

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

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ADVISORY BOARD ON RADIATION AND  
WORKER HEALTH

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IDAHO NATIONAL LABORATORY/  
ARGONNE NATIONAL LABORATORY-WEST WORK GROUP

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TUESDAY  
MAY 16, 2017

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The Work Group convened telephonically at 10:00 a.m., Eastern Time, Phillip Schofield, Chair, presiding.

PRESENT:

PHILLIP SCHOFIELD, Chair  
JOSIE BEACH, Member  
JAMES M. MELIUS, Member

ALSO PRESENT:

TED KATZ, Designated Federal Official  
BOB BARTON, SC&A  
RON BUCHANAN, SC&A  
HARRY CHMELYNski, SC&A  
DOUG FARVER, SC&A  
MITCH FINDLEY, ORAU Team  
JOE FITZGERALD, SC&A  
BRIAN GLECKLER, ORAU Team  
JOHN MAURO, SC&A  
JIM NETON, DCAS  
STEVE OSTROW, SC&A  
MICHAEL RAFKY, HHS  
JOHN STIVER, SC&A  
TIM TAULBEE, SC&A

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

10:01 a.m.

**Welcome and Roll Call**

MR. KATZ: So, for folks on the phone and the public or elsewhere the material for today's meeting, the agenda and the materials are on the NIOSH website, this program's website, under schedule of meetings, today's date.

You can pull up all of the documents that are going to be discussed or may be discussed today because this meeting has more on its agenda than we probably have time for.

But we have all those documents on there. The only thing that's not on there is the presentation that was prepared by Steve Ostrow, just really sort of a summary of other documents and discussions. And most of that material is covered in the documents that are posted.

But we will get that posted when we can; it couldn't be posted in time for this meeting.

1                   Okay, so roll call. Conflicts of  
2 interest. None of my Work Group members have  
3 conflicts so I don't need to address that, but we  
4 have Phillip up here, he's the chair of this Work  
5 Group on the line.

6                   (Roll Call)

7                   MR. KATZ: I just realized, I didn't  
8 announce at the outset here. This is the  
9 INL/ANL-West Work Group meeting.

10                  Okay, very good. Let's go to the SC&A  
11 team.

12                  (Roll Call)

13                  MR. KATZ: Okay, then. I just remind  
14 everyone to mute your phone except for when  
15 you're speaking. It will help with the audio.  
16 And Phil, it's your meeting.

17                  CHAIR SCHOFIELD: Thank you. I guess  
18 we'll go ahead and start off with SC&A. We're  
19 going to follow the agenda that's out on the  
20 website. So, if anybody has any questions they  
21 can go to the CDC website and find the agenda

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1           there.

2                           So, SC&A I guess it's yours now.

3           **V&V plan for temporary badges at CPP**

4                           MR. BARTON: I guess that's my cue.

5           The first discussion item on the agenda is the  
6           V&V plan for temporary badges at CPP.

7                           If you could just -- I'm trying to  
8           fight with Skype. I wanted to put up the memo  
9           just so people could try to take a look at a  
10          table that's shown in there so if you could bear  
11          with me one moment.

12                          You know what? I can get started.  
13          The document is on the website under today's  
14          meeting as Ted had pointed out.

15                          MR. KATZ: And Bob, everyone has it so  
16          it should be okay.

17                          MR. BARTON: If people want to just  
18          follow along in that that's fine.

19                          And this memo came out last September.

20          And this was related to a lot of discussions  
21          that happened in both March, or January, March,

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1 and August of last year in this Work Group.

2 And there's sort of two facets to it.

3 So just to give everyone a little bit of  
4 background so we can kind of get up to speed  
5 because it's been a few months.

6 There were sort of two like I said  
7 facets to this to doing a V&V study on the  
8 temporary badge issue.

9 If you all remember what we discovered  
10 early in 2016, was that at some point during the  
11 mid to late nineteen sixties the policy at INL  
12 was they would issue a visitor badge. But if it  
13 came back as a zero dose for that wear period and  
14 you were not already in the health physics system  
15 they kept your badge but you weren't actually  
16 assimilated into these temporary badge reports  
17 with all the other workers, who were mainly the  
18 prime contractors aren't the same. So a lot of  
19 these are the I guess sub subcontractors you'd  
20 see. And if they had zero dose they weren't  
21 actually entered in INL's system for the purposes

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1 of being able to identify the people when it came  
2 to requests for their monitoring records.

3 So even though those records weren't  
4 destroyed or misplaced or anything like that they  
5 just simply hadn't been, what's referred to as  
6 indexed or coded so that when a request comes in  
7 for a specific worker those badges weren't  
8 recognized as being associated with that worker.

9 Now that problem was recognized and  
10 DOE has undergone, and I'm not sure where that  
11 stands right now. I don't know if Tim, you want  
12 to give an update on that coding effort.

13 I think maybe it was still underway.

14 DR. TAULBEE: Yes, this is Tim  
15 Taulbee.

16 Back in April, Mitch and I talked with  
17 the site about their status and it is  
18 progressing.

19 However, they are slightly delayed due  
20 to some resource issues. At that time -- this  
21 was about a month ago -- they were expecting to

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1 be completed in mid-June.

2 MR. BARTON: Okay, great. So, anyway,  
3 like I said there are sort of two things that we  
4 really want to look at here.

5 One is do we physically have access to  
6 all of those visitor cards and temporary badges,  
7 or we're not missing whole groups of them which  
8 would obviously be a very large completeness  
9 issue.

10 Now that aspect of it was analyzed in  
11 depth and presented to the Work Group mostly in  
12 August but also in March of last year.

13 And in that analysis, I believe, in  
14 August it was -- essentially what we did, or what  
15 NIOSH went in and did is they counted physically  
16 how many of these temporary badges do we have in  
17 hand.

18 And then you can compare those to  
19 health physics reports which report out the  
20 number of temporary/visitor badges that were  
21 issued for a given period.

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1 I think, again, I don't want to talk  
2 too much about the work NIOSH did, but they  
3 looked at it on an essentially year by year  
4 basis.

5 And the end game was that they  
6 actually had, I believe about 2 percent more  
7 badges, physical badges in hand than what was  
8 actually being reported in those health physics  
9 reports.

10 So that's a pretty good weight of  
11 evidence argument that we're not missing whole  
12 groupings of these temporary badges. So they're  
13 there.

14 Now the question was, DOE is going to  
15 go in and code these badges, are they going to be  
16 in a form to where the implementation needs to be  
17 tested.

18 That is, we have a database now, or  
19 the database is currently underway so that when  
20 you have a claimant who's either going to qualify  
21 as the SEC or needs a dose reconstruction that

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1 information comes in, they can identify the  
2 claimant, and these temporary badges which had  
3 heretofore been not associated with these workers  
4 can now be correctly associated and those records  
5 are transmitted both to DOL for any SEC  
6 determination, or to NIOSH for a dose  
7 reconstruction. So it's really that second  
8 part that this V&V memo was about. It was  
9 requested of SC&A to sort of come up with a  
10 protocol or a procedure on how we could go in and  
11 test the implementation of all this coding and  
12 indexing to be sure that when all is said and  
13 done we're still not going to be missing people  
14 who were in these temporary badge records that  
15 hadn't been officially entered into the INL  
16 dosimetry system.

17 So that's sort of the background to  
18 all this.

19 And we produced the memo again late  
20 September. Not a very long document, nine pages,  
21 but most of that is tables at the end.

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1                   So if we can look at that, I kind of  
2 went through the introduction background.

3                   But the method we came up with is  
4 fairly simple. What we wanted to do is go find  
5 some claimants who would require dose  
6 reconstruction from NIOSH mostly because the  
7 covered illness is not one of the 22 designated  
8 SEC cancers.

9                   So despite whatever happens with the  
10 SEC they're still going to require dose  
11 reconstruction, it's still going to be required  
12 that NIOSH make a request for records from DOE so  
13 that it can get all these temporary badge reports  
14 which had been missing.

15                   So what we did is sort of a pool  
16 principle. We said all right, we'll go into  
17 these -- groups of visitor cards which had been  
18 captured by NIOSH and we found some pretty large  
19 files from about mid 1967 into 1969, I think  
20 early 1970.

21                   And we looked for claimants with

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1 specific criteria.

2 One, obviously that they still require  
3 dose reconstruction. And the reason why we made  
4 that a requirement is because DOE would already  
5 be searching and compiling the monitoring records  
6 for these people anyway. So this wouldn't be  
7 excess work on their end. It would be something  
8 that would already be being done so that the dose  
9 reconstruction could be revised given the new  
10 information. So that was one requirement.

11 And also one requirement that I put in  
12 there was that I wanted to see claims that had  
13 what's called an S number, or a security number.

14 This was a unique -- it's not Social  
15 Security. It's a unique security identification  
16 number for the site.

17 And the reason I wanted to include  
18 that criteria was simply because you could always  
19 run into situations where there's some ambiguity,  
20 some uncertainty which you might have a John  
21 Smith, but you don't know which John Smith that

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1 is to put a very simple example on it.

2 So I wanted claimants that would  
3 require dose reconstruction, had an S number on  
4 these visitor cards so I could absolutely  
5 identify them for who they were, and then also  
6 the third requirement was these records that we  
7 see are not already included in the NOCTS file.

8 That is, these are the records that  
9 were missing, that had not been coded and  
10 indexed, and so were not being associated with  
11 the individual worker.

12 So as a proof of principle, and I  
13 think it's the first table there in the memo. We  
14 looked through several SRDB reference numbers and  
15 we came up with a group of 32 claimants who fit  
16 those criteria that are definitely going to  
17 require a revised dose reconstruction.

18 We have an S number that we can  
19 definitely tie them to these temporary badges.  
20 And the temporary badges are not currently in  
21 their file so they had been missed the first time

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1 around.

2 And the idea is once all these badges  
3 are coded and a request is made to DOE to get  
4 these files for dose reconstruction now we can  
5 see, well, these missing badges which we've  
6 identified manually, are these now getting picked  
7 up by the electronic system that's now in place.

8 So that's the general idea. There  
9 were 32 claimants with 51 total badges. So some  
10 claimants we were able to identify with multiple  
11 temporary badges at CPP again during this window  
12 that we looked at.

13 Really the proof of principle to say  
14 well, it would be nice if we had all these  
15 criteria and we could meet them. But in practice  
16 if we can't find claimants that we can put in  
17 this value then that wouldn't be worth a whole  
18 lot.

19 So, again these 32 claimants with 51  
20 records were part of the proof of principle to  
21 say this is the method that we feel is the best

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1 way to test the actual implementation of this new  
2 database of temporary badges.

3 Can we find them? Yes, we found some.

4 And this is how we propose for discussion with  
5 the Work Group on how we feel the best way to go  
6 about validating the implementation side of this  
7 issue.

8 And of course the other side was the  
9 total number of badges, do we have all of them,  
10 which is something that NIOSH looked into last  
11 August.

12 And I don't think there's much more to  
13 say on the actual memo. There's a fairly lengthy  
14 table at the end that shows those 32 claimants.  
15 And you can see what their work history was, what  
16 the illness was, kind of explain what their DR  
17 status is and also how many badges we found again  
18 in that subset of SRDB reference numbers that we  
19 present in the first table of the memo.

20 So with that I'd be happy to answer  
21 any questions or clarify any points. Hopefully

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1           you're all still there and I didn't just speak  
2           for 10 minutes with nobody listening.

3                       MR. KATZ:       We're all here, Bob,  
4           thanks.

5                       MR. BARTON:    Okay.

6                       MEMBER BEACH:   So, this is Josie. I  
7           guess my question is so you did these 32. What  
8           sample size are you thinking we're going to need  
9           once the coding is done? Will it be a percent or  
10          a certain number?

11                      MR. BARTON:    That's where the method  
12          is somewhat limited. Again, we wanted to look at  
13          claimants who would require dose reconstruction  
14          for the sole reason that DOE is already going to  
15          have to go hunting and compile the records for  
16          these specific people anyway. So this wouldn't  
17          be extra work like, as you may remember, when we  
18          did some claimant studies earlier on the CPP  
19          Class Definition we found some that we really  
20          needed DOE to go back and get those records.

21                      And that generally took a couple of

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1 months, extra months. So in my mind this was  
2 kind of -- at least there was a first sort of  
3 crack at it, but I feel it's killing two birds  
4 with one stone because we're already going to go  
5 searching for these records, for these specific  
6 people.

7 So it is restricted again by claimants  
8 and by claimants that require dose reconstruction  
9 and that have that security number that  
10 definitively ties the temporary badge to the  
11 claimant.

12 Now this was looked at CPP visitor  
13 badge, visitor cards again from about mid-1967  
14 into early-1970.

15 As I understand it the visitor cards  
16 prior to that period, so from 1963 through 1967,  
17 I believe they're also available. And actually,  
18 I was going to ask NIOSH to clarify that point  
19 because I was not able to find them yet and I  
20 don't know if they're still being held up for  
21 being uploaded to the SRDB or what the status of

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1 those visitor cards are prior to roughly mid-  
2 1967.

3 DR. TAULBEE: This is Tim Taulbee.  
4 The status of those cards are, actually, we  
5 haven't looked for them.

6 We looked at the temporary badge  
7 reports which is what was compiled from those  
8 cards. And that is the information that DOE is  
9 coding, is off of these reports, not the actual  
10 cards themselves. They've gone back to the  
11 reports and that is what they are entering at  
12 this time.

13 As far as the completeness standpoint  
14 that's where we looked at the monthly reports and  
15 then added up the names on all of those forms and  
16 got a very good positive match from that  
17 standpoint.

18 The status and the access of those  
19 cards, that I don't know. I know they're not  
20 coding those or scanning them from that  
21 standpoint.

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1                   What we will be receiving in the  
2 future is a printout of that page with that  
3 person's name on it with their dose listed. The  
4 same thing -- what you see on these temporary  
5 badge reports up through 1967.

6                   After 1967, we will be seeing the  
7 individual cards themselves because those they  
8 did not compile into a report.

9                   Does that help clarify?

10                  MR. BARTON: That does help. So  
11 essentially the issue that really sprung up was  
12 around that 1967 time frame when if you weren't  
13 part of the dosimetry system already even though  
14 you had a visitor card and it wasn't getting onto  
15 that temporary badge report listing.

16                  Did I repeat that correctly?

17                  DR. TAULBEE: Say that again.

18                  MR. BARTON: Around 1967 is when the  
19 issue really cropped up that you had people who  
20 have visitor cards but if it was zero dose and  
21 they were not already in the dosimetry system

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1 then they keep the card but they did not transfer  
2 them, if you will, to those temporary badge  
3 reports.

4 DR. TAULBEE: Yes and no. You are  
5 correct. However, prior to 1967 if somebody had  
6 a zero dose they still weren't entered into the  
7 system.

8 So you could have appeared on those  
9 temporary badge reports and you weren't entered  
10 into the system.

11 Now, in some cases, those people with  
12 zero dose are listed and we get them. But the  
13 nuance associated with that was that notes for  
14 anybody on the page that had a positive dose,  
15 they got pulled out and put to the front of the  
16 file, and those are scanned early on in the  
17 project which is why we get some zeroes but not  
18 all of them.

19 MR. BARTON: Okay, I think I  
20 understand. Really the concept would be the same  
21 then. So we're saying to a certain number, again

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1 we're restricted by the criteria of who DOE is  
2 actually going to end up going back and pulling  
3 these records for just for dose reconstructions  
4 that have to be revised.

5 Now, the other option would be to just  
6 pull a random sample out of these temporary badge  
7 reports and ask DOE to go hunt down those people.

8 This would obviously be sort of  
9 outside the normal record searches for dose  
10 reconstruction for Department of Labor. That's  
11 certainly something we could look into in which  
12 case you could have a definitive percentage of  
13 the records that we're looking at.

14 It gets a little bit muddy because as  
15 Tim just said some of those zeroes that are in  
16 there have already been captured for certain  
17 people.

18 So again, we were trying to focus on  
19 those records that currently aren't making it  
20 into a worker's file. And the only way we know  
21 that is because we have claimants currently where

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1 we have DOE files from before this coding effort  
2 happened, and then we'll have revised records  
3 requests which ideally would include all these  
4 records that were missing. And we know they were  
5 missing because we can compare those to before  
6 and after essentially.

7 So there's no real -- I can't put a  
8 percentage on it because it was really restricted  
9 by how many workers we can identify that fit the  
10 criteria of a claimant needing a dose  
11 reconstruction and also that those records are  
12 currently missing from their files.

13 And the alternative would be we could  
14 do a pure random sample and ask DOE to go and  
15 hunt them down. I'm not sure how that mechanism  
16 would necessarily work or what kind of time frame  
17 we'd be looking at to do that sort of validation  
18 of the implementation side of this issue.

19 I'm not sure if that answers your  
20 question, Jodie.

21 MEMBER BEACH: No, but I like the idea

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1 of a random sample even though I know it's got  
2 some difficulties.

3 MEMBER MELIUS: This is Jim Melius. I  
4 have another related issue.

5 You pulled together your samples for  
6 this report, the cases, claimant cases in  
7 September or maybe even before that. I don't  
8 know when you stopped ascertaining cases that  
9 would fit this.

10 It's now May, nine months later. By  
11 the time we get access to the -- by the time DOE  
12 is supposed to be done entering, doing all the  
13 data entry and so forth would it make sense at  
14 this point to add -- go back and look at  
15 additional claims since whenever you ended your  
16 ascertainment?

17 MR. BARTON: That's certainly  
18 something we can go do to expand.

19 Again, when I put this together it was  
20 intended to be a protocol with a proof of  
21 principle, not necessarily the entirety of what

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1 we could potentially look at.

2 And don't forget, just to simply test  
3 the coding effort, this isn't just at CPP. It  
4 could be expanded to the other facilities just to  
5 see how from an implementation standpoint the  
6 coding effort is going.

7 If we find visitor badges at hand that  
8 were missing originally from the claimant files  
9 then those would certainly, in my mind, be just  
10 as valid as going towards validating the  
11 implementation and DOE's coding and indexing  
12 efforts.

13 So that's another avenue we can go to  
14 expand to a larger sampling size.

15 And again the other option would be we  
16 simply pull a random percentage of groupings. It  
17 could be just from CPP since that's the topic of  
18 the SEC. We could pull just random workers and  
19 ask DOE to go give us all the records on those  
20 workers.

21 That's the other option. Again, I

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1 proposed the one in which we could look  
2 specifically at claimants because these are the  
3 situations where we have been missing those  
4 temporary badges. And we're looking specifically  
5 at those people where if you look at their file  
6 right now they're missing a badge that we can go  
7 manually find in the captured records that NIOSH  
8 has.

9 MEMBER MELIUS: Okay. But there are  
10 some number more of those captured records now.

11 MR. BARTON: Yes. This is not by any  
12 means complete.

13 Again, I just wanted to prove that you  
14 could go in and I listed the ones I looked at.  
15 These were actually from the visitor cards.

16 We can pretty much go look at those  
17 temporary badge reports and do the same process  
18 to expand the grouping if that's certainly what  
19 the Work Group wants us to do.

20 DR. MAURO: Bob, this is John Mauro.  
21 I've got a question for you.

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1 I understand how the search and the  
2 completion of this I guess coding process would  
3 provide information that will help in dose  
4 reconstruction for the CPP workers.

5 To what degree does this very same  
6 investigation help toward the definition and  
7 implementation of the SEC which is based on  
8 having a film badge? Does this have play there  
9 also?

10 I don't know if that question is  
11 clear.

12 MR. BARTON: It affects both,  
13 obviously. If these badges are missing from  
14 workers' records that show that they entered CPP  
15 then obviously making sure that those are indexed  
16 and correctly associated with a worker will  
17 affect any SEC decisions for that worker.

18 At the same time, it also affects --  
19 the DRs obviously would miss doses and that sort  
20 of thing.

21 And again, I keep talking about the DR

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1           only in the context that DOE is already going to  
2           be going and getting these records for the  
3           subgroup of workers I identified, because they  
4           need a revised dose reconstruction.

5                       But yes, this coding effort is  
6           definitely very important in the SEC context  
7           because all you need is that one badge. And if  
8           these badges aren't being associated correctly  
9           with the workers then that's obviously an issue.

10                      DR. MAURO: Thank you.

11                      MEMBER MELIUS: This is Jim Melius  
12           again.

13                      So, I'm trying to think of what level  
14           of effort would be required to expand your  
15           current sample to bring it more up to date in  
16           terms of claims that have been filed since  
17           whenever you -- since your September report, the  
18           claims that are included in your September  
19           report.

20                      MR. BARTON: It actually runs in the  
21           other direction.

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1                   What we did is we looked at the  
2 temporary badges first and then tried to identify  
3 claimants from that population.

4                   So it's not necessarily that we took  
5 claimant number one and then went and looked and  
6 see if we could find them in the temporary badge  
7 reports. It was really the other way around.

8                   MEMBER MELIUS: Okay.

9                   MR. BARTON: So that would be affected  
10 by any new claims. In other words, the first  
11 pass might have missed any claims filed since we  
12 did it last fall.

13                   MEMBER MELIUS: Right.

14                   MR. BARTON: But also there are other  
15 years, the years prior to 1967 mainly that we can  
16 look at in the temporary badge reports and pull  
17 out claimants from that to expand the sample size  
18 if you will.

19                   So there's a couple of different  
20 things at play there.

21                   CHAIR SCHOFIELD: This is Paul. I've

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1 got a question.

2 Some of these claimants look like  
3 outside of the card from the CPP. They have gaps  
4 of some of them several years with no other  
5 health physics records.

6 What's going to be the impact on  
7 those?

8 MR. BARTON: Could I ask -- I'm not  
9 sure I quite understood the question.

10 A lot of workers will have gaps, and  
11 we really just can't say with any assurance  
12 whether that gap is because they were in a non-  
13 radiological area, weren't at the site at all, or  
14 we are still missing records.

15 I mean, we just can never definitively  
16 say that when you see a gap. I can say -- again,  
17 when we went through the sampled workers we have  
18 a badge, it has an S number that I can take back  
19 for that claimant, and I can look at that  
20 claimant's file and say this record is missing.

21 And then when those records get

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1 revised and DOE sends the newly coded data over  
2 to perform the dose reconstruction then we can  
3 say well, either they got that record and it's  
4 now correctly associated with a claimant, or it's  
5 still missing and the coding effort did not  
6 correctly identify it.

7 But as for any individual gaps for any  
8 given person it's just very difficult to make any  
9 sort of conclusions about why the gap exists.

10 Again, were they monitored and we  
11 don't have that data? Were they not monitored  
12 for good reason? Were they not even on the site?  
13 We just can't know.

14 CHAIR SCHOFIELD: Okay.

15 MEMBER BEACH: So moving forward we  
16 need to decide what kind of sampling we're going  
17 to do based on this plan.

18 MR. BARTON: Right. I think there's  
19 probably two or maybe three options.

20 The first option is exactly what you  
21 see here which is -- again, it's restricted to a

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1 number of years in '67 to roughly '70. But that  
2 can be expanded.

3 And then the other option, as we  
4 mentioned earlier, would be a purely random  
5 sample in which case we would essentially just  
6 give DOE a list of names, ascertain whether they  
7 exist, and ask them to pull records for those  
8 individuals and see if their coding effort has  
9 captured them.

10 The difficult part about the second  
11 one is we don't know what's currently missing  
12 from those workers' files. So we wouldn't know  
13 if DOE had already been correctly sending those a  
14 year ago, for example.

15 In this method we already know that  
16 DOE wasn't sending this record for this  
17 individual, and these records for this  
18 individual. We already know that they weren't  
19 included because they weren't properly indexed.

20 MEMBER BEACH: Right.

21 MR. BARTON: That's sort of the

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1 difference.

2 MR. KATZ: So Bob, I'm just going to  
3 expand for Josie on that.

4 So, even though scientific study, like  
5 random samples. In this case, you're going to  
6 have a lot of wasted hits you might say or  
7 whatever, wasted cases in a random sample.  
8 There's going to be a bunch of those that really  
9 didn't matter anyway.

10 Whereas what Bob's proposing, it's  
11 focusing on the cases that will matter. So it's  
12 really a more intensive approach. Expanding it  
13 to get -- so all the cases that could be added  
14 once we have the coding done. If you do that  
15 it's a more intensive approach looking at exactly  
16 the problem that we're concerned about.

17 MEMBER BEACH: Yes, that makes sense.  
18 Do we have a sense of how big that sampling  
19 would be at this point?

20 I mean, we just did 30.

21 MR. KATZ: We can't know what he has

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1 back in -- when he did this look.

2 MEMBER BEACH: Right.

3 MR. KATZ: We don't know how many  
4 cases will be added. We find that out when the  
5 coding is done and Bob does that second run,  
6 basically, to pull cases.

7 MR. BARTON: That's correct, Ted. And  
8 I'd just add onto that that's it not just new  
9 claims that have been filed.

10 We didn't go through every single  
11 possible record just to find these sort of  
12 specialty claims where there is a real problem  
13 that we observed simply because we wanted to get  
14 approval from the Work Group before putting that  
15 kind of level of effort in.

16 What we did was a proof of principle  
17 saying well, we looked at these subset of records  
18 and we did find claimants who fit those criteria.

19 So part of it would be simply expanding that to  
20 the remaining CPP records, and if the Work Group  
21 likes we can expand it even further to other

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1 areas of INL where coding is still going on with  
2 those sites just like it's going on at CPP.

3 MEMBER MELIUS: This is Jim Melius. I  
4 think the initial step is we continue on this  
5 pathway with the expansion, as Bob just proposed.

6 I think then let's see. I'm not  
7 saying that we wouldn't want to look at a  
8 different area or whatever, but I think let's see  
9 what we find in this exercise, this evaluation,  
10 and then decide do we need to focus on different  
11 time periods and so forth or how we do it.

12 In terms of expanding to other areas  
13 of the site I think it somewhat depends on what  
14 we're -- I think the next item on the agenda  
15 would be potential 83.14.

16 Are there other areas where we're  
17 going to have this same issue in terms of concern  
18 about the Class Definition.

19 MEMBER BEACH: That sounds like a good  
20 approach, Jim. And not to expand it at this time  
21 to other areas.

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1                   MR. BARTON:       Just to clarify, I  
2 understand holding off on the other areas.

3                   Would the Work Group want us to expand  
4 just to the rest of the CPP temporary badge  
5 records? We have a proof of principle here, but  
6 there are more records out there that we can look  
7 for additional examples of claimants where the  
8 files are missing.

9                   MEMBER MELIUS: Yes, I would say yes.

10                  Gen is not on the phone call, but it's  
11 a point she's made in previous discussions with  
12 this is well, you know, I think Tim has also  
13 we've discussed in the Work Group is sort of how  
14 many is enough.

15                  What is enough to say -- how many  
16 cases with claims that don't match up are  
17 adequate to say that we need a more open Class  
18 Definition.

19                  And so I think that having additional  
20 claims in this initial effort would be helpful.  
21 I also think it might help us to focus if there's

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1 a particular time period, or type of worker, or  
2 whatever.

3 I think we'd probably do that as well  
4 as a random sampling. But let's see. We may  
5 want to focus a random sampling later as the next  
6 step.

7 I don't want to carry it too far in  
8 terms of speculating on what might be useful, but  
9 I think this would provide us with some initial  
10 information, enough initial information to  
11 decide, at least make a decision on what -- do we  
12 need to do more, or has this been adequate.

13 CHAIR SCHOFIELD: Do we have any --  
14 percentage-wise number of people that have this  
15 data missing that might show up in these cards?

16 MR. BARTON: So this is Bob again.  
17 Unfortunately no, we really don't know. It's a  
18 process of going through and first identifying  
19 claimants in the temporary badge records and then  
20 looking to see if those temporary badge records  
21 are actually included in their individual files

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1 as opposed to, we capture files that NIOSH has  
2 that are thousands of pages and include hundreds  
3 and thousands of workers on them.

4 So, it's really not possible to know  
5 exactly how many which is sort of like -- you  
6 could get a percentage of the temporary badge  
7 records if you did the random sample.

8 But as Ted had mentioned, you'll have  
9 a lot of -- it sort of muddies the water.  
10 Because even though you could say well, you know,  
11 99 percent were found, 99 percent might have been  
12 found a year ago.

13 And so we're not really testing the  
14 hypothesis of how well this new coding effort is  
15 going to be able to be implemented for those  
16 badges that we do know are missing, but only  
17 because we found them in sort of a manual effort  
18 really.

19 CHAIR SCHOFIELD: Well, I've got one  
20 other question.

21 I know some of the people with missing

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1 badges are union people. Did the local unions  
2 keep any of this information in their records  
3 that you are aware of?

4 MR. BARTON: I personally have not  
5 seen anything that would indicate to me that the  
6 individual subcontractors necessarily kept  
7 separate dosimetry files.

8 But I'd certainly defer to Tim and his  
9 team on that.

10 DR. TAULBEE: This is Tim Taulbee. We  
11 did not check with unions from that standpoint.

12 What I do know is that a copy was  
13 provided to them of their employees. But the  
14 main record that is currently being coded was  
15 also kept at the INL dosimetry records. And so  
16 that is what is being coded at this time.

17 So, we have not pursued that and we're  
18 not planning to. We don't do that at other sites  
19 either. We go with what the site's records were  
20 and as we indicated earlier we've already  
21 compared these temporary badge reports, these

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1 visitor badges with the number that they said  
2 they had issued and we're seeing really good  
3 agreement.

4 So, I believe this to be a complete  
5 set.

6 The question as Bob was pointing out  
7 is have these made it into the DOE records system  
8 once this coding effort is completed such that we  
9 can see these same badges now when somebody files  
10 a claim.

11 CHAIR SCHOFIELD: So, the question I  
12 would have -- this is Phil -- is what -- how long  
13 do we expect this, before we would have enough  
14 data that we could make a really well-informed  
15 opinion of where we need to be going on this.

16 Is there any particular timeline that  
17 you have knowledge of?

18 MR. BARTON: Well, this is Bob. I  
19 guess from my end the first step would be to  
20 expand to the other years at CPP and see how many  
21 more claimants we can identify that have these

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1 missing temporary badges.

2 And that can be done while the coding  
3 effort potentially wraps up.

4 Then it's a question of requesting  
5 those records from DOE which I don't really have  
6 a good handle on. I assume it's probably a month  
7 or two for them to research a number of claims  
8 and get all those records together and send them  
9 over.

10 But again, I don't have a great feel  
11 for that. I don't know if anyone over at NIOSH  
12 may have a better idea.

13 But once those records are searched by  
14 DOE and transmitted to NIOSH based on the new  
15 coding effort it's a very simple process of going  
16 through and seeing if the ones that were missing  
17 are now present.

18 DR. TAULBEE: Also, to give some idea,  
19 it actually depends upon how many people you all  
20 decide that you're going to evaluate and re-  
21 request the records from.

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1           When we did the ANL-West effort of  
2           specific people from the early time periods to  
3           see if the records were complete, or whether they  
4           were in Idaho, or whether they were over in  
5           Illinois, it took about -- I want to say about  
6           one to two months for about 30 claims.

7           So, if the number stays about the same  
8           or maybe 40 then we're probably looking closer to  
9           the two-month range.

10          If the number increases and you decide  
11          you want to look at 80 you're probably looking at  
12          three or four months.

13          So it really depends upon how many  
14          people you all select and send over to DOE for  
15          them to pull the people's files. Does that help?

16          CHAIR SCHOFIELD: Yes. I was just  
17          wondering if there's any way we could maybe, I  
18          don't know, make this process a little sharper so  
19          that we don't have as long of a lag time.

20          Because you know, this could drag it  
21          out -- given the number of years could drag it

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1 out for quite a while.

2 I guess what I'm looking for are  
3 suggestions on how to speed this process up a  
4 little bit if anybody has a suggestion.

5 MEMBER MELIUS: This is Jim. I think  
6 the only way to speed it up is going to be, you  
7 know, whatever can be accomplished before -- to  
8 make the June deadline then they've got to have a  
9 little bit of time for looking for additional  
10 cases, claims, and then it can also be done  
11 incrementally.

12 So the claims that have already been  
13 identified can request those records. And then  
14 new ones can be done as another batch or  
15 whatever.

16 Does that make sense?

17 CHAIR SCHOFIELD: It seems like a  
18 reasonable approach.

19 MEMBER MELIUS: Make sense to Bob and  
20 Tim?

21 MR. BARTON: This is Bob. I think

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1       you're exactly right. I think right now -- as  
2       soon as the coding effort's done, we can send the  
3       first batch for DOE to start researching and then  
4       when they get those records in like I said it's  
5       going to be a pretty quick process to go and look  
6       at the new transmittal from DOE and see, alright,  
7       those missing badges are there, or they're still  
8       missing.

9                   DR. TAULBEE: This is Tim. I agree.  
10       I would not send that list until they finish the  
11       coding though.

12                   And the reason is the same people that  
13       are doing the coding are the same people who are  
14       going to be responding and culling the data.

15                   If you send it now your coding's going  
16       to be delayed while they're beginning to look up.  
17       I would wait.

18                   MEMBER BEACH: That sounds good. So  
19       the other thing we haven't talked about is you  
20       noted in your conclusion, Bob, that there were at  
21       least two claimants that had spelling errors and

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1 coding transposed numbers.

2 And you said it has an implementation  
3 issue possibly. Can you expand on that just a  
4 little bit? Would these two individuals not be  
5 included because of those two issues?

6 MR. BARTON: I would want to include  
7 them, I think, because those types of errors are  
8 sort of what preempted this entire discussion is  
9 that notion that we're sort of working off in  
10 some cases handwritten records, in other cases  
11 they're typed.

12 But the human errors present such as  
13 spelling mistakes, or the transposition of the S  
14 number, and how is that reflected in this coding  
15 effort.

16 Now you know, I don't think it's  
17 possible or even reasonable to assume that they  
18 would be able to catch everything along those  
19 lines, but it would also be very informative to  
20 say like well, listen, we had this person that's  
21 part of our study. There was a transposed letter

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1 in his last name but it still was caught based on  
2 the S number. There was a transposed S number  
3 but it was still caught based on that person's  
4 last name. It kind of goes both ways in that  
5 front.

6 So I think it would be useful to  
7 include those people just so we can have a  
8 discussion about how the coding effort either did  
9 or did not catch, I guess you can call them  
10 variations when you try to code that kind of data  
11 from some cases handwritten, some cases typed.

12 But there's going to be human errors,  
13 unavoidable. It's good to understand what those  
14 are, how well they're dealt with, and then have a  
15 discussion about what the implications are on  
16 that.

17 MEMBER BEACH: So those two were  
18 caught and they would have been included so that  
19 that process you're saying worked and caught  
20 those.

21 MR. BARTON: I would certainly hope

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1 so. I would hope that it would catch them. But  
2 again we don't know until all the coding is done  
3 and then we go and request the records for some  
4 of the individuals where we saw a couple of  
5 variations.

6 MEMBER BEACH: Okay. So it's good to  
7 make note of that then. Thank you.

8 MR. BARTON: No problem.

9 CHAIR SCHOFIELD: Does anybody else  
10 have any input on this particular subject?

11 DR. TAULBEE: None from NIOSH.

12 CHAIR SCHOFIELD: SC&A?

13 MR. BARTON: I guess I just want to  
14 clarify our marching orders if you will.

15 As I understand it obviously we're not  
16 going to be sending in any data requests to DOE  
17 until the coding effort is done.

18 But as I understand it we would look  
19 to expand the number of claims at CPP for some of  
20 those early years in the meantime while that  
21 coding is still being performed so that when it

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1 is done we'll have a hopefully somewhat larger  
2 cohort to look at.

3 Or should we just keep what we have  
4 for now and when the coding effort is done we  
5 make the request for 32 claims and then we see  
6 what we see with those 32 first before trying to  
7 expand.

8 MR. KATZ: Bob, so I think the  
9 decision was and the recommendation from the Work  
10 Group was to expand as much as you can expand it  
11 at the point you have all the coding done.

12 MEMBER MELIUS: So it's expanding the  
13 earlier years and also additional claims from --  
14 that weren't in the original sample that might be  
15 from the years that are covered already.

16 MR. KATZ: Right.

17 MR. BARTON: Okay, I understand.  
18 Thank you.

19 CHAIR SCHOFIELD: Josie, do you have  
20 any input?

21 MEMBER BEACH: I'm comfortable with

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1       that action.

2                   CHAIR SCHOFIELD:   Okay, then I think  
3       we've got that covered.   I'd like to spend time  
4       on the burial grounds now.

5       **NIOSH Priorities for August ABRWH**

6       **83.14 re: Burial Grounds**

7                   DR. TAULBEE:   This is Tim Taulbee.   I  
8       didn't notice this actual typo until it was too  
9       late here.

10                   From the August Advisory Board on  
11       Radiation -- your August meeting the 83.14 that  
12       we'll be proposing to you all will be for CPP,  
13       not the burial grounds.

14                   This is an expansion of the CPP Class  
15       up through 1980.   So, the burial grounds 83.14 is  
16       a separate effort that I do want to talk to the  
17       Work Group about so it's okay to be on the agenda  
18       here.

19                   But as far as the Advisory Board  
20       meeting in August we do have a draft of the 83.14  
21       for the CPP expansion that is working its way

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1 through review, and we do hope to have that --  
2 well, we plan to have that out to the Work Group  
3 -- to the full Board in advance of that meeting  
4 such that I can present it at that meeting, at  
5 the August meeting.

6 So are there any questions about that  
7 before I jump onto the 83.14 for the burial  
8 grounds?

9 MEMBER MELIUS: Yes, one question.  
10 Just in terms of timing, is it feasible for that  
11 to be released in time that we -- so the Work  
12 Group can have an opportunity to review it prior  
13 to the August meeting? And to possibly meet to  
14 discuss it.

15 DR. TAULBEE: Let me check the current  
16 timing of that. I'm actually not sure.

17 MEMBER MELIUS: Okay, so if you can  
18 just let us know. I'm trying to facilitate if  
19 there are questions about it or something.

20 DR. TAULBEE: Right, no, I understand.  
21 I understand. Give me just a second here.

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1                   It's currently scheduled to be  
2 delivered to us in the middle of June. So  
3 probably four to six weeks after that.

4                   MEMBER MELIUS: So we're cutting it  
5 close.

6                   DR. TAULBEE: Yes, we're cutting it  
7 close.

8                   MEMBER MELIUS: So let's just see  
9 where we are then.

10                  DR. TAULBEE: Okay.

11                  MEMBER BEACH: To be clear, Tim, that  
12 83.14 is simply CPP, and it does not have  
13 anything in the later years, and it has nothing  
14 about the burial grounds.

15                  DR. TAULBEE: That is correct. That  
16 is correct. This is where we concur. What we  
17 found was those procedures and changes of CPP  
18 monitoring that were recommended by -- in that  
19 report of October 1974 to increase the bioassay,  
20 to clean up the areas, to reduce the  
21 contamination levels, improve the air monitoring

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1 and so forth actually do get implemented as fast  
2 as what we anticipated it might be.

3 And so we committed when we presented  
4 the original ER to evaluate when they actually  
5 implemented all of those things.

6 And the bioassay really didn't begin  
7 to kick in until 1980 is when that began to  
8 happen. And they did have some other incidents  
9 in the late nineteen seventies with that shift  
10 lot as well.

11 So that's the basis for the 83.14 for  
12 CPP, to expand that Class.

13 MEMBER MELIUS: And refresh my memory,  
14 but the monitoring practices at the time were the  
15 same as before, or changed, or what?

16 DR. TAULBEE: As far as badging to get  
17 into the area? Actually, they changed back.  
18 They reverted back to the one area -- one badge  
19 one area.

20 So that actually might have some  
21 bearing on what Bob and you all are proposing

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1 here as well.

2 MEMBER MELIUS: Yes.

3 MR. BARTON: So, they did implement --  
4 they went away from the all-area badging back to  
5 one badge one area.

6 MEMBER MELIUS: Okay.

7 DR. TAULBEE: And like I said I'll go  
8 through all of this more when the report is out,  
9 the presentation to the Board. So that's what  
10 we're planning for the August Board meeting.

11 Okay. As I mentioned in the March  
12 Board meeting that we are going to pursue an  
13 83.14 for the burial grounds for the retrieval of  
14 waste.

15 Now, this is before we got the report  
16 that SC&A released last week, or the week before  
17 last rather on the burial grounds. That is the  
18 fourth bullet here on the agenda.

19 And so my question to the Work Group  
20 is do you want us to pursue the 83.14 for that  
21 waste retrieval operation, or do you want us to

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1 focus on responding to SC&A's report. Due to  
2 kind of resource issues we can't do both  
3 simultaneously. I guess we potentially could,  
4 but that would take some herculean effort here.

5 Or -- so we prefer to do them  
6 serially, but which one is the higher priority to  
7 the Work Group.

8 MEMBER BEACH: Tim, a question for you  
9 on that burial ground. I had sent an email  
10 asking, requesting some information on some of  
11 your data.

12 And I thought we would have that  
13 before now. Can you say where you're at on that?

14 DR. TAULBEE: Yes. Mitch and I are  
15 assembling that. I apologize for it being late.  
16 Both of us have been out quite a bit the past  
17 month. I'd hoped to have it to you last week, but  
18 we're just not ready yet from that standpoint.  
19 But we are working on your request there of  
20 pointing out specific special bioassay of workers  
21 being monitored.

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1 I do hope to get that to you in the  
2 next couple of weeks.

3 MEMBER BEACH: Okay. So, you're  
4 talking about working on an 83.14 for the burial  
5 grounds, correct?

6 DR. TAULBEE: Yes.

7 MEMBER BEACH: And what time period?

8 DR. TAULBEE: This would be 1970  
9 through around '77, '78 when we began to see a  
10 lot of bioassay for the burial grounds. Specific  
11 bioassay for the burial grounds.

12 MEMBER BEACH: Okay. And this report  
13 that SC&A has out is for those earlier years, and  
14 you're saying you cannot simultaneously work on  
15 both of those.

16 DR. TAULBEE: No, we've got the same  
17 people doing both. So I'm asking which is the  
18 higher priority for us to respond to.

19 MEMBER MELIUS: This is Jim. I'd say  
20 the 83.14.

21 MEMBER BEACH: Yes, I can't say I

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1 disagree with that, but how far off would be  
2 responding to that report be then, the early  
3 years?

4 DR. TAULBEE: It would be fall at the  
5 earliest, I would think.

6 MEMBER BEACH: It almost seems to me  
7 the 83.14 should encompass that '53 all the way  
8 to '77.

9 DR. TAULBEE: Well, we only made a  
10 decision about the earlier time period, and this  
11 is where SC&A's comments come into it.

12 The reason for us potentially  
13 expanding was there's a big change in operations  
14 in 1970. The big change is, one, they were  
15 burying waste. Starting in 1970 time frame,  
16 1971, '72 they started digging it up.

17 So, from our standpoint there's a much  
18 higher potential when they were doing that  
19 digging up of the waste. And like I said, we  
20 don't see any bioassay right now, but that's part  
21 of the 83.14 evaluation.

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1                   CHAIR SCHOFIELD: This is Phil. I've  
2 got a question on that kind of limited experience  
3 of our facilities that have burials going on.

4                   That's the fact that these personnel  
5 working in those areas, the materials going into  
6 those dumps comes from all over the site.

7                   You've got about every isotope you can  
8 think of going into this waste stream. Which  
9 unless they had a very broad spectrum analysis  
10 done, I would be concerned about whether you're  
11 catching a lot of what potential exposures are  
12 when they were burying this material, and not  
13 just when they were digging it up.

14                  MR. KATZ: Phil, that concern is sort  
15 of at the heart of the SC&A review which they  
16 will address.

17                  But with an 83.14 once NIOSH  
18 determines feasibility for a Class of workers it  
19 has to proceed with that 83.14. It can't really  
20 say okay, we're going to put that off and  
21 evaluate the present thing, and add that to this.

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1                   If they have a claimant who's  
2                   represented by an 83.14 they're supposed to  
3                   proceed with that.

4                   DR. TAULBEE:   Right, Ted, but we're  
5                   not quite there yet with this 83.14.

6                   The potential that we see right now is  
7                   that we know they were digging it up under what  
8                   we call the initial drum retrieval operation, and  
9                   then there was a second one where they were  
10                  beginning to dig up the waste.

11                  From the coding for the coworker data  
12                  set looking at the bioassay for the people  
13                  involved with that and we're not seeing much  
14                  routine type of bioassay until we get into the  
15                  '77 and later time period.

16                  So, we're seeing the potential there  
17                  that causes us concern which is why we want to  
18                  investigate.

19                  (Simultaneous speaking)

20                  DR. TAULBEE:   -- the point you were  
21                  saying yet, but we're kind of guessing that we're

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1 going to have an infeasibility during those  
2 recovery operations, the early part of the  
3 recovery operations.

4 MR. KATZ: Okay, got it. So you would  
5 have to identify a claimant anyway to proceed  
6 with the 83.14, right?

7 DR. TAULBEE: That's correct.

8 MR. KATZ: Okay.

9 DR. MAURO: This is John Mauro. Just  
10 a quick observation. After reading Joe  
11 Fitzgerald's report, it's a very broad-based  
12 report with lots and lots of rich information on  
13 places where there may be some weaknesses in  
14 terms of the ability to reconstruct doses.

15 So I guess I would just say that  
16 reading the report and getting a sense of SC&A's  
17 perspective on where there's softness in the  
18 records, and the HP oversight program almost as  
19 if it's background information that I think it  
20 would be very useful as you're pursuing your  
21 83.14. It may be self-evident to say that, but I

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1 just wanted to point that out.

2 DR. TAULBEE: I understand. I agree.

3 CHAIR SCHOFIELD: Just from my own  
4 perspective I have a question as far as you're  
5 looking at like the bioassays and stuff that were  
6 done.

7 Was there program bioassays that you  
8 would consider to be at least a decent standard  
9 in the earlier years when they were burying a lot  
10 of this material before they started digging some  
11 of it back up?

12 DR. TAULBEE: Yes. In the earlier  
13 years they were one of the first sites to really  
14 kind of implement whole body counting for the  
15 mixed fission products.

16 There was also from the alpha  
17 monitoring. The bioassay laboratory and the  
18 techniques at that time were RESL, Radiological,  
19 Environmental Sciences Laboratories.

20 So they were quite top notch as far as  
21 being able to analyze the samples.

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1                   The question that SC&A and Josie has  
2                   posed -- well, from the report, and SC&A, what we  
3                   want to get back with Josie on in our initial  
4                   evaluation we indicated that when something  
5                   happened that would require a bioassay or follow-  
6                   up that they sent people to Central Facilities  
7                   for that particular analysis.

8                   So Josie's asked for examples of where  
9                   that has occurred.     And that's what we're  
10                  compiling hopefully within the next few weeks  
11                  here for Josie. Well, for the whole Work Group,  
12                  obviously.

13                  But that's what we're currently  
14                  looking at.

15                  They did not have a routine monitoring  
16                  program at the burial grounds during burial. It  
17                  was on an as-needed basis.

18                  Now, and that actually appears to have  
19                  continued through when they were retrieving  
20                  waste.     And that's what's causing us some  
21                  concern.

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1                   But we do begin to see a routine  
2 bioassay monitoring program in the late-1970s for  
3 the burial grounds.

4                   CHAIR SCHOFIELD: Okay.

5                   MEMBER MELIUS: This is Jim. I still  
6 think the 83.14, or potential 83.14, ought to  
7 take precedent in terms of NIOSH efforts at this  
8 point in time.

9                   CHAIR SCHOFIELD: I agree with you,  
10 Jim.

11                   MEMBER MELIUS: Yes. I just think it  
12 needs that. We'll get to the other report, the  
13 earlier years in turn. And maybe looking at the  
14 later years will shed light on the earlier years.  
15 More helpful to address that issue, some of  
16 those issues.

17                   DR. TAULBEE: Okay. If that's the  
18 direction then we can certainly pursue that.  
19 That's actually the opposite that I thought we  
20 were going to go, but that's quite all right. We  
21 can certainly adjust and do that.

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1                   MEMBER MELIUS: You said you were going  
2 to do the opposite.

3                   DR. TAULBEE: But that's quite all  
4 right. We can do that. Not a problem. Thank  
5 you. Thank you for the clarification on that.

6                   That was all that I had for this  
7 particular topic there, Phil, was the requesting  
8 of the priorities of what it is you wanted us to  
9 work on from that standpoint.

10                  I will say this for the whole Work  
11 Group's benefit. There are other reports that  
12 SC&A has put out in the past that we are going to  
13 begin to work on and we can work on those in  
14 parallel.

15                  It's just the people that focus on the  
16 burial grounds are skilled in the burial grounds  
17 and so those people are the ones most informed on  
18 it. And that's the resource issue.

19                  But other things such as Argonne-West  
20 and so forth we can begin to pursue in parallel.

21                  CHAIR SCHOFIELD: I just had a

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1 question. Was there any feel for -- I mean, I  
2 really don't know, did they tend to have a small  
3 crew that handled the burial grounds? Or was  
4 this a much broader effort where they brought in  
5 people from other areas to assist in the  
6 retrieval of some of these drums and burial  
7 containers? What kind of numbers are we looking  
8 at I guess is the point of what my question is.

9 DR. TAULBEE: Dozens. A few dozen,  
10 let me put it that way.

11 But it might be more people. But at  
12 any one time it's probably around, even during  
13 the retrieval around 20 to 24 type of people  
14 working. But it might be a different crew every  
15 day.

16 The burial grounds used yardmen and we  
17 found this from the interviews numerous times.

18 So one day a yardman might be assigned  
19 to the burial grounds. The next day he might be  
20 assigned to a hot cell. The next day he might be  
21 at MTR. So they moved around a lot.

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1                   Now, the health physics crew, there  
2                   was four or five of them that were kind of  
3                   dedicated from CFA and on any given day one of  
4                   them might have been down at the burial grounds.

5                   Heavy equipment operators, we don't  
6                   think that there's that many of them, but that  
7                   they might have also been rotating around as  
8                   well.

9                   So, it's not a huge number of people  
10                  during this time period, but it might be a lot of  
11                  different people, if I said that correctly.

12                  Mitch, is that your impression and  
13                  understanding as well?

14                  MR. FINDLEY:     That's correct, Tim.  
15                  Looking at some of the area exposure reports in  
16                  1975 it's like you said kind of dozens and then  
17                  over time it looked like it ramps up as it  
18                  becomes more of a -- more of a facility, if you  
19                  will, instead of an operation.

20                  DR. TAULBEE:    Does that answer your  
21                  question, Phil?

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1 CHAIR SCHOFIELD: Yes, it does. I  
2 mean obviously the numbers will start shaking out  
3 as you get farther into this.

4 DR. TAULBEE: Yes.

5 MEMBER BEACH: Tim, you also indicated  
6 you'd have a short White Paper on emergency  
7 responders. And I realize that hasn't been --  
8 isn't out yet.

9 What is that about or for?

10 DR. TAULBEE: That was the -- kind of  
11 summarizing all of the interviews where the  
12 question at CPP was were they monitored during  
13 call-outs. That's what that's about.

14 MEMBER BEACH: So we should see that  
15 shortly as well.

16 DR. TAULBEE: Yes.

17 MEMBER BEACH: Thank you.

18 MR. BARTON: Are we ready to go to the  
19 next agenda item?

20 CHAIR SCHOFIELD: Unless somebody else  
21 has some input I think we're ready to go on to

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1 the next -- for the dose reconstruction records  
2 priorities for the reactors.

3 MR. KATZ: So I think that's Steve,  
4 right?

5 CHAIR SCHOFIELD: I believe so. He's  
6 got the --

7 **Priorities for Evaluating Reactor**

8 **DR Records/Methods**

9 DR. OSTROW: This is Steve. I'm  
10 looking at the agenda. There's two points,  
11 priorities for evaluating reactor dose  
12 reconstruction records. That one we know about,  
13 who is doing it.

14 The second point is flush methods.  
15 That's my stuff.

16 CHAIR SCHOFIELD: Your presentation is  
17 on the website for the public, isn't it?

18 DR. OSTROW: The presentation, I don't  
19 think so because I don't think NIOSH has been  
20 able to post things the last couple of days.

21 MR. KATZ: So Steve, the reactor

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1 prioritization methods is the same, right?

2 DR. OSTROW: Okay. That's fine. I'm  
3 ready to give a presentation. Let me see if I  
4 can get a PowerPoint presentation up here.

5 Everybody in the Work Group and the  
6 SC&A and NIOSH and ORAU got my PowerPoint  
7 presentation a couple of days ago by email so  
8 they can refer to it. Let's see if I can get it  
9 up on Skype also. Let me see if it works here.

10 (Off the record comments)

11 DR. OSTROW: Alright, so this is the  
12 reactor prioritization. And if you have the  
13 slides, great.

14 Just a brief introduction is on page  
15 2. We've been looking at many different aspects  
16 of the Site Profile and SEC investigations one of  
17 which is related to reactors. And that's what  
18 I'm going to focus on.

19 And we have about a two-year history  
20 of discussions and White Papers and going back  
21 and forth between SC&A and NIOSH.

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1                   Did it just come up right now?

2                   MR. BARTON: Yes, Steve, I just tried  
3 to throw it up there. I don't know if people see  
4 it.

5                   DR. OSTROW: Okay.

6                   MR. KATZ: Yes.

7                   DR. OSTROW: Yes, it did go away. Do  
8 you want to give it another try and see if you  
9 can get it up?

10                  Okay, anyway, we'll go on. So we're  
11 right now on the introduction slide, page 2.

12                  Alright, so we came out with a report  
13 on December 8. Oh now it's up again. It  
14 disappeared.

15                  Anyway, we came out with that report  
16 on December 8 looking at responding -- as I said  
17 there was a whole series of going back and forth  
18 between us, NIOSH and ORAU about looking at  
19 reactor analyses.

20                  And our latest report, the December 8,  
21 looks at NIOSH's reactor analysis plan that Tim

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1 Taulbee had created. And also discussed a few  
2 other issues that were related to reactor  
3 modeling.

4 And the purpose of our report is to  
5 put everything together in one place and to  
6 inform the Work Group of where we are, and to  
7 provide for the Work Group and to provide some  
8 guidance to NIOSH and SC&A what we should do  
9 next.

10 NIOSH needs information on  
11 prioritizing the new reactor and the irradiated  
12 fuel characterization studies related to  
13 reconstructing internal doses where bioassay data  
14 are not available. So what do they look at next?

15 And we also address some specific  
16 concerns we had relating to modeling the Test  
17 Area North and test reactor area operations. We  
18 had expressed those concerns in separate reports  
19 in 2015.

20 Next page, page 3, background. This  
21 is the -- we've been discussing this for years

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1 already, the OTIB-54 which is fission and  
2 activation product assignment for returning dose-  
3 related gross beta and gamma analyses.

4 Where is this applicable?  
5 Specifically for INL reactors. We had performed  
6 preliminary assessments in 2015 and 2016 of  
7 whether the OTIB envelope be important condition  
8 to the INL and ANL reactors and prioritized  
9 reactors to high, medium, and low categories.

10 Subsequently we focused just on high  
11 priority category.

12 NIOSH responded last July, Tim's  
13 report, with a plan for additional reactor  
14 evaluations.

15 We were asked by the Work Group to  
16 look at Tim's report and comment, and that's what  
17 the current December report is on which was about  
18 five months ago now.

19 Page 4 slides. Just to remind people  
20 why we were looking at this. The operations at  
21 INL/ANL-West were very complex involving

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1 reactors.

2 And we had all sorts of unique  
3 situations about fuel, blankets, reflectors,  
4 moderators, coolants, operating scenarios,  
5 burnups which would all affect the applicability  
6 of the OTIB-54 methodology.

7 And to remind people, there were 52  
8 reactors at INL. There were 34 INL reactors and  
9 ANL-West reactors. Those are the ones we're  
10 concerned with. And there were also four at the  
11 naval research facility which we're not concerned  
12 with, and two reactors never actually operated.  
13 So we're left with a lot of reactors.

14 Next page, slide 5. Just to refresh  
15 everybody's memory about what is OTIB-54. And  
16 this is a real nice tool that NIOSH developed.

17 It determines internal doses when you  
18 only have gross beta or gross gamma measurements.

19 And it assigns fission and activation product  
20 intakes to different radioisotopes that are  
21 directly tied to indicator radionuclides, either

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1 strontium-90 and cesium-137.

2 So, the OTIB looked at four different  
3 reactors which are supposed to be representative  
4 of the whole universe of reactors and generated  
5 nine different representative cases using the  
6 ORIGEN code.

7 So the question we have now, this was  
8 investigating, is given a particular INL/ANL-West  
9 reactor does it fit within the OTIB-54 envelope,  
10 or conversely can you use OTIB-54 to model these  
11 reactors adequately.

12 Okay, page 6. We had in two different  
13 reports as I mentioned looked at all the INL and  
14 ANL-West reactors, and assigned priority rankings  
15 to each, high, medium, low, which they should do  
16 first, second, third.

17 So, we looked at things like fuel  
18 types, moderators, reflectors, coolants,  
19 operational modes. Some were steady state, some  
20 were intermittent, some operated in burst mode.  
21 Some were deliberately or inadvertently melted.

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1 Length of operation and overall burnup.

2 And at the last Work Group meeting the  
3 Work Group asked us also to take a look at the  
4 potential for exposing workers to radiation.

5 Because if you had a reactor, a  
6 bizarre reactor, something which couldn't be  
7 modeled, but it didn't expose anybody, then you  
8 don't really care about. So that goes to the  
9 exposure potential.

10 And in our report Appendix A covers  
11 that. Bob Barton did a terrific job with that.  
12 So it's there to look at.

13 And finally were there any particular  
14 incidents, other factors that have potential to  
15 expose people.

16 So we -- here we're at page 7. We  
17 ended up looking at just high priority category,  
18 and we categorized seven INL and seven ANL-West  
19 reactors in the high priority category.

20 For INL we had LOFT, OMRE which is the  
21 organic-moderated reactor, Power Burst Facility,

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1 and the SPERT 1, 2, 3, 4 reactors.

2 ANL-West we had also seven reactors,  
3 the five BORAX, boiling water experiment  
4 reactors, and the two EBR reactors, experiment  
5 breeding reactors.

6 That's what we recommended for high  
7 priority.

8 Page 8. Responding to our report,  
9 NIOSH wrote a long memo that made several  
10 recommendations. And I took this from Tim's  
11 report. I'll talk in more detail later.

12 But basically it posed merging the INL  
13 and ANL-West high priority categories together.  
14 It didn't make any sense to do them separately.  
15 Eliminating several reactors from the high  
16 priority category and reasons were given in the  
17 report for the SPERT reactors modeling the most  
18 extreme experiment as a bounding case, and also  
19 modeling the bounding case for the last two EBR-I  
20 cores.

21 That's a quick summary of what's in

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1 Tim's report.

2 Page 9 lists that NIOSH proposes to do  
3 the evaluations they proposed to do. So it's  
4 OMRE, PBF, the SPERT reactor, BORAX reactors,  
5 EBR-I core 4 and EBR-II.

6 So I read that quickly but you can go  
7 read it from the slides or the report.

8 I'll get into the guts of it now.  
9 Beginning on page 10 of 15 pages I had listed  
10 here on the second column NIOSH's recommendation  
11 from Tim's report.

12 And the last column is SC&A's  
13 evaluation from the December report that we put  
14 out. And this is taken verbatim from both  
15 reports.

16 And there were eight different items  
17 here from Tim's report that we responded to. In  
18 general, we concur in most cases with NIOSH. We  
19 only have a few differences here.

20 So the first item, NIOSH proposes  
21 merging the INL and ANL-West high priority

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1 categories for evaluation. And we concur.  
2 There's no reason to have INL separately and ANL-  
3 West done separately. So however NIOSH wants to  
4 do it, whatever order, that's fine with us.

5 Item 2, NIOSH proposes that the LOFT,  
6 that's the loss of fluid test, be removed from  
7 consideration because nuclear operations did not  
8 commence until December 1978.

9 So we disagreed with NIOSH here.  
10 First, we recognized that the first five LOFT  
11 experiments were non-nuclear thermohydraulic  
12 experiments, and the potential for radiation  
13 exposure didn't occur until December 1978. So  
14 NIOSH is correct about that, which is after the  
15 SEC period.

16 But we believe that given the facility  
17 5 long operating history, beyond design basis  
18 operating scenarios, and potential to have  
19 exposed a significant number of personnel that  
20 LOFT deserved a more detailed examination with  
21 respect to OTIB-54.

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1                   While it may not be an SEC issue  
2                   they're recommending that this be conducted  
3                   perhaps as a Site Profile exercise. We think  
4                   it's important that LOFT be modeled. That was  
5                   item 2.

6                   Item 3, both NIOSH and SC&A agree that  
7                   OMRE, the Organic-Moderated Reactor Experiment,  
8                   be modeled because that had a unique moderating  
9                   coolant that's certainly not covered by OTIB-54.  
10                  It's not obviously covered anyway. So item 3,  
11                  on OMRE, we agree.

12                  Next slide is slide 11, item number 4.  
13                  We agree that the Power Burst Facility should be  
14                  evaluated since they used ceramic fuel which is  
15                  different. So we agree on item 4 for OMRE.

16                  Item 5, this is the SPERT experiments.  
17                  NIOSH proposes a model for the most extreme  
18                  experiment from all the SPERT in terms of  
19                  possible departures from OTIB-54, be used to  
20                  represent the bounding case to cover all four  
21                  SPERT reactors.

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1                   So NIOSH basically wants to pick one  
2 case that they think is the worst from all these  
3 SPERT reactors and model that.

4                   We disagree. Although the four SPERT  
5 reactors were all part of the same series of  
6 reactor experiments that subjected the reactor to  
7 large reactivity excursions, they still differed  
8 significantly from each other and should be  
9 examined separately, perhaps by choosing the  
10 worst case scenario for each reactor.

11                   So rather than picking one worst case  
12 for all four SPERT experiments, we recommend  
13 picking -- looking at each of the four  
14 experiments and just picking one worst case for  
15 each one of the four.

16                   So we disagree with NIOSH. We think  
17 they should do a bit more modeling than they're  
18 suggesting.

19                   Item 6 which is on the next slide,  
20 slide 12. This is the BORAX reactors, boiling  
21 water reactor experiment.

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1                   And NIOSH notes that BORAX-I, II and  
2                   III all ceased operations toward the end of the  
3                   SEC period for ANL-West. BORAX-I was 1954 it  
4                   ended. BORAX-II was 1955 it ended. And BORAX-  
5                   III ended 1956.

6                   So NIOSH proposes removing BORAX-I  
7                   through III. But NIOSH agreed with us that  
8                   BORAX-IV should be evaluated for the OTIB-54  
9                   applicability due to the use of uranium thorium  
10                  oxide flow which was different.

11                  And NIOSH proposes that BORAX-V be  
12                  removed from consideration because its primary  
13                  function was to evaluate steam superheating. It  
14                  was basically the same reactor as BORAX-IV, it  
15                  just had a steam superheating module added to it.

16                  So, we agree basically with NIOSH in  
17                  this evaluation. But we do -- looking at it  
18                  again like yesterday and discussing it with John  
19                  Mauro, and we can write this down, we do have a  
20                  bit of a concern for reconstructing doses even  
21                  during the SEC period.

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1                   This is like a general comment too.  
2                   You have non-presumptive cancers and you have to  
3                   do a dose reconstruction for them even if they  
4                   are in the SEC period.

5                   So it's a question if that happens it  
6                   would be nice to know if OTIB-54 would apply to  
7                   these reactors. That's just like a general  
8                   comment John and I had.

9                   John, are you on the line? Do you  
10                  want to say anything about that?

11                  DR. MAURO: No, I heard you. Yes, I'm  
12                  on the line and you explained it. It's as simple  
13                  as -- yes.

14                  DR. OSTROW: And this doesn't apply  
15                  just to BORAX. This is a general comment about  
16                  all these reactors that operated during the SEC  
17                  period.

18                  Okay, next page 13, next slide, item  
19                  7. These are the Experimental Breeder Reactor 1  
20                  core, EBR-I.

21                  And NIOSH proposed that the most

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1 bounding case of the last two EBR-I cores be  
2 used.

3 And they further stated while it was  
4 initially believed that plutonium core would be  
5 bounding, some preliminary modeling would need to  
6 be performed on all four cores to confirm this.

7 And we agree. We concur with NIOSH.  
8 And we noted also that several hundred workers  
9 and visitors were present during the period of  
10 operation for the Mark 4 core. That's one of the  
11 last cores, if not the last.

12 And finally, item 8. This is EBR-II.  
13 NIOSH agreed with us that they should model the  
14 EBR-II.

15 And just a little note here also, in  
16 some years the average worker penetrating doses  
17 were greater than 100 millirem. So that has the  
18 potential to expose a good number of workers.

19 So that sums up our response to  
20 NIOSH's prioritization recommendations.

21 Our big report from December, also

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1 adding Appendix A which the Board requested, and  
2 Bob Barton did this.

3 This looked at the exposure potential  
4 of different reactors. And I'm not going to go  
5 through it because it's many, many pages.

6 But just in summary, the reactor sites  
7 that we prioritized as high generally employed  
8 hundreds of monitored workers with the exception  
9 of PBF which only had about 30 workers assigned  
10 during most of its badging cycle. But most of  
11 the other reactors had hundreds of workers  
12 assigned.

13 Penetrating doses were significant.  
14 And with some monthly badging cycles averaging  
15 hundreds of millirem. So if you have hundreds of  
16 workers and the average was hundreds of millirem  
17 per monthly badging cycles those are significant  
18 exposures. We recognize external  
19 exposures do not necessarily imply internal  
20 exposure potential. We know that. But the  
21 magnitude of the external doses give you some

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1           indication of the source terms that are present  
2           and the potential for internal exposures too.

3                       So, coupled with the extensive  
4           internal dosimetry program at INL for fission  
5           products, an adequate characterization of the mix  
6           of source term contaminants appears warranted.

7                       So basically, we concluded that there  
8           was an exposure potential at these prioritized  
9           reactors. So it's worth looking into.

10                      Now, there's two special cases. This  
11           fell through the cracks somewhat, and the Board  
12           last meeting asked us to take a look at it.

13                      We had put out two reports in 2015,  
14           both on the same day, September 28. One looked  
15           specifically at the applicability of OTIB-54 to  
16           the TAN reactors. And the other one looked at  
17           the applicability to the PRA facilities.

18                      So we included the comments from these  
19           two reports in our December 8 report to put  
20           everything into one place.

21                      So slide 16, Test Area North. And

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1 John Mauro led this. It got complicated so if I  
2 stumble here, I hope John jumps in.

3 This report John studied, looked at  
4 the applicability of OTIB-54 which is --  
5 potentially you only have gross beta or gamma  
6 data available. And in the TBD, internal dose  
7 TBD, tables 5-22 and 23. That's when you have  
8 bio data, bioassay data available. To the  
9 applicability in OTIB-54 and these two tables to  
10 the internal dose reconstruction at TAN.

11 And John's study looked at the fuel  
12 from the heat transfer reactor experiments, HTRE  
13 test.

14 They were of particular interest  
15 because the reactor fuel operating conditions and  
16 so forth that underpinned OTIB-54 methodology  
17 reflect situations in which the burnup usually  
18 occurred over protracted periods of time,  
19 hundreds of days. The fuel maintained its  
20 integrity.

21 In contrast, the HTRE fuel had very

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1 short burnup times and the reactors operated at a  
2 high temperature which allowed the fuel to melt  
3 in some cases.

4 In addition, HTRE used highly enriched  
5 uranium which is a little bit different.

6 Next page 17. So we decided to do a  
7 scoping study. To explore these potential  
8 concerns, SC&A performed ORIGEN runs ourselves  
9 where the isotopic mixture of fission and  
10 activation products were compared at different  
11 lengths of continuous operation.

12 We looked at 20 megawatts which is a  
13 low-power case and 200 megawatts, a high-power  
14 case.

15 When we looked at 20 hours and 200  
16 days as extremes of power level for both power  
17 levels. And we also did an additional 20-day run  
18 for the high-power case.

19 So these were intended to give us an  
20 idea, a general representation of the operating  
21 conditions of HTRE tests. For example, HTRE-I

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1 was operated at the 20 megawatts for 151 hours.  
2 We were just getting some idea of what ORIGEN  
3 would do to these reactors.

4 So, the long period of time, the 200-  
5 day case, this is on page 18, are indicative of  
6 the long burnup times that were used to derive  
7 mixes of radionuclides in table 7-3 of OTIB-54,  
8 while the shorter burnup times, 20 days and 20  
9 hours are typical of the TAN experiments. So --  
10 and a further cooldown period of 10 days.

11 And then once we've got the isotopic  
12 mix we multiplied the relative amounts of fission  
13 products by organ dose conversion factors which  
14 yielded a relative index of harm for each fission  
15 product.

16 Then we summed up the indices of harm  
17 for each of the burnup durations. That would  
18 give us a rough measure of how we compared to the  
19 OTIB or the TBD.

20 And there's a lot of information in  
21 our original reports which we did in 2015, but

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1 just in summary, it's on slide 19, for fission  
2 products the high-power levels, 200 megawatts,  
3 the indices of harm for the 20-day burnup and the  
4 20-hour burnup -- rather short -- were about the  
5 same, were slightly higher than -- or slightly  
6 lower than the 200-day burnup organs of concern  
7 which is good, except for the thyroid where the  
8 relative index of harm was substantially higher  
9 by a factor of over eight. But for all the other  
10 isotopes it's about the same.

11 For low-power level, 20 megawatts, the  
12 derived indices of harm for the 20-hour burnup  
13 compared to the 200-day burnup for all organs of  
14 concern were not claimant-favorable.

15 So, for the case of HTRE, for example,  
16 where you have short burnup times we found that  
17 the comparison was not claimant-favorable.

18 Slide 20. We looked at actinides. We  
19 found that the ratio of the inventory of all  
20 actinides to the inventories of cesium-137 and  
21 strontium-90 were grossly overestimated compared

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1 to the ratios in tables 5-22 and 5-23 of the TBD.

2 And we stopped our scoping analyses at  
3 that point.

4 So, what are our recommendations? We  
5 recommend that NIOSH continue these types of  
6 investigations to better understand the  
7 applicability and limitations of OTIB-54 and TBD  
8 tables 5-22 and 5-23 for reconstructing internal  
9 doses for TAN workers where the power levels and  
10 burnup durations are significantly different from  
11 those upon which the isotopic mixes are derived  
12 in OTIB-54 and the TBD tables.

13 So we did a scoping study and we came  
14 up with some -- looked like anomalies and avenues  
15 that we think NIOSH should be looking at further.

16 They're better equipped than SC&A to  
17 go through all these ORIGEN runs.

18 And finally, I'm running out of steam  
19 here, but slide 21. This is a test reactor area  
20 report which I did in September 2015.

21 I looked at the three major TRA

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1 reactors which is material test reactor, the  
2 engineering test reactor, and advanced test  
3 reactor that were run there.

4 They were all material testing  
5 reactors of similar designs but with size and  
6 power levels and capabilities increasing from the  
7 smallest, the MTR, up to the biggest, the ATR.

8 And the idea is that they have high  
9 flux capabilities. So they could simulate long-  
10 term irradiation of reactor materials in a  
11 shorter time.

12 The designs are similar. Pressurized  
13 light water moderated beryllium reflective  
14 reactors primarily using highly enriched uranium  
15 fuel and they had an unusual curved plate  
16 configuration.

17 Slide 22. So we found that the OTIB-  
18 54, in general, adequately envelopes the three  
19 TRA reactors. So we're fine about that.

20 And the OTIB actually explicitly  
21 modeled the advanced test reactor. It's one of

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1 their characteristic reactors for uranium fuel  
2 operations.

3 But we noted that the MTR also ran for  
4 a period with plutonium fuel. In fact, in 1958  
5 it became the first reactor run with a plutonium-  
6 239 core, which was different.

7 So the last slide 23. Our conclusion  
8 is not clear which, if any, of the nine OTIB-54  
9 representative reactor cases would envelope the  
10 MTR with plutonium fuel.

11 So we recommend that NIOSH actually  
12 look into that, make some runs and see if -- with  
13 plutonium fuel and see if OTIB-54 models that.

14 So that's the end of my slides. Now I  
15 can breathe again.

16 DR. MAURO: This is John Mauro. Just  
17 a couple of perspectives.

18 In the examples of these index of harm  
19 tables that are at the end of the presentation  
20 this was a way in which Mike Mallett -- you may  
21 know him -- worked very closely who runs these

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1 codes.

2 And we sort of put our brains together  
3 and said listen, what can we do. And that's a  
4 relatively simple that it comes up in an index of  
5 harm that would give an indication.

6 I think what we did was an attempt at  
7 a shortcut to try to get a handle on this. It's  
8 not intuitively obvious under what circumstances,  
9 what type of reactor, and what burnup rates, and  
10 durations are going to deviate from the claimant-  
11 favorability of OTIB-54.

12 And it wasn't apparent until we make  
13 these runs. And there's a lot of discussion, by  
14 the way, that supports all of these tables  
15 explaining why are things behaving the way  
16 they're behaving and these ratios, can we trust  
17 them.

18 So I guess the first thing I'd like to  
19 bring up is that I don't know the extent to which  
20 NIOSH has looked at our work, but we're very  
21 interested in seeing if they see it the same way

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1 we do because it is a unique way to try to come  
2 at this problem.

3 And then also given that it holds up  
4 you will note that in most cases the ratios, the  
5 degree of non-conservatism is on the order of  
6 less than a factor of 2, on the order of 1.5.

7 In other words, OTIB-54, even in these  
8 unusual circumstances where these HTRE cases, the  
9 short-term versus long-term burnup, high burnup  
10 rate.

11 OTIB-54 isn't that bad. I think  
12 that's one of the -- the glass is half full here.  
13 Pretty close. If it came out at 1.0 that means  
14 bingo, OTIB-54 works.

15 When the number comes out greater than  
16 1 it means that, well, it looks like OTIB-54 at  
17 least in this simulation is what I would call a  
18 shortcut approach to come at this problem shows  
19 that for some organs, many organs it doesn't --  
20 it's not entirely claimant-favorable, but it's  
21 not that bad.

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1                   So I guess what I'm trying to say is  
2                   that in the bigger picture where we're talking  
3                   about just in my case here we're talking TAN, and  
4                   really the heart of the TAN was the burnup rate  
5                   and the burnup duration. Fundamentally simple  
6                   but very fundamental to reactor operation and the  
7                   fuel and what it might produce where we have  
8                   fission products and activation products.

9                   When it comes to a steam discussion,  
10                  which is a much bigger story of a lot more  
11                  reactors, that differ in more what I would call  
12                  nuanced ways. In other words, as you described,  
13                  reactor design, reflector, cooling, that sort of  
14                  thing, as opposed to my HTRE where I said listen,  
15                  these things had a very, very high burnup rate  
16                  for a very short period of time so these are very  
17                  different.

18                  What I'm trying to say is that -- two  
19                  things.

20                  One, I would really be interested in  
21                  seeing if NIOSH agrees that this index of harm

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1 approach that we applied here as the test for  
2 OTIB-54, for at least the HTRE fundamental  
3 situation, that they agree, yes, this is a good  
4 way to come at the problem. Or maybe no, you  
5 really can't do that, there are too many other  
6 complicating factors.

7 And we would be the first to agree  
8 that that could happen if you start to actually  
9 run ORIGEN runs for these very specific cases.

10 But given it holds up more or less,  
11 one of the thoughts I had is given this bigger  
12 issue of all these reactors, high priority,  
13 medium, low priority, I would imagine, that these  
14 ORIGEN runs are not a walk in the park. These  
15 are complicated, very difficult runs taking a lot  
16 of resources.

17 And all I would offer is that there  
18 may be some way of a shortcut to try to say,  
19 listen, if it turns out OTIB-54 is not always  
20 claimant-favorable is there a way to say, listen,  
21 well one thing we can say is that when it's off

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1 it could be off by a factor of less than two,  
2 except for this iodine issue that's brought up  
3 that might be a very special case.

4 So I guess what I'm trying to do here  
5 is to say there may be some innovative,  
6 simplifying, creative approach to attack this  
7 problem without having to run through all of  
8 these ORIGEN runs.

9 Now, I don't run ORIGEN, but I got the  
10 impression that it's extremely complex as applied  
11 to any particular real reactor and real operating  
12 circumstance. It might require a lot of  
13 resources.

14 And all I could offer up is that if  
15 there's a way to sort of scoping to see how far  
16 off -- first to see if the work we did holds  
17 water. We realize that we tried to do something  
18 pretty creative here.

19 And if it does there may be some ways  
20 in which to come at the problem that would help  
21 place a plausible upper bound, an adjustment

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1 factor so to speak on OTIB-54 to accommodate  
2 these unusual reactors.

3 So I just throw that on the table as a  
4 think piece for us. Because I realize we're  
5 entering into a mode where these could be very  
6 resource-intensive investigations.

7 DR. TAULBEE: This is Tim. I  
8 certainly don't have any problem with us -- well,  
9 actually we'll get back to you on the index of  
10 harm comparison. We had not looked at that in  
11 great depth yet from that standpoint.

12 But I can tell you one quick  
13 comparison we can do is using your same index of  
14 harm is compare the OTIB-54 with the runs that we  
15 did for the Savannah River Site where we actually  
16 went through ORIGEN and developed a different set  
17 of factors for Savannah River to see if we've got  
18 -- if that possibly makes out the differences  
19 that we saw again with the iodine.

20 Does anyone hear a squeal on their  
21 phone?

1 DR. MAURO: I'm hearing some static.  
2 I don't know if everyone else had the same  
3 problem.

4 MR. KATZ: I was hearing it too. It's  
5 gone away. Hopefully it's passed.

6 DR. TAULBEE: Okay. So, I guess at  
7 this point I'd say let us get back to you on that  
8 index of harm issue.

9 I can't agree more with you on the  
10 issue of ORIGEN being labor-intensive and  
11 resource-intensive. This is part of why we were  
12 trying to prioritize what the Work Group wanted  
13 us to look at kind of first high priority and  
14 which ones, and why we were trying to pare them  
15 down from that initial component because these  
16 are resource-intensive.

17 But we will look at this index of harm  
18 more closely and get back to you on that.

19 I do have a few questions going back  
20 up to Steve's presentation here. And that is on  
21 the LOFT where you all disagree.

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1 I don't think we're actually in  
2 disagreement here. The issue is we do intend to  
3 look at LOFT. The question is whether it's under  
4 the SEC evaluation or under the TBD.

5 So, I really would like it to be put  
6 under a Site Profile issue and we will look at it  
7 at some point. But right now from an SEC  
8 standpoint we were wanting to exclude it.

9 It's not that we want it off the table  
10 completely, it's just for the SEC so that we can  
11 try and manage this a little better because of  
12 the resource intensity of doing such.

13 That was our point with number 2, the  
14 LOFT reactor.

15 DR. OSTROW: This is Steve. I agree  
16 with you. We don't care whether you do it for  
17 SEC or Site Profile, unless the Work Group cares.  
18 But we agree with you on that.

19 DR. TAULBEE: Okay. Any questions  
20 from the Work Group on that?

21 MEMBER BEACH: None here.

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1 DR. TAULBEE: Okay. With regard to

2 SPERT --

3 MEMBER MELIUS: Excuse me, I had  
4 myself muted. Jim Melius.

5 I guess maybe backing up a little bit  
6 are any of these reactors significant SEC issues?

7 In terms of when you combine how difficult they  
8 may be to model and the years involved of  
9 operation and significant population of people  
10 exposed.

11 DR. TAULBEE: This is Tim. My general  
12 impression is no from the standpoint of we can do  
13 the modeling and so we can make adjustments to  
14 the TBD if we see differences.

15 DR. MAURO: Jim, this is John Mauro.  
16 I don't entirely agree with that and let me  
17 explain why.

18 One of the reasons we did the TAN  
19 HTREs is to ask the question -- because the basic  
20 approach that's been adopted in TAN which of  
21 course is not part of the SEC issue, or is it I

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1 believe being held in reserve, is that the idea  
2 being that, well, we could use this OTIB-54  
3 approach.

4 And that was the reason we worked  
5 through this exercise is to say listen, can you  
6 do the OTIB-54 approach. Is it scientifically  
7 sound and claimant-favorable.

8 And the results are the results that  
9 we have here where we are seeing ratios of index  
10 of harms that's greater than one.

11 Now, does that mean that you cannot  
12 reconstruct the doses? I would say no, you can.

13 Of course you can always run ORIGEN and do the  
14 full-blown treatment of the problem.

15 But at the same time I just want to  
16 caution that if that is going to be the solution  
17 we're talking about something that might be quite  
18 overwhelming.

19 So, I'm not disagreeing. I just want  
20 to point out that taking that -- if we determine  
21 that my index of harm approach is valid, and that

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1 the difference that we're seeing -- and they're  
2 not big for most organs as may have noticed, 1.2,  
3 1.5.

4 The question of okay, we agree that  
5 OTIB-54 really is not always necessarily  
6 claimant-favorable by some factor of 20, 30, 40,  
7 50 percent for different organs. Okay, we agree  
8 with that.

9 Now the question is what do you do  
10 about it. And if there is a plausible reasonable  
11 way of expeditiously going through the process of  
12 reconstructing doses, great.

13 But it's not apparent to me that there  
14 is. And I think that is a challenge if it does  
15 turn out that OTIB-54 doesn't really work for  
16 these unusual burnups.

17 So I just wanted to add that into the  
18 landscape of the issue we're dealing with.

19 MR. KATZ: John, just to respond a  
20 little bit to what you just said there. It's  
21 Ted.

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1                   Expeditious is not really a criterion  
2                   for whether you decide, okay well, it's too much  
3                   work so we're going to do an SEC instead. It's  
4                   not really an option.

5                   DR. MAURO: I agree. I guess I jumped  
6                   the gun on that one. But I was just thinking  
7                   about how are we going to do this. But you're  
8                   absolutely right.

9                   CHAIR SCHOFIELD: This is Phil. I do  
10                  have to agree with one thing and that's that I'm  
11                  more concerned about the fact that a lot of these  
12                  -- I don't know how well the documentation is for  
13                  some of these runs.

14                  I mean, you used mixed fuel  
15                  combinations out of their normal testing, and how  
16                  this would affect the people that are there doing  
17                  the operation.

18                  DR. TAULBEE: So, this is Tim. That's  
19                  what makes this quite complex is that this was  
20                  the National Reactor Testing Station. So they  
21                  did multiple different configurations.

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1                   And so what we've done, or what SC&A  
2                   has done, as well as NIOSH, is we've gone through  
3                   the reactors and looked at what is different from  
4                   the reactors they were testing there versus what  
5                   is covered in OTIB-54, the style of reactors, the  
6                   type of fuel, et cetera.

7                   And so what we're talking about here  
8                   is really just the outliers, the ones that caused  
9                   us some concern that those values in OTIB-54 may  
10                  be different than what we saw at a particular  
11                  area. Does that help answer your question?

12                  CHAIR SCHOFIELD: Yes.

13                  DR. OSTROW: This is Steve. Just  
14                  following what Tim said, it's not only the  
15                  outliers, but the outliers that we thought might  
16                  have significant doses. Because they had a whole  
17                  bunch of more reactors that were truly bizarre,  
18                  but they were low power, short periods of time,  
19                  et cetera, et cetera. And we didn't put those  
20                  into high priority. Neither did NIOSH.

21                  They're really strange reactors but we

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1 didn't think they had any high potential for  
2 exposures to people for various reasons.

3 My question is where do we go next on  
4 this. We agreed to modeling reactors and looking  
5 at the high priority, and looking at this table I  
6 have, this multi-page table we agree with NIOSH  
7 in most of the cases which reactors to model.

8 So what's the next step? Does NIOSH  
9 can just go ahead and start modeling whatever  
10 they have their time on their schedule the  
11 reactors we agree on and the reactors we didn't  
12 agree on?

13 DR. TAULBEE: Let's -- if we can I'd  
14 like to discuss it because there's only two more  
15 -- or only really the SPERT reactors, that I  
16 wanted to ask you all about.

17 You're proposing that we model the  
18 worst case or what we believe to be the worst  
19 case of each of the four, is that correct? Did I  
20 understand that correctly?

21 DR. OSTROW: Yes. I think so. That

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1 is what we're recommending. Because they really  
2 operated fairly differently from each other.

3 And we're not convinced that you can  
4 pick one worst case for all four tests unless  
5 alternatively if NIOSH can justify picking one  
6 case for all four reactors that's fine, we'll  
7 look at that also.

8 DR. TAULBEE: Okay. Either way we're  
9 looking at a large number of test runs from that  
10 standpoint. It's not something that we'd just  
11 kind of use best educated guess to pick one.

12 It's more of we would do some  
13 preliminary type of ORIGEN runs and then kind of  
14 hone in on, okay, this is having a bigger effect.  
15 And that was what we were planning on doing, much  
16 like what we were proposing for the EBR-II.

17 So it's not something -- or not EBR-  
18 II, EBR-I -- where we believe it might be the  
19 concerning core there that would be bounding. But  
20 we'd perform some preliminary modeling to make  
21 sure of that.

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1                   That's what we were kind of planning  
2                   to do with SPERT as well, but only really report  
3                   on one of them.

4                   DR. OSTROW:   Okay, I understand.   I  
5                   understand the procedure.   I actually know how to  
6                   run ORIGEN and have done it and understand how  
7                   the whole thing works.

8                   But your method -- all I'm asking then  
9                   is if you do go through this and pick one reactor  
10                  that whatever you deduce, point to it, document  
11                  it. Show enough that we can actually take a look  
12                  at it and say yes, NIOSH did it the right way.

13                  DR. TAULBEE:   Okay, sure.   Absolutely.  
14                  Absolutely.   Okay.

15                  And the other one that I wanted to  
16                  just briefly mention is you mention the BORAX  
17                  ones for the BORAX-I, II and III with regards to  
18                  the people who don't make it into the SEC.

19                  I just wanted to clarify or to I guess  
20                  in a sense let you know that we've designated the  
21                  SEC due to an internal infeasibility in that we

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1 believe these workers were monitored based upon  
2 some interviews and other documentation.

3 But we do not have data. It is  
4 incomplete. So we made it an SEC due to we know  
5 people do not have complete internal dosimetry  
6 records up through 1957.

7 So we really can't reconstruct their  
8 internal doses. If they have something then we  
9 will use it and we will apply it to 54, but we  
10 already know it's incomplete. So to do  
11 additional work there just doesn't seem fruitful  
12 in a sense.

13 DR. OSTROW: Okay, I understand and it  
14 sounds right. John Mauro, do you have a comment  
15 on that?

16 DR. MAURO: No, I can't add anything  
17 to that.

18 DR. OSTROW: Okay, so we'll -- your  
19 point's well taken.

20 DR. TAULBEE: Okay. Then the only  
21 other one that I have here is it looks like from

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1 your TRA reactor, TRA slide 23, that you would  
2 like us to look at the MTR plutonium core.

3 DR. OSTROW: Yes, from what I  
4 understand about the MTR, I looked into it a lot.

5 It seems that the core configuration is the same  
6 physically, the same curved plates, the same  
7 strange cylindrical control mechanisms and all  
8 that, but with a different -- so basically we'd  
9 like you to take a look at the plutonium case.

10 DR. TAULBEE: Okay.

11 DR. OSTROW: Because that's different.

12 I didn't see -- looking at the OTIB-54 I didn't  
13 see where that would really fit in.

14 DR. TAULBEE: No, it doesn't. I think  
15 initially in our initial thoughts that's part of  
16 why we're looking at EBR-I separate from the EBR-  
17 II while they are different reactors, different  
18 styles.

19 But the other issue is the EBR-I had a  
20 plutonium core as well, but unfortunately it's  
21 not light water so you're looking at a fast

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1 reactor versus slow. So we probably should look  
2 at both. We concur with you on that.

3 DR. OSTROW: Okay. That sounds like  
4 we agree now on what you're going to be looking  
5 at.

6 Do you have any idea about schedule  
7 for this?

8 DR. MAURO: Steve, before we jump to  
9 that I just want to make one point that I think  
10 we went through very fast. This business of  
11 highly enriched uranium not having the U-238, to  
12 a large degree, which means that in this respect  
13 the approach that's being adopted by these tables  
14 5-22, 5-23 is grossly conservative because it  
15 predicts substantial quantities of plutonium-239  
16 which I believe are really not going to be there  
17 because you don't have the 238 where it would  
18 grow in from.

19 So, we didn't really talk too much  
20 about that, but I think an entirely different  
21 strategy might need to be taken with regard to

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1 these transuranics when you're dealing with fuel  
2 that is highly enriched.

3 I just wanted to remind everyone on  
4 that aspect of this analysis which is still like  
5 the flip side.

6 In that case I believe your strategy  
7 will substantively overestimate your doses.

8 DR. TAULBEE: This is Tim. We believe  
9 that to be the case, and that's the goal of OTIB-  
10 54 was to take these four different styles of  
11 reactors and one of them, the trigger reactor is  
12 high enriched uranium, just the scenario you're  
13 talking about, but combining it with the ATR  
14 which is highly enriched uranium.

15 But the Hanford inner reactor is of  
16 course plutonium production. So the goal of 54  
17 is to create a massive envelope around them all.

18 And so what we're really looking at is does  
19 something fall outside the envelope.

20 DR. OSTROW: Okay. So you have that  
21 covered. I guess I have to say I missed that,

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1 that you basically have that circumstance covered  
2 in your current OTIB-54. Thanks for helping out.

3 DR. TAULBEE: Okay. So if I could  
4 just briefly recap here which ones that we are to  
5 look at and then I'll try to address schedule a  
6 little bit.

7 We will evaluate OMRE, PBF. With  
8 SPERT we will then go through and do kind of a  
9 sub-analysis of which one tends to be the most  
10 dominant -- not dominant but outlier in a sense  
11 and that's the one that we will pick to do the  
12 full evaluation.

13 We'll look at BORAX-IV, EBR, the core  
14 number 4 which is the plutonium one, EBR-II and  
15 the MTR with the plutonium core, the Phoenix  
16 core.

17 DR. OSTROW: That sounds like it to  
18 me, Tim. This is Steve.

19 DR. TAULBEE: Okay. All right, well,  
20 and now I'll try to address schedule a little bit  
21 here.

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1                   From one standpoint there's really  
2                   good news here is that we may have a resource  
3                   that can work on these in parallel with all of  
4                   our other efforts. So that I need to get with  
5                   the ORAU team more on and we'll be doing so  
6                   tomorrow. And we'll be trying to build out the  
7                   schedule. So I hope I'll be able to provide an  
8                   update to the Work Group on some of the schedule  
9                   now that we've got a priority set.

10                   So I can't give you hard numbers right  
11                   now, but I do want to let you know that it's not  
12                   going to be dependent on something else I don't  
13                   believe. So that's the really good news.

14                   I just can't give you exact time  
15                   periods right now because I don't know that  
16                   potential resource's availability completely and  
17                   what the time schedule would be.

18                   But I did want to show the Work Group  
19                   that this is something that I do think can be  
20                   going on parallel with the burial grounds 83.14  
21                   that we'll be working on and the response to the

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1 ANL air monitoring.

2 So I do think we can have three  
3 parallel efforts going on right now from this  
4 standpoint.

5 Mitch, am I overstating anything?

6 MR. FINDLEY: No, I don't think so.  
7 Again, we're going to discuss it tomorrow so we  
8 can kind of work through the details of it at  
9 that time.

10 DR. TAULBEE: Okay.

11 **SC&A Burial Grounds Report**

12 MEMBER BEACH: So in terms of  
13 priorities if you cannot work on them in parallel  
14 the priorities are the burial grounds, 83.14, is  
15 that correct?

16 DR. TAULBEE: Yes, that would be our  
17 top priority for sure.

18 MEMBER MELIUS: This is Jim Melius  
19 again.

20 And then I think the earlier years of  
21 the burial grounds would also be a priority.

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1 DR. TAULBEE: The problem with the  
2 early years of the burial grounds is that the  
3 same 83.14 folks would be working on that.

4 MEMBER MELIUS: I understand. So you  
5 would be doing this sequentially.

6 DR. TAULBEE: Yes.

7 MEMBER MELIUS: Okay. I guess my  
8 concern is -- well, you're going to talk tomorrow  
9 about -- so the ORAU staff availability resource  
10 issue.

11 But there's also a bigger resource  
12 issue in terms of overall budget available for  
13 this and other sites. It seems we keep running  
14 into that issue more and more. And I guess  
15 that's -- so your internal prioritization overall  
16 in the program.

17 I guess I'm still not convinced that -  
18 - and I don't know the resources involved in  
19 going into this, but it seems to me if they could  
20 be -- that they are a significant evaluation of  
21 reactors that we -- I don't see them as a

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1 priority for the site.

2 If it's all the same resource and same  
3 people involved I think those are the last of the  
4 -- certainly after the burial grounds.

5 DR. TAULBEE: Understood.

6 MEMBER MELIUS: And I think the other  
7 thing that I guess I get concerned a little bit  
8 about in terms of how you prioritize the reactors  
9 is that -- which you've already taken into  
10 consideration in some of your responses is the  
11 whole issue, if we establish an SEC covering the  
12 site, the entire site for certain years then that  
13 may change your priorities in terms of which  
14 reactors to look at when and so forth.

15 But those are all hypotheticals. But  
16 I just sort of keep it in mind so that when we  
17 complain about getting something done at another  
18 site, or ask Stu about it we don't get the answer  
19 well, you guys all wanted the reactors done right  
20 away.

21 DR. TAULBEE: Understand. Okay.

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1 MEMBER BEACH: Good point.

2 CHAIR SCHOFIELD: Sorry to change the  
3 subject here, but I was wondering if people need  
4 a short break before we continue or not.

5 MEMBER BEACH: What's our time frame,  
6 Ted?

7 MEMBER MELIUS: Ted has morphed into a  
8 dog it sounds like.

9 MR. KATZ: No, that wasn't me, but my  
10 phone keeps locking me out after I put my code in  
11 just to get the phone open to unmute it. Sorry.

12 Anyway, the time frame is really -- we  
13 set this meeting at 10 o'clock instead of the  
14 normal 10:30 because some Board member or two had  
15 at some point conflicts later today.

16 So it's really up to the Board  
17 members. You can run it longer if it works for  
18 the Board members. We can break and reconvene  
19 after lunch too at some point if people start to  
20 get hungry. I have no constraints.

21 MEMBER MELIUS: What's the time frame

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1 for what's left to do?

2 MR. KATZ: Right. So there's two  
3 items. They're both SC&A items. I don't know  
4 how long they take to present. One I think might  
5 be Joe's.

6 MEMBER MELIUS: I don't think it makes  
7 sense to do the -- I mean, we may need a short  
8 update from Joe on the burial grounds, but I  
9 don't think NIOSH is ready to --

10 MR. KATZ: Right.

11 DR. TAULBEE: We are not ready to  
12 respond. That is correct.

13 MEMBER MELIUS: And the same on -- I  
14 don't know where you are with the ANL-West  
15 monitoring in terms of a response.

16 DR. TAULBEE: Same with that one.

17 MEMBER MELIUS: Okay.

18 MR. FITZGERALD: I'd say 5 or 10  
19 minutes, Jim, on mine.

20 MEMBER MELIUS: Yes.

21 MR. KATZ: So then if it's that brief

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1 and you want to hear a short presentation from  
2 Joe then we can adjourn after that it sounds  
3 like.

4 MEMBER BEACH: That sounds good.

5 CHAIR SCHOFIELD: Let's go ahead and  
6 continue. It doesn't sound like it will take  
7 much longer here.

8 MR. FITZGERALD: Yes. You have the  
9 report and in fact I think pretty detailed.

10 I think we, Tim, NIOSH and SC&A agreed  
11 about a year, a year and a half ago that even  
12 though I think there was a conclusion in the  
13 first ER that there was sufficient data and  
14 programmatic considerations that NIOSH concluded  
15 it could dose reconstruct with sufficient  
16 accuracy.

17 I think there was the desire to  
18 supplement the information that was available.  
19 Most of the records for the early years of the  
20 burial grounds were fairly thin, I think that's  
21 safe to say.

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1                   And we wanted to go out and do a  
2                   fairly extensive round of interviews with workers  
3                   that worked at the burial grounds which we did.

4                   I lost count, but we probably talked  
5                   to specific to the burial grounds probably 20 or  
6                   30 if not more of those workers trying to piece  
7                   together something that again is not really well-  
8                   documented in terms of practices and the history  
9                   of that site.

10                   And we agreed to report. I'm not  
11                   going to go ahead and present that in terms of  
12                   the findings, but I think it's safe to say our  
13                   conclusion after that year, year and a half is  
14                   that we find ourselves in disagreement with some  
15                   of the basic conclusions or tenets that are in  
16                   the ER for that period. This is '52 to '70.

17                   Granted it's a weight of evidence type  
18                   of deliberation and I fully appreciate one has to  
19                   consider availability of data, the programmatic  
20                   issues.

21                   But again we find some real concerns

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1 in that.

2 Now, saying that we have not been able  
3 to pin down at this point in time what exact -- I  
4 think Tim alluded to this -- what exact data.  
5 And it's referred to in the latest ER as data in  
6 hand, but the bioassay information and maybe air  
7 sampling, we don't know.

8 So in terms of any conclusions one  
9 could make as far as the approach we don't know  
10 what the specific dose reconstruction approach  
11 will be.

12 So, it's sort of saying well, okay, we  
13 can probably paint around that issue and look at  
14 the weight of evidence as we have it. And we  
15 have concerns over what we do have.

16 But there can't be a real hard-edged I  
17 think conclusion from our standpoint for the Work  
18 Group until we are able to look at what Tim's  
19 referring to in terms of the information.

20 And a lot of this was collected over  
21 the past year. So we have yet to do that.

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1 I guess in terms of how this might  
2 inform the 83.14, I would just kind of emphasize  
3 that certainly as NIOSH goes through their look  
4 for the '70 to '77 period I think a lot of the  
5 issues, the programmatic issues for one, the  
6 monitoring issues for another, and certainly the  
7 practices themselves did not shift dramatically  
8 even though the operations did.

9 They were certainly retrieving rather  
10 than dumping and burying, but a lot of those  
11 basic health physics practices were very similar.

12 It didn't change from December of '70 to January  
13 of '71. So I would certainly emphasize that  
14 point.

15 And in terms of looking at the  
16 monitoring information, I think the key from what  
17 we were able to look at is needing to fit the  
18 monitoring that was being done to the actual  
19 activity on the ground.

20 I mean, yes, they had air sampling  
21 going on, but they also had workers inside the

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1 pit cleaning up after spills. And they certainly  
2 weren't being monitored in the same way as  
3 somebody on the edge of a pit or a trench.

4 The same thing goes for the special  
5 bioassays. We talked to some of the former  
6 workers and it was pretty clear that this whole  
7 notion of drums breaking open and having contents  
8 spilled and having to clean up the kind of  
9 contamination you would get when an equipment  
10 operator buries contaminated soil as overburden  
11 over drums and containers, and you're dealing  
12 with resuspension, the kind of -- those weren't  
13 necessarily subject to special bioassays.

14 So this whole notion that you had  
15 special bioassays when you had "events." Well,  
16 these contaminations were so routine they weren't  
17 considered events. You would not have had any  
18 bioassays that would fit the kind of exposures  
19 they were experiencing.

20 So I would just encourage in this  
21 83.14 that NIOSH look closely at some of these

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1 activities that predated '70 but certainly  
2 continued, and to look at whether or not the  
3 monitoring truly and effectively fit the activity  
4 at hand.

5 And from a programmatic standpoint, I  
6 think we tried to document very clearly, and it's  
7 all there in the report, that so-called defense-  
8 in-depth I think is perhaps overstated for the  
9 burial grounds.

10 Certainly I've heard that term for  
11 reactor safety, but for the burial grounds it  
12 sort of evolved from a municipal landfill type of  
13 approach to something a little better than that.

14 But clearly there were some real  
15 questions about to what extent the radiological  
16 controls were comprehensive, thorough, and  
17 whether the monitoring was done as consistently  
18 or not.

19 And a lot of that wasn't remedied  
20 until the mid-seventies. So certainly a lot of  
21 that has to be addressed in the context of the

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1 83.14.

2 I think that's all I'm going to say at  
3 this point. I think it's pretty well laid out.  
4 We tried to be complete. And I know Tim and his  
5 staff were along for a lot of these interviews.  
6 They heard the same things we did.

7 So, certainly I know they're going to  
8 take a hard look when they go through the 83.14.  
9 That's it.

10 MEMBER MELIUS: You left us speechless  
11 except for the dog.

12 MR. FITZGERALD: The dog likes it.

13 MEMBER MELIUS: The dog likes it.

14 MEMBER BEACH: I think that's Phil's  
15 dog.

16 MEMBER MELIUS: Phil, is that your  
17 dog? Phil's on mute, the dog's not.

18 MEMBER BEACH: Okay, maybe it's not.

19 CHAIR SCHOFIELD: Yes, that was mine.

20 MR. KATZ: Thanks, Joe. I think that  
21 will be useful actually for review.

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1 MEMBER MELIUS: Yes.

2 MR. KATZ: So with that, Phil, I think  
3 unless you have something else, or Board members  
4 have something else I think we can adjourn and  
5 thank everybody for all the hard work that went  
6 into preparing for this.

7 MEMBER BEACH: So, and I was wondering  
8 on the last report, on the ANL-West monitoring,  
9 is there anything that needs to be said on that,  
10 or we just hold off for the next meeting?

11 MR. BARTON: Yes, Josie, this is Bob.  
12 I put that report together and actually it was  
13 briefly discussed back in the August 2016  
14 meeting. I think I had four and a half minutes  
15 to try and go through it.

16 So, when we were kind of putting the  
17 materials together for this meeting, I had  
18 offered it up as something that's still yet to be  
19 discussed.

20 But at the same time I think I heard  
21 Tim say that there's not really a response ready

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1 from NIOSH's group. So I'm not sure if it would  
2 be all that fruitful for me to go through the  
3 presentation again, maybe in a little bit longer  
4 and more detail, if NIOSH hasn't had a chance to  
5 really sit down with it.

6 Do I have that correct, Tim? It's  
7 sort of still in the queue?

8 DR. TAULBEE: Yes, you're correct. It  
9 is in the queue and on our radar, but we have not  
10 worked on it. And so with the other things that  
11 are going on, I would propose that we kind of  
12 table this at this time, or put it to the side  
13 for a future meeting.

14 MR. BARTON: That's fine with me. I  
15 guess one other thing if we're going to adjourn  
16 shortly, I wanted to inform the Work Group that  
17 another piece of the puzzle that we sort of  
18 researched in parallel with the burial grounds  
19 work that Joe just described was exposures at the  
20 CPP prior to 1963, so prior to the currently  
21 proposed SEC period.

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1                   And that report has gone through SC&A  
2                   internal review. Right now it's with our tech  
3                   editor who's fixing all my horrible grammar. And  
4                   then after that, I imagine it will have to go to  
5                   DOE. But that is certainly in the pipeline and  
6                   you all should be seeing that fairly soon.

7                   CHAIR SCHOFIELD: Thanks for that  
8                   heads up, Bob.

9                   MR. KATZ: Phil, are you on the line?

10                  CHAIR SCHOFIELD: Yes, I am.

11                  MR. KATZ: Okay. So time to adjourn?

12                  CHAIR SCHOFIELD: Unless anybody else  
13                  has anything I think we will adjourn at this  
14                  point.

15                  MR. KATZ: Great. Well, thanks  
16                  everybody.

17                  MEMBER BEACH: Before we adjourn, I  
18                  was wondering, should we set up something  
19                  tentatively just to discuss that 83.14, or are we  
20                  just going to wait?

21                  MR. KATZ: Well, Josie, I was thinking

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1 about that. Why don't we just wait a little bit  
2 for more certainty from Tim in terms of the time  
3 frame.

4 The more time before the Board meeting  
5 the better, so I'd like to give Tim a little bit  
6 of time to make more progress, and then  
7 absolutely I'll schedule even if we may not be  
8 able to use it I'll schedule an INL Work Group  
9 meeting for before the August Board meeting so we  
10 have that opportunity.

11 MEMBER BEACH: Okay, thanks.

12 DR. TAULBEE: And again, this is the  
13 83.14 for CPP.

14 MEMBER BEACH: Correct.

15 MR. KATZ: So thanks, Josie.

16 MEMBER MELIUS: We can only do it once  
17 with the agenda.

18 **Adjourn**

19 MR. KATZ: Okay.

20 MEMBER BEACH: Bye everyone.

21 (Whereupon, the above-entitled matter

1       went off the record at 12:22 p.m.)  
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