

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

+ + + + +

MOUND WORK GROUP

+ + + + +

THURSDAY  
SEPTEMBER 29, 2016

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The Work Group convened in the Bridges Room of the Holiday Inn Cincinnati Airport, 1717 Airport Exchange Boulevard, Erlanger, Kentucky, at 9:00 a.m., Eastern Time, Josie Beach, Chair, presiding.

PRESENT:

JOSIE BEACH, Chair  
BRADLEY P. CLAWSON, Member  
PHILLIP SCHOFIELD, Member  
PAUL L. ZIEMER, Member\*

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ALSO PRESENT:

TED KATZ, Designated Federal Official  
NANCY ADAMS, NIOSH Contractor\*  
BOB BARTON, SC&A\*  
RON BUCHANAN, SC&A\*  
PETE DARNELL, DCAS  
JOE FITZGERALD, SC&A  
JENNY LIN, HHS\*  
JIM NETON, DCAS  
MATTHEW SMITH, ORAU Team\*  
DONALD STEWART, ORAU Team  
JOHN STIVER, SC&A\*

\*Participating via telephone

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

2 9:00 a.m.

3 **Welcome and Roll Call**

4 MR. KATZ: So, good morning, everyone.

5 It's start time, 9 o'clock. This is the Advisory  
6 Board on Radiation and Worker Health, Mound Work  
7 Group. And we're all assembled here in the room.

8 Our meeting this morning, we have an  
9 agenda and some materials for the meeting.  
10 They're all posted on the NIOSH website. For folks  
11 who are on the phone, go to the NIOSH website for  
12 this program and schedule of meetings, today's  
13 date, and you can open up the agenda and some  
14 materials associated with the agenda there to  
15 follow along with the discussion.

16 So let's do roll call to start with.  
17 We're speaking about a site, so please speak to  
18 conflicts of interest as we go. And I'll start  
19 with Board Members in the room.

20 (Roll call.)

21 MR. KATZ: So I think that takes care

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1 of all preliminaries. Josie, it's your meeting.

2 Please, everyone on the phone, except  
3 when you're speaking please mute your phones, \*6  
4 to mute your phone if you don't have a mute button,  
5 and \*6 to come off of mute. Thanks.

6 CHAIR BEACH: Okay, thank you. And  
7 welcome, everybody, to this meeting. We haven't  
8 met since 2012, when I was going back through  
9 documents. The two things that we have that we can  
10 look at today are SC&A's review of the remaining  
11 Site Profile issues at Mound, and the matrix that  
12 Tim put together -- or Peter put together -- excuse  
13 me, Peter.

14 What I thought we would do is go through  
15 and there are several of these that SC&A has  
16 determined that -- or they recommend that we should  
17 close them. I thought maybe we should go through  
18 all of those first, saving 9, 10, and 13, which is  
19 matrix issues 11, 12, and 13. It could be a little  
20 confusing because we combined the old matrix  
21 numbers with the new one, but savings those. Those

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1 fall under the V&V, the White Paper that Peter put  
2 together.

3 Anyway, if we could through and take  
4 care of those easy ones and any discussion that we  
5 need and then move on to the ones that I'm sure  
6 there's going to be some discussion on. Everybody  
7 okay with that?

8 MEMBER CLAWSON: You're the Chair.

9 **Matrix Issue #5 PU-240, 241**

10 CHAIR BEACH: Okay, so if we start with  
11 matrix issues, it's not issue 1, but it's old matrix  
12 issue 5, the Pu-240/-241. I don't know if NIOSH  
13 wants to just give a brief and then SC&A goes from  
14 there.

15 MR. FITZGERALD: Just for context sake  
16 -- this is Joe Fitzgerald. When the Work Group  
17 tasked us, the Board tasked us, in 2015, at the  
18 Board meeting in November, to go through the  
19 newly-issued TBDs to review them and to provide any  
20 feedback for discussion, we did a pretty  
21 comprehensive job.

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1 Mound has a long history, as we were  
2 just commenting, and some of it is a little  
3 convoluted because we did spend quite a bit of time  
4 on issues, such as the environmental dose issues.  
5 So we wanted to certainly scrub it pretty well  
6 because there was a lot of discussions that went  
7 on in Work Group meetings and what have you. So  
8 we did a pretty thorough scrub in terms of looking  
9 at transcripts, looking at different exchanges of  
10 White Papers, and so this matrix is the product of  
11 that.

12 And a lot of it, frankly -- and this is  
13 by going to your comment about just reaching  
14 closure -- is just clarifying with NIOSH where we  
15 came out, because, again, I think, in a lot of  
16 cases, there was convergence, agreement, but it  
17 didn't seem like there was any closure per se  
18 because we were on to other topics or kind of got  
19 into tangential issues. So, just as context.

20 A lot of this isn't so much we have a  
21 problem per se. It's just that we kind of lost the

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1 thread in some cases and wanted to know, where did  
2 the TBD come out per se and where can we find  
3 something that documents a resolution of that  
4 issue? Because in discussions, it looked like we  
5 were in agreement.

6 So, with that background, on this item,  
7 issue 1 -- oh, sure.

8 MR. DARNELL: This is Pete Darnell.  
9 Which paper are you speaking from, the SC&A  
10 February document or the paper that NIOSH put out?

11 MR. FITZGERALD: Yeah, the February  
12 document. I just wanted to provide a little  
13 context as to how that is laid out. And in a lot  
14 of cases, it speaks to agreement, in a sense, but  
15 also suggests that we didn't really nail it as far  
16 as sort of a conclusion and some either reflection  
17 in a revised TBD or an agency position of some sort.  
18 And that's what we were kind of looking for as a  
19 punctuation point to some of these issues.

20 I didn't sense, given all of the  
21 discussion -- we spent a great deal of time

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1 discussing Mound, as you remember -- I don't recall  
2 having any remaining large technical issues, but  
3 we had a lot of questions of clarity, and maybe in  
4 terms of TBDs perhaps being a little more specific  
5 about certain questions that came up during Work  
6 Group discussion.

7 So, that deals with the February  
8 document, which I think we identify everything that  
9 we looked at and kind of tried to be very specific  
10 about the particular questions that we have left  
11 and tried to put a very specific reference into  
12 transcript and what have you so there would be no  
13 question where it came from.

14 That's sort of where we're coming from  
15 on some of these, but I just wanted to make sure  
16 it's clear that we don't sort of have a burning  
17 issue so much as just a question of where did this  
18 all come to, and where can it be reflected in the  
19 record?

20 So on this first issue, again, there was  
21 a lot of discussion about the different isotopes

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1 and plutonium. And in particular, I think 241 came  
2 up. And this was probably in an ongoing discussion  
3 that took place five or six years ago on the  
4 internal dose TBD. And it was felt that there  
5 ought to be a clearer treatment of 241 in the  
6 matrix, particularly Table 511, I think, was the  
7 location where the different isotopes were  
8 addressed.

9 And I think -- well, I'll leave it to  
10 you, but that was kind of the question we had, was  
11 it wasn't crystal clear where it was being  
12 addressed, but I think what you're saying there is  
13 the revision, the revised TBD, was expanded and  
14 does have some very specific treatment of Pu-241  
15 in it.

16 So I think we're fine with that. I  
17 think we went back and just compared the two tables  
18 and felt 241 certainly was expanded and was  
19 included.

20 MR. DARNELL: I'm not going argue with  
21 you agreeing with this.

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1 MR. FITZGERALD: Yeah. Again, a lot  
2 of this is just making sure we can put our finger  
3 on the locations in the documents where I guess the  
4 agency feels it has satisfied that particular  
5 question. And I think we're fine with that.

6 CHAIR BEACH: Okay, Work Group  
7 Members, any questions on that first one? I know  
8 I went back and looked at that table, too, and saw  
9 the update of it.

10 Paul, do you have anything? Any  
11 questions?

12 MEMBER ZIEMER: No. This is fairly  
13 straightforward.

14 CHAIR BEACH: Okay, I agree. Brad,  
15 anything? Or Phil?

16 MEMBER CLAWSON: No, not at this time.

17 CHAIR BEACH: Okay, do we agree that we  
18 should close this item, then?

19 MEMBER CLAWSON: Yes.

20 MEMBER ZIEMER: Yes. I agree.

21 CHAIR BEACH: Okay, then that is now

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1 closed.

2 The next item is the tritides item. Joe,  
3 did you want to go ahead and give us a brief on  
4 these, too?

5 **Matrix Issue #6 Tritides**

6 MR. FITZGERALD: Yeah. We had a fair  
7 amount of discussion on tritides, to say the least.  
8 And in that discussion there was, beyond the  
9 insoluble tritides that was the real -- I think we  
10 spent a year on that particular issue trying to  
11 resolve the question of how one would treat them  
12 in dose reconstruction. But there was also some  
13 question about, well, what about the intermediate  
14 solubility tritides, titanium tritide was one of  
15 those, which, of course, Mound handled.

16 And sort of the question was, okay,  
17 certainly the insoluble tritides were clearly a  
18 question of how one would address those. However,  
19 was there any thoughts on how we would treat  
20 something that wasn't quite as insoluble but still  
21 would present some questions or issues?

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1                   And I think in the transcripts of a  
2                   couple of Work Group meetings, and I think, Jim,  
3                   if was you that kind of said, yeah, certainly it's  
4                   a question. It's not something that's going to  
5                   hold up the SEC, but certainly that's something we  
6                   ought to at least give some thought to as far as  
7                   how we're going to address that in terms of dose  
8                   reconstruction.

9                   So that got sort of parked in a Site  
10                  Profile parking lot, as we call it. And I went back  
11                  and I really couldn't find a final resolution of  
12                  that, and so this is really a --- I know we didn't  
13                  really have a disagreement. It should be somehow  
14                  looked at, but I couldn't find a formal resolution.

15                  And I think, if I can paraphrase what  
16                  the NIOSH response is, is that there was some IMBA  
17                  runs that were run and this question was looked at,  
18                  but in the end -- and this is not too surprising  
19                  given the nuclide involved, or the isotope involved  
20                  -- it turned out that intermediate solubility  
21                  tritides resulted in what we would call negligible

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1 doses, ones that would not matter in dose  
2 reconstruction, given the less than rem, millirem  
3 value that was ascribed to them.

4 So this is sort of a moot issue, that  
5 even if there was a need to come up with a DR  
6 approach, the doses that were involved were so low  
7 that it would not be one that you would do dose  
8 reconstruction for anyway.

9 So I might add that even for the  
10 insoluble tritides, I think, in all that process,  
11 we probably came up with only a few millirem in the  
12 end for those as well. So, the bottom line is that  
13 the doses that result are fairly, fairly low, and  
14 in this case negligible and I think would make this  
15 issue moot, Josie.

16 CHAIR BEACH: Okay. NIOSH, anything?

17 MR. DARNELL: I think we've pretty much  
18 put this one to bed.

19 CHAIR BEACH: Yeah, I agree. I just  
20 want to make sure for the record we have this all  
21 discussed out.

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1 Anything, Paul, for you?

2 MEMBER ZIEMER: No. I agree with  
3 that. I think we should close this issue.

4 CHAIR BEACH: Okay, Phil?

5 MEMBER SCHOFIELD: No.

6 CHAIR BEACH: Brad?

7 MEMBER CLAWSON: I'm good.

8 CHAIR BEACH: Okay. We recommend  
9 closing the matrix issue 6 on tritides.

10 And then our next one is issue 3, or item  
11 3, matrix issue 9, the high-fired Pu-238.

12 **Matrix Issue #9 High-Fired PU-238**

13 MR. DARNELL: I believe that one was  
14 already recommended for closure.

15 MR. FITZGERALD: Yeah, we recommended  
16 at the last Work Group meeting that the Work Group  
17 consider closure on that question.

18 The issue there was whether -- I feel  
19 like I'm going through archival material now -- but  
20 we had a Type L model that I think Los Alamos had  
21 championed and we felt that had attributes that

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1           ought to be at least available to the dose  
2           reconstructor if need be, and I don't think there  
3           was any disagreement on NIOSH's part, so I think  
4           that issue went away.

5                         CHAIR BEACH:     Everybody agree with  
6           that? I thought we closed it before, too. I just  
7           wanted to make sure.

8                         MR. FITZGERALD:   Again, this is sort of  
9           trying to come up with a bottom line from Mound and  
10          make sure there was nothing left hanging. That one  
11          I think we recommended, but it wasn't closed.

12                        CHAIR BEACH:     Yes.     Paul, any  
13          objection to closing that?

14                        MEMBER ZIEMER:   No.

15                        CHAIR BEACH:   Brad? Phil? Okay.

16                        So there's several layers to the next  
17          one. Item 4 covers matrix issues 11, 12, and 13.  
18          There are several that we are going to talk about  
19          and have recommended closure, and there's a couple  
20          that we are going to hold until the end.

21                        This very first one, the uncertainties

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1 and low recovery of plutonium -- polonium, excuse  
2 me, bioassay procedures. That is one that SC&A has  
3 recommended closure on, but we'll go ahead and just  
4 continue going through those.

5 MR. FITZGERALD: I'm not sure where we  
6 are now.

7 CHAIR BEACH: Item 4.

8 MR. FITZGERALD: Right, on polonium?

9 CHAIR BEACH: Yeah.

10 MR. FITZGERALD: I think this one was  
11 again an issue of -- this got raised very early in  
12 the process. We went on to bigger and better  
13 things that had to be addressed more urgently on  
14 internal dosimetry. But as you recall, there was  
15 some very lengthy White Papers involved on it, the  
16 internal dosimetry TBD, you know, 75, 80, 100 pages  
17 apiece.

18 So there were a couple of items that  
19 sort of got -- not overlooked, but we just never  
20 got back to firm up what the positions were. In  
21 this particular case, this was a question of the

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1 chemical processing on polonium, whether somehow  
2 in the DR process it was recognized that there was  
3 a correction needed.

4 Again, this is sort of a technical  
5 detail sort of in the context of a TBD question.  
6 And so I did put that in there just because I wasn't  
7 clear, looking at the TBD, exactly where NIOSH felt  
8 this was addressed.

9 And I think in Section 5.5.11, which I  
10 think Pete and his staff have outlined, they have  
11 pointed to all the sections of the TBD that would  
12 provide that correction. And also commented that  
13 in the DR procedures or directions, general  
14 directions, that's also addressed and has been  
15 since the early years. So somehow that wasn't  
16 clarified. We didn't catch that. But I think  
17 we're fine with that explanation.

18 And it helps knowing both the specifics  
19 of the TBD as well as this DR procedure that takes  
20 care of that correction on polonium. So that was  
21 kind of a technical loose end that we felt ought

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1 to be clarified. We would recommend closure for  
2 the Work Group.

3 CHAIR BEACH: Okay, any discussion on  
4 that, Paul?

5 MEMBER ZIEMER: This doesn't actually  
6 close the matrix item, does it?

7 MR. FITZGERALD: Just the issue.

8 CHAIR BEACH: No, just this issue.  
9 Yeah.

10 MEMBER ZIEMER: Just the issue, right.  
11 That's fine. That part should be closed.

12 CHAIR BEACH: Yeah, there's like nine  
13 sections, so we would consider just the polonium.

14 MEMBER ZIEMER: Yes. Is it that we're  
15 closing that part, that issue -- that part of issue  
16 11, 12, and 13?

17 CHAIR BEACH: Correct.

18 MR. FITZGERALD: Recognizing that  
19 large parts of 11, 12, and 13 were closed by the  
20 Work Group going back four or five years ago. So  
21 these are more or less what were left and parked

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1 over as TBD issues to be done.

2 MEMBER ZIEMER: Right.

3 CHAIR BEACH: So anything on the  
4 uncertainties on load recovery of the polonium,  
5 that's the only --

6 MEMBER ZIEMER: I agree to close that  
7 portion.

8 CHAIR BEACH: Phil or Brad, all okay  
9 with that?

10 MEMBER CLAWSON: We're all good.

11 CHAIR BEACH: Okay, so we agree to  
12 close that section on polonium.

13 The next one is under the same matrix  
14 issues items, other radionuclides data, SC&A data  
15 comparison. So we're talking about other. And  
16 there's quite a big write-up on SC&A on the issues  
17 side.

18 MR. DARNELL: They ended with the magic  
19 words "recommend closure."

20 CHAIR BEACH: Recommends closure.  
21 I'm not so sure we didn't close that earlier, but

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1 Joe, go ahead.

2 MR. FITZGERALD: Well, this is another  
3 -- like I said, we will admit that we scrubbed the  
4 record pretty thoroughly on Mound. And on this  
5 particular point there was a question of whether  
6 -- and this is kind of a prosaic issue and technical  
7 details -- whether the units and the way some of  
8 the other nuclides were listed would make  
9 difficult, for comparison's sake, for the dose  
10 reconstructor.

11 And we looked at the new TBD for  
12 internal, and in most cases it's a lot clearer, a  
13 lot of this. And granted, the first TBD was  
14 developed back in 2004/2005, that timeframe. So  
15 ten years later or so, I think the way things are  
16 presented are clear and we think the enhancements  
17 are sufficient for the issue here.

18 And this was made a Site Profile issue  
19 very early on because it really got into not so much  
20 a technical impediment to dose reconstruction; it  
21 was more of a this could be done better if you laid

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1 out the information cleaner. It was one of these,  
2 yeah, the TBD, when it's rewritten, it could be done  
3 so it makes it easier. And I think it is written  
4 better. So we would recommend closure.

5 CHAIR BEACH: Any discussion on this  
6 one? Hearing none -- Paul?

7 MEMBER ZIEMER: This wasn't a  
8 technical issue so much as just a clarity issue,  
9 was it not?

10 MR. FITZGERALD: Yes, that's exactly  
11 right. Again, even though it was something that  
12 was mentioned, we had very early on said it would  
13 be just something for the agency to consider as far  
14 as future revision. And I think a lot of that has  
15 been addressed in the most recent revision.

16 **Matrix Issues #11, 12 & 13**

17 CHAIR BEACH: Okay. So, item 6, which  
18 is still in the matrix issues 11, 12, and 13,  
19 secondary, other radionuclides data, MJW  
20 evaluation. We'll go ahead and let Joe keep  
21 talking.

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1 MR. FITZGERALD: Unless Pete wants to  
2 interject?

3 CHAIR BEACH: Unless Pete, yes.

4 MR. DARNELL: Go ahead.

5 CHAIR BEACH: This is one we've  
6 discussed at length also.

7 MR. FITZGERALD: This is more -- this  
8 is the laboratory work. And this is like  
9 hesitating to wade back into the --

10 CHAIR BEACH: The King document.

11 MR. FITZGERALD: -- shark-infested  
12 waters. Yeah. This is the question of other  
13 nuclides that figured in the laboratory work at  
14 Mound where -- and it didn't even bring up the King  
15 Report. I just figured I'd leave it out, but now  
16 I've brought it back in.

17 So this gets back to some of the  
18 questions raised as to whether one could -- I think  
19 early on there was a comment that one could not --  
20 I was going to say ignore, but not really address  
21 so much a lot of these exposure potentials on

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1       nuclides in the laboratory. And that got us into  
2       a long discussion about the King Report not,  
3       obviously, explicitly looking at exposure  
4       potential, but just indicating what was in the  
5       rooms or in the labs.

6               And I put that in there, knowing that  
7       it would evoke some consternation, but just to say  
8       that it was still a question that I think needed  
9       to be finalized. In other words, that NIOSH  
10      indicates it was not ignoring the nuclides and did  
11      have a process to address them.

12             And I think the contingency that's  
13      indicated is that if, in fact, there's no dose  
14      reconstruction method available for a particular  
15      nuclide -- and that's certainly possible given the  
16      spectrum that are being addressed or utilized in  
17      those laboratories -- then there are instructions,  
18      general instructions, that the dose reconstructor  
19      presumably would bounce that back up to NIOSH,  
20      probably to Jim, and that would be specifically  
21      addressed as a nuclide-specific dose

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1 reconstruction procedure. Something would have  
2 to be developed and it would not just simply be  
3 ignored, but would be addressed as it would come  
4 along. Of course, that presumes that you would  
5 have a clear exposure potential and that there  
6 would be some issue that would arise where you would  
7 need to do that.

8 So I think certainly is kind of what we  
9 wanted to address, that there is an avenue that you  
10 can address these things, even if right now a priori  
11 you can't presume a potential because of the King  
12 Report. It's just saying it was there and if it  
13 does come up and somebody points, to our somebody  
14 comes in with a CATI or comes in with a claim that  
15 says I worked in the lab and I was exposed to nuclide  
16 X or Y and there's some evidence that there's some  
17 exposure data, then there's an avenue.

18 Again, this was just a -- because we  
19 went back and forth with the King Report. I think  
20 it was more philosophy than it was a discussion of  
21 what exactly what happened. And this is sort of

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1 saying, okay, quite apart from the philosophy of  
2 the King Report, what would happen if you had to  
3 address any of these many nuclides that might arise  
4 in the lab? And I think your answer is this.

5 MEMBER ZIEMER: Quick question. As a  
6 practical matter, have we, in fact, encountered  
7 such a situation and while the dose reconstruction  
8 is done there?

9 MR. DARNELL: As of yesterday, I  
10 haven't found any.

11 MEMBER ZIEMER: Remind me how many does  
12 reconstructions we've completed out at the Mound  
13 facility?

14 MR. DARNELL: Hold on a second. I  
15 didn't write that number down.

16 MEMBER ZIEMER: I mean, it's a pretty  
17 large number.

18 MR. DARNELL: Oh, yeah.

19 CHAIR BEACH: So you haven't ran across  
20 anybody that has said they worked in the lab and  
21 they were exposed to --

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1                   MEMBER ZIEMER:    Something different  
2                   from that group.

3                   CHAIR BEACH:    -- something different,  
4                   something exotic?

5                   MR. DARNELL:    No, but you've got to  
6                   remember that's just me looking through. I won't  
7                   say that I have 100 percent coverage all the --

8                   MEMBER ZIEMER:    Well, of course, the  
9                   point here is there is an avenue if you come across  
10                  it. I was just pointing out, as a practical  
11                  matter, we've done an awful lot of dose  
12                  reconstructions and it hasn't occurred yet.

13                  MR. DARNELL:    There's 761 total,  
14                  complete -- or 761 total dose reconstructions; 656  
15                  are complete; 30 are active; 75 are pulled.

16                  MEMBER ZIEMER:    Okay.

17                  DR. NETON:    I thought this really spoke  
18                  more to if you encounter bioassay data in the record  
19                  for these so-called exotics that aren't mentioned  
20                  in the Site Profile, what are we going to do with  
21                  them, because there wouldn't be such outlined as

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1 the detection limits and that sort of thing.

2 So I think what we're saying here is  
3 that those are handled on a case-by-case basis.  
4 You run across an exotic radionuclide bioassay  
5 result that's not covered in the TBD, we'd have to  
6 find a way to do it. The principal internal  
7 dosimetrist would weigh in on that decision, kind  
8 of work its ways through the chain, but it just  
9 wouldn't be ignored because we didn't have a  
10 methodology in the Site Profile.

11 MR. FITZGERALD: Who is the principal  
12 internal dosimetrist?

13 DR. NETON: That's Liz, Liz Brackett.

14 MR. DARNELL: The dose reconstruction  
15 would look more like some of the AWE dose  
16 reconstructions where the site information was put  
17 into the dose reconstruction --

18 DR. NETON: It would be fleshed out in  
19 the dose reconstruction rather than referring to  
20 a section of the TBD, in accordance with sections  
21 of the TBD, it would actually, the methodology

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1 would be --

2 MR. FITZGERALD: That's helpful. I  
3 just never thought we got to that point because it  
4 was, like I said, we were sort of tied up in the  
5 King Report discussion.

6 MR. DARNELL: From what I was reading,  
7 both sides of this issue had gotten to a certain  
8 point. One was asking for concrete evidence that  
9 it existed. The other was saying, give us this  
10 road map. And we got to the road maps and --

11 DR. NETON: I don't think this was  
12 really about the King Report.

13 MR. FITZGERALD: No, no, no. I didn't  
14 want to get back there.

15 DR. NETON: The King Report is water  
16 under the bridge. This has to do with, if you see  
17 these nuclides --

18 MR. FITZGERALD: I wanted to change the  
19 subject a little bit on that, because I think the  
20 practical question was, okay, quite apart from the  
21 King Report saga, exactly what would you do if you

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1 did come across it? And I think that satisfies  
2 that. And the fact that you mentioned that you  
3 hadn't come across it also is important.

4 MR. DARNELL: But I do want you to know  
5 I've not looked at 100 percent of every single DR  
6 and gone through and sampled and looked for.

7 (Simultaneous speaking.)

8 MR. DARNELL: This whole wonderful  
9 team of ORAU that does the dose reconstruction,  
10 they see what's in the documents before we could  
11 even get to them.

12 CHAIR BEACH: Okay, so there's a  
13 section in the internal TBD that covers that, 5.9.  
14 And then you've got the lead dosimetrist if there's  
15 an issue beyond that.

16 MR. DARNELL: Yes. The way it  
17 generally works is it will go from the dose  
18 reconstruction to the lead dosimetrist, and if  
19 there's any issues there, it comes across to us.  
20 We provide guidance and it goes back down to the  
21 dose reconstructionist. And all that

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1 information, as a matter of course, will get put  
2 into the dose reconstruction because it's not in  
3 a Technical Basis Document.

4 CHAIR BEACH: Okay. Paul, any other  
5 further questions on this one?

6 MEMBER ZIEMER: No, I'm comfortable  
7 with this.

8 CHAIR BEACH: Brad and Phil?

9 MEMBER CLAWSON: No.

10 MEMBER SCHOFIELD: No.

11 CHAIR BEACH: So we agree to close this  
12 portion of secondary other radionuclides.

13 Okay. The next one is the tritium log  
14 books missing for 1976, 1977. I believe we closed  
15 that with the 83.14.

16 (Simultaneous speaking.)

17 DR. NETON: Yeah, the SEC.

18 CHAIR BEACH: So I don't think we need  
19 to discuss that, unless somebody sees something  
20 different there.

21 And then the tritium bioassay data

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1 bounding method for STC addresses SC&A's original  
2 concern. I wasn't sure if we had already closed  
3 this one or not.

4 MR. FITZGERALD: No. A lot of these  
5 were I think discussed, but not necessarily closed  
6 out. And I think on -- let me go back to this one.

7 Yeah, we recommended closure on the  
8 question of whether there was enough adequate  
9 bioassay data to support the tritium itself.

10 MR. STEWART: Are we on issue 7 or 8?

11 MR. FITZGERALD: We're on 8.

12 MR. STEWART: But we closed 7, is that  
13 correct?

14 CHAIR BEACH: Seven, with the 83.14,  
15 yeah, that took care of that one.

16 MR. STEWART: So that is closed.

17 CHAIR BEACH: Yeah. So this one --

18 MR. FITZGERALD: On tritium bioassay  
19 data adequacy, we originally raised this concern  
20 -- and this is going back to 2009, so this actually  
21 seven years ago. And we raised a concern that the

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1 algorithm used to determine early tritium dose was  
2 adopted from a LANL procedure based on estimating  
3 whole body dose in tritium in water. And it was  
4 based on HTO and other compounds and did not address  
5 clearly STCs and organically-bound tritium that  
6 might be present at Mound.

7 And in the response that we got in 2012,  
8 this came a year or two later to our issue, I think  
9 at that time NIOSH noted that it had obtained  
10 tritium bioassay logbooks. This is where the  
11 logbooks came into the case. And therefore had  
12 access to the raw data itself, primary data.

13 So the issue, when the logbooks I think  
14 were made available as primary data, this question  
15 of relying on the secondary bioassay database, I  
16 think that mitigated that question.

17 And in terms of the STC compounds, we  
18 spent a lot of time on that, but on this particular  
19 issue we recommended closure at the last Work Group  
20 meeting, but I don't think it actually got closed  
21 out.

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1 CHAIR BEACH: Yeah, and there's two  
2 parts to this. One part of it we're not closing,  
3 we'll discuss it later, and that's the question of  
4 the Class YY. So, not to be confused, this small  
5 portion of it, I think you're right, we did  
6 recommend closing that one.

7 MR. FITZGERALD: And it wasn't right  
8 away, but I think over the year or two that we spent  
9 on the tritide issue and the question of how one  
10 would define a class with logbooks as the primary  
11 data, I think that issue did go away. It was raised  
12 and then we never got back to it, but it sort of  
13 is made moot by the resolution of the tritide  
14 question.

15 So that's kind of -- and when I went  
16 back, I was looking for anything where we just --we  
17 discussed it, but didn't actually close it out, and  
18 this was one of those.

19 CHAIR BEACH: Okay, discussion on this  
20 portion of it? Paul, anything from you?

21 MEMBER ZIEMER: No. I agree to close.

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1 CHAIR BEACH: Okay. I agree with  
2 that. Phil, Brad?

3 MEMBER CLAWSON: We're good.

4 CHAIR BEACH: You're okay with that.  
5 So that is 8.

6 And 9, we're going to reserve. Ten  
7 we're going to reserve and move to 11. So, item  
8 11, page 5 of 11 and it's the fecal bioassay data.

9 MR. FITZGERALD: And this one, this  
10 again goes back to the original 2009 treatment that  
11 we developed on internal dosimetry data  
12 completeness. The issue there was a data  
13 completeness question addressing what we thought  
14 were relatively few fecal results in the PURECON,  
15 which is the plutonium urinalysis bioassay  
16 database. In this case, 29 fecal samples for 12  
17 individuals was pretty much it.

18 And our question was, what was NIOSH's  
19 position on the very few samples, fecal samples  
20 that were available for use. And I think the  
21 answer during Work Group discussions was NIOSH

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1 wasn't intending to use the fecal data anyway. So  
2 the whole thing was sort of rendered moot.

3 And the only question -- that was sort  
4 of in passing in the discussion of the Work Group  
5 meeting. And this really addresses what, more  
6 specifically, would the agency's position be on  
7 that data? That it doesn't intend to use it, but  
8 how does it play into a dose reconstruction if  
9 somebody has it, given the question surrounding  
10 that data?

11 And I think the response, if I can  
12 paraphrase -- and Pete, jump in -- that that still  
13 stands, that the reliance will be, quote, primarily  
14 on the urinalysis data. But if the fecal data is  
15 available for an individual, you're not going to  
16 ignore it, but you have to reconcile it, and I think  
17 that's the term you use, with the urinalysis data  
18 that might be available.

19 So it would contribute to the dose  
20 reconstruction, but wouldn't be relied upon. I  
21 think that's the emphasis.

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1 MR. DARNELL: That's exactly correct.

2 MR. FITZGERALD: And we certainly  
3 don't have an issue with that. But I think we'd  
4 want a little more clarity on that, because it was  
5 sort of one of these passing things where it was  
6 a never-mind in the discussions, sort of saying,  
7 well, it's just not going to be relied upon, but  
8 it was never really hammered out more specifically  
9 than that. So I think this is much clearer. So  
10 I would recommend closure on that by the Work Group.

11 CHAIR BEACH: Any discussion on that?

12 MEMBER ZIEMER: Question for the DCAS  
13 staff: have there ever been any cases where there's  
14 only fecal data? I don't think we've seen any,  
15 have we?

16 MR. DARNELL: Not that I'm aware of.  
17 Don is shaking his head that he doesn't know of any  
18 either.

19 MEMBER ZIEMER: There would always be  
20 urine data if there was fecal as well.

21 MR. STEWART: For Mound, that is true,

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1 yes. At least I have not seen a case where that  
2 is not the case.

3 MEMBER ZIEMER: Okay, good. Thanks.

4 CHAIR BEACH: Okay, any objections?  
5 So we'll close that item.

6 Alright, the last, 12, item 12, the  
7 tritium HTO data comparison. Again, not to be  
8 confused with the YY. This one might be a little  
9 more discussion because we recommended that NIOSH  
10 provide a summary of how it conducted the V&V of  
11 the internal and external.

12 MR. FITZGERALD: Well, I think, in this  
13 case, this is part of the broader validation and  
14 verification of data adequacy and looking at  
15 plutonium, polonium, tritium, some of the major  
16 source terms. And the response for tritium is  
17 that, as we understood, as the process went  
18 forward, that when the logbooks were identified,  
19 I think NIOSH's position was reliance on the  
20 logbooks for the primary record rather than  
21 necessarily the electronic record, just because

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1 whenever you have the primary, that's the gold  
2 standard. It's the original data. And that was  
3 the basis for the SEC as well.

4 So, in this case, in terms of -- we were  
5 asking for a broad V&V, but I think we're okay, as  
6 one could expect, in terms of, if you can rely on  
7 the primary record, that it doesn't get any better  
8 than that.

9 So I don't think we had an issue in terms  
10 of V&V. I mean, V&V comes into place when you're  
11 using secondary sources like electronic databases,  
12 whatever. When you're relying on the primary  
13 source, the validation is not as much of an issue.  
14 You might have questions of legibility, but, again,  
15 it's not going to be quite the same issues we have  
16 for the electronic.

17 So I would just tell the Work Group that  
18 this issue, as a piece of the V&V, sort of became  
19 not a question once the decision was made to go with  
20 the logbooks as opposed to the electronic record.  
21 This is for tritium, though, just tritium.

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1 CHAIR BEACH: Okay.

2 MR. FITZGERALD: We've already gone  
3 through the tritium logbook validation. That we  
4 discussed at some length during the SEC discussion,  
5 so I don't think there's an issue there.

6 CHAIR BEACH: Right. Okay,  
7 discussion on that one? Paul, Brad, Phil, for  
8 tritium, item 12? Does everybody agree to close  
9 that?

10 MEMBER ZIEMER: I would agree on that.

11 CHAIR BEACH: Okay, so we agree to  
12 close that. What time is it? Oh, goodness, we're  
13 going right through these. Is it time for a break?

14 (Laughter.)

15 CHAIR BEACH: Okay, so back to item 9  
16 and it's issues of the plutonium data comparison,  
17 the PURECON. And I guess maybe should Peter go  
18 through the V&V paper first? Because those all --  
19 everything we have left are issues that fall within  
20 your V&V paper there.

21 DR. NETON: We've got issue 13 here.

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1 MR. FITZGERALD: Oh, yeah, 13 hangs out  
2 too.

3 CHAIR BEACH: Did I miss that?

4 MR. FITZGERALD: But we can deal with  
5 that after V&V.

6 DR. NETON: Okay, that's fine.

7 CHAIR BEACH: Yeah, that's part of it  
8 as well. So we have nine -- what do we have, 9,  
9 10, and 13 that are all open and all pretty much  
10 follow --

11 MR. FITZGERALD: I think 9 and 10, I  
12 mean, it's PURECON and PORECON, if I can use those  
13 terms, polonium and plutonium electronic database  
14 verification.

15 CHAIR BEACH: Thirteen was in there,  
16 too.

17 MR. FITZGERALD: And just for  
18 background, I think this is kind of a standard  
19 question that we've raised in all the SEC  
20 discussions as far as the databases were concerned  
21 as far as whether NIOSH has validated the adequacy

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1 and completeness of the databases that are being  
2 relied upon. In this case, you had PORECON and  
3 PURECON were two databases that were set up.

4 Now, this is sort of an interesting  
5 question. I think there's no debate that they're  
6 not complete per se, and so that's one reason it  
7 came up early. But we never really had an  
8 opportunity to, I guess, collectively reach a  
9 conclusion what the validation answers were for  
10 those databases from the agency standpoint. I  
11 guess we're aware that MJW did some validation with  
12 -- was it PORECON?

13 MR. STEWART: PURECON.

14 MR. FITZGERALD: PURECON. Okay, they  
15 did some original work in 1998. But now we're just  
16 sort of saying, okay, in the final analysis, how  
17 is NIOSH satisfied that those databases are in fact  
18 complete and adequate for reliance in the dose  
19 reconstruction process? And that's kind of where  
20 the genesis of, you know, where did NIOSH come out  
21 on that. I know you've --

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1 MR. DARNELL: Really, just cutting to  
2 the chase, NIOSH is not using PURECON and PORECON  
3 as the primary data for dose reconstruction.  
4 We're going back to the records, back to the source  
5 documents. We're using PORECON and PURECON more  
6 as references than we are as the data for dose  
7 reconstruction. In that case, we don't generally  
8 go back and validate references that were used.

9 Now, we can talk about what MJW did as  
10 far as their V&V, which was essentially 100  
11 percent. After they found the error rate was  
12 initially too high, they went back and checked  
13 everything.

14 But as far as what you're asking for,  
15 it's assuming an application that we're not  
16 actually doing with these two databases. So,  
17 NIOSH basically doesn't see the need to go back and  
18 do a V&V on the reference that we're using just to  
19 kind of bounce our records off of -- dose  
20 reconstruction records off of.

21 MR. FITZGERALD: Yeah, and I think the

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1 clarification that would be helpful -- and I think  
2 you've addressed it here, but just to underscore  
3 that, when you say reference, you're not using it  
4 as a basis for dose reconstruction. You're using  
5 it, as you say, as a comparison point. I just want  
6 to -- how does that work?

7 CHAIR BEACH: I was going to ask that,  
8 too, because you said bounce off. So maybe walk  
9 us through --

10 MR. FITZGERALD: I always understood  
11 there was some --

12 MR. DARNELL: Don's a little closer to  
13 --

14 MR. STEWART: The way it appears in a  
15 dose reconstruction, you'll get a group of records.  
16 In some cases those are MESH printouts and in some  
17 cases they are in some other form as well.  
18 Sometimes they're in a logbook form or whatever.  
19 In fact, what we get from Mound are the employees'  
20 dose records. So these are the results that Mound  
21 sends to us. And sometimes they are in the form

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1 of MESH databases.

2 MR. FITZGERALD: Yeah, but my  
3 understanding is that the MESH does incorporate  
4 some of that PORECON/PURECON data for the years  
5 that it's relevant or available, and you wouldn't  
6 be able to easily distinguish where it's actually  
7 feeding into MESH.

8 MR. STEWART: That's correct, yeah.  
9 That's correct. MESH, I believe -- and correct me  
10 if I'm wrong here -- was a work in progress for many  
11 years, because it really only came along in 1989.  
12 But it closed in 1996. So, many of the records have  
13 not been -- and the intent was that it would be their  
14 single reference point for dosimetry data. But it  
15 never got to that point. And it never got to that  
16 point for polonium. So the polonium project was  
17 essentially complete in 1973, so they didn't  
18 necessarily get all those records into MESH. But  
19 the PORECON database was there.

20 MR. FITZGERALD: Right.

21 MR. STEWART: That was put together.

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1 So, yeah, you're right, but the DR would not  
2 necessarily know where it was coming from. But in  
3 some cases, you'll have duplicate records from  
4 several of these data sources. And this may not  
5 be generally known, but when we first look at a  
6 case, we have people go through the records and they  
7 will summarize the records that are there. And  
8 they put together what's called a biofile, and it's  
9 the bioassay data is transcribed into a  
10 spreadsheet. So you can see where it comes from  
11 and what page it's on in the DOL file that you get  
12 returned. So I will see sometimes three and four  
13 listings for the same result.

14 Now, they can be in different units and  
15 other things like that and I have to go reconcile  
16 that, but one of those might be MESH and one of them  
17 might be PURECON and one of them might a hand  
18 record. So I have to go figure out which are the  
19 right units and figure out which of those records  
20 to use. So it's my job as the DR to figure out  
21 what's the best record.

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1 MR. FITZGERALD: I guess, again, the  
2 original question was, if one is using, or could  
3 use, an electronic file from a site, would NIOSH  
4 as a policy matter do a validation of that  
5 electronic file to validate the completeness and  
6 accuracy of it?

7 MR. STEWART: We don't get electronic  
8 files. We get printouts.

9 CHAIR BEACH: From an electronic  
10 source.

11 MR. FITZGERALD: Well, going back to  
12 the sites, the original data. That's the point I  
13 -- and we're going -- what site are we going back  
14 on? We're going back on the validation on another  
15 site for the same reason, you know, that's  
16 something that's sort of a data pedigree issue  
17 almost. And I think it's pretty well accepted at  
18 this stage of the game that the agency will do that  
19 for the site.

20 MR. DARNELL: Are you talking about  
21 INL?

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1 MR. FITZGERALD: I'm trying to  
2 remember what site. I'm blanking because we have  
3 so many sites now. We're going back now and trying  
4 to backfill a bit validations, because it wasn't  
5 done originally for some of the data.

6 In this case, when I looked at this, I  
7 said, yeah, we did find-- I mean, MJW, it's not too  
8 hard to do -- in the beginning that there were some  
9 deficiencies in the database. And my  
10 understanding was it was only -- it wasn't for all  
11 years. It was only for certain years, but it was  
12 being fed into either MESH or being used.

13 So the question is a very basic one. If  
14 it's being used, did somebody go back and validate  
15 the completeness and adequacy? Obviously, for the  
16 PURECON, MJW did the heavy lifting pretty much  
17 already, so a lot of that is pretty much done.  
18 PORECON, I'm not clear on really who, if anybody,  
19 has done that. But if it's being used, I would  
20 think that, as a matter of policy, NIOSH would  
21 consider V&V to be something that would be done.

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1                   When I saw the reference database, I  
2                   didn't know what that meant, because either it's  
3                   being used or it's not being used. It's either  
4                   being relied upon or not being relied upon. And  
5                   it's not really a gray issue, it's sort of is it  
6                   or isn't it?

7                   If it is, I think by precedent the  
8                   validation is something that is just done to make  
9                   sure that you're not using data that's incomplete  
10                  or has deficiencies which would mitigate against  
11                  its being relied upon. If it had deficiencies, you  
12                  would probably take it off the spreadsheet and say,  
13                  you know, this just isn't good enough, rely on  
14                  everything else if you can.

15                  If it can't be taken off the  
16                  spreadsheet, then you'd want to be sure that it was  
17                  at least minimally adequate for the dose  
18                  reconstructor. Or if it had certain holes, you  
19                  might want to put the asterisk and say, okay, you  
20                  can use this, but you're going to have to use it  
21                  in coupling with maybe bioassay data, as well, so

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1 that it would be corroborating information to go  
2 with it.

3 It just seems like you have to have sort  
4 of a systematic approach to it, not just sort of,  
5 well, we didn't validate it, but it's just there  
6 as part of the menu. A dose reconstructor wouldn't  
7 know that, wouldn't know if it had been validated  
8 or not. They would just choose from column A or  
9 column B depending on what was available, and that  
10 would be an individual choice, I would assume.

11 MR. STEWART: Right.

12 MR. DARNELL: As I understand, and it's  
13 in the paper, the primary and secondary records  
14 that come with the claim are what's supposed to be  
15 used first to develop the biofile that Don spoke  
16 about. PORECON, PURECON, MESH, those databases  
17 can be used to draw from but they're not the primary  
18 reference. They're not what's being used to  
19 develop the file.

20 CHAIR BEACH: It sounds like you're  
21 getting records, but you're not sure where they're

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1 coming from if you're just getting a printout. Is  
2 that --

3 MR. STEWART: Well, I assume we get an  
4 Excel spreadsheet, but I never trust an Excel  
5 spreadsheet. It tells me where the data comes  
6 from, so I go back and look at the original records.  
7 It might be a hand record. It might be a -- and  
8 it's a little confusing because are talking about  
9 polonium here?

10 MR. FITZGERALD: That's one of the  
11 source terms.

12 MR. STEWART: Well, it's different.  
13 The PURECON database was created and then  
14 validated. And it was uploaded to MESH. Okay?  
15 So you it's in MESH, it's been validated. So we  
16 might see the PURECON printout or we might just see  
17 MESH, right? But whatever is in the record, we  
18 don't know always know what it is when we see it  
19 in the file. We know when it's a handwritten  
20 logbook.

21 MR. FITZGERALD: Yeah, because when

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1 the claim comes in, I think you get what you get.  
2 Some claims would be maybe pretty complete  
3 depending on the timeframe. Others may be less  
4 complete and you do the best you can with each  
5 individual case.

6 MR. STEWART: We don't think any are  
7 incomplete. We don't see a lot of cases where  
8 they're incomplete. They are just maybe different  
9 kinds of records.

10 MR. FITZGERALD: Different kinds of  
11 records.

12 MR. STEWART: Depending on the era.

13 DR. NETON: I guess the question for me  
14 is, what is the primary record that the DOE is  
15 providing us for things like polonium and these  
16 other radionuclides? I mean, if it's just the  
17 PORECON database, I think it's a valid point that  
18 we at least haven't described how it was validated  
19 when MJW created it.

20 But if it is true that the DOE goes back,  
21 where are we getting these now, Legacy Management?

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1 I don't know where they're coming from. Goes back  
2 and gets us the hard copy records for polonium and  
3 other radionuclides that are in the person's file,  
4 then PORECON -- it's not as big as a problem to  
5 validate the PORECON database. I guess I'm not  
6 clear in my mind.

7 MR. DARNELL: You had me thinking one  
8 way when we wrote the memo and now I'm wondering  
9 which --

10 MR. NETON: Okay.

11 MR. DARNELL: I think what we need to  
12 do is, on PORECON, come up with a better -- some  
13 more data on this. We need to take an action item  
14 to do this.

15 DR. NETON: It seems we need to flesh  
16 that out better.

17 MEMBER CLAWSON: My question is which  
18 data have looked at or are we reading?

19 DR. NETON: Exactly.

20 MEMBER CLAWSON: What is it?

21 DR. NETON: That's what we need to

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1 flesh out, because it's not clear to me, based on  
2 what we wrote here, that we're describing the  
3 process properly or adequately.

4 MR. DARNELL: What I thought existed  
5 before the meeting and what Don is saying now we're  
6 slightly different, so we need to go back.

7 DR. NETON: I think we all agree that  
8 polonium data are probably okay.

9 (Simultaneous speaking.)

10 MR. FITZGERALD: I think it's just  
11 NIOSH adopting MJW's validation as being adequate.  
12 And I think we had, per the historic record, that  
13 MJW did it in '98, but not any position on your part.

14 DR. NETON: I'm assuming that when MJW  
15 develops a polonium database they had some sort of  
16 business rules they applied as well and it wasn't  
17 sort of willy-nilly, just throw it in there, you're  
18 done. So we need to go back and look at that, and  
19 then we also need to go back and look at what records  
20 we really do get from DOE when we request an  
21 employee's bioassay records.

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1 MR. STEWART: Can I just summarize  
2 again? Plutonium is kind off to the side for this  
3 point, so I want to talk about polonium.

4 When I look at a polonium result, I will  
5 typically see MESH results that are from the  
6 PORECON database. I will also see primary  
7 records, for the most part, in that, because  
8 polonium was monitored from '48 to '73, and those  
9 are the eras of hand records. So in those files,  
10 I will see handwritten results.

11 MR. DARNELL: That's not what you said  
12 when we started.

13 MR. STEWART: I'm sorry, yeah. I will  
14 see handwritten results for polonium, typically,  
15 because that's how they did it in those days. The  
16 Mound files tend to be complete, and I'm sorry I  
17 left this out before, but because it was an earlier  
18 era, that's all they had. They had the logbooks  
19 to go back through.

20 And when I look at that Excel  
21 spreadsheet, it will list that result, because they

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1 list every result and they will through a page and  
2 they will put all the results from the PORECON  
3 database and then they'll go back, you know, page  
4 63, you know, 50 pages further on and they'll find  
5 a primary record for that.

6 So what I typically do is sort by date  
7 and I'll see result, result, result on that same  
8 day and I'll say, how are those results different?  
9 Okay, well, one of them is the primary record and  
10 one of them is PORECON and one of them might be  
11 something else. And so I'll go through and I'll  
12 look at it and make sure that the units agree with  
13 what I expect to be there, and then I'll use the  
14 data that conforms to the TBD. Is that a little  
15 clearer?

16 DR. NETON: Right, it's still not clear  
17 in my mind, though --

18 MR. DARNELL: It's not saying that you  
19 use the handwritten --

20 DR. NETON: Right, the handwritten  
21 record is the only source of information that's

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1 used. If that were true and we can verify that the  
2 DOE provides all the handwritten records they have,  
3 then the database validation is not necessary.

4 MR. DARNELL: Maybe I got it wrong when  
5 I was listening, when we were developing this  
6 paper, but that's what I thought was going on. We  
7 saw the handwritten records. We used those. We  
8 reconciled the reference databases. If that's not  
9 the case, then we need to look more carefully.

10 MR. STEWART: Well, when I use the  
11 handwritten records, I might -- again, I might see  
12 three different entries for that bioassay, that  
13 particular bioassay, and they all have the same  
14 numbers. So, you know, I will use that  
15 information. Sometimes the numbers are  
16 different, sometimes there are more significant  
17 figures, but I'll go back and figure out why they're  
18 different, if they're different. So, you know, I  
19 guess what I'm saying is that the DR is validating  
20 that entry right there.

21 DR. NETON: I still think we need to go

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1 back and ask the question of what records are they  
2 assembling for us? And if we're always getting the  
3 hard copy records for the polonium and other  
4 radionuclides, then that's fine. But I'm not sure  
5 I'm hearing that, short of someone going back and  
6 looking at the hard copy records and saying that's  
7 all of them and there's nothing, no discrepancies.  
8 You wouldn't even need to look at PORECON, I guess  
9 that's what I'm saying.

10 MR. STEWART: We don't need to. We  
11 don't need to.

12 MR. FITZGERALD: Well, the question is  
13 also sort of procedural for the DR, dose  
14 reconstructor. Is it clear that, if that were the  
15 case, that they would not look at PURECON, which  
16 would take it off the table, which I think is what  
17 we're talking about.

18 MR. STEWART: Again, when I look at a  
19 result in the spreadsheet, I won't necessarily know  
20 where it's from. I'll go back and I'll look at the  
21 reference page and it might be PURECON and it might

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1 be something else.

2 MR. FITZGERALD: That's my concern,  
3 that it might not be easy for the dose  
4 reconstructor. You know, you're trying to get  
5 these things done. You may not investigate the  
6 source so much. And in the end it may just be  
7 easier just to confirm that MJW V&V'd PURECON --  
8 I'm sorry, PORECON, and not have to worry about what  
9 the DR does. There's different ways to kill it.

10 MR. STEWART: Again, I'm not going to  
11 query that database and put the result  
12 electronically anywhere. I'm going to see three  
13 results. They are all three picocuries per liter.  
14 Which one of those am I using? I'm using them all  
15 because they agree.

16 MEMBER SCHOFIELD: So what do you use  
17 if there's a conflict between them?

18 MR. STEWART: You've got to  
19 investigate that. But the answer is, if you can't  
20 figure it out, use the highest one.

21 CHAIR BEACH: That's what I was going

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1 to say.

2 MR. STEWART: This is dose  
3 reconstruction. It's not a doctoral  
4 dissertation. I mean, you could figure that out,  
5 but why would you want to do that? Let's just  
6 overestimate it.

7 MR. KATZ: If that's the procedure that  
8 you've always had --

9 MR. DARNELL: What we're saying, then,  
10 is we use the handwritten records unless one of  
11 these other references has a higher value, then  
12 we'll use the higher value to be conservative.

13 MR. STEWART: Correct.

14 CHAIR BEACH: Or like you said, you'd  
15 go investigate it.

16 MR. STEWART: Yeah. The DR needs to  
17 resolve that, because it would be nice to just  
18 electronically take all those results and say I  
19 trust them and put them in there. But the fact of  
20 the matter, if you have three results and they don't  
21 agree, then you've got to figure out why. Or

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1 you've got to overestimate it.

2 MEMBER ZIEMER: Is that clear, that all  
3 dose reconstructors would do that, in the  
4 procedure?

5 MR. DARNELL: It's not currently  
6 written that way in the Technical Basis Document.  
7 The Technical Basis Document says that the dose  
8 reconstructors should keep in mind that both gross  
9 alpha and alpha-spectrometric programs were used  
10 to detect and that they need to verify the PORECON  
11 database against the written facts.

12 So what NIOSH needs to do is basically  
13 say what Don just explained is going on with the  
14 PORECON database, which is we use the primary  
15 written record first, reconcile any difference  
16 between the written record and the databases, and  
17 in the last case fall to the most conservative  
18 number.

19 CHAIR BEACH: But that's not really  
20 what I'm hearing Don saying that happens. He just  
21 gets his records and looks at the records. He's

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1 not using the handwritten records as primary. I'm  
2 not hearing that at all.

3 MR. STEWART: Necessarily.

4 CHAIR BEACH: Necessarily.

5 MR. STEWART: Right.

6 CHAIR BEACH: So where we're at, we  
7 have the handwritten records, we have MESH. We  
8 have PURECON and PORECON, right? We know that MESH  
9 was V&V. I think SC&A did that.

10 MR. FITZGERALD: We sampled.

11 CHAIR BEACH: Sampled it. PURECON,  
12 MJW did that. PORECON has not been done. And I  
13 don't think we ever do anything with handwritten  
14 records, correct?

15 MR. STEWART: Well, as I understand it,  
16 validation and verification is simply looking at  
17 the electronic database, taking it back to the  
18 handwritten records and verifying that all that  
19 information ended up in the electronic database.

20 CHAIR BEACH: Yeah.

21 MEMBER ZIEMER: But if the electronic

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1 database showed a higher number, one could still  
2 argue that that handwritten record is the basis and  
3 should be used.

4 MR. STEWART: You could do that.

5 MEMBER ZIEMER: Well, I think there's  
6 ambiguity here. I sort of agree with Jim, if we  
7 can figure out exactly what --

8 DR. NETON: I agree. I don't think  
9 there's a lot of work involved here, hopefully. I  
10 think it's a matter of going back and documenting  
11 better what we actually do. And if it sounds like  
12 what I hear what we're doing, we should be okay,  
13 but I think this could be handled in a couple pages  
14 of discussion about --

15 CHAIR BEACH: Okay, so you'll take the  
16 action on doing a sampling or what is it?

17 MR. DARNELL: I think what we need to  
18 do is just clarify what's being done.

19 DR. NETON: How we're behaving, what  
20 we're doing. And if it's going -- as Don has  
21 discussed, if it goes that way, I don't think we

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1 need to do any sampling.

2 CHAIR BEACH: Okay.

3 MEMBER ZIEMER: Is that described in 10  
4 or is that in 9?

5 MR. FITZGERALD: That's 9.

6 MR. KATZ: It's 9 and 10.

7 CHAIR BEACH: We were just talking  
8 about the paper, the memorandum, but, yeah, it does  
9 cover.

10 MR. FITZGERALD: We can get to 10.  
11 Actually, we can do PURECON first.

12 (Simultaneous speaking.)

13 MR. STEWART: Now, just a question  
14 here: as I understood it, PURECON we don't have a  
15 problem with because it has been V&V'd.

16 MR. FITZGERALD: Yeah, well, the issue  
17 there is more of an institutional one. MJW, a  
18 contractor, did the validation back in '98 and the  
19 only question is, does NIOSH accept that validation  
20 for the results it achieved and that would stand  
21 as -- that's just really a confirmation.

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1 DR. NETON: We can state that.

2 MR. FITZGERALD: You can state that for  
3 the record? I think it was a historical footnote  
4 in our discussions in the past that they had done  
5 that.

6 DR. NETON: It was a 100 percent  
7 validation, so I don't know how much better -- you  
8 can't do any better than that, in opinion.

9 MR. FITZGERALD: Right.

10 MR. STEWART: So that will remain open  
11 as well about PURECON?

12 MR. FITZGERALD: That's up to the Work  
13 Group. I mean, if you want to deal with PURECON.  
14 That's the MJW validation we did in '98.

15 CHAIR BEACH: I was just going to look  
16 at that real quick again.

17 MR. FITZGERALD: I think there was some  
18 concern by them originally that the error rate was  
19 a little high, so they went back and did a scrub,  
20 100 percent scrub.

21 CHAIR BEACH: Yeah.

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1 DR. NETON: I think we can handle it all  
2 in the same discussion about the database and  
3 comment in our response that we are accepting the  
4 validation that was done by MJW because it was 100  
5 percent validation. And we'll go back and look at  
6 the -- it may be true. I don't know, are we getting  
7 the hard copy polonium records, plutonium records,  
8 too, then?

9 MR. STEWART: Yes.

10 DR. NETON: So we need to go back and  
11 describe the process, how we're doing this and how  
12 decisions were made when we get this record from  
13 the Department of Energy.

14 MR. STEWART: Okay.

15 DR. NETON: And if it's as I think it  
16 is, I think we're okay and probably can do this in  
17 a couple page discussion.

18 MR. FITZGERALD: Just to put an  
19 editorial note, Josie, in terms of the PURECON  
20 discussion. MJW did do 100 percent for this  
21 because they thought 8 percent initially as an

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1 error rate on transcription. They went back and  
2 did a 100 percent scrub and found 4 percent. But  
3 then they actually corrected the record using the  
4 primary records to correct the electronic records  
5 and eliminated those errors. But, again, that  
6 sort of underscores the importance of looking at  
7 V&V, because I think they were probably a little  
8 surprised when it was 8 percent. That's a pretty  
9 darn high transcription error rate.

10 So it would be useful to either take  
11 PURECON -- oh, I'm sorry, PORECON off the table,  
12 or certainly make sure that it's not likewise a  
13 problem. And it may turn out, I haven't seen  
14 anything in the record that MJW -- I didn't see any  
15 results that MJW did a V&V on PORECON. It seems  
16 they would have, particularly after the PURECON  
17 experience, but I haven't seen it.

18 DR. NETON: They didn't create the  
19 PURECON. That was an inherited Legacy database.

20 MR. FITZGERALD: Right.

21 DR. NETON: They actually created the

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1 PORECON database.

2 MR. FITZGERALD: Good point.

3 DR. NETON: So it's a little different.

4 MR. FITZGERALD: Yeah, internally,  
5 they probably would have done QA of their own work,  
6 yeah.

7 DR. NETON: But I do agree we need to  
8 flesh this out a little bit.

9 MR. STEWART: There is some detail  
10 available on how they develop that database.

11 DR. NETON: Yeah, and you don't know  
12 when it's an 8.2 percent, what that really means.  
13 I mean, does that all affect dose reconstruction?  
14 Is it a result, is it a transposed, you know -- we  
15 can discuss that a little better.

16 CHAIR BEACH: Okay, so you've got the  
17 action on that. That takes us to -- anybody need  
18 a comfort break at this point?

19 Hearing none, okay, so we're going to  
20 leave 9 and 10 open, correct, until we review that  
21 paper? Is that agreeable to everybody?

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1 MR. DARNELL: Yes.

2 CHAIR BEACH: Okay. And then 13 is the  
3 thorium bioassay database. That takes us back to  
4 that Class YY confirmed --

5 MR. FITZGERALD: Yeah, this is the last  
6 item. And again, this is sort of a leftover issue  
7 that was discussed, and again wasn't really high  
8 priority, but it was discussed in the internal  
9 dosimetry discussions. And, again, was a  
10 clarification on exactly where the issue was  
11 addressed. I think during the last Work Group  
12 meeting, Jim, you were mentioning that, yeah, that  
13 would be confirmed and cited somewhere along the  
14 way.

15 Because of the timeframe involved, it's  
16 been a number of years since we actually addressed  
17 that. It did get picked up in I think you mentioned  
18 the Berkeley Review, and I don't think it's a  
19 technical issue so much as that a broad -- just to  
20 clarify where that's a broad guidance to dose  
21 reconstructors at all sites. I think the comment

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1 here that's made, Pete, I believe it's clear that  
2 that certainly ought to be something that every  
3 site would be applying.

4 But I guess, just for the record, is  
5 NIOSH applying the Class YY approach, as at  
6 Berkeley, as at Mound, for all sites?

7 DR. NETON: Well, what we're saying  
8 here is Type S bounds Class Y type thorium.

9 MR. FITZGERALD: And that would be a  
10 standard approach, then.

11 DR. NETON: Right. And that sort of  
12 came about that -- I think some people indicated  
13 -- and this is my memory, not correct 100 percent  
14 -- but Type Y, Class Y uranium has certain clearance  
15 patterns and Type S- has a much longer clearance  
16 time, and our opinion was that it bounds even a  
17 higher insoluble Y. And we discussed that at  
18 length. Clearly, this little excerpt from the  
19 Lawrence Berkeley Review, SC&A agreed with us that  
20 solubility S bounds insoluble thorium. So we  
21 would just apply the standard Type S clearance on

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1 clearance rate.

2 CHAIR BEACH: And that approach is  
3 clear to the dose reconstructors?

4 DR. NETON: Yeah. I mean, that's a  
5 standard procedure. You do all three solubility  
6 classes and pick the one that gives you the highest  
7 dose.

8 CHAIR BEACH: Okay. And I think that  
9 was the main question, as long as the dose  
10 reconstructors understood that.

11 DR. NETON: This sort of piggybacked on  
12 that type super-insoluble uranium and then it sort  
13 of morphed into, well, maybe if uranium exists,  
14 then maybe Y does. And we never found any evidence  
15 that uranium existed, let alone thorium.

16 MR. FITZGERALD: Yeah, it was one of  
17 these discussion threads that went back and forth,  
18 and then sort of we went on and Mound, the SEC got  
19 settled. And so this is almost more of a loose  
20 ends, just trying to make sure that we can put a  
21 punctuation point on some of these discussions that

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1 we had three or four or five years ago. It does  
2 get hard to remember.

3 CHAIR BEACH: It does. Alright, that  
4 takes us through our items. My gosh.

5 MR. DARNELL: So did we vote 13 closed?

6 CHAIR BEACH: No, we did not. So, 13,  
7 Paul, any discussion on 13?

8 MEMBER ZIEMER: No, I'm in agreement.

9 CHAIR BEACH: You're in agreement.  
10 Brad, Phil?

11 MEMBER SCHOFIELD: I'm in agreement.

12 CHAIR BEACH: Okay, that one is closed.  
13 That just leaves us with the two and a memo. I  
14 think we can handle that. Will we need another  
15 call for that?

16 MR. KATZ: Well, you'll need a call to  
17 close it.

18 CHAIR BEACH: Yeah.

19 MR. KATZ: That's okay, because that  
20 call you can discuss present that the Board then,  
21 right, because you will have wrapped up Mound. No,

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1 wait, sorry --

2 MR. DARNELL: External still needs to  
3 be complete --

4 MR. FITZGERALD: One TBD outstanding.

5 MR. KATZ: Okay, and what's the  
6 timeframe for that?

7 MR. KATZ: Sometime next year.

8 CHAIR BEACH: That's what I was just  
9 going to ask.

10 MR. KATZ: I would just package this  
11 together. We don't need to have a call for this  
12 one. It's really too small a matter even to -- it's  
13 not worth the expense of the call.

14 MR. FITZGERALD: Maybe an email just  
15 providing the information.

16 MR. KATZ: Yeah.

17 MR. FITZGERALD: Then hold it for --

18 MR. KATZ: Hold it for how we deal with  
19 the external.

20 MR. DARNELL: I'll send out a memo to  
21 the group, like we've done before to the other

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1 sites. Just say, okay, here's what the answer is  
2 and comments then can come in.

3 DR. NETON: How extensive are the  
4 external issues? I guess I've forgotten. Is it  
5 just the neutron issue?

6 MR. DARNELL: No, there's a few other  
7 issues.

8 DR. NETON: Since it wasn't on here, I  
9 didn't prepare for it. I do a just-in-time  
10 approach.

11 CHAIR BEACH: And I knew it wasn't  
12 going to be --

13 MR. KATZ: Is that a springtime -- how  
14 far out?

15 MR. DARNELL: I'm not going to give you  
16 any idea, because I'm not sure. The problem is  
17 that as you know, Tim Taulbee was given special  
18 dispensation from on high to talk about his  
19 knowledge while he's working SRS.

20 MR. KATZ: No, I know.

21 DR. NETON: But that was specifically

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1 just to work on the neutron issue. It's a very  
2 narrow --

3 MR. KATZ: Right, but getting him to  
4 have time to talk to the principal external  
5 dosimetrist, which is Matt Smith, has been  
6 difficult.

7 CHAIR BEACH: Maybe his boss can make  
8 that happen. Just kidding.

9 (Laughter.)

10 MR. DARNELL: It's all on the schedule.  
11 It all needs to get done.

12 MR. KATZ: It's fine, it's fine. So,  
13 anyway, we'll package the closing of this up with  
14 the closure of that.

15 MR. FITZGERALD: There's a generic  
16 neutron issue for a couple of sites.

17 DR. NETON: Yeah, the Brookhaven,  
18 interpretation of the NTA film issue.

19 CHAIR BEACH: So my understanding is  
20 we'll get your memo. We'll all review it. And at  
21 that point, if there's any questions, we can

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1 discuss it via email. Hold on to that until the  
2 last external comes out. Is that correct? Is  
3 that what I'm hearing?

4 DR. NETON: Yeah, sounds good.

5 CHAIR BEACH: Alright, that makes sense.

6 MR. DARNELL: This was a lot more  
7 productive. Very good.

8 CHAIR BEACH: Is there anything else?  
9 I hate to say we can close, but --

10 MR. KATZ: That's lickety split. I  
11 think we're finished.

12 CHAIR BEACH: That's a lot faster than  
13 I thought, too. So we are finished with internal,  
14 waiting for the last memo on those two items, and  
15 so we can go ahead and close.

16 **Adjourn**

17 MR. KATZ: Thank you, everyone on the  
18 phone, for joining us, too. And we're adjourned.  
19 Take care, everyone.

20 (Whereupon, the above-entitled matter  
21 went off the record at 10:16 a.m.)

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