

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

convenes the

WORKING GROUP MEETING

ADVISORY BOARD ON

RADIATION AND WORKER HEALTH

The verbatim transcript of the Meeting of the  
Advisory Board on Radiation and Worker Health  
Working Group held telephonically on Nov. 28, 2005.

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

(10:07 a.m.)

WELCOME AND OPENING COMMENTS  
DR. LEW WADE, EXECUTIVE SECRETARY

DR. WADE: I think we're all assembled, so again,

this is Lew Wade and I have the privilege of serving as the Designated Federal Official for the Advisory Board. This is a working group call of that Advisory Board. This is not a Board call. Again, we're scheduled from now, 10:00 a.m., until 2:00, although I think there is a general feeling that we won't be involved that long.

For the record, this is the working group that is considering the reviews of dose reconstruction, site profile and procedures reviews, ably chaired by Mark. And the working group is made up of Mark, Wanda, Mike and Robert, all of whom are with us this morning. Again, this is not a public call, but there will be a transcript taken and that transcript will be made public.

Consistent with our discussions on Bethlehem Steel, we've invited Ed Walker to join and Ed is with us. The only topic of this call is Bethlehem Steel site profile. Nothing else

1 will be discussed.

2 Let me take just a minute to bring you up to  
3 date on our future activities. It does get a  
4 bit confusing, as busy as this Board and  
5 working group are. There will be a face-to-  
6 face meeting of this working group on January  
7 5th, 2006 at the NIOSH facilities at  
8 Cincinnati. It's currently scheduled to be  
9 9:30 to 5:00. Again, the 5:00 is simply to put  
10 an end point. We don't have to go that long.  
11 That work -- this working group, at that face-  
12 to-face meeting, will address issues related to  
13 the Y-12 site profile.

14 **MR. PRESLEY:** Lew, this is Bob.

15 **DR. WADE:** Yes?

16 **MR. PRESLEY:** Now you said January the 5th.  
17 Right?

18 **DR. WADE:** That's what I said.

19 **MR. PRESLEY:** Okay.

20 **DR. WADE:** That's right, January the 5th. This  
21 -- this working group meeting in Cincinnati.

22 **MR. PRESLEY:** Okay.

23 **DR. WADE:** That working group call will be  
24 preceded by a working call -- not a working  
25 group, but a call between SC&A and NIOSH --

1           that will take place on the 19th of December.  
2           It'll be a telephone call -- not a working  
3           group call. I don't know that a time has been  
4           established for that as of yet.

5           On January the 9th of 2006 there will be a  
6           Board call starting at 10:00 a.m. Then there's  
7           a Board meeting scheduled, face to face, for  
8           Oak Ridge, Tennessee on the 24th, 25th and 26th  
9           of January, 2006.

10          I hope I got that all right. Please, anyone  
11          correct me if -- if my information is  
12          incorrect.

13          I'd like now just to have everyone on the call  
14          identify themselves. I need to establish that  
15          there's no quorum of the Board, and then I'll  
16          turn it over to Mark for the rest of the time.  
17          So let's start on the west coast. Who's with  
18          us?

19          **MS. MUNN:** Wanda Munn.

20          **DR. WADE:** Good morning, Wanda.

21          **MR. CLAWSON:** Brad Clawson.

22          **DR. WADE:** Okay. Heading east?

23          **MR. GIBSON:** Mike Gibson in Ohio.

24          **DR. WADE:** Okay.

25          **MR. PRESLEY:** Bob Presley in Tennessee.

1           **DR. WADE:** Okay, all the way east?

2           **MR. GRIFFON:** Mark Griffon in New Hampshire.

3           **DR. WADE:** Okay.

4           **MR. WALKER:** Ed Walker, Bethlehem Steel.

5           **DR. WADE:** Okay. This is Lew Wade in  
6 Washington, D.C. And with NIOSH we have?

7           **MR. KATZ:** Ted Katz in Atlanta.

8           **DR. WADE:** Okay. Jim, are you with us?

9           **DR. NETON:** I'm sorry, I had it on mute. We  
10 have Jim Neton, Sam Glover and Dave Allen.

11          **DR. WADE:** Okay. And who else is with us?

12          **MS. HOMOKI-TITUS:** Liz Homoki-Titus in  
13 Rockville.

14          **DR. WADE:** Okay. SC&A?

15          **DR. MAURO:** John Mauro.

16          **DR. WADE:** Okay.

17          **DR. MAKHIJANI:** Arjun Makhijani.

18          **DR. WADE:** Good morning, Arjun. Is there  
19 anyone else on the call?

20          **MS. HOMOKI-TITUS:** Did you hear Emily say her  
21 name?

22          **DR. WADE:** I did not.

23          **MS. HOMOKI-TITUS:** Okay. Emily Howell is here  
24 with me, also.

25          **DR. WADE:** Okay. Anyone else on the call?

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(No responses)

Okay, I've established that we don't have a quorum and therefore the working group can proceed. Mark, it's up to you.

**MR. GRIFFON:** Okay. I'm hoping this'll be a ver-- a fairly efficient meeting. I don't know --

**DR. NETON:** Mark, this is Jim. Before you get started --

**MR. GRIFFON:** Yeah.

**DR. NETON:** -- I was just a little confused when Lew was going over the schedule. Of the two meetings -- or the two discussions, on the 19th of December and January 5th, which one of those was a face-to-face meeting?

**MR. GRIFFON:** The January 5th meeting is --

**DR. NETON:** Okay, that's what I thought.

**MR. GRIFFON:** Yeah. So you -- it gives you time to work ahead of time with SC&A.

**DR. NETON:** Right, yeah. Okay, I just want to make sure I had --

**DR. MAKHIJANI:** I have a question about that. From discussion with Joe, Jim, I don't know if you've talked with Joe about this. Joe indicated to me -- I guess on our way back from

1 the last meeting -- that in view of the  
2 complexity of these -- the issues, we should  
3 sit down face to face. I mean it's okay with  
4 me, whether it's a -- you know, it's Joe's  
5 call, obviously, so --

6 **DR. NETON:** Well, yeah, that -- that would be  
7 between SC&A and NIOSH to --

8 **DR. MAKHIJANI:** Okay.

9 **DR. NETON:** -- to come to -- yeah.

10 **MR. GRIFFON:** Yeah, and work that out, but  
11 that's up to you if you meet in person or --

12 **DR. NETON:** Yeah, we -- I -- I hadn't heard  
13 that, Arjun, but we're certainly open to the  
14 possibility and --

15 **MR. GRIFFON:** Right. Yeah. We'll leave that  
16 to you to work out.

17 **DR. NETON:** Right.

18 **WORKING GROUP DISCUSSION**

19 **MR. GRIFFON:** Starting this, I sent a matrix  
20 out this morning. I don't know, Jim, if you've  
21 got a chance to look at your e-mail or --

22 **DR. NETON:** Yes, I did.

23 **MR. GRIFFON:** And SC&A, I don't know --

24 **DR. MAURO:** Yes, I did re-- this is John Mauro.

25 **MR. GRIFFON:** Okay.

1           **DR. MAURO:** I did receive a copy of the matrix.

2           **MR. GRIFFON:** Okay. So I thought that -- that  
3           -- I tried to capture from the minutes from the  
4           meeting on the 23rd some of the modified --  
5           modified responses here and -- and maybe we can  
6           use this just to walk through, and then -- and  
7           then expand the discussion as we need to. But  
8           just as something to start from, I -- I tried  
9           to update this to reflect the outcome from the  
10          conference call last week between NIOSH and  
11          SC&A on the remaining issues. So I think if we  
12          look at that Finding 1, the response really has  
13          not been modified.

14          **DR. WADE:** Maybe I could just create the matrix  
15          a little bit for Wanda.

16          **MR. GRIFFON:** Okay.

17          **DR. WADE:** I mean there are three columns to  
18          the matrix, Wanda. The first is SC&A Finding;  
19          second, NIOSH Response; the third, Board  
20          Action. There are, in all, six findings. I'll  
21          just read you the first and then we can have  
22          our discussion, and then I'll read you the  
23          second --

24          **MR. GRIFFON:** But I believe -- I believe Wanda  
25          has the previous version. Don't you, Wanda, or

1 --

2 **MS. MUNN:** I do have the earlier version, uh-  
3 huh.

4 **DR. WADE:** Okay. Maybe Mark, you could just  
5 cre-- you know, explain the differences in  
6 them.

7 **MR. GRIFFON:** Yeah, I was going to -- if  
8 they're any different than what you have, I'll  
9 read them out loud, but finding number one is  
10 the same as the previous version that we handed  
11 out on the 16th. I'll -- I'll read it for the  
12 record, I guess.

13 **MS. MUNN:** Okay.

14 **FINDING 1**

15 **MR. GRIFFON:** "Model used for exposures during  
16 1951 and '52 using Bethlehem Steel air sampling  
17 data is not appropriate" is the SC&A finding.  
18 The NIOSH response, "NIOSH will treat 1951 and  
19 '52 separately. NIOSH will incorporate an  
20 adjustment factor for general area air samples  
21 (BZ to GA factor) for '51, and will use the  
22 highest data point (grinding sample) for 1952."  
23 That's the NIOSH response.

24 I should point out, throughout this matrix  
25 these are very much intended to be summary of

1 the full SC&A finding and the full NIOSH  
2 response. If -- if you want to go back to the  
3 full response or finding, we should go back to  
4 the respective reports or the conference call  
5 minutes, I think. You know, these aren't  
6 intended to spell every letter out of -- of  
7 NIOSH's response.

8 And lastly, the Board action, "SC&A and NIOSH  
9 are in agreement. NIOSH will modify the site  
10 profile." So that's Finding 1 and that was not  
11 -- that has not changed, as I understand it.  
12 If NIOSH and SC&A agree, I think that's where  
13 we stand with that one.

14 **DR. NETON:** Yeah --

15 **DR. MAURO:** This is John Mauro. Yes, we -- we  
16 agree that this correctly captures our -- our  
17 understanding of issue -- of Finding 1.

18 **DR. NETON:** Yes, this is Jim Neton, we -- we're  
19 in agreement. There -- there are some items we  
20 need to flesh out that, you know, were in the  
21 full text, but --

22 **MR. GRIFFON:** Right.

23 **DR. NETON:** -- we have no disagreement with  
24 SC&A --

25 **MR. GRIFFON:** But there's no disagreement,

1           okay.

2           **FINDING 2**

3           Finding 2, that the "95th percentile approach  
4           as described by NIOSH does not take into  
5           account short term episodic exposures." And  
6           the NIOSH response, "NIOSH believes the model  
7           would bound any potential short term episodic  
8           exposures." And the Board action, "SCA accepts  
9           NIOSH's response. No action necessary."

10          That might have to be modified. I think NIOSH  
11          -- what came out at the last meeting is that  
12          NIOSH will evaluate whether the values proposed  
13          for use in 1951 and '52 are greater than  
14          possible values from cobble cutting operations  
15          during that time period. So I think there's  
16          still an outstanding action here.

17          If I understood the minutes, this hasn't been  
18          completed closed. Is that correct?

19          **DR. NETON:** Well, I think the -- we presented a  
20          proposed approach based on an analysis of the  
21          number of cobbles per rolling. I think SC&A  
22          was in agreement with that analysis. The only  
23          remaining issue was to -- us to -- for us to  
24          evaluate with some workers at the Bethlehem  
25          Steel site the value we used for the amount of

1 time required to cut a cobble.

2 **DR. MAURO:** Yes. This is John Mauro, and Jim's  
3 characterization of -- is correct. We  
4 fundamentally agree with the strategy, and the  
5 only open issue was one of the assumptions in  
6 the calculations had to do with the amount of  
7 time it takes to cut a cobble. NIOSH made an  
8 assumption which on face value certainly  
9 sounded reasonable, 15 minutes per cobble. But  
10 a little bit more confirmation of that would  
11 certainly make the -- the assumption a little  
12 bit more robust. So -- but I think for all  
13 intents and purposes the fundamental approach -  
14 - we're in full agreement.

15 **MR. GRIFFON:** Okay.

16 **DR. MAKHIJANI:** This is Arjun. The -- the --  
17 but the -- the cobbles memo sent around by  
18 NIOSH I think on the 22nd of November details  
19 NIOSH's new findings, and that's the -- the  
20 sort of appropriate document, and -- and there  
21 were two things in it that led to this  
22 agreement and the outstanding item that's still  
23 there is -- which is -- which is important, is  
24 -- one is that NIOSH did some research at other  
25 sites and found evidence that some device

1           called a cutamatic -- it's more like shears --  
2           was used, and so that -- that -- you know, if  
3           it's more like shears and then it's only used  
4           part of the time, then -- then something that  
5           attributes all the exposure to shears is  
6           obviously going to more conservative.  
7           And then the second piece of it was that a  
8           certain time was assumed for cobbles. The  
9           second important piece of research that was  
10          done is that the number of cobbles was  
11          established, and so that -- that's kind of very  
12          important.

13         **MR. GRIFFON:** Okay, so I might modify this  
14         response to say that the -- the sort of last  
15         outstanding action is that NIOSH will validate  
16         the assumptions with cobble-cutting times --  
17         for cobble-cutting times.

18         **DR. MAKHIJANI:** Yeah, with workers. That --  
19         that's in the minutes, I believe, Jim --

20         **DR. NETON:** Right, it is.

21         **MR. GRIFFON:** Yeah, with former workers. Okay.  
22         I'm just going to edit the Board action to  
23         reflect that, and there's no other outstanding  
24         issues on Finding 2.

25         **DR. NETON:** And I just want to clarify we're

1 not talking about -- with cobble cutting, we're  
2 not talking about time it was there and moving  
3 and things --

4 **MR. GRIFFON:** Right.

5 **DR. NETON:** -- we're really talking about the  
6 actual cutting time.

7 **DR. MAKHIJANI:** Right, when dust was being  
8 generated.

9 **DR. NETON:** 'Cause we all agree that, you know  
10 -- you know, it -- the 553 MAC or whatever we  
11 came up with was bounding for those activities,  
12 then this -- this 15-minute time period would -  
13 - would certainly be appropriate if it was like  
14 torch cutting or whatever, so --

15 **MR. GRIFFON:** Right.

16 **DR. MAURO:** What might be helpful -- this is  
17 John Mauro -- a piece of information that  
18 emerged that was very useful was estimates of  
19 the number of cobbles that were cut on  
20 individual days, information that was available  
21 that was provided in a table during our last  
22 conference call, and that was extremely  
23 helpful.

24 **DR. MAKHIJANI:** Yeah, the -- the -- the torch  
25 cutting thing I -- when I went back to our

1 report, I found that I -- I didn't -- there was  
2 some confusion in the numbers that were said in  
3 the conference call, and -- and I did edit the  
4 conference call minutes to make the thing  
5 accurate, and that 30 milligrams per cubic  
6 meter is an all-day average. I mean it's  
7 correct, but the words "all-day average" are  
8 missing. And the -- the -- the finding that  
9 there was some device like a -- more like  
10 shears is kind of, I think, an important piece  
11 of it. You did find evidence at other sites  
12 that some device that was not like an acetylene  
13 torch was used. Right, Jim?

14 **DR. NETON:** Well, at certain sites, yeah, they  
15 used this thing called the cutamatic, but it  
16 was not necessarily portable. We need to --  
17 but when we discussed this on Wednesday, it was  
18 that the 500 or 600 MAC was -- was bounding.

19 **DR. MAKHIJANI:** Yes. It is. Yes.

20 **DR. NETON:** Okay.

21 **DR. MAURO:** I -- I think that -- and let -- the  
22 concept that I think that needs to be made  
23 clear is that the 540 MAC, which was the upper  
24 end concentration associated with Simonds, is  
25 certainly a bounding situation for virtually

1 any scenarios that we would be talking about  
2 for different workers. The reason we got into  
3 the discussion of cutting cobbles was when we  
4 get into 1951 --

5 **MR. GRIFFON:** Right.

6 **DR. MAURO:** -- and 1952, when all of a sudden  
7 the dust loadings really come down dramatically  
8 because of the salt bath used, what happens  
9 then is exposures to the folks that are at the  
10 rollers come down dramatically and they're no -  
11 - they may no longer be your limiting person.  
12 And maybe there might be some other people that  
13 are working at the facility that have job  
14 responsibilities where they become the limiting  
15 exposure. So in a funny -- in a way, the salt  
16 bath sort of solved the problem related to high  
17 exposures to people who work at rollers, and  
18 that's good news. However, then all of a  
19 sudden the limiting person may very well be  
20 someone else who might be involved in shear  
21 operations or other types of operations such as  
22 cobble-cutting. And so what we're really  
23 talking about is to say okay, once you're into  
24 the 1952 or '51/'52 time frame where now other  
25 workers might be experiencing elevated levels

1 of exposure other than the roller workers, we  
2 want to make sure we have a good handle on what  
3 that -- the upper level of exposures might be  
4 for those people. So that's what this is  
5 about. It's trying to zero in on other workers  
6 and what -- whether they're doing grinding,  
7 shearing, cutting cobbles, these other workers  
8 may very well now become limiting, and we want  
9 to find a way to put that problem in a box so  
10 that we feel confident that we placed a high-  
11 end estimate on what that exposure might be.  
12 And that includes not only the dust loading  
13 itself associated with that particular  
14 operation, but also the durations that the  
15 person might be exposed to that dust loading.  
16 And sort of we zeroed in on -- on this set of  
17 data, information related to cutting, that says  
18 that well, it appears that -- that we've got a  
19 pretty good handle on what the upper end dust  
20 loading might be, but we still have a little  
21 bit of uncertainty on how -- what a duration  
22 would be. And it appears that the duration of  
23 those kinds of operations such as cutting a  
24 cobble is relatively short. The numbers of  
25 cobbles that are, for example, cut per day, and

1 the time period that it might take to cut a  
2 cobble becomes -- we want to make sure that we  
3 have a good handle on that, 'cause then we can  
4 get a pretty good handle on what the exposure  
5 might be to that category of worker over the  
6 course of the day when he might be performing  
7 those functions.

8 **MR. GRIFFON:** Let me -- assuming -- this is  
9 Mark Griffon again. Assuming that you can --  
10 assuming that -- that the model described by  
11 NIOSH in -- in the minutes, the time -- the  
12 number of cobbles and the time spent cutting  
13 cobbles is -- is accurate, would -- would that  
14 -- would the '51/'52 data -- I think that's 70  
15 MAC now that we're talking about -- right? --

16 **DR. MAKHIJANI:** Right, for '52.

17 **DR. MAURO:** '52 is 70, '51 I believe was 220.

18 **MR. GRIFFON:** I mean would those values still  
19 be bounding or greater than the co-- the --

20 **DR. NETON:** Right, that's -- that's the  
21 concept.

22 **MR. GRIFFON:** That's the key. Right?

23 **DR. MAURO:** Exactly.

24 **MR. GRIFFON:** So -- so is that true, and is it  
25 just a matter of validating those time --

1           **DR. NETON:** Right. Right, because --

2           **MR. GRIFFON:** Okay.

3           **DR. NETON:** -- if you take 70 MAC air at ten  
4 hours, you end up with a 700 MAC-hour exposure  
5 for one day. And the question is, do people  
6 who cut cobbles in 1952 have the potential to  
7 exceed 700 MAC-hour exposure.

8           **MR. GRIFFON:** And your analysis right now says  
9 no. Is that correct?

10          **DR. NETON:** That's our -- that's what we put  
11 (unintelligible)--

12          **UNIDENTIFIED:** Keep the -- keep the back door -  
13 - just the traffic is loud.

14          **UNIDENTIFIED:** (Unintelligible)

15          **UNIDENTIFIED:** I know, but when you -- when you  
16 (unintelligible), just close -- just close the  
17 door a little bit.

18          **MR. GRIFFON:** Okay, that's better. Okay, so  
19 it's -- I think it's down to, you know,  
20 validating that against the former workers like  
21 we said earlier, and that was -- and then the  
22 other data would bound all cases from '49  
23 through '52.

24          **DR. NETON:** Right.

25          **MR. GRIFFON:** Okay.

1           **DR. MAURO:** Yes.

2           **MR. GRIFFON:** Finding 3 I think we can move on  
3 to, unless anyone else has any more on Finding  
4 2?

5           **MR. PRESLEY:** This is Bob Presley, I think  
6 that's enough.

7           **MR. GRIFFON:** What's that, Bob? I --

8           **MR. PRESLEY:** I said I think that's more than  
9 enough.

10           **FINDING 3**

11           **MR. GRIFFON:** Okay. All right. Finding 3, I  
12 think this one stands as we had discussed in  
13 the last meeting, "Effect of oronasal breathing  
14 should not be described as negligible" was the  
15 SC&A finding. "NIOSH believes for Bethlehem  
16 Steel the effect of oronasal breathing would  
17 have a relatively small effect on overall doses  
18 assigned."

19           **UNIDENTIFIED:** Yeah.

20           **MR. GRIFFON:** But I think there was sort of  
21 agreement to drop the word "negligible," but it  
22 would have a very small effect on the overall  
23 doses assigned.

24           **MS. MUNN:** This is Wanda. That was my  
25 understanding.

1           **MR. GRIFFON:** Right.

2           **MR. PRESLEY:** This is Bob. That was my  
3 understanding.

4           **MR. GRIFFON:** And the Board action is that  
5 "SC&A and NIOSH agree that there will be a  
6 small effect on the Bethlehem Steel site  
7 profile. However -- further, though, NIOSH  
8 will develop a generic guidance document with  
9 regard to this issue." And I think NIOSH is  
10 already in the process of doing that. Is that  
11 agreeable?

12           **DR. MAURO:** Yes.

13           **FINDING 4**

14           **MR. GRIFFON:** Okay. Finding 4 then, this was a  
15 -- lengthy discussion of this one in the  
16 minutes. "SC&A believes that the TIB-9  
17 approach for handling ingestion intakes is not  
18 adequate."

19           I -- I developed a new NIOSH response from the  
20 -- the last set of minutes here, and make sure  
21 I capture this correctly. "NIOSH and SC&A came  
22 to agreement that the approach used in TIB-9 is  
23 not adequate, and that the proposed approach by  
24 SC&A is not satisfactory. NIOSH will develop a  
25 new approach for TIB-9 based on air

1 concentration to surface contamination and  
2 surface to ingestion transfer factors --  
3 factor."

4 And then the Board action, "SC&A and NIOSH  
5 agree with the new approach in principle.  
6 However, research is needed to determine  
7 appropriate values for Bethlehem Steel. NIOSH  
8 will develop a generic -- it should say a  
9 generic -- approach in TIB-9. SC&A should  
10 review final approach for Bethlehem Steel and  
11 TIB-9 and modify TIB-9."

12 Okay, discussion on that. I think, Jim, it  
13 might be worthwhile describing how you came to  
14 this new -- new sort of approach for...

15 **DR. NETON:** Okay, yeah.

16 **MR. GRIFFON:** Yeah.

17 **DR. NETON:** We -- we went and -- you know, it  
18 had been our opinion all along that you can't  
19 have an ingestion model that is independent of  
20 the source terms that's available for  
21 ingestion. We went and -- you know, we were  
22 aware of this document before. We resurrected  
23 this (unintelligible) document --  
24 (unintelligible) Build. It's a new reg written  
25 by Sandia National Laboratories where they

1           actually came up with values --

2           **MR. GRIFFON:** Jim, are you on a speaker phone,  
3           'cause I'm --

4           **DR. NETON:** I am.

5           **MR. GRIFFON:** -- you're cutting in and out a  
6           little.

7           **DR. NETON:** Let me get closer. Usually this is  
8           a pretty good phone.

9           **MR. GRIFFON:** There may be other interference.

10          **DR. NETON:** I think there's some input coming  
11          from outside that --

12          **UNIDENTIFIED:** (Unintelligible) a lot of  
13          dialogue going on.

14          **MR. GRIFFON:** Hello?

15          **UNIDENTIFIED:** Hello?

16          **MS. HOMOKI-TITUS:** I think they may be in a  
17          car.

18          **DR. WADE:** Could each of you consider your  
19          environment? Someone is really polluting the  
20          call.

21          **MR. PRESLEY:** Lew, I'm in a room locked up by  
22          myself. There's no noise whatsoever.

23          **MR. GIBSON:** This is Mike. I'm sitting in my  
24          living room.

25          **MR. GRIFFON:** Is anyone on a cell phone or

1 anything, 'cause it's really -- I can hardly  
2 hear the call now.

3 **DR. WADE:** Who spoke before about a back door  
4 being open?

5 **MS. MUNN:** This is Wanda. I don't think it's  
6 me. I'm in a basement by myself. I'm going  
7 upstairs and try another phone just to see if  
8 it might be the telephone itself. Are you  
9 still there?

10 **MR. GRIFFON:** Yeah.

11 **UNIDENTIFIED:** Yeah.

12 **DR. WADE:** Yep.

13 **UNIDENTIFIED:** Yeah, Wanda.

14 **UNIDENTIFIED:** You're clearer all of a sudden.

15 **MR. GRIFFON:** That's a little better now --

16 **DR. WADE:** Yeah, it's getting better.

17 **MR. GRIFFON:** -- whatever happened. I don't  
18 know what happened.

19 **MS. MUNN:** Well, I'm in another part of the  
20 room, but there's nothing that -- if that --

21 **MR. GRIFFON:** It doesn't seem to be you, Wanda.  
22 I don't think -- all right, go ahead, Jim. Go  
23 ahead and give --

24 **DR. NETON:** I think when it cut out there's  
25 other things overriding our call here.

1           **MR. GRIFFON:** Okay.

2           **DR. NETON:** We -- we looked pretty hard at this  
3 document called RESRAD-Build, which is a new  
4 reg, a contractor report written by Sandia  
5 National Laboratories, where they developed  
6 transfer factors from surface contamination to  
7 -- to hands actually, for ingestion -- you  
8 know, that's -- that's available for ingestion.  
9 So we -- we adopted that after looking at it  
10 fairly closely. We believe it's -- it's  
11 representative of -- of an occupational  
12 environment, and we've taken that transfer  
13 factor and -- and it's -- which is related to  
14 surface contamination. We took it one step  
15 further and related the surface contamination  
16 to the air concentration data that we had at  
17 both Simonds and Bethlehem and came up with  
18 some average values for rela-- the ingestion  
19 per -- per activity in the air. So there is a  
20 tie-in here now, and we propose to use the  
21 highest transfer factor that was developed in  
22 RESRAD-Build. The units are in meter squared  
23 per -- per hour, essentially. And if you have  
24 DPM per square meter, then you've got DPM per  
25 hour ingestion.

1           That's what we proposed, and I think SC&A  
2           agreed in principle that that's -- that's a  
3           valid way to go. Where they -- where we lacked  
4           some agreement was necessarily how far we need  
5           to flesh out the details of this model.

6           **MR. GRIFFON:** But we -- we don't have DPM per  
7           square meter, do we? That's the --

8           **DR. NETON:** Yeah, we do, actually.

9           **MR. GRIFFON:** Oh, we do?

10          **DR. NETON:** We had -- we had -- at Simonds and  
11          Bethlehem we had some limited surface  
12          contamination measurements.

13          **MR. GRIFFON:** Oh, I didn't know you had any at  
14          Bethlehem, okay.

15          **DR. NETON:** Yeah, at Bethlehem we had the -- in  
16          the later time periods, I think almost the last  
17          rolling, in the very clean era, we had some  
18          very limited air -- surface data, but we also  
19          had air data which indicated that the surface  
20          contamination levels were -- were indeed pretty  
21          low. And in fact, when you graph the -- you  
22          compare the surface to the air, they do track  
23          fairly nicely, which supported our argument  
24          that, you know, the amount available for  
25          ingestion on the surface is directly

1 correlated, to a large degree, with the amount  
2 in the air.

3 Now the disagreement we've been having all  
4 along is SC&A, you know, likes to use the EPA  
5 and the NCRP document to talk about ingestion  
6 per day. And we're not necessarily arguing  
7 that that ingestion per day value is wrong.  
8 The fundamental question here is how much  
9 uranium is ingested per day in a contaminated  
10 environment. We never believed that it had to  
11 be consistent with how much dust someone would  
12 eat that is uniformly contaminated with  
13 whatever -- outside or in attics or that. And  
14 in fact, the EPA documents themselves -- or the  
15 one document in the attic, there's a -- there's  
16 a correlation between the amount of dust  
17 available for ingestion and the ingestion per  
18 day. If you have a clean house it's like a  
19 half a milligram per day. If you go to a more  
20 dusty attic, it's like a 50. If you go to a  
21 higher contaminated area, it's higher. So we  
22 believe that that all supports our argument,  
23 and I think SC&A does -- does believe that.

24 **DR. MAURO:** Yes, we -- we concur. The  
25 fundamental approach that is being taken is a

1 very sound, and we -- we didn't look at the  
2 parameters, but the approach represents a -- a  
3 strategy for dealing with this last problem,  
4 which is somewhat different, so --  
5 fundamentally different than the original, I  
6 guess it was OTIB-9 approach, and we're very  
7 much in favor of this new approach.

8 **MR. GRIFFON:** Right.

9 **DR. MAURO:** And it's really just a matter of  
10 some of the constants, as we understand them,  
11 as described to us by Jim, seem to be just what  
12 -- just what the doctor ordered. We like this  
13 approach.

14 **MR. GRIFFON:** Okay. A question I have was you  
15 mentioned you had data for the later years. Is  
16 there any data in the earlier years during the  
17 higher -- you have data from Simonds, is that  
18 what you...

19 **DR. NETON:** Yeah, we have data from Simonds.  
20 Now the drawback with that data, and SC&A  
21 pointed this out, was that they were not loose  
22 contamination but total surface contamination -  
23 -

24 **MR. GRIFFON:** Right.

25 **DR. NETON:** -- based on a survey meter.

1           **MR. GRIFFON:** Okay.

2           **DR. NETON:** And -- and so that would tend to  
3           overestimate the amount on the surface  
4           available for ingestion. And we did commit in  
5           our conference to go -- conference call to go  
6           back and re-evaluate those parameters in light  
7           of some of those issues, and we're doing that.

8           **DR. MAURO:** The -- we had a couple of cautions  
9           that we discussed in principle. The -- the  
10          idea that ingestion is directly proportional to  
11          dust loading is -- is a fundamental concept,  
12          and it has a lot of merit. But at the same  
13          time you can envision a situation where a lot  
14          of junk could accumulate on surfaces that --  
15          that is generated directly from some process  
16          which deposits a lot of material on surfaces,  
17          but doesn't necessarily create a large airborne  
18          dust loading of respirable particles. In those  
19          circumstances you could envision a breakdown in  
20          that relationship, and I -- it's just a matter  
21          of caution not to sort of deify this  
22          relationship. That is, there are -- there will  
23          -- there can very well be circumstances where  
24          that relationship could break down. So that  
25          was just one of the points we -- we mentioned,

1 and I think there's general agreement that --  
2 that -- that's something that you need to be  
3 careful of.

4 Also we did discuss the idea that -- the idea  
5 is that yes, as -- as the level of surface  
6 contamination increases, you would expect that  
7 the potential for ingestion increases to some  
8 point. But then of course at some point the  
9 surface contamination is so extensive that  
10 further build-up, let's say, would not  
11 necessarily result in a further increase in  
12 what might be ingested. So I mean there are  
13 boundaries to the problem that is just a matter  
14 of caution. But in principle, the -- the -- to  
15 the parameters that were used, that is the  
16 values that were obtained from -- from NIOSH  
17 and from Bethlehem Steel establish a  
18 relationship that certainly appears to be  
19 verifiable and to be valid as applied to this  
20 particular problem.

21 **MR. GRIFFON:** Yeah, I -- I was going to follow  
22 up, Jim, but I think it's going to require the  
23 further analysis you mentioned. But the follow  
24 up -- the sur-- you said the surface  
25 contamination seemed to track with the air data

1 for the later years, and I was going to ask  
2 (unintelligible) --

3 **DR. NETON:** For both periods.

4 **MR. GRIFFON:** Okay.

5 **DR. NETON:** Yeah, I mean it -- we just took a  
6 simple plot and ratio --

7 **MR. GRIFFON:** It was true, too, but you were  
8 talking about total, not -- not just removal in  
9 the early -- in the Simonds data. Right?

10 **DR. NETON:** Right, but if you plot those simple  
11 relationships, they do track.

12 **MR. GRIFFON:** They do track, okay.

13 **DR. MAURO:** There -- there was one more -- this  
14 is John Mauro -- one more point that we did  
15 discuss that I think I'd like to alert the  
16 working group to is that the air samples  
17 themselves -- bear in mind -- remember we were  
18 talking about well, there are these very short  
19 term breathing zone samples, and then of course  
20 there are these -- a little bit more longer  
21 term general air samples, and in principle if  
22 you're trying to establish a relationship  
23 between what is airborne and what's on surfaces  
24 -- let's say all you really know is some  
25 airborne data -- let's say that's your starting

1 point -- oh, well, we have lots of airborne  
2 data, but we don't have any data on surfaces.  
3 You can envision a situation arising like that.  
4 The question -- and then you have this  
5 relationship that you empirically determine.  
6 One of the cautions that we had is that it  
7 would seem that the airborne measurements that  
8 reflect more of the long-term average  
9 conditions would be a better measure to  
10 establish this relationship. So -- so if you  
11 have -- and the -- if you had data which was  
12 both very short term, let's say breathing zone  
13 samples, and you also had general air samples  
14 that you had available to you to relate to  
15 what's on surfaces, in principle you probably  
16 would have a more robust relationship if you  
17 use the general air, more prolonged samples to  
18 establish your relationship to what's on  
19 surfaces. I -- we discussed that a bit. I'm  
20 not quite sure if there was general agreement  
21 with that fundamental principle.

22 Jim, did you folks generally agree that that  
23 way of thinking about it is -- is appropriate?  
24 We did leave it -- I guess I -- when we left  
25 off on our last conference call it was a little

1 fuzzy in that area.

2 **DR. NETON:** Yeah, I -- we agreed to take a look  
3 at that, and I thought we -- we -- it was our  
4 thinking that some of these things may come out  
5 in the wash --

6 **DR. MAURO:** Okay.

7 **DR. NETON:** -- analysis, but I agree with these  
8 cautions that John has raised. I would point  
9 out, though, that, you know, when we do the  
10 actual analysis, we will be using the 95th  
11 percentile of the airborne air concentration in  
12 the facility to generate the surface  
13 contamination values. We also propose to use  
14 the highest transfer factor contained in the  
15 new reg, and then the highest empirical ratio  
16 that we observed from surface to airborne.

17 **MR. GRIFFON:** Right.

18 **DR. NETON:** You know, there's -- there's some  
19 conservatism built in.

20 **MR. GRIFFON:** Built in, right.

21 **DR. NETON:** But -- but I do agree with what  
22 John was saying. We need to be careful about,  
23 you know, developing these ratios and what  
24 we're using. That's absolutely true.

25 **MR. GRIFFON:** But -- and I think if -- if -- I

1 think my -- the statement in the Board action  
2 is still okay, that the -- you know, you'll --  
3 you're going to modify the site profile for  
4 Bethlehem Steel, but also TIB-9'll probably be  
5 modified.

6 **DR. NETON:** Right.

7 **MR. GRIFFON:** And that's where we can look at  
8 the generic -- you know --

9 **DR. NETON:** Exactly.

10 **MR. GRIFFON:** -- approach, right.

11 **DR. NETON:** I guess the question I have here is  
12 -- is when -- when you stated at the end of  
13 your Board action that SC&A should review the  
14 final approach, are we talking TIB-9 or is this  
15 going to hold up Bethlehem Steel, you know,  
16 moving forward? I mean if we need to go  
17 through another iteration and the Board feels  
18 that's fine, okay, but I think we've got --

19 **MR. GRIFFON:** I think what I've heard from --  
20 from John is that -- that you're comfortable  
21 with the principle here and probably don't need  
22 to -- I don't know, John, what -- what's your  
23 feelings on this?

24 **DR. MAURO:** I guess my -- my reaction is that I  
25 -- I very much support the approach that's

1           being used, and I -- I guess I was more  
2           interested in seeing the final form that TIB-9  
3           takes. I believe that the approach that has  
4           been adopted as a -- with the particular data  
5           being used for Bethlehem Steel is -- is  
6           appropriate and we're -- we're ready to sign  
7           off on that.

8           **MR. GRIFFON:** Okay.

9           **DR. MAURO:** But we do want to take a look at  
10          the more general approach that's going to  
11          become the universal, so to speak, and have a  
12          chance to look at that.

13          **MR. GRIFFON:** Then I will -- I will -- I'll  
14          take out that section if it's appropriate. The  
15          reason I drafted it that way, Jim, was that  
16          when I read the minutes I -- it wasn't clear to  
17          me that NIO-- that SC&A had bought off on the  
18          particular values being proposed, so...

19          **DR. NETON:** Yeah, and I have no problem with  
20          the TIB-9 because I think eventually that will  
21          be -- have to be revisited. I think there's  
22          already a review of TIB-9 that's been done by  
23          SC&A in the procedures reviews, and you know,  
24          we will certainly make sure that's covered at  
25          that time.

1           **DR. MAURO:** The reason we -- we feel -- this is  
2 John Mauro again -- comfortable is that, as Jim  
3 has just explained, by design they're going to  
4 be picking off the 95th percentile, the highest  
5 transfer factors of the data. So you know, by  
6 coming at the problem that way, you know, if --

7           **MR. GRIFFON:** Yeah.

8           **DR. MAURO:** -- you -- you -- your -- you --  
9 there's a high level of confidence.

10          **MR. GRIFFON:** Yeah, that makes me more  
11 comfortable with it, too, yeah.

12          **DR. MAURO:** And that's why we -- we -- see, we  
13 feel -- again, you know, when we had this  
14 conversation, you know, it's one of these  
15 circumstances where, you know, technical people  
16 could argue the fine points to the last nit. I  
17 think that in keeping with timeliness we felt  
18 that it -- the -- the strategy that -- that Jim  
19 has outlined, with the assumptions that they  
20 plan to employ, are very compelling and we feel  
21 that -- we've reached that point where we -- we  
22 let go.

23          **MR. GRIFFON:** I agree. I agree. I agree.  
24 Like I said, I was less clear in the minutes on  
25 this so that's why I left that opening, but it

1           seems, based on Jim's description and your  
2           response, that there's no need to review that  
3           further in Bethlehem Steel. But -- but TIB-9  
4           is still -- and we are continuing to review  
5           that, so...

6           **DR. MAKHIJANI:** Could I suggest that -- Arjun.  
7           Could I suggest a small edit in the middle  
8           column where you say the proposed approach by  
9           SC&A is not satisfactory? It might say not a  
10          satisfactory replacement, or not a good  
11          replacement or something.

12          **MR. GRIFFON:** Okay.

13          **DR. MAKHIJANI:** 'Cause we agreed, you know,  
14          that there were -- there were problems with  
15          each one and so --

16          **MR. GRIFFON:** Right.

17          **DR. MAKHIJANI:** -- and so we agreed with  
18          NIOSH's third effort.

19          **DR. MAURO:** By the way, the approach -- this is  
20          -- my -- I think this might be of interest to  
21          everyone involved. The approach that Jim and  
22          NIOSH are planning to use, with the validation  
23          of that approach with regard to looking at  
24          actual urine data and what it means, it's going  
25          to add something important to the literature.

1           The EPA and NCRP have sort of deified the 100  
2           or the 50 milligram per day number,  
3           acknowledging that it has some problems. We  
4           all recognize some of the problems. I think  
5           the approach that Jim is laying out and the  
6           work that he plans to do is probably going to  
7           add to the literature --

8           **MR. GRIFFON:** Yeah.

9           **DR. MAURO:** -- and I think that's -- that's a  
10          real -- a real positive outcome of this  
11          process. It's going to have an effect on how  
12          EPA does its work, how NCRP does its screening  
13          calculations. I think it's -- there's some  
14          important things that are going to come out of  
15          this.

16          **DR. NETON:** Yeah. Thanks, John. This is Jim.  
17          I -- I agree with that, and one of the issues I  
18          think is just this relevancy to the  
19          occupational environment. You know, we made  
20          that point. I think it's -- we could do this,  
21          that if -- you know, we -- for places that are  
22          continually contaminated, never cleaned up,  
23          like a Fernald, if one were to -- had to assume  
24          a 100 milligram ingestion per day, you can get  
25          to some pretty large body burden fairly

1           quickly, and you just don't see that in the  
2           record when you look at all the urine samples  
3           that have been collected historically. So I  
4           think there's some pretty compelling  
5           information out there that we can use to -- to  
6           help -- to help flesh this out.

7           **MR. GRIFFON:** It'd be interesting to see what  
8           kind of trends -- if you can see any. I know  
9           there's been some work done long times ago on  
10          these -- these issues, K-25 documents on this  
11          kind of stuff, and -- but anyway, that -- yeah,  
12          that -- that would maybe add to the literature  
13          and add to the generic policy, too, right.

14          **DR. NETON:** I mean if you're talking about  
15          ingestion of 100 milligrams per day over like a  
16          month period, you're -- you're approaching  
17          three grams of ingestion of uranium per month.

18          **MR. GRIFFON:** Right.

19          **DR. NETON:** (Unintelligible) if they worked  
20          every day, but say two grams plus. Two gram  
21          inhalation -- or ingestion of uranium, even for  
22          insoluble materials, should start showing up in  
23          the urine pretty readily.

24          **UNIDENTIFIED:** Yeah.

25          **DR. NETON:** It's an interesting discussion.

1           Yeah, I think it was one of the more  
2           interesting concepts that we explored. Okay.

3           **FINDING 5**

4           **MR. GRIFFON:** Okay, Finding 5, "The  
5           resuspension model suggested in profile is not  
6           appropriate." NIOSH response was that NIOSH  
7           accepts -- and this is from the minutes --  
8           well, from the minutes and from the discussion  
9           in the last meeting. "NIOSH accepts SC&A's  
10          model using median value for '49 to '50 and  
11          separately for '51 to '52." In other words,  
12          different distributions for those two time  
13          periods, so different median values. And then  
14          the Board action, "NIOSH and SC&A agree with  
15          the approach for Bethlehem Steel. NIOSH will  
16          develop a generic guidance with regard to this  
17          issue." Again, which has come up on several of  
18          these.

19          Did I capture the NIOSH Response column  
20          correctly from the minutes --

21          **DR. NETON:** Mark, I'm not quite sure what you  
22          mean by the development of generic guidance. I  
23          mean we -- SC&A has -- has proposed several  
24          approaches that -- that they believe are all  
25          valid. We -- we do believe use of the median

1 is probably where we're going. I think we did  
2 discuss, you know, looking at SC&A's other  
3 suggested values, but --

4 **MR. GRIFFON:** Well, what I meant by that, it  
5 seems that -- well, first of all, for Bethlehem  
6 Steel I think -- or is there agreement that --  
7 that you're going to use the median value of  
8 the -- is it the median value of the general  
9 area air sampling --

10 **DR. NETON:** That's correct.

11 **MR. GRIFFON:** -- to derive the resuspension?

12 **DR. NETON:** Yeah. I don't know I'd  
13 characterize it as agreement, other than the  
14 fact that SC&A does not fundamentally oppose  
15 that -- that being done.

16 **DR. MAURO:** We believe that that approach is  
17 valid, as are other approaches for coming at  
18 central tendency. In effect, when we got into  
19 this discussion there was general agreement  
20 that the way in which you come at the problem  
21 for resuspension is to try to get a handle on  
22 what the -- not the 95th percentile, but -- or  
23 some upper end value, but what is a good  
24 measure of central tendency. And the debate  
25 really surrounded well, do you use the average,

1 do you use the median, do you use the mode, do  
2 you use the geometric mean. And we looked into  
3 that and we sent an e-mail out to Jim and we  
4 pointed out that -- we had our statisticians  
5 look at the issue and there are a number of  
6 different ways of coming at a good, robust  
7 measure of central tendency, one of which is  
8 the median.

9 What we did reject, by the way, and I think  
10 this is important for future reference, is when  
11 you have an array of numbers -- let's say it's  
12 air sample numbers -- and -- and you're  
13 interested in coming up with what you believe  
14 to be a robust measure of central tendency that  
15 that array of numbers reflect, the arithmetic  
16 average is not a very good measure of central  
17 tendency because very often you will have an  
18 outlier, as we did in the data that we were  
19 looking at. For example, at Simonds Saw we had  
20 a general air sample. The largest number there  
21 was sort of off the charts, and we felt that it  
22 would result in a biased representation of the  
23 central estimate. So -- and a way to get  
24 around that is you could either just go with  
25 the median, which sort of solves that problem.

1           Just take all your general air samples,  
2           including the outlier, and come up with your  
3           median, and that would be a good measure.  
4           Or another approach is get rid of that outlier  
5           because you do not believe it to be appropriate  
6           for the purpose of generating -- and then take  
7           an average of that. When you do that, the  
8           numbers don't differ that much. In other  
9           words, the average of an array of numbers, when  
10          you get rid of this strange outlier, does not  
11          differ that much from the median when you use  
12          all the numbers. So NIOSH has -- and we said  
13          either approach would be valid.  
14          Which one is the best one? I -- I don't --  
15          none of our statisticians could say. They said  
16          this -- we just don't know what the best one  
17          is. But they all represent reasonable  
18          scientifically valid approaches. NIOSH has  
19          elected to go with the median, and that's fine  
20          with us.

21          **MR. GRIFFON:** Okay. And I'll -- I'll -- I take  
22          that as agreement.

23          **DR. MAURO:** And it is agreement.

24          **MR. GRIFFON:** Yeah.

25          **DR. MAURO:** Sorry for the long story, but you

1 know what it is, it's --

2 **MR. GRIFFON:** Oh, that's all right. That's all  
3 right.

4 **DR. MAURO:** It does have applicability in the  
5 future --

6 **MR. GRIFFON:** Right, right.

7 **DR. MAURO:** -- when we encounter similar  
8 situations.

9 **MR. GRIFFON:** Let me try to answer Jim's  
10 question then on the last sentence there,  
11 "NIOSH will develop a generic guidance with  
12 regard to this issue." That -- I guess the --  
13 the generic guidance I was talking about was  
14 resuspension model to be used, you know,  
15 throughout your site profiles, and --

16 **DR. NETON:** Okay, I -- that's fair.

17 **MR. GRIFFON:** -- and that may be -- you know,  
18 it may give you option -- I mean, you know,  
19 you've certainly run a number of different  
20 types of options, and it may depend to some  
21 extent on what types of data you have for what  
22 facilities, too, you know.

23 **DR. NETON:** I understand, Mark. That  
24 clarifies.

25 **MR. GRIFFON:** Okay. Okay. So that was -- that

1 was all I meant by that.

2 **DR. NETON:** Okay.

3 **MR. GRIFFON:** All right? So I think we're done  
4 with Finding 5, unless anyone else has any...

5 **DR. NETON:** I guess in Finding 5 it doesn't  
6 specifically state this but I think it's  
7 understood that we're going to modify the  
8 profile to incorporate this new resuspension  
9 model.

10 **MR. GRIFFON:** Oh, okay, I'll add that in  
11 between the first sentence.

12 **DR. NETON:** We definitely need to revisit that  
13 and revise those values accordingly.

14 **MR. GRIFFON:** NIOSH will modify site profile  
15 accordingly.

16 **DR. NETON:** Just for the record, I think --

17 **MR. GRIFFON:** You're right. You're right. At  
18 one point I was trying to get this to fit all  
19 on one page. That's why --

20 **DR. NETON:** You already lost that battle it  
21 looks like.

22 **MR. PRESLEY:** Mark, use a smaller font.

23 **MR. GRIFFON:** Yeah, that's right. Then I'm  
24 sure I'll get complaints about that, too. I  
25 put dates on this one, anyway.

**FINDING 6**

1  
2       **MR. GRIFFON:** Okay, Finding 6, "NIOSH has not  
3 addressed the issue raised by workers with  
4 regard to extended contact with" -- and it goes  
5 onto the next page, on mine, anyway -- "with  
6 uranium," I guess -- yeah.

7 "NIOSH will modify the site profile (assuming  
8 1.5 millirem per hour from clothing  
9 contamination)." I might have to work on the  
10 way that's phrased, but "Additionally, NIOSH  
11 will modify profile to assume two weeks in  
12 between washing clothing, resulting in 1.8 rem  
13 per year from clothing contamination. This  
14 value will be used for all years of operation."  
15 And then the Board action, "NIOSH and SC&A  
16 agree with the method for calculating extremity  
17 dose from direct contact with the material, as  
18 well as from the contaminated clothing."

19       **MR. PRESLEY:** Hey, Mark, this is Bob.

20       **MR. GRIFFON:** And I should add that thing that  
21 Jim just said, that NIOSH will revise the site  
22 profile regarding contaminated clothing and  
23 extremity doses. Is that correct?

24       **DR. NETON:** Right. It's not necessarily just  
25 extremity doses, though. It could be anywhere

1 on the body.

2 **MR. GRIFFON:** That's true. That's true, yeah.

3 **DR. WADE:** Bob Presley, you had something?

4 **MR. PRESLEY:** Yeah. Does this also stand for  
5 the years where they were using the salt baths?

6 **DR. NETON:** Bob, that's a very good question.

7 **MR. GRIFFON:** Good question, yeah.

8 **DR. NETON:** The answer is yes. We couldn't  
9 think of any scientifically robust way to  
10 reduce the values, you know, to lesser amount.  
11 We would have had to again come up with some  
12 sort of a model, and it just didn't at least  
13 strike us squarely in the face as to how to  
14 proceed.

15 **MR. PRESLEY:** Okay.

16 **DR. NETON:** So it is more related to the -- you  
17 know, the production values went way up in the  
18 later years, so the idea that someone could  
19 have rubbed their clothes against the rods, I  
20 suppose, would be at a higher potential for  
21 contamination of the clothing. But yeah, we're  
22 just going to use it for all four years.

23 **MR. PRESLEY:** Okay, if you're satisfied with  
24 that, that's fine.

25 **DR. NETON:** Yeah, I don't think -- I think it's

1 very generous, but there's -- again, there's no  
2 other way for us to -- to bound it any better  
3 we don't -- we don't know of.

4 **MR. PRESLEY:** All right.

5 **MR. GRIFFON:** Yeah, that was -- that was  
6 captured in your set of minutes there. I  
7 noticed that.

8 **DR. NETON:** Right.

9 **MR. GRIFFON:** Yeah.

10 **MS. MUNN:** This is Wanda. Intuitively, that is  
11 extremely generous. I can't see how anyone  
12 could possibly complain that that would be  
13 anything other than an overstatement of the  
14 anticipated dose.

15 **DR. NETON:** It would be pretty hard to imagine  
16 a scenario higher than that. And in fact, what  
17 that ends up being is a 20 percent increase in  
18 the external dose, shallow dose, from wearing  
19 contaminated clothing above and beyond just the  
20 -- the dose of being in the presence of the  
21 uranium. If you remember, we discussed was --  
22 the best estimate was going to be somewhere  
23 around 10 rem.

24 **MS. MUNN:** Yeah.

25 **DR. NETON:** Essentially you would increase

1           those estimates by 20 percent.

2           **MR. GRIFFON:** Right, right.

3           **MS. MUNN:** If we were called upon to -- to  
4 defend that, I think we'd be hard pressed to  
5 defend its being that high, but I don't think  
6 anyone will call upon us to do that.

7           **DR. NETON:** I think you're right, Wanda, in the  
8 earlier years it's more defensible as time went  
9 on but -- but again, we -- who can tell 50  
10 years or 60 years later.

11          **DR. MAKHIJANI:** Yeah, it might be -- I guess  
12 you're going to say that when you're revising  
13 the site profile -- right? -- that, you know,  
14 the -- the dust levels that you're actually  
15 using for '51 and '52 are lower, but the  
16 clothing is a sort of difficult issue to model,  
17 and so --

18          **DR. NETON:** Right.

19          **DR. MAKHIJANI:** -- yes, I think, you know --

20          **MR. GRIFFON:** (Unintelligible) concern.

21                 Clearly it's conservative for the later years,  
22                 yeah.

23                 Okay, I think we got through all six.

24          **DR. WADE:** Wow, it wasn't too painful.

25          **MS. MUNN:** No, it wasn't.

1           **MR. GRIFFON:** Is there any outstanding issues  
2           on these six before we close on it?

3           **DR. NETON:** I don't think so, other than the --  
4           is -- is Ed Walker still on the phone?

5           **MR. WALKER:** I'm still here. I'm listening.

6           **DR. NETON:** Yeah, Ed, this is Jim. We're --  
7           we're going to -- we're going to get in touch  
8           with you related to conversations with some  
9           workers related to the finding number --

10          **UNIDENTIFIED:** Two.

11          **DR. NETON:** -- two, which is related to the  
12          torch cut-- or not the torch cutting, but the  
13          cobble cutting.

14          **MR. WALKER:** Uh-huh.

15          **DR. NETON:** So if it's okay with you, we'll  
16          send you an e-mail shortly to try to initiate  
17          some maybe conversations.

18          **MR. WALKER:** Okay. I've -- I've got a crane  
19          operator. I think Arjun met him when he was up  
20          here.

21          **DR. NETON:** Right, I think we're -- we're aware  
22          of the names, we just -- I think it'd be best  
23          if we worked through you because you -- you  
24          certainly have better contacts there.

25          **MR. WALKER:** Yeah, I would have already spoken

1 to him I heard and he's had a knee operation  
2 and he's in rehab right now, so probably this  
3 week I'll be able to get to him, but --

4 **DR. NETON:** Well, I just wanted to give you a  
5 heads-up. More than likely Sam Glover will be  
6 sending you an e-mail to -- to, you know, sort  
7 of frame the question a little -- at least in  
8 writing, I guess.

9 **MR. WALKER:** On the issue of the clothing  
10 there, I did find out -- since I attended that  
11 meeting -- that they had -- I had -- I wasn't  
12 aware of this, but they had people come in  
13 every ten days and pick up and take them to the  
14 cleaners' so that cuts back on some of the  
15 wives that were supposed to wash the clothes,  
16 but I think what they done is they usually had  
17 like two sets, and then when they would come in  
18 and pick up, they would pick them up and take  
19 them out to a cleaner and then return them.  
20 And whether this would be true for the uranium  
21 workers, I'm not sure, but it was for the  
22 normal steel workers, which that's what they  
23 were.

24 **DR. NETON:** It'd be interesting to me if they  
25 were taking contaminated clothing to a

1 commercial laundry.

2 **MR. WALKER:** Yeah.

3 **DR. WADE:** That's somebody else's issue.

4 **MR. WALKER:** They didn't know it, so -- no one  
5 was aware of it so they wouldn't have known.

6 **MS. MUNN:** Certainly water under a bridge long  
7 gone.

8 **MR. GRIFFON:** Right, right.

9 **DR. MAKHIJANI:** Ed, I know that the crane  
10 operator that I interviewed --

11 **MR. WALKER:** Uh-huh.

12 **DR. MAKHIJANI:** -- through you when I was in  
13 Buffalo, you know, he handled a lot of cobbles.  
14 But there was nobody that we've interviewed  
15 that actually was involved in dealing with the  
16 cobbles and clearing them from the floor once  
17 they were moved from the rolling area and set  
18 down, you know, to be cut up or loaded off or  
19 whatever, you know. Is there any-- anybody  
20 that actually could -- might have actually been  
21 involved in cutting up cobbles and clearing  
22 them from the floor that you know of? That  
23 might give us a good idea of the time that this  
24 -- I think the crane operator was basically  
25 done when he set the things down on the floor.

1           **MR. WALKER:** Yeah, they had to cut them twice.  
2           When they took them out from between the  
3           rollers, when those would cobble, the cobbles  
4           would -- would be like a pretzel going in  
5           there, and they were wedged in there. And I  
6           did talk to a couple of them and they said the  
7           15 minutes could be in some cases, in some  
8           cases it would take two hours. But then when  
9           they pulled them out and they set them in a  
10          pile, whether it be three or four, to cut them  
11          up into pieces to get rid of them, that I  
12          haven't found any information on as yet.

13          **DR. MAKHIJANI:** Yeah, that's the important --

14          **MR. WALKER:** Yeah.

15          **DR. MAKHIJANI:** -- thing, because usually, as I  
16          understood, the cobbles were -- were -- were  
17          cleared and they were not extensively cut right  
18          there.

19          **MR. WALKER:** Right.

20          **DR. MAKHIJANI:** Whatever was necessary to  
21          extract them from the rollers.

22          **MR. WALKER:** That's correct. And the time,  
23          like I said, they -- they -- no one had a real  
24          handle on it, so you've almost got to figure  
25          the 15 minute is certainly realistic.

1           **DR. MAKHIJANI:** Okay.

2           **MR. WALKER:** But I'll check into it some more.

3           **MR. GRIFFON:** All right. Well, I think what  
4           I'll -- what I'll offer to do, too, is just to  
5           -- to make these edits to the matrix and  
6           circulate it again. And if -- if -- certainly  
7           e-mail back to me if I've made any errors in  
8           capturing what went on in this conference call,  
9           but I'll try to get a finalized version of this  
10          matrix out and we will present it to the next  
11          Board meeting, too, so --

12          **DR. WADE:** Yeah, this is Lew Wade. My  
13          expectation now is that once this working group  
14          completes its work -- its work, it will report  
15          probably to the full Board at the end of  
16          January, and then the Board will be in a  
17          position to -- you know, to make its  
18          recommendation to the Secretary on this site  
19          profile. It'll be the first one that we've  
20          really completed.

21          Just for everyone's preparation, I would also,  
22          in my role at that meeting, try and cause a  
23          discussion to look at the amount of time we  
24          spent, the amount of effort we've spent, if  
25          this is appropriate, if this is the model we

1           should use for each of the site profile  
2           reviews. I think it's important that the Board  
3           sort of look at that from a completed piece of  
4           work, and this will give us our first  
5           opportunity. So you might want to do a little  
6           bit of thinking.

7           **MR. GRIFFON:** The other thing to consider  
8           there, Lew, is that -- you know, we were all  
9           looking at Bethlehem Steel sort of in terms of  
10          many uranium facilities sort of have similar  
11          issues. So that's -- that extended our time of  
12          assessment -- I believe, anyway -- on some of  
13          these more -- and as we -- being the actions  
14          here, many of -- are going to end up in the  
15          development of some generic guidance, you know,  
16          which will be applicable to many other sites.  
17          So I think -- you know, it took us quite a  
18          while on this site, but I think quite useful  
19          discussions -- in terms of the uranium  
20          facilities in general, you know.

21          **DR. WADE:** I just want to get all that on the  
22          record.

23          **MR. GRIFFON:** Yeah.

24          **MS. MUNN:** Now this is Wanda. I have been  
25          appalled by the amount of time that we've had

1 to devote to Bethlehem Steel. But I've  
2 approached it with the assumption that this is  
3 a pilot project for us, that we have been  
4 getting our processes in order, as well as our  
5 relationships in order. Hopefully this will  
6 not be typical of the amount of time that will  
7 be necessary on other sites.

8 **DR. WADE:** I just think it's important that the  
9 full Board have that discussion, you know, and  
10 create its record and guidance. I think it's  
11 been a productive experience, as you both say.  
12 But I think it -- it's reasonable for us to  
13 pause and look back and then look forward based  
14 upon the lessons learned. So I think this has  
15 been a very good object lesson.

16 **MR. GRIFFON:** I -- I agree, yeah.

17 **MR. PRESLEY:** This is Bob Presley. I agree  
18 with Lew. I think it should go before the  
19 Board, too, to see if we want to every time put  
20 this much effort and time into these things.  
21 Hopefully the next ones won't be this hard.

22 **DR. WADE:** They should get easier.

23 **MR. GRIFFON:** Okay. The only other thing I was  
24 going to bring up -- I mean I know -- I -- I --  
25 I just wanted to make a mention that I sent out

1           some sort of summary notes from the Y-12  
2           discussion at the last workgroup meeting. And  
3           not that we're going to discuss them here, but  
4           I -- I hope that the workgroup members can --  
5           can look at those and we've got Y-12 coming up  
6           and there should be a lot of information coming  
7           out from NIOSH and SC&A that we -- we all need  
8           to -- to focus on in the near future. So I  
9           just wanted to note that I sent those --

10       **DR. WADE:** Thank you.

11       **MR. GRIFFON:** -- notes.

12       **MR. PRESLEY:** Mark, I've got them. Do you want  
13       them commented back to you?

14       **MR. GRIFFON:** Yeah, if you have comments on  
15       them, sure, they -- you know, I think there --  
16       I tried to capture actions that NIOSH will be  
17       doing in the near future and -- and Jim  
18       reviewed them before I sent them on to  
19       everyone, so --

20       **MR. PRESLEY:** They look good. I went through  
21       them.

22       **MR. GRIFFON:** Okay.

23       **DR. WADE:** So remember, NIOSH and SC&A are  
24       going to have a chat on the 19th of December,  
25       and then this fine working group will meet face

1 to face in NIOSH offices in Cincinnati on the  
2 5th of January.

3 **MR. PRESLEY:** Okay.

4 **MR. WALKER:** One thing I'd like to say is that  
5 I really appreciate what you've done, and I  
6 didn't realize until just now when Wanda talked  
7 about it, but that this was being used for all  
8 the other sites in the country, and I didn't  
9 realize that it was a pilot program. I think  
10 had I understood that from day one, I might  
11 have had a little different approach in some of  
12 the things. But I really do appreciate and I  
13 can see the work and effort that you've --  
14 people put in, and I want to thank you. And  
15 I'm sure I'll pass this on to the group here at  
16 Bethlehem, let them know we'd rather had a  
17 different outcome, but that is the way it is.  
18 But --

19 **DR. WADE:** Thank you, and you've added greatly  
20 to the process. And hopefully when we -- we  
21 find ourselves in this situation again, we'll  
22 find people like you who can advise the  
23 process, so we do appreciate it.

24 **MR. WALKER:** Thank you.

25 **MR. GRIFFON:** Yeah, thanks, Ed, for your

1 participation and patience.

2 **MR. PRESLEY:** This is Bob Presley. We sure  
3 appreciate your indulgence.

4 **MR. WALKER:** Thank you for all your hard work.

5 **MR. GRIFFON:** I think we're ready to adjourn,  
6 if --

7 **MR. PRESLEY:** Well, I've got -- I've got a  
8 question.

9 **MR. GRIFFON:** Okay.

10 **MR. PRESLEY:** When we meet in Cincinnati on the  
11 5th, is there any way in the world that we can  
12 meet out at the airport? Would that -- does  
13 that make it any easier on you all or does that  
14 make a -- put a real bad hardship on...

15 **MR. GRIFFON:** The only -- the only reason I  
16 would -- would have a concern about that, Bob,  
17 is that we may have to ask them to pull data,  
18 and it's much more accessible there at the --  
19 at the NIOSH facilities -- or post cases up on  
20 -- you know.

21 **MR. PRESLEY:** Okay. I've got no problems, it's  
22 just a tremendous amount of money to get us all  
23 back and forth from the NI-- it cost me \$40 to  
24 get from NIOSH headquarters back to the airport  
25 the other day.

1           **MR. GRIFFON:** Oh, but I bet getting a  
2 conference room and stuff set up at the hotel  
3 is -- is more expensive than sitting in their  
4 conference room. I don't know --

5           **MR. PRESLEY:** All righty.

6           **DR. WADE:** Well, finances aside, I mean --

7           **MR. GRIFFON:** Yeah.

8           **DR. WADE:** -- I think the utility that Mark  
9 raises is -- is important, so --

10          **MR. GRIFFON:** And the fact that, you know, I  
11 don't know that certain personnel from NIOSH  
12 need to be in all parts of the meeting, so they  
13 can go back and get other work done and then be  
14 pulled on in certain -- for certain aspects. I  
15 think that might help Jim out, you know.

16          **MR. PRESLEY:** I just wanted to bring that up.

17          **DR. WADE:** But thank you, Robert.

18          **MS. MUNN:** This is Wanda, on a slightly  
19 facetious note, if the NIOSH people could  
20 arrange to have another pepperoni pizza feed at  
21 the time that we're there, it would be  
22 enormously helpful at lunch.

23          **DR. NETON:** We'll take that under advisement,  
24 Wanda.

25          **DR. WADE:** For those of you who voted, Larry

1 did get a pie in the face -- I think only one,  
2 I don't know, Jim --

3 **DR. NETON:** One very good one. It was more  
4 than a pie-throwing, it was pie-smearing.

5 **MS. MUNN:** Oh, that's great.

6 **DR. NETON:** And we have pictures. Maybe we can  
7 share them when you -- when you all show up.

8 **MR. GRIFFON:** Yeah, pictures will be nice.

9 **DR. WADE:** But thank you all. And Ray, we'll  
10 look forward to the transcript of this.

11 **COURT REPORTER:** Yes, sir.

12 **MR. PRESLEY:** I want to thank Mark for his work  
13 on this 'cause this looks real good.

14 **MR. GRIFFON:** And I think the end of this  
15 process went very well. I think good  
16 conversations between SC&A and NIOSH, too,  
17 moved this along well.

18 **MS. MUNN:** I haven't seen it yet, but thank  
19 you, Mark.

20 **MR. GRIFFON:** Okay. Sorry, Wanda, I -- I tried  
21 to get it done earlier this weekend. I  
22 apologize.

23 **MS. MUNN:** Well, had I been home it would have  
24 been no problem.

25 **DR. WADE:** Over my years I've interacted with

1           many FACAs and I -- you know, Mark's work is  
2           right up there at the top in terms of effort  
3           and stick-to-itiveness and quality of product.  
4           So Mark, you have -- you have blazed a trail.

5           **MR. GRIFFON:** I appreciate it. Thank you.

6           **MS. MUNN:** And most helpful to the rest of us.

7           **MR. PRESLEY:** Uh-huh.

8           **MS. MUNN:** Thank you.

9           **DR. WADE:** Thank you all.

10           (Whereupon, the teleconference concluded at  
11           11:07 a.m.)

12

13

**C E R T I F I C A T E   O F   C O U R T   R E P O R T E R****STATE OF GEORGIA****COUNTY OF FULTON**

I, Steven Ray Green, Certified Merit Court Reporter, do hereby certify that I reported and transcribed the above and foregoing from the day of Nov. 28, 2005; and it is a true and accurate transcript of the testimony captioned herein.

I further certify that I am neither kin nor counsel to any of the parties herein, nor have any interest in the cause named herein.

WITNESS my hand and official seal this the 5th day of December, 2005.

-----  
**STEVEN RAY GREEN, CCR**

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