.

So what you'll see in these issues is you'll have a title, and we may or may not propose a change for that title, and then you'll have a description of the issue, and in many cases we do ask that we change the proposed description of the issue to more tailor where we are with this timeframe and the prime contractors. And from that after that we have a discussion that kind of explains why we recommend a change of perhaps the proposed description.

Member Ziemer: I was going to ask a question at this point -- this is Ziemer -- the document that was referred to on the agenda, the document entitled, "Suggested Updates to the Outstanding Dose Reconstruction and Special Exposure Cohort issues for consideration by the Work Group on Hanford" -- is that document the document that you are addressing, or are you --

Mr. Nelson: Yes, sir. What we're going to go through.

Member Ziemer: Okay. So the second part of my question is -- because I was trying to retrieve that document -- do we have that or was that distributed?

Mr. Katz: Yes, Paul. It was sent to all of you and it's also posted on the NIOSH website for this meeting.

Member Ziemer: Okay, I'll pull the NIOSH website up. I somehow couldn't find it. Okay.

Mr. Katz: Go ahead, Brad.

Chair Clawson: I just pulled it off there because I had it on my computer and it just went kind of goofy, so I just went to the meeting agenda and just pulled that off, it just brings it up.

Member Ziemer: I'll do that, okay.

Mr. Nelson: Does anybody else need time to pull that up?

Chair Clawson: I think -- Paul can get to it pretty good.

Member Ziemer: Go ahead, I can get to it. Feel free.

Matrix Issue 3

Mr. Nelson: Thank you, Dr. Ziemer. Okay, so Issue No. 3 which is a SEC issue; the title of the issue was, "Thorium-232 Internal Exposures from January 1, 1960 and Onward." Do you think it could be worth reading the previous description or the proposed description or should we just focus on where we think we are?

Chair Clawson: Let's focus where we're at.

Mr. Nelson: Okay, so things that need further clarification as we go through them, please ask and we'll elaborate. Okay, so when we got this issue the reason -- and the real reason for this, Dr. Melius, his plan was to get all these into the Board Review System and that's an electronic system where we can go in there and put these issues in there and frequently update them and keep everybody up to speed of where the issues are and it's an interactive process through the different groups, and it's a better mechanism to track these.

So, Brad, I'm not sure how comfortable you are with the Board Review System. Some people aren't and they choose to use a hard copy matrix, so I'm not sure if you're familiar with the use of that with some of your other Work Groups or not?

Chair Clawson: Yes, I am. I'm very familiar with it; it's just on your computer and the system works good that's one of the keys to it. We've had trouble with them.

Mr. Katz: This is Ted. So what we'd normally do with

this is all Work Groups should be using the Board Review System at this point. And then because not all Board Members always have access to the BRS -- I mean, Board Members that have access normally and have issues with their computers and so they don't necessarily have access at any given time. Whenever we update the BRS, Chuck, we also make a PDF and send that to the Work Group; that way everyone has it; that way when we have a Work Group meeting we can post those PDFs if we can't do anything with the BRS for the public. Is that okay, Chuck?

Mr. Nelson: Yes, I understood it to be that way as well.

Mr. Katz: Okay, good.

Mr. Nelson: Okay, this first issue, Matrix Issue No. 3, again, it's Thorium-232 internal exposure, and that means that it's a SEC issue related to potential foreign exposures during the remediation of certain areas and the potential use of foreign and nuclear fuel fabrication and related operations within the 300 area during '84 to 1990, and any possible thorium use in any other areas of Hanford during that time. And basically we expanded the scope. Previously the scope was just to look at remediation areas, and what we found -- so we have been working in the last few years and we'd been performing interviews looking at MC&A records, as well as we have thousands upon thousands of documents that in our site research database, and we've done a lot of data capture in 2016 and '17. So in mining through all that we asked, and I think Joe would agree based on our interviews which he participated in, that we felt we should expand the discussion of that to include the 300 area because you'd think that we may need to dig the 300 area, specifically nuclear fuels fabrication, a little deeper to see -- you find while looking in some of these records that there may have been some thorium, but the question is, is there potential internal exposure from that thorium, or is it just something that's stored somewhere?

So what it requires that you do further investigation by many different means and you're just trying to determine if that internal exposure exists. So, what we'd like to do on each of these issues is to get some buy-in from the Work Group, they might agree with our proposed description as we go through the issues, and with the goal finally being we have a good working Board Review System issue matrix.

I know I came full circle there, but --

Chair Clawson: Now, that --

Mr. Nelson: Go ahead, Brad.

Chair Clawson: That's no problem. I was trying to remember why we brought the 300 area into it and that was because of the fuel fabrication process, correct?

Mr. Nelson: Yes.

Chair Clawson: Okay.

Mr. Fitzgerald: And Brad, this is Joe. For the workers' benefit, what you're going to hear is going to be quite similar when we talk about not only thorium but U-233, the HEU and neptunium, these were all, as you heard Chuck describe, the basis for the preceding SEC Class. So what we're doing here is frankly taking this forward into this new time interval, '84 to '90 and establishing whether those source terms in fact exist and the operations are in a time period and where those source terms and potential exposure sources may have been present.

So a lot of the research that Chuck and we have been doing is looking through the documentation and doing interviews just to establish from an operational standpoint where the source terms might be and whether the exposure potential existed. So you're going to hear, I think, something similar on this one and the other three key exposure sources just because we want to establish to what extent they were of significance in this particular SEC interval,

and then chase that down and establish whether or not the conditions that led to the SEC in the preceding class would possibly exist in this time interval, '84 to '90. So, I think this is a case on thorium and probably the same for the other three, so.

Chair Clawson: My question was a little bit because the way we're not just looking at the 300 area correctly, it's other areas, because exposure during remediation of certain areas, and then it calls out 300 area. So this is not just limited to the 300 area, correct?

Mr. Nelson: That's correct. That's kind of where our primary focus is right now, though.

Chair Clawson: Yes, the way it just kind of read I just wanted to make sure because I knew of some other areas and some other issues of that time period that I was thinking about. Well, that sounds good to me. What about any of the other Board Members?

Member Ziemer: No issue here.

Member Schofield: No issue.

Chair Clawson: Okay, sounds good. Go ahead, Chuck.

Matrix Issue 4

Mr. Nelson: Okay, the next issue was, as you alluded to, is highly enriched uranium, and the title is "HEU, Uranium Intake Estimation." So, again, we're looking at internal exposures from highly enriched uranium and whether, in fact, it's an individual's exposed to HEU, if proper -- or at least some dosimetry was performed on the individual where we can bound the dose, specifically alpha spectroscopy is something that's nice to have. So for this particular issue, the way we'd like to propose a description of the issue, if you read it, this is a SEC issue pertaining to whether workers who are partially -- excuse me, who potentially receive intakes of HEU during the post '83 period were monitored by alpha spectroscopy,

urinalysis, or by other appropriate means.

This is contingent upon the identification of a potential source of HEU intakes by half our workers through the '84 through the 1990 period. Now, we added some additional discretion to that to say why we changed exactly how that reads. And SC&A and NIOSH agreed to the proposed update on the wording of this issue to reflect that. Thus far, a source term representing particular intakes of HEU have not been identified at Hanford for '84 through '90, it's really contingent upon if you do find a source term. So, while we're seeing the source terms there for thorium, at this point in time we're not necessarily finding anything specifically for HEU, but we also haven't excluded that.

Chair Clawson: So, in your terminology of HEU what are you looking at? Are you looking at an enrichment amount of, what? Anything over what?

Mr. Nelson: Actually, Bob, you want to bounce in on that because I know we have established a -- I don't want to miss what it is, so I'm not 100 percent sure of that -- I know it's highly enriched, but --

Mr. Burns: Highly enriched, right. I wouldn't say -- there's not -- we've never defined a specific threshold -- this is Bob Burns, by the way -- but at Hanford, for instance, we're looking at the material control and accountability data; they have a threshold that they use for additional reporting purposes, for inventory purposes that's 30 percent enrichment. So that's a level of convenience for our purposes because it allows us to differentiate the two inventories. So I think that's how we would look at it. I guess, it starts getting above 20 percent is where we're going to -- that's what we're looking for. That's not to say I consider 20 percent highly enriched; in my mind highly enriched is getting upwards to 90 percent or so. But back to your question, there's not a specific threshold, but we're not ignoring material that's lower than say into the 90's, if that's helpful.

Chair Clawson: Yes, I just -- well kind of enriched

uranium to me was way up there in the 90s and I know at Hanford we dealt with a lot of it, it was a lot less than that. But it was going into -- it was in the process. Now, going into the reactors, the single pass-throughs and stuff, we're looking at two to three, and then going on up from there. I was just trying to understand your terminology on the HEU because that's what I wanted to hear is what are we classifying as HEU there. That's okay with me.

Mr. Burns: Okay, I could characterize it as HEU, not LEU, not low enriched uranium. So we're not looking -- or as you said, there's massive quantities of say, in-reactor fuel that's like 1 percent enriched; yes, it's enriched but it's not highly enriched.

Chair Clawson: Right, I'm just thinking of looking at some of the reactor fuel that went through there that we were trying to get to and they were not low enriched, but they were higher -- and I'm just trying to clarify that because a lot of that fuel was going through those reactors, was not low, but to me it was enriched.

Mr. Burns: Okay.

Member Ziemer: Well, let me ask sort of a practical question now; so if we take, for example, the proposed description, what is to be done with that? Is that going to appear in the main document again to make it --

Mr. Nelson: Yes, that'll be in the Board Review System and that's how the issue will read. Like I said, we're not eliminating them, we're looking for them, but thus far through all of our site research, our interviews, our record reviews. We haven't found or identified the source of HEUs that had internal exposures. There are a few items that ORAU has mentioned that we need to look at a little closer, but at this point we don't have any good, documented evidence, but we have not eliminated that.

Member Ziemer: Okay, but the implication there is that additional attention will be given to this; is that

right?

Mr. Nelson: That is correct.

Member Ziemer: It still leaves it open -- what's the terminology, in process, in something.

Mr. Nelson: In progress, whatsoever.

Mr. Katz: Yes, we usually call that "in progress."

Member Ziemer: Yes, so this will remain in progress and this just basically is saying where we think we are in terms of the issue has arisen before and how we're going to address it; is that the direction it goes?

Mr. Nelson: Yes, I mean, we have all these issues that go back for so many years and we've had all these SEC issues that we're at a point where we need to be a little better organized on how we let issues remain in the current status for this period of time. So the focus of this meeting is to lay those out and get them quick that we have something clean to work with and agreed upon by the Work Groups that they understand our direction and they agree with our direction.

Member Ziemer: Yes.

Chair Clawson: Paul? This is Brad. Also, too, in cleaning some of this up we'd have to change the wording a little bit of what it previously was in the matrix. So this is also quite why we're kind of going through this so that we're all on the same page as we change the wording of it and so forth so that we all understand where we're at.

Member Ziemer: Yes, let me steer that; I'm sort of looking for specificity on when things are going to actually happen.

Mr. Fitzgerald: Let me add to that, Paul; I think, one, the wording has been shifted somewhat to reflect the fact that from a monitoring feasibility issue I think we're seeing this as almost a source term validation, is there in fact a HEU exposure potential or not,

because so far we have not found it. We are close, to answer your question. I think before we got diverted somewhat because of the CTW SEC process, that took certainly some time, as well as validating whether the primaries had the same issue. That's taken the last several years. But before that we had a year to year and a half pretty intense review of HEU, thorium, and looking for those source terms, and at that time we did not find any source terms for '84 to '90 that were exposure potential. Therefore, we were getting ready or prepared to advise the Work Group that we did not see a SEC issue revolving around high enriched uranium or some of these other sources.

We're not quite done yet; thorium, as you heard, we still need to look at some of the 300 area issues. For HEU, I'm not sure there's a whole lot more we can do on that one, so we're kind of finishing up what we had pretty much -- we were 80-90 percent through a few years ago, and at some point soon we ought to be able to advise the Work Group on these issues.

Member Ziemer: Okay, gotcha. That's helpful.

Mr. Nelson: Dr. Ziemer, you're going to find that some of these we're laying down pretty good and we're actually ready to close them out for various reasons, some are just old issues that we carried through from the original matrix, so continuity that we're not leaving the issues out.

Member Ziemer: Right.

Member Schofield: This is Phil, I got one question; I assume you're going to be reissuing this matrix with updates; any idea on when this is going to happen?

Mr. Nelson: Well, I think we can do it here pretty quickly once we all have an agreement that, if the Work Group accepts our proposed description that SC&A and we have agreed upon, then we can issue it almost immediately.

Member Schofield: Okay, thanks.

Chair Clawson: That's actually what we're going through right now, Phil. So as soon as we get through this, the Work Group gives them the approval of we accept what they've given us and that'll be sent out.

Mr. Nelson: So truly the real point of this was just to get to that point where the agreement, not necessarily dive into the issues at depth, but get to the agreement that the Work Group agrees with these are the issues. If you guys want to talk about it, I suppose you can; this could maybe turn into a long meeting.

Chair Clawson: I really don't think so, not at this time. I spent a little time just on the wording of this; the only one that I wanted to ask is because of the HEU, I just wanted to know if there's determination, but as far as sitting down and really discussing this, I think that'll have to be for another day.

Mr. Nelson: All right, are we ready to move on to Matrix Issue No. 6?

Chair Clawson: Yes.

Member Ziemer: Yes.

Matrix Issue 6

Mr. Nelson: Matrix Issue No. 6, we have a new title for it because we basically wanted to make sure that we wanted to separate it from the previous issue of ATU; it's just an estimation of intakes have depleted through low enriched uranium for unmonitored workers. And our proposed description is the data is available and the issue pertains to the question if uranium dose assignments for unmonitored workers, are they able to explain it.

And basically what it comes down to being is a coworker issue, so we'd like to revise the title and the proposed description of that issue and we believe this issue is going to be one of those that where we go and evaluate coworkers to include this subject into

our coworker evaluation.

Mr. Fitzgerald: Well, I think the key one here is that we do have data; it's not a question of scanty data or no data at all. We do have data. So this is a non-SEC Site Profile issue, and just for continuity's sake we're including it.

Chair Clawson: I understand.

Member Ziemer: Hang on just a second. I should have asked this before but the proposed titles are intended just to be more clear than the original title. Those will show up, that will be a new name for the same issue is what you're saying, right?

Mr. Nelson: Yes, Dr. Ziemer. That's exactly correct.

Member Ziemer: Yes, okay.

Mr. Fitzgerald: Yes, I think that the station is important too because in this case --

Member Ziemer: Yes, it makes it more clear.

Mr. Fitzgerald: Yes, in this case it's a Site Profile issue and it's really a matter of how that data will be used, other than whether there's sufficient data at all. So certainly making sure it's clear that this is different than the HEU issue.

Member Ziemer: Yes, gotcha.

Mr. Nelson: Okay, so are we ready to move to Matrix Issue No. 7?

Member Ziemer: Yes. Just a matter of procedure; do we need to formally agree or are you taking it by consent that there's no objection that we prove these?

Mr. Katz: I think, Paul, we did just take it by consent, it's quicker and easier.

Member Ziemer: I'm good with that; just want to make sure.

Member Schofield: Yes, that seems reasonable.

Matrix Issue 7

Mr. Nelson: Okay, thank you. Matrix Issue No. 7, this is an SEC issue, the title is "U-233 Intakes." And again, this is an SEC issue pertaining to potential U-233 intakes during '84 to '90 and the adequacy of the Hanford internal monitoring practice for U-233 in the event that such a source existed. Just like the HEU, it's contingent upon identification of a potential source of U-233 by Hanford workers during '84 to '90. At this point we have not yet identified any U-233 exposures during that time, which is one of the reasons that we wanted to update the proposed reading as I just read.

So basically contingent upon whether we identify source of U-233. So we've done interviews, we've gone through our site research database, we've dug through multiple things like MC&A records and you have to identify U-233 source. But again, we're not closing the issue out just like HEU but we'd like to update it.

Chair Clawson: I understand; that looks good.

Matrix Issue 8

Mr. Nelson: Okay, we're on Matrix Issue No. 8 and this is a recycled uranium intake estimation. And data from '72 exists for estimating claimant favorable trace contamination ratios; NIOSH should use these data instead of the late 80's data. So this was something that was discussed in a previous time period and there's a need to review DRs to confirm that this approach is being used.

SC&A and NIOSH concur that this issue can be resolved by an agreement to use trace contaminant ratios for '70 through '72 rather than the 1980's time period. And we recommended this to the Work Group this issue be closed for SEC purposes. We go onto say that NIOSH has verified the implementation of this agreement by performing dose reconstruction

reviews or the issuance of dose reconstruction work instructions to verify or assure that previously agreed upon trace contamination ratios are being issued.

SC&A and NIOSH therefore propose to this Work Group that this issue be placed in abeyance pending of proof of implementation.

Chair Clawson: Okay, I understand what you're saying there, that I don't think you really want to have any discussion on that today, do you?

Mr. Nelson: No.

Chair Clawson: Okay, I just -- we're in your same place, in abeyance, I understand that. I'm good with that. We'll take that issue up when we meet.

Mr. Rutherford: Yes, Brad. This is Bob. I'd like to add that a lot of these issues we know that were old issues that are issues that are associated with a Site Profile. So once the SEC is closed out and we move into a Site Profile portion of it, we'll rewrite the Site Profile to include all the updates and everything that has been discussed, and then obviously we'll go back to SC&A to verify that all these issues have been addressed.

Chair Clawson: I understand that, thank you.

Matrix Issue 9

Mr. Nelson: Okay, next Matrix issue is No. 9. I know Joe is pretty familiar with that, so at some point he may not want to run with this, but I will read what we got on this and we'd like the title to be is, "Neptunium 237 Intakes" and here's our discussion that we have right now; "SC&A and NIOSH are in agreement that discussions over neptunium-237 intake that Fast Flux Test Facility had been addressed." The work that has been done to address this issue for the PUREX Plant was at a point where it could be brought to closure. NIOSH and SC&A in the report recommend to the Work Group that the scope of this issue be defined as a need to document the

findings regarding the potential for neptunium-237, FFTF, PNL and PUREX during '84 through '90 with the expectation that a recommendation for closure of this SEC issue would follow.

There was quite a bit of interviews that were done in July 2013, SC&A wrote up many of these interview results in 2014; there's quite a bit of discussion about neptunium and the lack of source term with regard to internal exposure potential during this time period.

Mr. Fitzgerald: Yes, just for the worker's benefit, like HEU and U-233, I think the NIOSH team and SC&A essentially walked down some very complex operations from beginning to the end of those operations just to establish where these particular nuclides were handled and what the exposure potential may have been to workers. So that involved quite a bit; I mean, you had to look at operational documents, reports, incident reports. You also had to characterize actual source term applications and doses, and also interviewing workers to understand first-hand how they may have handled certain operations and whether or not the exposures may have existed. And for PUREX in particular I think that's been quite a challenge going back in time and I think there's a few more stones that have to be turned over, but we're very close. I think really PUREX is it. The FFTF and PNL I think we pretty well addressed. So I think there's a few more operational issues at PUREX and we should be able with NIOSH to come forward to the Work Group with, I think, some conclusions on this.

Chair Clawson: Sounds good to me. Yes, I've been involved in the PUREX issues and it'll be interesting to see how that turns out.

Mr. Nelson: Okay, I think we're ready to move on. Our Matrix Issue No. 10 --

Member Ziemer: Let me just ask one question; are the findings complete or is there some more work to be done there?

Mr. Fitzgerald: I think there's more work that I believe NIOSH is finishing up with PUREX, and again, some of these resources were diverted on the issues that led to the last SEC Class. So we're now, I think, wrapping things up with PUREX. I'll let NIOSH respond to that one, though. I think we're relatively close given the amount of work we did a couple of years ago.

Member Ziemer: So I'm asking whether we're recommending closing or we're going to abeyance or whether we're not quite there yet?

Mr. Fitzgerald: Well, we're not quite there yet on PUREX. I think I could report even though this hasn't been in writing that we're pretty satisfied with FFTF and PNL not presenting any issues along the lines of an SEC. PUREX, I think there's a few more lines of inquiry that have to be finished before we can reach the same conclusion.

Member Ziemer: Gotcha.

Mr. Nelson: Yes, my understanding was that we pretty much closed all those, but it's true that all this needs to be documented. So that's really where we're left is documenting what was done, the interviews that we've conducted and the results of those -- I mean, a lot of those are already in some of the SC&A reports, but they probably all need to be pooled together.

Member Ziemer: It remains in progress then?

Mr. Nelson: That is correct.

Member Ziemer: Okay.

Matrix Issue 10

Mr. Nelson: Okay, the next one is, Tritium intake estimation from 1949 onward. And we'd like to keep that same title. And just for an explanation; the proposed description is the issue pertains to the question of tritium dose assignment in the event of

sources of special tritium compounds representing the potential for worker intakes are identified at Hanford during the '84 to '90 period.

The issue stems from a statement in the Hanford internal dosimetry TBD regarding a metal, zirconia, and this was specifically in tritides, that it could perhaps be associated with work under the Tritium Target Program in 1988. In the event a source term for the potential intakes of special tritium compound by Hanford during '84 through '90 is identified; what you would do is do an evaluation of any procedure that we have with tritium bioassay and OTIB-66 that's titled final calculation of dose intakes of special tritium compounds. And you would evaluate whether we could apply the tritium bioassay with that special tritium compound and see if we can bound dose.

So, what we'd like to do is the status of this SEC issue would be therefore conditional depending on the availability of sufficient tritium bioassay in the event of a source of special tritium compound intakes is discovered. And so the discussion on that is SC&A and NIOSH propose to the Work Group that the SEC status be considered conditional depending on if a potential source term of intakes of a special tritium compound is identified. And if so, then they would look at the bioassay data.

So at this point we don't have necessarily any special tritium compounds identified to date; but if we do, similar to HEU, then we would need further evaluation.

Mr. Katz: Chuck, this is Ted. In the BRS the status is in progress, there's no conditional or whatever. There's no terminology like that, but it's in progress. That would be clear from your narrative.

Mr. Nelson: Okay, status in progress?

Mr. Katz: Yes, in progress. You're either in progress, you're either open which means they haven't been addressed yet, or they're in progress, meaning they're being worked on, or they're in abeyance

meaning there's conceptual agreement but you want to see implementation before close.

Member Ziemer: This is true for every item that's in progress; there's all kinds of details that you have to go to the narrative to understand what it is that's being done. The narrative makes it clear what's intended here.

Mr. Katz: Right.

Mr. Nelson: Okay, thank you.

Mr. Katz: Sure.

Matrix Issue 11

Mr. Nelson: All right, Matrix Issue No. 11 is promethium-147. We had some discussion on that. SC&A and NIOSH are in agreement this issue is not applicable for the period '84 onward and we recommend to the Work Group that this be closed. So this was an issue that was back in the '70s, an historical issue that kind of carried through from previous SC&A reports, so it is of our opinion that this issue can be closed and is not applicable to this time period.

Mr. Fitzgerald: So Brad, this would be a recommendation for closure since it's a lingering issue from the past matrix which has been overtaken and we don't see any source terms actually past '75. So, I mean, that was something that was in the past matrix; so it's sort of a loose end, this was a bit of housekeeping that we just need to recommend closure to the Work Group.

Member Ziemer: All right, I agree on closure on this one. I think on closure we need to agree.

Chair Clawson: Yes, we do on that one. I didn't think we were going to get into that a little bit, but I understand what you're saying; I just want to read a little bit more.

Mr. Fitzgerald: Yes, this was something in the 2011

matrix where we included a reference that beyond '75 we did not establish any operational handling and recommended that this should be conveyed to the Work Group for closure. And going back and updating the matrix we identified that issue and said, okay, this needs to be taken care of now.

Chair Clawson: I understand; I remember going through that. I'm good; how about other Board Members?

Member Ziemer: Yes.

Member Schofield: I'm in agreement.

Chair Clawson: We'll close Matrix 11, promethium-147.

Matrix Issue 12

Mr. Nelson: All right, Matrix Issue No. 12, this is a non-SEC issue, so this is a dose reconstruction issue. The title is Strontium-90, Cesium-137, and Mixed Fission Product Intake Estimation. There are extensive data available; the issue is listed as closed. In reviewing DRs a check needs to be made if workers exposed during incidents have adequate bioassay data, and data adequacy for coworker models need to be established. So the discussion of this is SC&A and NIOSH recommend to the Work Group that this be kept in abeyance until the verification of this is completed so we can ensure that it's been implemented. So this is a dose reconstruction non-SEC issue that we'd like to place in abeyance.

Chair Clawson: I understand; I'm good with that.

Matrix Issue 13

Mr. Nelson: Okay, Matrix Issue 13; the title is Tank Farm Alpha Contamination. This is another issue, NIOSH and SC&A are in agreement that this issue is subsumed under other matrix items, specifically 3, 7, 9 and 12, and we recommend to the Work Group that it be deleted. This is another housekeeping issue

where the issue was brought up, but these other issues, the other matrix issues pretty much cover alpha contamination throughout the site.

Chair Clawson: So, this has been covered under 3, 7, 9, and 12 is what you said?

Mr. Nelson: Right. So if you go to 3, 3 is thorium, so that's an alpha emitter, 7 is U-233, and then 9 is neptunium-237, and 12 is -- well, they're mixed fission products so not necessarily alpha emissions, but it's radionuclides that they've been exposed in the tank farm.

Chair Clawson: I'm good with deleting this one.

Member Ziemer: Yes, okay.

Chair Clawson: But we are also keeping in touch with what's happening in today's world in those tanks, correct, as far as what the emissions are coming off them now?

Mr. Rutherford: Well, Brad, this SEC goes up to 1990. If we're looking at dose reconstruction -- through the building beyond that, that's really not a part of this SEC evaluation.

Chair Clawson: Okay, I understand, Lavon. I just think what I've been reading about what's been going on there now. So what would actually have to happen is another SEC would have to be filed up into this timeframe then, correct?

Mr. Rutherford: Yes, that, or during our Site Profile review and during it if ultimately there was new information that came in from Hanford during -- that we identified -- NIOSH identified infeasibility, we would pursue it through an 8314. So it either has to go through one of those, either somebody outside petitioning for it or us self-identifying.

Chair Clawson: Okay, I understand. I'm just thinking of today's world. I forgot about the SEC -- so, okay, thank you.

Matrix Issue 14

Mr. Nelson: Okay, moving on to the Matrix Issue No. 14, this is a SEC issue, and a lot of these you're going to see they're all coworker issues, and it's titled Plutonium Intake Estimation. The description is coworker models need to be evaluated from a SEC standpoint. Basically we have to look at the adequacy of the REX database for coworker models and how it applies from 1984 onward for most workers. So what we're saying is we agree we need to look at coworker models, and we'd like to keep that issue open, and what we'll be doing is evaluating coworker methods against the new implementation guide and -- coworker methods are being evaluated at Savannah River, so that's -- the implementation guide itself isn't completed yet, that's kind of a test, so at this point we're not doing coworker evaluation, but we want to leave that open with -- eventually that will be done for Hanford.

Chair Clawson: I understand.

Matrix Issue 16

Mr. Nelson: Okay, the next issue is curium-244, and what we are discussing on this is SC&A and NIOSH in agreement this issue is not applicable for the period 1984 and onward, and therefore recommend to the Work Group that it be closed. So this is an issue similar to the promethium-147 whereas it's an old issue, and we haven't found that issue in the current timeframe, and our recommendation is that the issue be deleted. So with the previous identified matrices but not applicable to this time period.

Member Ziemer: So that's a closure recommendation, then?

Mr. Nelson: Yes. This was documented back in April 2013. SC&A recommended that it be closed.

Mr. Fitzgerald: Yes, this was based on the on-site data capture which included interviews as well as document reviews, and the idea was to establish

whether there was an exposure potential of curium after '83, and we could not establish any.

Chair Clawson: I'm good with that.

Member Ziemer: Yes, I agree. Let's close it.

Matrix Issue 18

Mr. Nelson: Okay. Matrix Issue No. 18, this was a Site Profile, and you'll see this a lot of times when you're looking at SECs, this becomes a -- so this is germane to all sites. The description is the external exposure geometry to use of appropriate correction factors for different types of jobs. So this is an SEC -- or this is a Site Profile, not a SEC issue -- and this is a -- issue. So we'd like its status to be as such. I don't know, does that typically, Lavon, fall off the matrix or does it remain as a Site Profile?

Mr. Rutherford: You know, I don't recall. Jim might remember -- Dr. Neton might remember, but I know it could go in abeyance until the issue is resolved.

(Simultaneous speaking.)

Dr. Neton: Which one were you talking about, Bomber?

Mr. Rutherford: We're talking about the issue of --

Mr. Nelson: It's the external exposure geometry and the correction factors necessary for the different types of jobs. It comes up with most Site Profiles, and it's a global complex-wide issue, so --

(Simultaneous speaking.)

Dr. Neton: Yes, this is a Site Profile issue for sure; it's just what kind of corrections applied.

Mr. Rutherford: Right, so ultimately what would happen is once we -- the Site Profile after completion and resolving the issues, then we can verify it through that.

Mr. Nelson: Now, I know at one time they had specific Work Groups as one of their agenda items. Maybe that's never been --

(Simultaneous speaking.)

Dr. Neton: Yes, this is all caught up in that ICRP 116 work that we're doing, organ-specific doses based on geometries.

Chair Clawson: So this is still going to stay open; it's going to be in abeyance. It is a Site Profile issue, though, just like at all the other sites, but it's just going to be in abeyance until we get into the Site Profile. It could actually just move into that. We don't want to lose it either, though.

Matrix Issue 19

Mr. Nelson: Okay. Yes, I wasn't sure exactly on the housekeeping of that and how that -- so we'll put that in abeyance as a Site Profile issue.

Okay, moving on to Matrix Issue No. 19, this is another non-SEC issue, and it's lack of adequate monitoring, and this is a petitioner issue pertaining to the use of coworker models in the Hanford Site Profile loads and whether they're adequate. Again, the coworker methods will be reviewed against -- the NIOSH Implementation Guide for coworkers once it becomes finalized. Like I said, there's going to be a few of those where we have to do coworker evaluation, that is up and coming, so that is an open item, but it's a non-SEC issue.

Member Ziemer: Wouldn't this particular one be ordinarily combined with a more general one about the adequate monitoring? I mean, this was a specific case, was it, or petition? Didn't we have it before in the matrix?

Chair Clawson: Well, I think it kind of falls under the data adequacy, but --

Member Ziemer: I was looking -- trying to look back.

There was not specific external exposure issue or --

Mr. Barton: We think that we can bound external data, so it's relative to internal exposures. So you need to be looking at coworker methods for that particular issue.

Member Ziemer: Well, it sort of gets resolved if a different coworker issue comes up, I guess, but we can leave it --

Mr. Nelson: I see what you're saying, Dr. Ziemer. You're saying that it's basically covered under previous issues that you've discussed as coworker dose, so it would kind of get rolled --

(Simultaneous speaking.)

Mr. Katz: Yes, this is Ted.

Member Ziemer: It is really then with a different one, that's what --

Mr. Katz: I mean, you have more narrow ones like Issue 6 was, particular to low enrichment, but it's also coworker issues.

Member Ziemer: I guess it's okay to just leave it as it is. It might get solved in some way with something else, but we've had that before also, so I think it's all right.

Mr. Nelson: Yes, a lot of these are historical issues that have been out there and we're carrying them forward, and we just don't want to lose them, so the wording sometimes is a fairly --

Member Ziemer: Right, yes.

Chair Clawson: Sounds good to me.

Member Ziemer: That's fine.

Matrix Issue 20

Mr. Nelson: Okay, so moving on to Matrix Issue No. 20, this is an SEC issue, and it pertains to the

adequacy of monitoring data for skin contamination that resulted from radiological incidents involving primary cooling water at the N reactors. The site data indicates considerable potential for skin contamination during maintenance work at N reactor. And we'd like to leave it as written right now, and it will be an SEC issue.

Chair Clawson: I just wanted one clarifying question on this because you call out in this exposures in some maintenance work. You're not just limiting that to the maintenance personnel, are you? Because I'm looking at the operations and the refueling process and everything else like that. This is to everybody, correct?

Mr. Nelson: I think it was specifically came out from a site expert interview, and they specifically mentioned maintenance work, but I don't know that we would necessarily exclude others from it.

Chair Clawson: Well, right. When somebody refers to as maintenance work, in my eyes that's taking in all people, but this one says the N reactor and stuff like that, it's kind of interesting because of the operations personnel, dealing with the cooling water loads and the refueling process. I just wanted to share because I've read this before, especially the statement of maintenance, and I just want to make sure it was everybody. It's more of a clarifying question for me.

Mr. Fitzgerald: Yes, I would add that perhaps, Chuck, we ought to expand that wording a little bit, because I agree with Brad in this case. This actually, this issue came from a refueling problem which was the splashing of workers with primary cooling water when they removed the core elements, the tubes, and they were getting quite a bit of skin contamination just because of that water. And they were awash in water if you can imagine from that process. It was a quarterly process, so -- and they were wearing masks, so essentially it's a question of what the skin contamination may have been and to

what extent that was being monitored or not. So maybe we can use something broader than maintenance and just include refueling, maintenance, and other activities. Maybe that'll be the phrase to throw in there.

(Simultaneous speaking.)

Mr. Nelson: -- we just remove the word maintenance?

Mr. Fitzgerald: I think we can just say refueling, maintenance, and other activities supporting N reactor operations. I think that would be broad enough. The other comment I would throw in just for background is that, as I understand it, Jay Jones was the primary support for these activities. So of course the CTWs have a SEC for the time period. So to some extent we may also have to establish who these support personnel actually were at N reactor, and they may already be covered, but I'll just throw that in as background.

Mr. Nelson: Okay, so you're suggesting --

(Simultaneous speaking.)

Mr. Fitzgerald: I would just say refueling, maintenance and other support activities at N reactor. That would be broad enough to respond to Brad's question. It actually just was a refueling issue, not a maintenance issue.

Chair Clawson: I think we agree with that.

Mr. Fitzgerald: Again, I think what's interesting is who these workers might have been, and again, I think a lot of them are Jay Jones personnel. One issue we're going to have to walk through is exactly who constituted the support staff for N reactor, who may have been subject to this kind of exposure because it may be --

Chair Clawson: I just remember operations being involved in it, and my reason why this -- because

that's where this came from was an operations personnel mentioning that that -- it wasn't Jay Jones, it was actually them that was doing the refueling. So I just want to make sure we are not leaving anybody out in any way, and I did not want to just tie this to construction or so forth because Hanford is a little bit different in that aspect. So --

Mr. Fitzgerald: Yes, it'd have to be inclusive, rather than exclusive.

Chair Clawson: Right.

Mr. Fitzgerald: So we need to be very inclusive in terms of the personnel as well as the operational activities.

Chair Clawson: Because this issue actually came up from one of the operations personnel in the N reactor, so that's all I wanted to make sure on that. We'll run it all down if they did have masks and everything else like that, so I just wanted to make sure it doesn't exclude anybody.

Member Ziemer: Yes. Well, I think Jones -- will cover it sufficiently.

Chair Clawson: I think so, too. Thanks, Paul.

Mr. Fitzgerald: Yes, we'll make that change.

Matrix Issue 21

Mr. Nelson: Okay, Matrix Issue 21, this is titled Missing Records. So the discussion is SEC-specific analysis for Hanford is needed to verify that the approaches specified are bounding doses, or more accurate than bounding doses, for all members of the proposed class. Review of box labels of destroyed records indicate vast majority are not relevant or pre-July 1, 1972. Some boxes do not have clear dates for contents, some boxes may have relevant data. It's unclear if duplicates exist. And the discussion with this is that SC&A and NIOSH agreed that there's no clear indication of destroyed records and that such

evaluations are a standard part of SEC evaluation as required in the NIOSH dose reconstruction implementation guide and our implementing procedures. And we are recommending that the issue be deleted.

I mean, in the SC&A reports, SC&A went on to mention that they didn't find any specific missing records, and Joe might be able to expand on that, but -- October 2013 SC&A report mentions there were several interviews and data captures investigating the issue, and it was an extensive evaluation, but Joe may better remember that.

Mr. Fitzgerald: Given that comment, we did, as we do at all sites, look for any evidence, any documentation, any corroboration about destroyed records, and to date we have not found any. So it would be a Work Group judgement as to whether you want to keep an open item or basically delete this as -- because, again, it's generic as Chuck was saying. We do this at all the sites. We follow every suggestion or comment or indication of destroyed or compromised records. So even if there is no item, we would certainly look for any evidence of that. So it's really a judgement as to whether or not it's necessary to maintain a separate item on this or not.

(Simultaneous speaking.)

Chair Clawson: Right. Joe, part of this came from the interview process and when we interviewed somebody and they had mentioned to from a certain time period something happened about destroyed records, so forth. So this came into that, we have run that to ground, we have not found anything. But this is just kind of a housekeeping issue. Plus, because of some of the things that we have found. You're right, in any of our reviews we go into this, but we wanted to be able to address this person's concerns and make sure they knew that we had evaluated that. So I have no problem if we want to get rid of it or not, but it's part of your process, anyway.

(Simultaneous speaking.)

Mr. Fitzgerald: If we get a prominent question or issue that would arise along these lines, it would very well could be something that we would add a line item. Again, it's just something that, again, we have not found anything.

Chair Clawson: I know that in three of the meetings that we've had at Hanford, this question has come up. So it does not matter to me if we keep it in there or not, but from the sense of -- from my sense of being able to address and show that it was a line item, I would just kind of -- I don't know what you want to do, close it or whatever, but that we had addressed that issue and that we had found nothing with it.

Mr. Fitzgerald: We will continue asking the question and being open to the question. This won't affect that --

(Simultaneous speaking.)

Mr. Fitzgerald: -- or any others, so it's really a Work Group discretion.

(Simultaneous speaking.)

Member Ziemer: Yes, I'd suggest closing it. You have shown that you have used your normal procedures for confirming that the records haven't been destroyed or missing, and you can't go much beyond what you're ordinarily doing. But in any event, I don't think we should use deletion of it -- the things would still be in the record that it's been an issue that was asked for --

(Simultaneous speaking.)

Mr. Nelson: -- SEC 155 about falsification of records, and that was not added because of evaluation that was -- if that's directly related or just --

Mr. Rutherford: I do agree with Dr. Ziemer that it should -- saying deleted is the wrong word. It should

be closed, and that way the record is always maintained.

Chair Clawson: I agree with that. Thanks, Lavon or Bomber, or whatever you want to go by today.

Mr. Rutherford: I like Bomber better, but I figured we're in a formal setting --

Chair Clawson: Well, that's why I called you Lavon and then when Steve called you Bomber, I said okay I can do it.

Member Ziemer: In view of today's news, we better use Lavon.

Chair Clawson: I'm good with that. I'd just like to close it. Are the other Work Group Members good with this?

Member Ziemer: Yes.

Member Schofield: Yes.

Chair Clawson: Okay, we'll go on.

Matrix Issue 22

Mr. Nelson: Okay, Matrix Issue No. 22, this is -- the new title we're proposing is radiological incidents. It's an SEC issue pertaining to the question if sufficient bioassays were taken for potential internal exposures from minor radiological incidents. There was some discussion before about these large incidents with SC&A and the Work Group. They were -- the smaller radiological incidents, were they adequately followed up. In this case the prime contractors, did they do a good job in the incidents performed -- such that sufficient bioassays were performed. So basically the only change we'd like on that is just before it said missing incident records, and we'd just like to call it radiological incidents and have a new proposed description, basically tying that back to -- bioassays even for those minor incidents.

Chair Clawson: I understand. I'm good with that.

Matrix Issue 23

Mr. Nelson: Okay, so moving on to Matrix Issue No. 23 is the REX database adequacy and representativeness for coworker models. Our new proposed description is that coworker models are based on the REX database. The representativeness of that REX database for estimating coworker doses needs to be examined in the SEC context. This is another one of those issues where it's going to have to be coworker evaluation once the NIOSH Implementation Guide is completed. So at this point we'd just like to propose a change in the description to be more so what needs to be done which is evaluate the coworker methods.

Chair Clawson: All right, I agree. That's good.

Member Ziemer: This is Ziemer. I'm okay on that. That remains -- that's not in abeyance though at this point, is it?

Mr. Nelson: Right, we're waiting on the implementation guide to be completed. You're going to see that same answer, then we can start doing coworker for Hanford site.

(Simultaneous speaking.)

Member Ziemer: So does that put it in abeyance then?

Mr. Katz: That should put it as an open issue because it hasn't been engaged.

Member Ziemer: Yes.

Mr. Nelson: Where should we put that status, like next to the proposed description, or should we put it at the end as an open issue?

Mr. Katz: In the BRS there should be an option to --

(Simultaneous speaking.)

Mr. Katz: -- it's a separate column, so that would

actually be open. And I just -- for clarification this -- you represented these coworker issues as Site Profile issues, so is that what this is represented as in what you got there?

Mr. Nelson: This is SEC. So if you look in the proposed description, to be examined in the SEC context.

Mr. Katz: Okay, because previously on some of these coworker matters you said they were Site Profile matters, some of the other issues on coworker you called that --

Mr. Nelson: I'm just looking at the wording. That's the only reason I said that. Bomber might be able to clarify --

Mr. Rutherford: Ultimately, I think once the Implementation Guide is approved -- this is a Site Profile issue -- it would become an SEC issue if coworker -- if we determined it was not feasible to develop a coworker model.

Mr. Katz: Right. I'm just saying we should be consistent if we're going to call them Site Profile at this point until they're addressed, then we should call them all Site Profile for the coworker issues.

Mr. Rutherford: I agree --

Mr. Nelson: We will clarify that.

Mr. Katz: Okay, thank you.

Matrix Issue 25

Mr. Nelson: Okay, similar issue, Matrix Issue 25, this is for miscellaneous radionuclides, chromium-51, ruthenium-106, cerium-144, and cobalt-60. This issue involves a review of methods presented in the Hanford Site Profile for assigning internal dose from fission and activation product nuclides, and including the use of coworker methods. So this is the same issue whereas this is a -- even if -- it's a Site Profile issue and the need for a coworker review.

Any discussion on that?

Chair Clawson: Yes, I understand what you're saying. I'm just wanting to make sure that I understand what the wording is there.

Mr. Nelson: Okay.

Chair Clawson: We're addressing this --

Member Ziemer: It's pretty much the same as the previous one. Clarify for me, though, do we consider the Hanford work still in progress as opposed -- it's not completed, it's not in abeyance?

Mr. Nelson: Correct.

Member Ziemer: So that is still in progress, so this has got to be in progress?

Mr. Katz: Yeah, well, it's open if we haven't done anything yet at all. Then it's open.

Member Ziemer: Or open, yes.

Mr. Katz: Yeah, it's open.

Chair Clawson: Yes, it looks like this one would be open, so.

Member Ziemer: Okay.

Matrix Issue 26

Mr. Nelson: Okay, Matrix Issue No. 26, this is a non-SEC issue titled data completeness. And SC&A and NIOSH agreed that concerns raised in this issue are an integral part of the SEC evaluation process via the SEC Implementation Guide and associated procedures, NIOSH and -- therefore recommends to the working group that this issue be -- well we have deleted it, the wording should be closed on this particular one. So this is a discussion about how complete individual those records are, that's done as a matter of routine performance for any dose reconstruction.

Member Ziemer: Right.

Chair Clawson: Right, this is kind of a lingering issue that we got into part of the way through. I have no problem with this.

Mr. Nelson: Again, that's a historical issue that's carried through that's done with every site in DR.

Chair Clawson: Right.

(Simultaneous speaking.)

Member Ziemer: Okay to close?

Chair Clawson: Yes, I think we should just close it. I don't want to delete it. I'd just like to close it.

Member Schofield: Yes, let's -- I'd say let's go ahead and close it. It's kind of a general thing at all sites.

Member Ziemer: Yes.

Matrix Issue 27

Mr. Nelson: Okay. This next one is Building 324 leaks. And Joe can just jump in here eventually -- I know he's pretty familiar with this, but the previous description -- we're going to keep that same description so I'll just read through it. There were leaks of high-level waste in B-Cell, Building 324, including a major spill, reportedly in 1986. Decontamination of B-Cell began in the late 1980s. SC&A conducted interviews and HP coverage was reportedly good. Mixed fission product monitoring data exists for the mid-1980s when the major B-Cell spill occurred. Some specific radionuclides may not have data. There were earlier leaks under A and C-Cells. The soil under B-Cell was found to be contaminated in 2010. NIOSH should verify whether the workers involved, including those dealing with A and C-Cell leaks, were monitored and whether the data exists that can be used with claimant-favorable assumptions to estimate the incident-related doses.

And the discussion is SC&A and NIOSH agree that the

SEC issue has been thoroughly investigated and is now at a stage where it needs to be fully documented to close out. So there's a need to provide some documentation to close this issue out. There's been quite a bit of investigation.

Mr. Rutherford: Yes, this was a due diligence issue that we had to pursue. It was an incident that was reported that had pretty important implications for exposure, but the question was, was the monitoring that was done adequate enough to provide a basis for a dose reconstruction. And I think that we have certainly looked at the documentation and interviewed -- at the facility, so we feel pretty solid about it; we just have to, again, document it and then make a recommendation to the Work Group.

Chair Clawson: I understand. We'll just leave this open and when we get the paperwork we'll --

Member Ziemer: Is the agreement simply that the data is complete?

Mr. Rutherford: It's a data completeness issue whether given the incident monitoring that was done --

Member Ziemer: Right, so there's an agreement between both NIOSH and SC&A that there's adequate data to do the dose reconstruction?

Mr. Rutherford: Yes.

Chair Clawson: That's true, but we have not officially seen the paperwork and the --

Member Ziemer: No, no --

(Simultaneous speaking.)

Mr. Nelson: You haven't seen the write-up.

Member Ziemer: Yes, I understand that, but there should be adequate data.

Mr. Fitzgerald: Yes, the issue is whether there was

adequate bioassay data done or performed at the time that you would have the basis for dosage.

Member Ziemer: Right. We're recommending to close it then, right?

Mr. Fitzgerald: Once we submit the review to the Work Group, that would be a possible and a likely recommendation, but we haven't prepared that yet.

Chair Clawson: So right now we're just going to accept it and keep it --

Mr. Fitzgerald: Yes, it's open and would remain open until you see the documents.

Member Ziemer: Open, I think.

Mr. Katz: Not to be a nag, but that would be in progress because you've already accepted --

Mr. Nelson: Okay, in progress.

Mr. Katz: You just need the documentation, yes.

Mr. Nelson: What we agreed is that we would take these recommendations and agree with changes as noted during the discussion. I think one thing that has been brought up a few times here is that we should look at the status of them and all be in agreement with them.

Mr. Katz: Yes.

Mr. Nelson: Closed versus open. That's one thing I've learned here is that there's a specific way of doing that, and we could be a little bit clearer on that with our matrix. If we put it in the BRS, it'll force us to do that. Like you mentioned, there's a thing in there in that program where it'll force us to do that.

Member Ziemer: Right.

Mr. Katz: And, Chuck, I'd be happy to look through it all once you put it in the BRS, just let me know.

Mr. Nelson: I appreciate that, Ted.

Mr. Katz: Sure.

Mr. Nelson: Definitely would be open to that.

Chair Clawson: Okay, so basically what this will come down to is once this gets all put together and the status of it all, the Work Group will accept this. I think we've already accepted this, but to review the status and so forth, we'll be good with it and go from there.

Is there anything else that needs to come forward to the Work Group today?

Mr. Fitzgerald: Well, just the thought that of course the premise of updating all of this and getting it current and providing the latest assessment of where things stand would be to receive any direction the Work Group might want to provide. Certainly we're going to focus on finishing up the key source term reviews, the uranium, high enriched uranium U-233, thorium, and neptunium, so that we can present that to the Work Group for closure, as well as this last one we just talked about.

I think NIOSH is finishing up its assessment of the primary contractors in terms of the question of bioassay program support, the same issue that was dealt with the CTWs. So that's kind of what the outlook is I would say for the immediate future as far as our priority in terms of staff work. If there's any need to add priorities or to shift priorities, I guess that's what we would look to the Work Group for. So whatever would give you enough information beyond this matrix that would allow you to do that, that would certainly help us as well. That was another premise for getting this up to date.

Chair Clawson: Right.

Mr. Fitzgerald: As it stands that's what we're going to be focusing on is wrapping up the reviews that we had gotten pretty far along a couple years ago but didn't quite finish and got diverted on some of these other important SEC issues, but ones that precluded

finishing up on these original ones. But we certainly intend to finish up on these in the near term.

Chair Clawson: Well, right. We've got several open items in this matrix that, I guess, the last time I talked to Chuck, they were still collecting data. My question to Chuck now is how is your data capture going?

Mr. Nelson: We have actually received pretty much all the requests that we've had in place. We had some PNL records that we've been waiting since 2014 and '17 on, and we've just received those. We have not gone through those yet. And there's a few outstanding items, one in particular the very first one, the thorium one, I think is going to have a need to do some more site investigation on that one. So right now we have some keywords that we'd like to submit to our DOE point of contact to see if we can get any additional information. We saw that there's thorium in some areas, but we need to do a little more research to see if anybody was actually -- if there was internal exposure potential. Then if we were to identify that, then we would say how are you monitored and were you adequately monitored. So that's one issue what we're working on, getting keywords for that so we can go to the site. And the other thing we're doing is there's various ways to find out where these radionuclides were, NMC&A records, and one that we were trying to follow through was SWITS, the Solid Waste Information Tracking System. We had the point of contacts there. We were working through them, and they had -- there was like a change in management there.

The last discussion we had with them is they didn't feel like it would be very useful, and so what we'd like to do is make a site visit there, talk to the new point of contacts and have a face to face discussion with them, just to make sure if there's any potential, good information we could mine from that particular database. So a couple things that we planned is we see the need for a site visit to meet with those individuals, depending on what they come back from

our keywords, maybe some box reviews specifically for that. And will there be any more NMC&A record reviews. We're not sure of that, we got -- Bob has gone through quite a bit of NMC&A records. And so that's kind of the near-term plan that we're actually working right now.

Mr. Fitzgerald: Yes, and --

Chair Clawson: Go ahead, Joe.

Mr. Fitzgerald: Yes, and Brad, this is obviously data driven. If you're looking at whether or not source terms existed in various places on site, getting this substantiating data is the basis for doing that. So we need to get the additional data for thorium, we need to, I guess, finish up on PUREX, and we're looking to the data captures that NIOSH has organized. Again, that will feed the completion of our analysis as well. So that data capture is the pacing item on our being able to finish up our report to the Board on these four -- I would call them four critical source terms that come from the preceding SEC class, which is thorium, U-233, HEU, and Np, neptunium. If we can get any of the remaining data capture information for them and finish that up, we can present our report and reach closure on those that I think are the key items that remain for the primary contractors. And there are other issues, but those are I think the primary ones we would like to wrap up.

Chair Clawson: Right, we'd like that. What are we looking at a timeframe, Chuck?

Mr. Nelson: Well --

Chair Clawson: Has your ability to be able to get this helped out in all that -- we've got some -- out there to Hanford for you, he's -- he got a new contract put in place and stuff, so I'm just wondering --

(Simultaneous speaking.)

Mr. Nelson: -- we'll refine the keywords -- that we have right now, we'll take the input from any

clarification that we've gotten through this -- today, and we'll finalize that and get it over to Gayle Splett from DOE, and then see how fast she can turn it around. Like I said, I think they're going pretty good. I think they're pretty well-staffed. I know there were some contract issues a few months ago, and it sounds like they're getting all those straightened out, and even classification review with Dave Briggs, he's, I think, back onboard, so I think --

(Simultaneous speaking.)

Chair Clawson: Yes, I talked with DOE about this issue, and so they started keeping me in the loop on that, so. What did you say the timeframe was?

Mr. Nelson: I know you're trying to nail me down, but --

Mr. Rutherford: Why can't we provide a better time table to the Work Group once we have an idea from Hanford on how quickly they can get the keywords searched and give us an estimate on when they can support any site visit that we have. Then we can give you a better idea because I think right now we're going to be guessing.

Mr. Nelson: Right, because there's coordination that's got to take place with the site. It costs a lot of money and resources. And also the Board Members, and, Brad, you may want to come along and others. Then you got schedules. So I think what we need to do is finish our keywords, get it over to them, see how quickly they can turn it around and let them come up with the number of boxes, how long it takes to pull those boxes, then you got to kind of work out schedules -- the review.

Chair Clawson: Okay. Well, I guess what I would say to you is I'd like to -- I've been trying to pull a lot of strings with DOE to be able to push this because Hanford has been drug out there for a long time. I just want to stay in touch on this so that, believe or not, people are trying to hold my feet to the fire of when are we going to complete this. There's been a

lot of unseen issues come up and switches in the care and everything like this, and I understand this. But when you do get this data, if you'd let us know so we can kind of be tentatively be looking at a time to be able to get the Work Group together to be able to take care of these issues and bring them to rest. So just keep me in the loop, I guess, is what I'd say, but let me know what they say on the data and the site visit.

Mr. Nelson: I'll copy you on emails then.

Chair Clawson: Right. Okay, anything else that needs to come before the Work Group?

Member Ziemer: Are we going to have a report to the main Board at the next meeting, the status of this meeting?

Chair Clawson: Yes, basically what we're going to be able to bring up is that we've cleaned up the matrix and are proceeding forward with the top four hitters on this and that we've got a Site Profile -- or a site visit in progress and another data capture coming.

Member Ziemer: Okay.

Chair Clawson: I'll just report status -- get there.

Member Ziemer: Sounds good.

Chair Clawson: Okay. Well, if nothing more there, Ted, do you have anything?

Mr. Katz: No, I think that's good, and I think this was a very useful meeting. So I think that you can adjourn it now.

Adjournment

Chair Clawson: Okay, I would like to tell everybody thanks. I know, Chuck, I've been trying to hold you, your feet to the fire a little bit, too, Joe, and everybody else like that, but I appreciate all the work that you've done, and we'll see everybody in December.

Mr. Katz: Thanks a lot.

Chair Clawson: With that, this meeting is adjourned.

(Whereupon, the above-entitled matter went off the record at 3:41 p.m.)