

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

2 (10:00 a.m.)

3 MR. KATZ: Good morning to everyone
4 on the phone. If someone would just let us
5 know that you can hear.

6 MEMBER MUNN: This is Wanda. I can
7 hear you.

8 MR. KATZ: Wanda, great. Nice to
9 hear you. Good morning to you, early morning
10 to you.

11 MEMBER MUNN: Very.

12 MR. KATZ: So this is the TBD
13 6000/6001 Work Group of the Advisory Board on
14 Radiation and Worker Health, and we're getting
15 started here. We always begin with a roll
16 call, and we'll begin in the room with Board
17 members, starting with the Chair.

18 CHAIR ZIEMER: Yes, this is Paul
19 Ziemer, Chair of the Working Group.

20 MEMBER POSTON: John Poston,
21 Working Group.

22 MEMBER BEACH: Josie Beach, no

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 conflicts, Working Group.

2 MR. ALLEN: Dave Allen, NIOSH.

3 CHAIR ZIEMER: Board members?

4 MR. KATZ: And so --

5 CHAIR ZIEMER: On the phone.

6 MR. KATZ: On the phone?

7 CHAIR ZIEMER: Wanda Munn, right?

8 MEMBER MUNN: Correct.

9 MR. KATZ: And no conflict?

10 CHAIR ZIEMER: And is Mark Griffon
11 on the phone? Okay, Mark should be joining
12 us.

13 MR. KATZ: Right. I'm sure he'll
14 let us know.

15 CHAIR ZIEMER: Board members.
16 That's all of the work group members.

17 MR. KATZ: Right.

18 CHAIR ZIEMER: Any other Board
19 Members --

20 MR. KATZ: No.

21 CHAIR ZIEMER: -- that are
22 eavesdropping, listening in this morning?

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 Okay.

2 MR. KATZ: Okay, we do have a
3 quorum, and now to NIOSH/ORAU team in the
4 room.

5 DR. NETON: Jim Neton, NIOSH, no
6 conflicts.

7 MR. ALLEN: Dave Allen again,
8 NIOSH, no conflict.

9 MR. KATZ: And anyone from the
10 NIOSH/ORAU team on the phone? Okay. None.
11 None noted. The SC&A -- well, let's do SC&A
12 team in the room.

13 DR. MAURO: John Mauro, no
14 conflict.

15 DR. ANIGSTEIN: Bob Anigstein, no
16 conflict.

17 MR. KATZ: And on the line, anyone
18 from SC&A?

19 MR. THURBER: Bill Thurber, no
20 conflicts.

21 MR. KATZ: Welcome, Bill.

22 MR. OSTROW: Steve Ostrow, no

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 conflicts.

2 MR. KATZ: Okay. Can you say that
3 name again?

4 MR. OSTROW: Steve Ostrow.

5 MR. KATZ: Oh, Steve. Welcome,
6 Steve.

7 MR. OSTROW: Thank you.

8 MR. KATZ: Steve Ostrow, and now
9 other federal employees in the room?

10 MS. HOWELL: Emily Howell, HHS.

11 MR. KATZ: And on the line, any
12 NIOSH or other federal employees?

13 MR. LLOYD: Roy Lloyd, HHS.

14 MR. KATZ: Roy Lloyd, HHS. Thank
15 you.

16 MS. AL-NABULSI: Isaf Al-Nabulsi,
17 DOE.

18 MR. KATZ: Can you say your name
19 again, please?

20 MS. AL-NABULSI: Isaf Al-Nabulsi.

21 MR. KATZ: Isaf.

22 CHAIR ZIEMER: That's Isaf --

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 MR. KATZ: Isaf.

2 CHAIR ZIEMER: -- from DOE.

3 MR. KATZ: Okay.

4 CHAIR ZIEMER: Good morning, Isaf.

5 MR. KATZ: Good morning. Welcome,
6 and who have I left out? Now, going to
7 members of the public and Congress, let's
8 start with petitioners for GSI on the line.

9 MS. ADAMS: Nancy Adams, NIOSH
10 contractor.

11 CHAIR ZIEMER: Nancy.

12 MR. KATZ: Okay, Nancy. Welcome,
13 Nancy. Do we have any GSI petitioners on the
14 line? Any members of the public on the line?

15 CHAIR ZIEMER: Who want to identify
16 themselves?

17 MR. KATZ: Who want to identify
18 themselves, of course.

19 MR. RAMSPOTT: This is John
20 Ramspott with GSI.

21 MR. KATZ: John, welcome.

22 MR. RAMSPOTT: Thank you.

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 MR. DUTKO: This is John T. Dutko,
2 magnaflux operator and betatron operator, GSI.

3 MR. KATZ: Welcome, John.

4 MR. DUTKO: Thank you, sir.

5 MR. KATZ: Any other members of the
6 public who want to identify themselves or
7 representatives, staff, or representatives
8 from Congress? Okay. Then just let me remind
9 everyone on the line to mute their phones, *6
10 if you don't have a mute button, and if you
11 need to go offline, hang up and dial back in.
12 Please don't put the call on hold, and, Dr.
13 Ziemer, it's --

14 CHAIR ZIEMER: Okay. Thank you
15 very much, Ted. We'll call the meeting to
16 order. I want to take a moment and go over
17 the proposed agenda. I did distribute it to
18 members of the Work Group and to some of the
19 staff members, as well, both OCAS and the
20 Board's contractor, SC&A. I believe I sent a
21 copy of it to John Ramspott. John, did I send
22 you a copy?

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 MR. RAMSPOTT: Yes, sir, you did.
2 Thank you.

3 CHAIR ZIEMER: Yes, and I think to
4 Dr. McKeel, the other petitioner, but there
5 may be others on the line that did not receive
6 this, so let me just review where we hope to
7 go today, and we'll pace ourselves
8 accordingly.

9 We're going to begin by going
10 through the TBD 6000 findings matrix. That's
11 the overall technical basis document that is
12 the generic document under which the various
13 appendices reside, and we will -- we have
14 since our last meeting received the NIOSH
15 responses to the contractor's findings, and we
16 have also received additional comments from
17 the contractors on the NIOSH responses, so we
18 will go through those findings in the TBD 6000
19 findings matrix. And to the extent we're able
20 to, we'll try to close out some items in that
21 matrix.

22 Then we will focus on Appendix BB,

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 which is the General Steel Industries'
2 specific part of the technical basis document,
3 and there is an issues matrix for Appendix BB,
4 but, as you will recall and we'll see as we
5 get to it, almost all of the issues in the
6 matrix center on the film badge exposure data,
7 the so-called Landauer data, so we will have a
8 discussion that focuses on that data.

9 There has been some analysis by
10 SC&A, some additional input from the
11 Petitioners, and we'll have an opportunity to
12 review what we have there and comment and
13 discuss and see where we are in terms of the
14 usefulness of the film badge data and the
15 extent to which it will assist NIOSH in the
16 bounding of doses for the facility and then
17 other GSI issues that we perhaps want to
18 address also.

19 And then I'd like to take at least
20 a preliminary look at where we are on the
21 Petition Evaluation Report. This will be
22 simply a status report, I think, from our

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 contractor. They were tasked at our last
2 meeting to begin the SEC review, and, John, if
3 you --

4 DR. MAURO: For GSI.

5 CHAIR ZIEMER: For GSI on Appendix
6 -- well, not on Appendix BB specifically, but
7 the GSI petition review, and we'll just get an
8 update on sort of the timetable on where we
9 are, and I put in the agenda, preliminary
10 identification, if possible, of issues that
11 are emerging, and then, finally, we'll take
12 time to establish a timetable and path forward
13 on the open items that we have before us and
14 any assignments that we need to address before
15 a follow-up Work Group meeting.

16 My goal, as I said on the written
17 agenda, was to adjourn by 4:00. One of our
18 members has to leave, I think, by 3:30 to
19 catch a plane, so I actually will target that,
20 if possible, as an outside time for closing.

21 We're allowed to finish earlier
22 than that. We don't have to extend the

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 discussions to meet the time available, but
2 hopefully we can be efficient and try to
3 finish in a timely fashion.

4 So that's kind of an overview. We
5 are going to take a lunch break approximately
6 12:00. It will depend a little bit on where
7 we are in the discussions, and I think, since
8 we're having a somewhat later start than many
9 of our Work Group meetings, I didn't schedule
10 a mid-morning break.

11 I'm hopeful we can go two hours.
12 If the Chairman is unable to, we may take a
13 comfort break, but otherwise we'll go until
14 noon and take a lunch break for an hour.

15 Well, with that, let me ask if
16 there are any questions or comments or, any of
17 the Work Group members, are there items that
18 you wish to add to the agenda or modify?
19 Okay.

20 Wanda, if you have comments, please
21 speak up, and also let me check and see if
22 Mark Griffon has come on the line yet.

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 Apparently not. Okay. Let's proceed, then.

2 Now, on the TBD 6000 findings
3 matrix, there are several versions of the
4 matrix. There's the original version, which
5 was generated, I think, in November of 2008.
6 In fact, the date is on the document, November
7 11, 2008.

8 The NIOSH responses were added on
9 March 6, and those responses have been cleared
10 for Privacy Act purposes, so that is an open
11 document. I believe it is available to the
12 Petitioners, although this is the generic one,
13 not specific to General Steel Industries, but,
14 in any event, the document with the March 6
15 responses is cleared.

16 The Board or the Work Group
17 subsequently has received from the contractor
18 some added replies to the NIOSH responses.
19 Those added replies are dated March 9, which
20 means that they came to the Work Group on
21 Monday of this week.

22 Those have not been Privacy Act

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 cleared, but in a preliminary fashion it's at
2 least been determined that it's unlikely that
3 there is any Privacy Act information in them,
4 and the Work Group may be able to discuss
5 them, since they are simply replies to the
6 NIOSH responses, but counsel is with us and is
7 here to guide us if we go astray on any
8 privacy matters.

9 So, with those preliminary
10 comments, let's move to the TBD 6000 findings
11 matrix, and let me ask is there anyone at the
12 table here that does not have a copy? And,
13 Wanda, do you have a copy of the findings
14 matrix as I have described it?

15 MEMBER MUNN: I'm working from the
16 March 9.

17 CHAIR ZIEMER: Okay, which means
18 you have the findings, the response, and the
19 reply on each item.

20 MEMBER MUNN: Correct.

21 CHAIR ZIEMER: Right. Okay. Very
22 good. So we're all working from the same

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 sheet, and I think we'll just go through these
2 in order. There are seven items on the
3 findings list, and we also had a cover letter
4 from John Mauro, and, John, I think your cover
5 letter -- I'm trying to remember.

6 Maybe it was the email that was
7 with the transmission, and it said this. It
8 said, attached is SC&A's response to the
9 response matrix distributed by NIOSH on March
10 6 pertaining to TBD 6000. Note that SC&A
11 believes that Findings 1, 2, and 3 are
12 basically resolved. However, additional
13 discussion needed regarding 4 and 7.

14 DR. MAURO: Four through seven.

15 CHAIR ZIEMER: Four through -- four
16 through seven, and I just give that as a
17 preliminary sort of statement on your behalf,
18 John --

19 DR. MAURO: Sure.

20 CHAIR ZIEMER: -- that, at least,
21 SC&A appears to be comfortable with the first
22 three items, but let's go through them,

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 because if we are to recommend closure on
2 them, that has to be an action of the Work
3 Group.

4 So Finding Number -- SC&A Finding
5 Number 1 or Issue Number 1 -- let's identify
6 the issue and then the finding. The issue is
7 failure to discuss elevated levels of thorium
8 234, and is this protactinium-234m -- close to
9 surface of freshly cast --

10 DR. ANIGSTEIN: Oh, it got --

11 CHAIR ZIEMER: There's a word
12 missing here.

13 DR. ANIGSTEIN: It got scrolled
14 off. It was ingots.

15 MR. KATZ: Freshly cast ingots.

16 DR. ANIGSTEIN: Ingots.

17 CHAIR ZIEMER: That's right. On the
18 matrix copy the ingots is missing, but it
19 should say, surface of freshly cast ingots.

20 The finding, the TBD would benefit
21 from a discussion of the possibility and
22 potential dosimetric significance of uranium

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 metal working operations involving freshly cut
2 uranium ingots where there might be elevated
3 levels of thorium-234 and protactinium-234m
4 close to the surface of the ingot.

5 Furthermore, it is not clear from
6 the TBD whether scrap recovery at any of the
7 covered AWE sites involved melting and casting
8 of uranium. This should be investigated,
9 since it could make a significant difference
10 in the external dose reconstruction protocol.

11 And then I'm going to ask Dave
12 Allen from NIOSH, who is responsible for the
13 NIOSH responses, Dave, can you either recap or
14 describe or explain? We have the words here,
15 but -- and you can go over the words, as well.

16 I don't know that I want to read them all
17 here but basically your take on this as far as
18 NIOSH is concerned.

19 MR. ALLEN: Well, our take on that,
20 as what's in the words there, is we agree that
21 issues should be -- you know, the TBD would
22 benefit from a discussion of that, and some

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 more research needed to be done to figure out
2 exactly where that's going to go.

3 The second part of that, the scrap
4 recovery, is that the TBD was not clear as to
5 whether scrap recovery involved recasting of
6 uranium or not, and I agree that that's true,
7 too. It wasn't clear in it, but the general
8 idea of the TBD is some of these -- the jobs
9 are broken down into -- it wasn't broken down
10 into sites.

11 It was broken down into types of
12 jobs, and recasting is one of those, and scrap
13 recover is another one of those, and in some
14 cases, if they had recasting equipment, they
15 would actually take briquettes or chunks of
16 steel -- I'm sorry, chunks of uranium that
17 were cut off and recast those.

18 If a facility had recasting, they
19 would almost definitely also be doing scrap
20 recovery, and there would be both operations
21 happening in that facility, and the way the
22 TBD would be used is they had recasting. They

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 had scrap recovery. They had, you know,
2 possibly other operations, and we'd look at
3 all of those. If you can't sort it out, then
4 you pick the high one for a particular
5 facility.

6 So I think the TBD needs to be
7 clarified that the scrap recovery would not
8 include recasting as a separate operation
9 covered in there, but I think it's already in
10 the TBD essentially as multiple operations at
11 a facility. You look at all the operations in
12 the TBD.

13 DR. NETON: Refresh my memory. The
14 6000 then covers recasting. 6001 was really
15 the one where --

16 MR. ALLEN: 6001 mentions it in
17 there, yes, and as I mentioned last time, that
18 was -- when we were developing 6001, it was
19 for refining essentially for uranium compounds
20 versus 6000 is for uranium metal, and there
21 were some points where it wasn't clear where
22 the cutoff should be, especially reduction,

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 you know, which one do you put that in, and
2 this ended up in 6001. It is also in 6000, I
3 think, so --

4 DR. NETON: But did not 6001
5 address this issue of the daughters/progeny
6 rising to the surface in what we call that top
7 crop, you know, that kind of --

8 MR. ALLEN: No, it addressed
9 recasting, but it didn't mention the
10 concentration of dotters on the surface.

11 DR. NETON: Somewhere I know we've
12 covered this in one of our documents, and it
13 might have been at the uranium facility.

14 MR. ALLEN: It might have been. I
15 mean, for the most -- the primary production
16 for recasting was --

17 DR. ANIGSTEIN: I think at
18 Mallinckrodt.

19 DR. NETON: I recall having this
20 discussion before.

21 CHAIR ZIEMER: One at a time.
22 John?

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 DR. MAURO: Yes, I have the 6000,
2 let's see, the 6001, I believe. No, I have it
3 here, and I was about to quickly thumb through
4 it. Now I know Bill Thurber is on the line.
5 Bill, are you on the line? Bill Thurber?

6 CHAIR ZIEMER: You may have to
7 un-mute your phone, Bill.

8 MR. THURBER: I'm here, John.

9 DR. MAURO: Yes, hi, Bill. Do you
10 recall whether this business of the
11 thorium-234 protactinium being an elevated
12 level on the ingot recasting being an issue
13 that we raised in TBD 6001?

14 MR. THURBER: I don't believe --
15 excuse me. I don't believe so.

16 DR. MAURO: And so that was not an
17 issue.

18 MR. THURBER: I'd have to
19 double-check that.

20 DR. MAURO: Well, if you can, check
21 it while we're working. Maybe you could get
22 back to us on that, because, yes, I don't

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 recall whether it was there or not.

2 DR. NETON: Bob's right. There was
3 another point at a regular uranium facility.
4 It probably was Mallinckrodt.

5 DR. ANIGSTEIN: Yes, that's right.

6 DR. NETON: We discussed this very
7 issue, and I don't recall what the resolution
8 of that was, but certainly we could go back
9 and look at that.

10 DR. ANIGSTEIN: The Mallinckrodt
11 TBD specifically mentioned it.

12 DR. MAURO: I think that's where it
13 started, but let me bring up a point. When
14 you make mention of the recasting process as
15 perhaps may or may not be part of the TBD 6000
16 scope, quite frankly, when I was looking at
17 this, I wasn't thinking so much of recasting,
18 but when you receive an ingot or material,
19 metal, if it's freshly cast, when it arrives
20 -- now, I recall the half-life of the
21 thorium-234 being not so short.

22 DR. ANIGSTEIN: Twenty-four days.

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 DR. NETON: I think we need to
2 include it in there.

3 CHAIR ZIEMER: But I'm saying that
4 what you're saying is, yes, we'll add it so
5 that it's clear that we did consider this,
6 even though it's small, or do we know that?

7 MR. ALLEN: Yes, I mean, right now
8 it has the photon dose from surface
9 contamination, which is going to be even
10 smaller than the beta dose. It leaves out the
11 beta dose, so it's a real inconsistency in a
12 small dose.

13 CHAIR ZIEMER: Right.

14 DR. MAURO: You have to put the
15 photon but not the beta for the skin. You
16 understand. It's just -- really, when we
17 brought it up it was a completeness issue.
18 Seems to me there's one little scenario here
19 that needs to be closed out.

20 DR. NETON: I have no problem with
21 it.

22 CHAIR ZIEMER: So what would happen

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 here then is just a revision where you would
2 -- would this be a full analysis of the
3 contribution?

4 DR. NETON: Yes, the beta dose
5 would be addressed.

6 DR. MAURO: The original -- the
7 report in its current form is very convenient
8 in terms it gives -- unitized dose conversion
9 factors for various exposure scenarios, but,
10 you know, everything is normalized to some
11 unit concentration, whether it's in air or on
12 surfaces, and this would be just adding
13 another table with the unitized dose
14 conversion factors so that the dose
15 reconstructor would have that available to him
16 when implementing this particular procedure.

17 CHAIR ZIEMER: So the action item
18 here, this would then go into abeyance in a
19 similar fashion. Let's see if there's any
20 questions, though, from the Work Group on --
21 so basically NIOSH is agreeing that they would
22 add a section to address beta dose. No

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 comments or questions? Okay, so in abeyance.
2 Wanda?

3 MEMBER MUNN: In abeyance.

4 CHAIR ZIEMER: You're good. I want
5 to check again, see if Mark Griffon came on
6 the line yet. Apparently not. Okay.

7 Issue 3, called, Questions
8 Regarding Recycled Uranium. SC&A finding,
9 based on this review, we conclude that the
10 default concentrations of plutonium-239,
11 neptunium-237, and technetium-99 contained in
12 recycled uranium shipped to AWE facilities for
13 metal working as presented in TBD 6000 are
14 scientifically valid and claimant favorable.
15 However, we do not understand the reason for
16 including thorium-232 and thorium-228 in Table
17 3 of TBD 6000.

18 Furthermore, a default assumption
19 that RU was present during and after 1953 is
20 appropriate unless there is specific evidence
21 from an AWE site's own records that only
22 virgin uranium was handled there. Okay, and

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 NIOSH response is?

2 MR. ALLEN: We respond that we're
3 still tracking down the origin of that thorium
4 value. We still can't quite sort out exactly
5 where that started. As far as the rest of
6 this goes, seems the comment was that they
7 agreed with the rest of the recycled, that it
8 was -- claimant favorable.

9 They don't understand the origin of
10 the thorium, and neither do I, and it wasn't
11 clear. The last comment was that it wasn't
12 clear if the TBD's default was to include
13 recycled uranium, and I thought it was, but,
14 you know, you can have differences of opinion
15 there.

16 Section 7.1.3 in the TBD mentions
17 the other assumptions for internal dose, one
18 of which is recycled uranium, and it says that
19 -- it essentially says the default is to
20 assume recycled uranium unless you know
21 otherwise for that facility after 1953, so I
22 don't know if, you know, if that's clear

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 enough. I don't know if we're in disagreement
2 whether that piece is clear or that was
3 missed.

4 CHAIR ZIEMER: So if you found out
5 specifically that there was thorium at one of
6 these facilities, then you would handle that
7 specifically in the appendix for that facility
8 rather than here, or what?

9 MR. ALLEN: Well, I mean, as far as
10 the thorium.

11 DR. NETON: There are two issues.
12 One is what's the default for handling
13 recycled uranium in general. I think Dave has
14 suggested we believe that it's very clear in
15 our mind that it's anything after 55 is
16 recycled unless you know otherwise.

17 The second issue is why we include
18 a dose component from thorium-232 and 228 in
19 our recycled uranium calculations, and Dave is
20 saying he's not sure why that's in there,
21 either.

22 MR. ALLEN: Very small number in

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 there.

2 DR. NETON: Very small number. It
3 must -- yes, I don't know why, you know.
4 Thorium-232 has nothing to do with recycled
5 uranium, so I'm not sure why it would be in
6 there, either. We could argue it's kind of
7 favorable, I suppose.

8 DR. ANIGSTEIN: Wasn't there some
9 experiments done at Fernald at one time where
10 they were trying to have mixed thorium and
11 uranium, you know, as reactor fuel?

12 DR. NETON: I think there was
13 something like that, but I --

14 DR. ANIGSTEIN: In which case it
15 might have crept into the supply.

16 DR. NETON: None of the recycle
17 documents I've seen talk about thorium-232.

18 CHAIR ZIEMER: So we don't even
19 know where this even arose in the --

20 MR. ALLEN: I'm still trying to
21 track it down. I tracked it down like two
22 documents, but, you know, where it came from

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 for the TBD and where it came from for that
2 document, but it's like a daisy chain of
3 documents I'm tracking down.

4 CHAIR ZIEMER: Who were the authors
5 of the TBD?

6 MR. ALLEN: Battelle was this one,
7 and I got them on the phone. We don't have --

8 CHAIR ZIEMER: Oh, okay.

9 MR. ALLEN: -- any contact anymore,
10 but I've been corresponding with them a
11 little.

12 CHAIR ZIEMER: So that was during
13 that period where they were doing a number of
14 special --

15 DR. NETON: Right. All the 6000
16 series were originally drafted by Battelle.

17 MEMBER POSTON: And the only
18 thorium and uranium that I'm aware of was
19 Indian Point 1, the first core in Indian Point
20 1 with the thorium, but that fuel was
21 processed at West Valley.

22 DR. NETON: Well, I mean, worst

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 case is we remove it.

2 MR. ALLEN: Yes. In all honesty,
3 the numbers in there, it's not going to come
4 up to 1 millirem a year for any organ, I don't
5 think. I haven't actually run those numbers.

6 There's a very -- it's -- what did I write in
7 here, less than six billionths of the uranium
8 activity? It's a very small fraction. If
9 that became significant, then the uranium
10 should be more than enough compensation.

11 MEMBER MUNN: This is Wanda. In
12 considering the complex inventory, that's got
13 to be such a small figure that it would be
14 almost indistinguishable.

15 DR. MAURO: Wanda, this is John.
16 The only reason we brought it up is that we
17 were surprised to see it there and not that we
18 were making any statement that it was
19 significant by any means.

20 MEMBER MUNN: Yes, well, I can
21 understand why it would be surprising to be
22 there. Definitely.

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 CHAIR ZIEMER: At this point, the
2 only question then is whether to even leave it
3 there, I guess, or to make an additional
4 comment on it.

5 MR. ALLEN: Well, I think, you
6 know, whatever the Work Group decides, I kind
7 of want to track that down as to where it came
8 from.

9 CHAIR ZIEMER: Yes, you need --
10 yes, if there is some other basis for it, then
11 --

12 MR. ALLEN: Either way, I'm with
13 John. I was kind of surprised to see that
14 there, too, and I suspect the resolution is
15 going to be to remove that. It's trivial.

16 CHAIR ZIEMER: Yes, either way.

17 DR. NETON: Sounds like we've got
18 half of this comment addressed, so the second
19 part, which is the default assumption of
20 recycled uranium, I think John agrees that
21 it's not an issue, and the first part was
22 agreement with the value, so I don't know how

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 SC&A feels, but I'm almost going to close this
2 and take --

3 DR. MAURO: That's my
4 recommendation. You know, we just want -- we
5 weren't sure -- I guess we should have been --
6 regarding your default posture, and it sounds
7 like your default posture is exactly what we
8 thought it should be, and that issue, as far
9 as we're concerned --

10 CHAIR ZIEMER: So we are okay --

11 DR. MAURO: We're okay on that.

12 CHAIR ZIEMER: -- as far as you're
13 concerned.

14 DR. MAURO: Yes.

15 CHAIR ZIEMER: Well, NIOSH is it
16 your intent, though -- once you find out where
17 it came from, then what happens?

18 MR. ALLEN: When we find out, I
19 suspect it's going to be to delete those.

20 CHAIR ZIEMER: But it's not --

21 MR. ALLEN: We would not revise the
22 documents.

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 CHAIR ZIEMER: It's not going to
2 change anything. Is there any reason to keep
3 it in abeyance is what I'm asking.

4 MR. ALLEN: In my opinion, no.

5 CHAIR ZIEMER: Josie?

6 MEMBER BEACH: I don't believe so.

7 CHAIR ZIEMER: You want to close?
8 John, should we close it? Wanda, we're
9 talking closure.

10 MEMBER MUNN: I'd like to close the
11 item, but I don't know any process that we
12 have for tracking our follow-up to assure that
13 Battelle actually does not have some data
14 source that we have overlooked. That would be
15 my only concern is making sure that that last
16 T gets crossed. I don't know how we do that
17 once we no longer have --

18 CHAIR ZIEMER: Without leaving it
19 in abeyance?

20 MEMBER MUNN: In abeyance until we
21 can identify -- until Battelle responds to our
22 request for information, essentially.

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 CHAIR ZIEMER: Well, I guess we
2 could leave it in abeyance and just have you
3 report what you found.

4 MEMBER MUNN: Yes.

5 CHAIR ZIEMER: We could do that.

6 MEMBER MUNN: Yes, and one last
7 time look at it and say, now we know this. It
8 can be closed.

9 MR. ALLEN: I can do that, but,
10 like I said, it seems to be somewhat of a
11 daisy chain, and I can't guarantee I'm going
12 to find exactly where that came from.

13 CHAIR ZIEMER: Well, if you don't,
14 then what?

15 MR. ALLEN: Well, that's my
16 question is everybody wants --

17 CHAIR ZIEMER: Any reason not to
18 remove it?

19 MR. ALLEN: I mean, is this a T you
20 really want crossed is essentially what it
21 amounts to, or are we willing just to drop it?

22 MEMBER MUNN: Well, if the

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 originator of the data cannot provide for you
2 the basis of inclusion, then we have a basis
3 for exclusion.

4 CHAIR ZIEMER: Well, the other part
5 of that is that they're not even sure they can
6 find the originator, right? It somehow came
7 from a subcontractor who --

8 MR. ALLEN: I've got to track down
9 with a group of people that don't work for us
10 anymore.

11 CHAIR ZIEMER: Okay.

12 MR. ALLEN: Obviously, they're not
13 on our timelines.

14 CHAIR ZIEMER: Let's track it down.
15 Wanda is suggesting leave it in abeyance
16 until we -- just to hear what the final
17 outcome is, I guess, is --

18 MEMBER POSTON: That's fine.

19 CHAIR ZIEMER: That's fine. Okay.

20 MEMBER BEACH: That's fine.

21 CHAIR ZIEMER: I'm okay on that.

22 We'll leave it in abeyance just so we can find

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 out the ultimate --

2 MEMBER MUNN: Yes, I just don't
3 know of another way to make --

4 CHAIR ZIEMER: We're going to
5 consider it -- the issue is essentially
6 closed. We just --

7 MEMBER POSTON: Let's hope all of
8 them don't drop at once.

9 CHAIR ZIEMER: Okay, we can move
10 on. I think we're up to Issue 4, airborne
11 uranium concentrations recommended in the TBD
12 might not be claimant favorable.

13 SC&A finding, default airborne dust
14 loadings used in the TBD to drive external
15 exposures and inhalation exposures are based
16 on data provided in Harris and Kingsley, 1959.

17 The TBD would benefit from including a review
18 of the time-weighted daily average uranium
19 dust loadings reported in the Adley, et al.
20 Report, Study of Atmospheric Contamination in
21 the Metal Melt Building, (AEC 1952), and in
22 the site profile for Simonds Saw and Steel,

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 ORAUT-TKBS-0032 (ORAUT 2005).

2 SC&A's review of these documents
3 reveal that the bounding default time-weighted
4 average airborne uranium dust concentrations
5 recommended in the TBD might not be claimant
6 favorable. Okay, NIOSH.

7 MR. ALLEN: Okay, this is one that
8 I don't know if I understand the details on
9 it. In the report from SC&A they listed
10 Simonds Saw. It says this in this comment
11 here and the Adley document, and they list
12 several values and even mention here, I think,
13 somewhere that it may be two or three times
14 higher, or maybe I missed that.

15 DR. MAURO: That's correct.

16 MR. ALLEN: It seems like -- you
17 know, I haven't seen the numbers, but it seems
18 like it's being compared to the value in the
19 table and the TBD, but the table is the
20 geometric means of distribution.

21 There's a default GSD on those of
22 five, which puts even the 84th percentile

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 fives times in it, so the, you know, the
2 values that are two or three times that would
3 then be something less than an 84th
4 percentile. It seems like the TBD values are
5 a distribution that well covers the values
6 that you're mentioning in these other
7 documents.

8 DR. MAURO: Our concern is the
9 Adley report is a very rich source of
10 information on dust loadings and practices for
11 uranium handling facilities. The Kingsley and
12 Harris report is certainly a useful document.

13 What we did when we reviewed the
14 document was we looked at the Harris and
15 Kingsley numbers. We looked at the Adley
16 numbers, and we found that, you know, they
17 both deal with time-weighted averages, and
18 tried to characterize the range of different
19 types of airborne dust loading that you might
20 see, time-weighted averages, and we found
21 that, when we looked at these other documents
22 over and above Kingsley, there was a richness

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 of data which indicated that, to really tell
2 the story, a complete story, and to draw from
3 the wealth of information you have, you should
4 have looked at those other documents and weigh
5 that in.

6 When we looked at the other
7 documents, we walked away, saying, I could
8 have easily come away with a default
9 concentration that could have been twice as
10 high. I mean, that's how it comes out.

11 Now, you bring up some points about
12 operating off the geometric mean, the
13 geometric standard deviation, 95th percentile,
14 all of which I say, you know, that's fine, but
15 I would -- and I can't say sitting here that
16 that somehow will not do the trick.

17 What is, quite frankly, disturbing
18 is that Adley and Simonds Saw are a very
19 important source of all data for operations at
20 these types of facilities, and they certainly
21 should have been part of the milieu that you
22 drew upon in coming to the numbers you

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 selected, and I have to say, thinking back to
2 when I first looked at it, I felt that, gee, I
3 might have come away with numbers a little bit
4 higher than yours if I were picking generic
5 numbers for, you know, for the TBD.

6 MR. ALLEN: Well, I mean, the issue
7 when this was being developed was that there
8 was a number of data sources out there, and
9 the concept of trying to take all those,
10 correlate one operation with, you know, what
11 we can pick out of this report versus what we
12 can pick out of that report, and developing a
13 distribution about those things. As I
14 remember, when they found this Harris and
15 Kingsley, it was a very rich source itself.

16 DR. MAURO: It's a great report,
17 but I would say Adley is even better.

18 MR. ALLEN: And they determined
19 that if they put this generic GSD 05 on there
20 using Harris and Kingsley, they essentially
21 looked at some of the other references and
22 determined that this distribution would

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 encompass all of those, and, no, they didn't
2 do a statistical analysis.

3 You know, they were trying to avoid
4 having to do a statistical analysis and trying
5 to correlate all of this stuff together. That
6 can be done. As you mentioned, I suspect the
7 distribution is going to go down, because we
8 haven't found anything that's really above
9 even the 84th percentile on those
10 distributions right now, but I haven't looked
11 at each and every document, or all the
12 sources.

13 DR. MAURO: I think Adley should be
14 one of the rocks you stand on. In other
15 words, when dealing with AWE facilities, I
16 tried to get an appreciation of how airborne
17 activity behaved to produce settled levels for
18 different operations.

19 It is truly an amazing document,
20 and we came across it in the past. I forget
21 under what circumstances, but it's been around
22 for quite some time, and I think that TBD

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 6000, prior to TBD 6000, without bringing
2 Adley into the picture, and perhaps also
3 Simonds Saw, seems to be a significant
4 deficiency.

5 DR. NETON: Okay. It sounds to me
6 like we ought to at least review the Adley
7 document, compare our numbers that were
8 generated against Adley, make some reference
9 to the fact that we've done that if, indeed,
10 our numbers appear to be significantly
11 bounding given what we've done, but you're
12 right.

13 I mean Adley is a very, you know,
14 well researched compendium. Refresh my
15 memory, though. Is Adley the one that was
16 specific for just the Hanford facilities?

17 DR. MAURO: Right. It was a --

18 DR. NETON: That was my concern.
19 Was it one facility, one building, very
20 controlled circumstances? You start using
21 that and saying, okay, this is essentially
22 surrogate data that's going to be used

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 complex-wide. Then you raise the questions
2 about ventilation rates and all these other
3 issues, and I think to hang our analyses on
4 just that one document might be a little bit
5 too narrow.

6 DR. MAURO: Oh, I didn't say
7 should. I'm saying that given the stature in
8 terms of -- you saw the work they did in
9 there. It was -- I was -- when I read that, I
10 said -- because they looked at every different
11 aspect of operation.

12 DR. NETON: That's true, I mean,
13 but the Kingsley Harris one was more of a
14 survey of different operations. So you've got
15 -- you've got sort of a sampling of the
16 complex versus a single facility that was
17 under controlled environment.

18 DR. MAURO: We critiqued. I mean,
19 we're looking at the matrix, but we do have
20 some concerns with Kingsley and Harris,
21 because it represents at least seven
22 facilities where they went in on one day at

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 one facility and pulled some samples, so it's
2 a very, very small snapshot, so in itself, it
3 suffers from that.

4 Bringing Adley in and bringing
5 Simonds Saw in starts to build a foundation
6 that's saying, now we've got some data. You
7 know, right now Harris alone is very thin.

8 DR. NETON: It's thin, but I think
9 that's why they ended up with GSD 05 to just
10 sort of account for that, and then possibly my
11 thinking would be maybe use the Adley and the
12 other documents as sort of --

13 DR. MAURO: To reinforce?

14 DR. NETON: Not necessarily
15 validation, but checks, that sort of thing.

16 DR. MAURO: You see, to me, the way
17 I see it is, okay, you've got -- let's say you
18 want to stay with Adley as your base, but then
19 you test it, say, okay, but wait a minute. We
20 have this great study done by Adley. We've
21 got this great work done at Simonds Saw, which
22 -- and we're talking about the same periods,

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 you know, late 1940s, early 50s. Let's test
2 Adley. I'm sorry. Let's test Kingsley.

3 DR. NETON: Kingsley, yes.

4 DR. MAURO: Let's test Kingsley
5 against it and see how it holds up.

6 DR. NETON: That's what Dave is
7 suggesting. I mean, the 84th percentile is
8 well above anything that's reported here.

9 DR. MAURO: Yes, and I think that's
10 all we're looking for.

11 DR. NETON: I think that's fine.

12 DR. MAURO: Especially given the
13 thinness of Kingsley.

14 DR. NETON: I think, to close the
15 loop, I don't think we have a problem.

16 MEMBER POSTON: The scientific
17 method says you use everything, so even if
18 they think the estimates are conservative,
19 that's fine.

20 CHAIR ZIEMER: So you're just
21 saying, demonstrate that that's the case.

22 DR. MAURO: Holds up.

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 CHAIR ZIEMER: And it holds up.
2 Did the GSD 05 emerge arbitrarily from just
3 looking at the data and its own -- was that
4 the actual GSD from all their data sets?

5 MR. ALLEN: No, it wasn't the
6 actual GSD. It came from Battelle-TIB-5000,
7 and it was essentially a generic GSD for
8 general air samples or --

9 CHAIR ZIEMER: That's a pretty big
10 spread.

11 MR. ALLEN: I can't remember.

12 CHAIR ZIEMER: And it's very hard
13 to say that that's almost always claimant
14 favorable. That really --

15 DR. NETON: Well, the answer's in
16 there somewhere.

17 CHAIR ZIEMER: Well, I mean --

18 DR. NETON: That's the basis. I
19 mean, that's --

20 CHAIR ZIEMER: Right.

21 DR. NETON: It has been shown to
22 cover that kind of rate. Particularly, it

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 sounds enormous, but if you start with some
2 very small numbers, it doesn't take much to
3 get, you know, to five.

4 DR. MAURO: Let's talk a little bit
5 more. I think that there's some philosophy
6 strategy. In other words, when you've got
7 these different operations, there are a lot of
8 different types of operations that take place
9 in these metal handling facilities, some of
10 which, the dust loadings like at the furnace
11 where they have -- there are certain
12 operations that we know from Bethlehem Steel,
13 the Roller Number 1, the famous Roller Number
14 1, where the levels are very -- could be very
15 high for prolonged period of times.

16 Now, the idea that you would have
17 -- let's say, you know, you grab a work
18 category, and it sounds like I have to go back
19 and look, and you assign a GSD 05. To me, you
20 know, if it turns out that that's a way of
21 saying, well, it's got such a big GSD, that
22 takes care of all ills, I have to say my sense

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 is that doesn't really solve the problem,
2 because if you're saying --

3 Is it possible that what we really
4 have here is some -- because you're going to
5 apply this to a real person, and somehow your
6 sense is, well, because we're using a GSD 05,
7 we are being claimant favorable for that
8 person.

9 What happens if that person's
10 reality of his work situation was he was up in
11 the upper 85 percentile, 95 percentile his
12 whole working career? Does that GSD 05 assure
13 him that you're being claimant favorable? So
14 I've always had trouble with the use of a very
15 large spread as being, you know, a way to deal
16 with the problem. It's almost a little too
17 easy.

18 DR. NETON: Our opinion accounts
19 for the uncertainty in our knowledge base.
20 That's what this whole Monte Carlo program
21 does. It's based on that --

22 DR. MAURO: I would agree with that

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 if you felt you had a guy who -- see, I would
2 have -- see, we've been down this road, but I
3 think it's worth repeating, because it's a way
4 of thinking about the problem.

5 If you know you had a guy whose job
6 was he was a supervisor and he roamed around
7 the building, and he experienced a
8 cross-section, and you don't know how much he
9 -- you know, then you, you know, you know he
10 had sort of an essential tendency, but it
11 could have been out there.

12 But if you don't know that, and you
13 say, gee, he could have been working anywhere.

14 For all we know, he could have been working
15 in the worst possible place, I don't -- to me,
16 then, that one-size-fits-all, that's when it
17 starts to fall apart, because if either you
18 know the person worked in a bad place, or you
19 don't know that he did, and we ran into this
20 before, and I think that --

21 I know how we resolved it on
22 Bethlehem Steel, and we liked the way it was

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 resolved. In other words, you ended up
2 sighing, well listen, we don't know where this
3 guy worked, so what we're going to do is we're
4 going to -- since we don't know, we're going
5 to put him in the worst place, and assign to
6 him that 1,000 MAC or whatever the number was,
7 600 MAC.

8 So anyway, but this does play on --
9 the philosophy plays out here, because when
10 you look at your default value, which this is
11 intended to be, you know, this is going to be
12 a one-size-fits-all by compartment, but you
13 know, the fact that you would assign a GSD 05,
14 whether or not that holds up well when you
15 start to weigh it against the kinds of numbers
16 that come back from Adley, I'd be very
17 interested in seeing.

18 DR. NETON: That's fair, I mean, we
19 already do that, but you know, I think we have
20 to go with our best estimate. I mean, the law
21 requires us to do a reasonable estimate versus
22 dose, and the reasonable estimate is the best

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 estimate with the uncertainty associated with
2 it, in my opinion. We've been down this
3 before.

4 DR. MAURO: I know.

5 DR. NETON: We're sort of getting
6 into a sort of different issue here, and it's
7 not relevant to this comment. I mean, it's a
8 real issue, and it needs to be properly
9 addressed, but maybe in another forum.

10 CHAIR ZIEMER: Right, because all
11 of your methodologies, whether it's for the
12 internal or even the external, you always have
13 an outside chance that there could be somebody
14 who you will miss.

15 DR. NETON: Yes, I mean, frankly,
16 even if you pick the 95th percentile, you're
17 taking a five percent chance that you --

18 DR. MAURO: The reason why I'm okay
19 -- even with the end where we're talking
20 external, why I always was comfortable, you've
21 got a thousand workers working in your plant,
22 and you have a distribution of numbers, and

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 you decide, well, we're going to assign the
2 95th percentile for this guy in this year.

3 Well, reality is you're right. For
4 that year, it's possible there's a five
5 percent chance that his dose for that year
6 might be higher, if you don't know any better,
7 but I'm comfortable with the idea that, well,
8 wait a minute. You're going to assign the
9 95th percentile for your number one, your
10 number two, your number three.

11 Now, I am convinced. We know now
12 that the likelihood that this guy is going to
13 be hit with the 95th percentile year after
14 year after year after year. Things get kind
15 of slim. Now I'm convinced that you just
16 placed an upper bound. It really is
17 unreasonable to think it could be higher, so
18 that's why, you know, to me the philosophy
19 that you've embraced for external exposure is
20 truly bounding.

21 Now but that philosophy doesn't
22 seem to be carrying over when it comes to

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 internal exposure. You've taken a different
2 tack, and I believe the reason you've taken
3 that tack is because you're talking about an
4 integrated exposure, and that the people that
5 were selected for --

6 Well, in other words, to this day
7 we've been having this conversation, you know,
8 why -- the rationale for taking a different
9 tack for internal versus external, and it does
10 bear out here. Here's a place where the
11 rubber meets the road, so that when you start
12 to, let's say, take a closer look at TBD 6000
13 in light of these other sources of data, I
14 think it's also important to be thinking in
15 terms of the subject of, you know, how do you
16 come out of a problem like this, and right now
17 I do think we have a difference of opinion on
18 how to come out of this kind of problem.

19 CHAIR ZIEMER: But isn't it still
20 integrated? You're still looking -- you're
21 taking the dose commitment for this year, and
22 the next year, and the next year, and the next

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 year.

2 DR. MAURO: The full distribution,
3 right. In other words, for this year, here's
4 the intake we're going to assign, and here's
5 the distribution for this year, and it's the
6 full distribution, right, and then the next
7 year, the full distribution. See I would
8 claim -- I would argue that's claimant
9 neutral.

10 DR. NETON: I don't see that as a
11 comment in this review.

12 DR. MAURO: No, it's not here. No,
13 it's not here. I apologize for that, but,
14 right, let's keep it here as far as we're
15 concerned.

16 CHAIR ZIEMER: That's sort of
17 underlying your concern, is what you're
18 saying.

19 DR. MAURO: That's part of it, yes.
20 That's part of it. Well, and we don't have
21 to engage it here, but I do think we see this
22 time and again, and I think it does come out

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 in the TBD that you had mentioned, the 050 or
2 the --

3 MR. ALLEN: TIB-5000.

4 DR. MAURO: TIB-5000, yes, so maybe
5 that's where it should be, but right now as
6 far as we're concerned, for TBD 6000, our only
7 concern is that Adley and Simonds Saw, the
8 data be factored in for all values.

9 DR. NETON: And we've agreed.

10 DR. MAURO: And that's enough, yes.

11 CHAIR ZIEMER: So the action will
12 be for NIOSH to review the Adley document,
13 compare it to the Harris and Kingsley and the
14 Simonds Saw data, and validate that your
15 approach with the Harris and Kingsley data
16 either is encompassing or not B-

17 DR. NETON: Bounding.

18 CHAIR ZIEMER: -- or bounding.

19 Okay, so B-

20 MEMBER BEACH: Is that going to be
21 a white paper, or just a simple paragraph, or
22 how's --

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 CHAIR ZIEMER: Do we know what form
2 that will take at this point?

3 MR. ALLEN: I guess the form is
4 whatever you would like to see. I'm thinking
5 white paper right now, if you just want to see
6 an evaluation of these.

7 CHAIR ZIEMER: You're going to have
8 some sort of analysis, which will be the basis
9 of response to the reply, I guess.

10 DR. NETON: Yes.

11 CHAIR ZIEMER: So it sounds like a
12 white paper or a report.

13 DR. NETON: Eventually that --
14 pieces of that white paper would more than
15 likely be incorporated into this TBD --

16 CHAIR ZIEMER: Right.

17 DR. NETON: -- because we've done
18 the work. We may as well take credit for it
19 in the document, but I think it's best to
20 flesh it out as a white paper first.

21 CHAIR ZIEMER: Right. So this, in
22 our categorical scheme, this continues as --

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 what's the proper term for --

2 DR. MAURO: It's open.

3 CHAIR ZIEMER: It's open.

4 DR. MAURO: Open and active.

5 CHAIR ZIEMER: So it stays open.

6 DR. MAURO: Open and active, yes.

7 CHAIR ZIEMER: Wanda, any comments
8 on this?

9 MEMBER MUNN: No, I think you're on
10 the right track.

11 CHAIR ZIEMER: Mark, did you come
12 aboard yet?

13 MEMBER GRIFFON: I did. I've been
14 listening in, Paul.

15 CHAIR ZIEMER: Okay.

16 MEMBER GRIFFON: I'm just catching
17 up here.

18 CHAIR ZIEMER: You figured out
19 we're on Issue 4?

20 MEMBER GRIFFON: Yes.

21 CHAIR ZIEMER: Okay. Any comments
22 on that?

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 MEMBER GRIFFON: Not yet, no. No.

2 CHAIR ZIEMER: Okay. Very good.

3 MEMBER GRIFFON: Don covered mine,
4 I think. Thank you.

5 CHAIR ZIEMER: Yes, we're going to
6 keep this one open, then. NIOSH is going to
7 do a white paper to address the concern there.
8 Okay.

9 MEMBER POSTON: We haven't resolved
10 any of them yet.

11 DR. NETON: Half of Number 3.

12 MR. ALLEN: I tried to close 3.

13 CHAIR ZIEMER: Well, in abeyance is
14 -- in abeyance is making progress, right.
15 Okay. Number -- Issue Number 5, concerns with
16 method used to derive surface contamination
17 and associated external doses. This is a long
18 finding.

19 SC&A has several concerns with the
20 method used to derive the surface
21 contamination and associated external doses in
22 Table 6.4 of the TBD. I'm going to stop here

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 for a minute. Do I need to read the whole
2 thing or --

3 DR. MAURO: Not for me.

4 CHAIR ZIEMER: I think all the
5 members have read it and have copies of it, so
6 basically the concerns are delineated here and
7 a suggestion on what the TBD should consider,
8 empirical data regarding surface
9 contamination. So NIOSH response?

10 MR. ALLEN: Well, like you said,
11 that's a long one. There's actually a couple
12 different issues in there.

13 CHAIR ZIEMER: Right.

14 MR. ALLEN: Essentially it amounts
15 to a disagreement on how we determine surface
16 contamination and what we use that for. One
17 issue is that it's not just deposition.
18 There's large flakes that are created during
19 production, especially hot work on uranium
20 that can be on the floor.

21 From everything we've seen, those
22 tend to get ground up fairly quickly under

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 foot traffic, fork truck traffic, et cetera,
2 and become re-suspendable, and those are part
3 of the airborne that's in the plant once they
4 become re-suspendable.

5 It's been our contention all along
6 that the re-suspendable surface contamination
7 is linked to the airborne whether that is --
8 whether that's purely settling out, or whether
9 that's large flakes that are ground up and
10 become part of the airborne through re-
11 suspension, there's a connection between the
12 two.

13 The very idea of using a re-
14 suspension factor also says that. That re-
15 suspension factor is just a factor that you
16 multiply the surface contamination by to
17 arrive at how much airborne would be in the
18 air from that surface contamination.

19 Between that, removal rates,
20 there's quite a bit of literature that
21 basically says, you know, at least as an
22 approximation you can connect those two, and

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 it seems that the comment pretty much is --
2 I'm not sure if this comment is you don't
3 believe you can connect the two, or if you
4 believe the way we connected the two is not
5 accurate.

6 DR. MAURO: Let me -- let me try to
7 capture it. The fundamental problem is the
8 idea that you start off with -- I mean,
9 there's some history here.

10 There was a time when the strategy
11 that NIOSH adopted was, listen, we have some
12 idea of what the airborne dust loading is of
13 these 5 micron particles, and we're going to
14 use that for inhalation. Okay, and we also
15 are going to operate from the premise that,
16 okay, it is that very same airborne dust
17 loading, with these 5 micron AMAD particles
18 that is going to be chronically in the air and
19 is chronically settling, and we know what the
20 settling velocity is.

21 And so, in theory, one could argue,
22 well, we could figure out, make some

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 assumption how long is that settling going to
2 go on. Is it going to go on for a week, a
3 day, a year, and assume some buildup on the
4 surface, and that's the way in which the
5 buildup levels on surfaces were derived.

6 Now if you go back to the history,
7 you'll find that different time periods are
8 assumed. I think in this one you assumed --
9 in this particular place, you assumed that
10 buildup took place for seven days, but you
11 assumed it was 100 MAC, so in other words,
12 that's the strategy that was done here.

13 In other settings, different
14 approaches were used, but the idea that your
15 starting point is the sum concentration in the
16 air, and then you multiply by a deposition
17 velocity that's occurring for some time
18 period, is a recurring approach. The actual
19 time periods, the actual starting
20 concentrations in the air differ, we've seen,
21 in different settings.

22 Now we found that -- well, first of

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 all, that basic understanding, we don't agree
2 with. We think that what's on the ground is
3 what's important, and to say that it got there
4 based on some deposition velocity from the
5 airborne particles is not the way to get to
6 what's on the surface.

7 We believe, especially in TBD 6000,
8 there is lots and lots of literature out
9 there. What is on the ground? How much --
10 how many, you know, Becquerels per meter
11 squared has accumulated on surfaces in these
12 old AWE facilities? The data are out there.

13 In fact, there's a great piece of
14 work done, again, in Adley, which B- where
15 they put plates out all over the plant, and
16 they allowed the airborne radioactivity to
17 accumulate on it. However they got there,
18 they don't care.

19 They put the plate out on the
20 ground, sitting there. It could have come
21 from settling. It could have come from chunks
22 falling off. They had it all over. They had

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 several of them. I think they had about 15 of
2 them.

3 And at the end of 100 days, they
4 said, how much has fallen? And they came up
5 with a deposition rate, okay? They said,
6 empirically, we have some good information on
7 the number of grams per second per meter
8 squared that's coming down and depositing on
9 surfaces.

10 Now when we looked at that data, we
11 said, okay, here's some real empirical data
12 under a pretty messy site, old site, doing all
13 the kinds of things that they do at AWE
14 facilities.

15 That was the purpose of TBD 6000,
16 and we found that the default value you ended
17 up with, in terms of Becquerels per meter
18 square, that the number you picked based on
19 your model, would accumulate under the Adley
20 approach in three days.

21 In other words, given the Adley
22 rate, in three days, you would get to the

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 point where you have the numbers here. So
2 it's almost like, quite frankly, I mean, I
3 have a concern about this deposition for the
4 .0075 thing, but you know, that's like a
5 philosophical problem. I say, let's put that
6 aside for a minute.

7 What you did is you took that
8 deposition rate, you assumed 100 MAC, which is
9 an enormous number, you allowed the stuff to
10 settle for seven days, and you got a number on
11 the surface. Let's take -- you know, all I
12 really care about is what's the number you got
13 on the surface, and does it make sense in
14 light of empirical data that's out there?

15 And my answer is, well, it doesn't
16 hold up very well when you compare it to the
17 empirical data that's out there from the Adley
18 report, because all it took was three days of
19 such deposition occurring in the Hanford melt
20 facility, and you would have achieved to reach
21 that, and so I say that you are not being
22 claimant favorable.

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 CHAIR ZIEMER: Was that three days,
2 and then it's equilibrium?

3 DR. MAURO: And then they stop it
4 there, right. In three days -- in other
5 words, if that -- in other words, if you start
6 it up, three days later at the Hanford metal
7 melt facility, you would have the Becquerels
8 per meter squared that's your default value
9 used in TBD 6000.

10 CHAIR ZIEMER: Okay, but what was
11 the 100-day business?

12 DR. MAURO: No. Oh, the 100-day is
13 the -- wait. All I was saying is that when
14 you go back historically to -- I'm sorry. The
15 100-day period was a time period, I believe,
16 that they left their plates out. There was --
17 all they did in --

18 CHAIR ZIEMER: Okay, but were they
19 -- were they checking them every --

20 DR. MAURO: No, they just allowed
21 them to accumulate. They got the total
22 amount, integrated amount accumulated at the

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 end of that time period.

2 DR. ANIGSTEIN: John, can I?

3 DR. MAURO: Sure.

4 DR. ANIGSTEIN: What you're saying
5 is that the TBD 6000 default value was three
6 percent of the Adley data.

7 DR. MAURO: No. No. What I'm
8 saying is the --

9 DR. ANIGSTEIN: Well, you said
10 three days. You said --

11 DR. MAURO: Yes.

12 DR. ANIGSTEIN: How did you get
13 your three days? I'm confused.

14 DR. MAURO: I'm not making myself
15 clear. Again, picture the Adley facility --

16 DR. ANIGSTEIN: Okay.

17 DR. MAURO: -- where they have all
18 these plates sitting around.

19 DR. ANIGSTEIN: Right.

20 DR. MAURO: And there were
21 different places, some places where there was
22 a lot of airborne dust, a lot of activity, and

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 other places where there was very little.

2 DR. ANIGSTEIN: Right.

3 DR. MAURO: So there's a nice
4 table. I might have even put it in my report,
5 and they let them sit there, and I believe it
6 was for about 100 days. It was a protracted
7 period of time.

8 DR. ANIGSTEIN: Okay, but those
9 don't get re-suspended.

10 DR. MAURO: No, no. Those are just
11 sitting there. Whatever is happening there is
12 happening there.

13 DR. ANIGSTEIN: Right.

14 DR. MAURO: And at the end of that
15 time period, they grabbed the plate, and they
16 analyzed, okay, what's on the plate?

17 DR. ANIGSTEIN: Right.

18 DR. MAURO: And they got number of
19 Becquerels per meter squared, and that's the
20 amount that accumulated by that, after that
21 time period. So now we have Becquerels per
22 meter squared. That's real. That's what

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 they're seeing.

2 Now I compared that Becquerel, and
3 now, they didn't -- and what they did with
4 that, they said, okay, what does this mean in
5 terms of the rate in Becquerels per second per
6 meter squared that's coming down?

7 In other words, so they were not so
8 much interested in what they saw at the end of
9 that time period, because you could have
10 picked any time period. What they were really
11 interested in, what rate of deposition during
12 operation would have to have occurred to
13 result in this much activity on the surface at
14 the end of 100 days?

15 DR. ANIGSTEIN: Okay. Did they
16 assume --?

17 DR. MAURO: So it was a --

18 DR. ANIGSTEIN: Did they assume
19 constant? Did they --

20 DR. MAURO: They averaged it.

21 CHAIR ZIEMER: You'd have to have
22 an average.

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 DR. MAURO: They averaged.

2 DR. ANIGSTEIN: No, no, but I mean,
3 did they assume constant?

4 DR. MAURO: No.

5 DR. ANIGSTEIN: For 100 days?

6 DR. MAURO: They just said that, at
7 the end of 100 days --

8 DR. ANIGSTEIN: I know. So did
9 they -- how did they get a rate?

10 CHAIR ZIEMER: You'll have to get a
11 -- you have to assume it's constant to get a
12 rate.

13 DR. ANIGSTEIN: How did they get a
14 rate?

15 DR. MAURO: They said, it
16 effectively means that the rate is these many
17 Becquerels per second per meter squared.

18 DR. ANIGSTEIN: That's assuming
19 that it's constant --

20 DR. MAURO: Assuming that it's
21 constant, right.

22 DR. ANIGSTEIN: -- for 100 days.

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 DR. MAURO: The reality is it's not
2 probably constant.

3 CHAIR ZIEMER: No, but they
4 averaged it out.

5 DR. ANIGSTEIN: But I'm saying --

6 DR. MAURO: Yes.

7 DR. ANIGSTEIN: But I'm saying, it
8 wasn't like some exponential factor where it
9 gets re-suspended again from those plates.

10 DR. MAURO: No, they didn't do
11 that. They --

12 DR. ANIGSTEIN: So it's linear.

13 DR. MAURO: It's linear. It's pure
14 linear, right?

15 DR. ANIGSTEIN: Okay, fine.

16 DR. MAURO: It's a very simple
17 model.

18 DR. ANIGSTEIN: So then you do mean
19 that it's -- when you say three days' worth,
20 you do mean three percent.

21 DR. MAURO: So --

22 CHAIR ZIEMER: The surface

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 contamination elsewhere, where it's re-
2 suspended, has got to be about three percent
3 of the --

4 DR. MAURO: Well, no. No. All I'm
5 saying -- don't let's talk about re-suspension
6 right now.

7 CHAIR ZIEMER: Oh, okay.

8 DR. MAURO: Let's just simply say
9 that, when you look at the Adley data, you
10 find out what the rate of deposition is.
11 That's basically all it gives you. How many
12 Becquerels per meter squared per second is the
13 average rate at which uranium is falling out
14 onto surfaces.

15 CHAIR ZIEMER: No, I follow that.
16 My question is, how did they get the three
17 days to equilibrium where re-suspension is
18 occurring?

19 DR. MAURO: They didn't --

20 DR. ANIGSTEIN: I think you mean
21 three percent of what's on there.

22 DR. MAURO: No. Well, maybe that's

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 what -- all I'm saying is that --

2 CHAIR ZIEMER: Well, if they said
3 it reached equilibrium after three days --

4 DR. MAURO: No, no. You're -- the
5 number they have that they are using as a
6 default value is the amount that would have
7 accumulated at the Adley plant in three days.

8 In other words --

9 CHAIR ZIEMER: Oh, I thought you
10 were saying that the Adley report was claiming
11 that they reached equilibrium in three days.

12 DR. MAURO: No.

13 CHAIR ZIEMER: No.

14 DR. MAURO: No, they did not, no.
15 The Adley report, they just put it out -- for
16 all intents and purposes, they would have left
17 it out there longer, and then they would have
18 more activity, and longer. They would have
19 more. They stopped at a certain --

20 CHAIR ZIEMER: No, I'm not talking
21 about equilibrium on these collection plates.

22 I'm talking about the work area where it's

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 re-suspending.

2 DR. MAURO: Right. They didn't
3 make a distinction between B- all they did was
4 put plates out, and all I'm really saying is,
5 well, in effect, what the Adley report shows
6 us is that the numbers -- that there is a
7 certain rate at which uranium deposits out in
8 Becquerels per meter squared per second, per
9 day, whatever you --

10 CHAIR ZIEMER: And therefore, this
11 is the air concentration you would need.

12 DR. MAURO: Well not so much the
13 air, but this is the rate in the working
14 environment. Now, it depended on where you
15 were in the building.

16 CHAIR ZIEMER: Right.

17 DR. MAURO: I mean, there are a lot
18 of different places in the building.

19 DR. NETON: It would depend on air
20 concentration, right?

21 DR. MAURO: Yes, there's a rate at
22 which it's coming down. This is the number of

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 Becquerels. Now how it got there, they didn't
2 discuss that. They said, this is what's on
3 the plate at the end of this time period.

4 CHAIR ZIEMER: Well, it's probably
5 linked to the air concentration.

6 DR. MAURO: No, no. It could have
7 been guys walking around kicking stuff, re-
8 suspending it.

9 CHAIR ZIEMER: That's right. That
10 is air concentration.

11 DR. MAURO: But it's not -- you
12 know, it could have been the original stuff
13 that was produced while you were grinding, or
14 it could have been stuff that was on the
15 ground and kicked up again.

16 DR. NETON: But the higher the air
17 concentration, the higher this number,
18 Becquerels per meter squared per second.

19 DR. MAURO: Yes. Yes, but the
20 number --

21 DR. NETON: Directly related to --

22 DR. MAURO: But the important point

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 is this, and here's the question you have to
2 ask yourself. The number that you ended up
3 with in your report is a certain number of
4 Becquerels per meter squared as being, this is
5 the equilibrium value we're going to use for
6 the purpose of doing external exposure
7 associated with deposited activity, and also
8 re-suspension, which we'll talk about
9 separately. This is your starting point.
10 Here's what's on the ground.

11 Now what I'm saying is, if you were
12 at the Adley plant, and you started up
13 operation, and you started this activity, in
14 three days of operation, that's the amount of
15 radioactivity you'd have on the ground, the
16 amount that you folks have selected. Okay.

17 In other words, if you allowed that
18 operation to go for another, let's say, for
19 100 days, you would have 30 times more. In
20 other words, so what I'm saying is it's not
21 claimant favorable.

22 Three days of accumulation is the

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 number you would get if you accept the Adley
2 data as being a reasonable way to predict the
3 rate at which uranium deposits on surfaces,
4 and if you accept that as being a reasonable
5 characterization of the rate at which uranium
6 deposited on surfaces in uranium metal
7 handling facilities, then the implication
8 being that your default value of Becquerels
9 per meter squared would have occurred, would
10 accumulate in three days.

11 That's all it takes, three days'
12 worth of operation, and that's how much you
13 would have accumulated. That doesn't seem to
14 be claimant favorable. Is that clear? I
15 mean, did I make it --

16 CHAIR ZIEMER: I think I know what
17 you're saying, but it's not obvious to me,
18 because when you're putting the plates out,
19 you're not measuring surface contamination.

20 DR. MAURO: Sure you are.

21 CHAIR ZIEMER: No you aren't.
22 Surface contamination is what's there. If I

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 go -- if I understand it --

2 DR. MAURO: Yes.

3 CHAIR ZIEMER: -- on a working
4 surface, you've got stuff airborne, so the
5 surface contamination in a work area has got
6 to be lower, because a lot of it's up in the
7 air, than a static plate laying -- that's been
8 sitting there.

9 DR. MAURO: No, the plate was put
10 where people were working. In other words,
11 there was a guy -- in other words, they were
12 all over the place.

13 CHAIR ZIEMER: Yes, but --

14 DR. MAURO: They put them down, and
15 that's what so --

16 CHAIR ZIEMER: But the activity on
17 that plate is not being disturbed like the
18 activity on the work surface. That's what I'm
19 --

20 DR. MAURO: That's true.

21 CHAIR ZIEMER: It's not subject to
22 the re-suspension.

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 DR. MAURO: That's true.

2 CHAIR ZIEMER: So in my mind, and I
3 don't know what the number is, but say it's
4 three days, say it's 50 days --

5 DR. MAURO: Okay.

6 CHAIR ZIEMER: -- in the working
7 area, the activity which is not airborne or
8 not re-suspended is -- if I took a smear and
9 got activity per unit area, I get a number
10 which I think is going to be different than a
11 tray or whatever it is that's sitting here,
12 not subject to re-suspension, that's just been
13 letting things settle down on it undisturbed
14 for whatever, whether it's three days or 50,
15 and that's why I was --

16 DR. MAURO: All right.

17 CHAIR ZIEMER: -- getting at the --
18 I think, Bob, you were thinking along that
19 line is --

20 DR. MAURO: Okay.

21 CHAIR ZIEMER: -- in other words,
22 is the surface contamination, and I don't

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 think we know that, for example, 30 times less
2 at a given time than activity in the tray, or
3 half as much or whatever.

4 DR. MAURO: Fair enough. Fair
5 enough.

6 CHAIR ZIEMER: So I'm trying to
7 think about --

8 DR. MAURO: Fair enough. Fair
9 enough. The exact analogy is not there.
10 You're saying that, because they're a plate,
11 by definition, they're not going to be
12 impacted in the same way that a true surface
13 is where there are people walking around that
14 could cause --

15 CHAIR ZIEMER: Right. In fact, if
16 the people weren't walking around, that thing
17 is going to -- itself can be equilibrium, or
18 is going to --

19 DR. MAURO: No, no, no. It's
20 accumulating for -- everything is --

21 CHAIR ZIEMER: No, no, I mean, as
22 long as there's airborne contamination and

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 there's processes going on and people stirring
2 things up, but if you just went in and
3 operated three days and stopped --

4 DR. MAURO: Yes.

5 CHAIR ZIEMER: That would be very
6 different, but here you're going to continue
7 to play it out on that. I don't know. Let
8 the others think about this. John, what do
9 you think about the --

10 MEMBER POSTON: Well, I was about
11 to ask if you know details about the plate,
12 because, you know, a lot of places use fallout
13 trays that have sticky surfaces. There was no
14 way it could reach the --

15 DR. MAURO: Yes, in fact, we
16 described the plate dimensions and how they
17 used it, and it was totally done for the
18 purpose of seeing how much stuff is falling,
19 the rate at which material is coming down. It
20 wasn't --

21 CHAIR ZIEMER: Now, you might get
22 some re-suspension from air currents, I grant

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 you that, but the bit stuff is not going to be
2 ground up and --

3 DR. MAURO: You're right. So in
4 other words, what you're saying is it might be
5 biased high. It might be biased high.

6 CHAIR ZIEMER: I don't know.

7 DR. MAURO: The plates might be
8 biased high, because what happens is its --

9 CHAIR ZIEMER: The heavy stuff will
10 stay put.

11 DR. MAURO: It's accumulating
12 stuff, because things are being re-suspended.

13 CHAIR ZIEMER: Right.

14 DR. MAURO: But it's not losing
15 stuff, because things are --

16 CHAIR ZIEMER: The heavy stuff's
17 not getting ground up.

18 DR. MAURO: So I would agree that
19 that would be a -- the plates may very well be
20 biased high, and I guess the best way to look
21 at it is to the extent that we looked into
22 this matter, I again drew upon measured

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 CHAIR ZIEMER: Okay, so we've got --
2 so NIOSH will be needing to follow up on
3 additional records there. Now, realizing that
4 the AEC 4 forms in general are kept by
5 employers, as opposed to, for example, the
6 Landauer film badge records kept by the vendor,
7 but do we -- you have the individual files of
8 the workers or claimants, or do you know
9 whether AEC 4 forms are available on any other
10 workers?

11 DR. NETON: That's a good question.
12 I don't know. I have not run across any in my
13 searches of these forms, but, you know, it may
14 be -- I mean, those don't go into the
15 individual exposure record files. They're
16 merely sort of a entry card, if you will,
17 although they probably --

18 CHAIR ZIEMER: Well, it would depend
19 on the facility. I know that at our place we
20 always had a copy of it in the individual's
21 file. Usually it was the copy from when they
22 started work and when they came to you, and

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 then if they left, you generated a copy,
2 because you were required to provide that
3 information, and that was available for the
4 next employer.

5 DR. NETON: I guess that's my
6 question is where would we go look for such
7 forms, because the person would leave GSI and
8 go virtually anywhere. Mallinckrodt's a
9 possibility.

10 CHAIR ZIEMER: Well, for example, if
11 we generated the form, we would give it to the
12 worker. Some places would keep what was then a
13 carbon copy for the file, but there was no
14 requirement to do that, because you often had
15 the original records, or you didn't depend on
16 the AEC 4 form. It was used for the worker in
17 transitioning from one location to another.

18 DR. ANIGSTEIN: Well, according to
19 all the GSI workers that are, you know, part of
20 this group that communicates with each other,
21 apparently there was only one other one who
22 said he had records, and he left them in his

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 mother's house, and after his mother died, the
2 house burned down, and there went the records,
3 but nobody else came up and said they had
4 records.

5 CHAIR ZIEMER: Now, there is one --
6 there is one --

7 DR. MCKEEL: Excuse me, please.
8 This is Dan McKeel.

9 CHAIR ZIEMER: Yes, Dan?

10 DR. MCKEEL: I'll just mention again
11 we do have forms. I'll have to look and make
12 sure whether it's the AEC Form 4, but we do
13 have reports that one other worker, whose name
14 is known and was in the 2006 August 11
15 transcript that you all have access to, who
16 gave us some forms that look similar to me that
17 the ones that we've been discussing were that
18 had AEC, Atomic Energy Commission, across the
19 top, and so we have those type of forms from --

20 CHAIR ZIEMER: From some others?

21 DR. MCKEEL: Two workers. Two
22 workers total. I also comment that this

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 comment about looking in the workers' files,
2 you know, the only file we have is for people
3 who file claims at --

4 CHAIR ZIEMER: Understood.

5 DR. MCKEEL: -- at GSI, because all
6 GSI original records have been lost. John
7 Ramspott and I have spent several years trying
8 to find out whether the successor companies
9 that bought the intellectual property of GSI,
10 National Roll, for instance, in Pennsylvania,
11 whether they had any carryover records from
12 GSI, and we actually have a person who
13 investigated that, and we have not been able to
14 uncover or discover any residual records.

15 And we do have the affidavit
16 statement of one worker who was there until
17 National Steel actually sold the old GSI
18 properties, and I think in 1982 a lot of
19 additional records were burned --

20 CHAIR ZIEMER: Right.

21 DR. MCKEEL: -- that belonged to
22 GSI, so it's just possible that those old files

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 and employee files were gone.

2 And so what we would now have access
3 to is those few people who may have kept their
4 forms, but we have asked specifically all the
5 living people did they have any reports like
6 the ones we're discussing that had Atomic
7 Energy Commission on the top, and they said no.

8 I also asked Landauer back in 2006
9 did they -- I mean, what did they know about
10 the Atomic Energy Commission reports, and they
11 said that at one time, without being specific
12 about the years, that Landauer would send a
13 copy of their reports to the Atomic Energy
14 Commission, who would then generate a year-end
15 cumulative report that went back to the plants,
16 and then they said, "Then Landauer stopped
17 doing that," and I'm not sure what the time
18 frame was, but, anyway, that's all I know about
19 that.

20 CHAIR ZIEMER: Well, in fact, those
21 AEC 4 forms would not have been required for
22 betatron workers in any event, because they

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

(202) 234-4433

www.nealrgross.com

1 wouldn't be licensed people. They would have
2 been required for the cobalt and cesium
3 radiography sources and for the individuals.
4 You said there were some that were handling
5 radioisotopes. In fact, the one individual
6 whose records we were looking at apparently --

7 DR. ANIGSTEIN: That's the cobalt.

8 DR. MCKEEL: Both people that we
9 have those AEC reports from were isotope
10 workers.

11 CHAIR ZIEMER: Right.

12 DR. MCKEEL: And the isotopes that
13 we are aware of, there was no cesium sources,
14 but we are aware of an iridium --

15 CHAIR ZIEMER: Oh, iridium. I meant
16 iridium.

17 DR. MCKEEL: One 92 source in the
18 1950s and then the two cobalt-60 sources.

19 CHAIR ZIEMER: Those radiography
20 sources are the ones I meant.

21 DR. MCKEEL: Right.

22 CHAIR ZIEMER: Yes, thank you for

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 clarifying that. Okay, so we have some follow-
2 up to do on the film badge data before NIOSH
3 will be able to answer the extent and method
4 for which they will use them, and that includes
5 perhaps some additional detective work on
6 whether Picker, the Picker records will
7 supplement this in any way.

8 I do want us to also -- John, if
9 you'd take just a couple minutes to tell us
10 where we are on the SEC petition review
11 process, because we're going to -- you know,
12 we've got to address that in tandem with these
13 issues here that we're look at, as well, and we
14 will want to schedule a meeting as soon as you
15 guys have reviewed that and NIOSH has a chance
16 to see your comments on it. The petition was
17 presented at the last -- or the evaluation
18 report has been presented, and the Petitioners
19 are waiting, so --

20 DR. ANIGSTEIN: Well, I will start
21 off by simply saying it was approximately three
22 weeks ago that we were given --

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 CHAIR ZIEMER: Right.

2 DR. ANIGSTEIN: -- the assignment to
3 do this.

4 CHAIR ZIEMER: No, I wasn't
5 expecting it to be done today.

6 DR. ANIGSTEIN: Yes, exactly. No,
7 there has been, and, actually, I have been
8 working on the film badge, you know, follow-up
9 work, so not very much progress has been made.
10 We went through this, and I can give you some
11 very, very preliminary impressions. We may not
12 even -- you know, we may contradict ourselves.

13 CHAIR ZIEMER: Okay. Don't divulge
14 anything if you're not ready to.

15 DR. ANIGSTEIN: Okay. Well, then,
16 in that case, I better say we have no, because
17 we don't have any even tentative results --

18 CHAIR ZIEMER: Okay.

19 DR. ANIGSTEIN: -- at this time.

20 CHAIR ZIEMER: You're still
21 reviewing it?

22 DR. ANIGSTEIN: We're still

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 reviewing it. It would be unsafe to --

2 CHAIR ZIEMER: What kind of a
3 timetable do you think you will have, because -
4 -

5 DR. ANIGSTEIN: What kind of a
6 timetable do we need to?

7 CHAIR ZIEMER: Well, like many of
8 the SEC petitions, we feel some degree of
9 pressure to turn the information around. We
10 need to balance, you know, doing a thorough
11 review while still being timely.

12 It's a difficult balance, but
13 looking ahead on the calendar, for example, we
14 have a face-to-face meeting. Well, let's look
15 at where our next face-to-face meeting is. May
16 in Amarillo.

17 DR. NETON: May.

18 CHAIR ZIEMER: And if we are going
19 to do anything in Amarillo, it means that we
20 would need to have something in early May, say,
21 so here we are halfway into March already, so
22 it's --

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 DR. ANIGSTEIN: That's a little --
2 that would be a little -- that would be a
3 little aggressive, so I think let's just --

4 DR. MAURO: Yes, if I may, I'd like
5 to try to clear away a lot. When we last met
6 and we concluded our last meeting, this group,
7 we did discuss those aspects of the site
8 profile review that you've been talking about
9 that in our mind clearly and unambiguously at a
10 minimum represent SEC issues.

11 CHAIR ZIEMER: Right.

12 DR. MAURO: I mean, it's not that we
13 have to do a lot of -- you know, we are
14 immersed in the site profile and with surfaces.
15 I mean, really, it's almost like it's done.
16 You know, I do this all the time, but you're
17 into two big issues. One is what are you going
18 to do about 1953[Identifying Information
19 Redacted] to when you have the data?

20 CHAIR ZIEMER: Right.

21 DR. MAURO: And that's what we've
22 been talking about.

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 CHAIR ZIEMER: Right, and can you
2 bomb the dose?

3 DR. MAURO: And you have to somehow
4 deal with that, and second, yes, there are a
5 lot of locations throughout this facility where
6 based on the work we've done to date as part of
7 the site profile where there could be elevated
8 irradiation levels where people were not
9 wearing badges, and so you have these two
10 places --

11 DR. ANIGSTEIN: Excuse me. Can I
12 interrupt?

13 DR. MAURO: Sure, yes.

14 DR. ANIGSTEIN: Not where people
15 were not wearing badges but exposures of people
16 who were never issued badges.

17 CHAIR ZIEMER: Yes, that's what we -
18 -

19 DR. ANIGSTEIN: That's the point.

20 DR. MAURO: No, I appreciate the
21 clarification.

22 DR. ANIGSTEIN: But both.

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 DR. MAURO: Right.

2 DR. ANIGSTEIN: And even the
3 betatron worker could have gone to the bathroom
4 and leaving the betatron building hangs his
5 badge up on the rack, and the bathroom happened
6 to be an exposure area from the betatron.

7 CHAIR ZIEMER: Right. Understood.

8 DR. ANIGSTEIN: So, you know, so you
9 have that.

10 DR. MAURO: What I like to do
11 sometimes is really some common sense aspects
12 of this. Yes, we're going to finish our
13 report. We're going to do our formal review,
14 and we'll deliver it on the SEC petition, where
15 we will address the petition issues and the
16 degree to which NIOSH has addressed those
17 issues in the evaluation report.

18 But, at the same time, I don't want
19 to lose sight of some of the simplicities of
20 some -- when I say simplicity, in essence it's
21 clear that lacking data from `53[Identifying
22 Information Redacted] to `64 is, in my mind,

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 the single biggest SEC issue on the table.

2 Without film badge data, with lots
3 of folks working with iridium, cobalt-60, quite
4 frankly, the betatron model, we have a betatron
5 model where, I mean, in principle we could
6 figure out and model what we think the
7 radiation feedings were based -- we've done it,
8 and we are not --

9 You know, we have our estimate. You
10 have your estimate. We have estimates inside
11 the shield, outside the shield, in the
12 bathroom, up on the crane. In other words, in
13 theory, we are in a very good position to start
14 to understand what the potential upper bound
15 might have been of the radiation fields in the
16 vicinity and outside the shield wall. How much
17 time people spent at each location, you know,
18 that's another question.

19 So, I'm, you know, as part of this
20 work group, I'm more concerned about the time
21 period where there is no film badge, and I am
22 very encouraged by the fact that there may very

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 well be some film badges out there. I mean,
2 when I say encouraged, that would be very
3 valuable. So --

4 DR. ANIGSTEIN: For those workers
5 who were badged.

6 DR. MAURO: For those workers who
7 were badged, it will certainly enrich our
8 understanding of what the range of exposures
9 might have been. That doesn't mean we've
10 solved the issue of what about the workers that
11 were not badged or at a given period of time
12 were not wearing their badge, and that goes for
13 post-`64, and that goes for post-`63, so it
14 applies across the board.

15 In any event, I mean, I don't want
16 to -- I don't want to leave the impression that
17 we are not in -- we are in very much a position
18 to understand what the SEC issues are.

19 DR. ANIGSTEIN: Other, you know,
20 other issues along that line, for instance, the
21 instance -- and we only know of one instance.
22 There may have been others -- where a worker

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 not involved with radiography literally -- and
2 I thought I maybe misstated, but no, I went
3 back, and I looked at the testimony --
4 literally put the source in his pocket and took
5 it home, I mean, which means, obviously, that
6 worker got an exposure, but more than that,
7 having been a radiation safety officer for a
8 short while one time, and so I recognize that
9 means there is a total breakdown of radiation
10 control.

11 If such an incident could happen, I
12 guess the question is what else could have
13 happened that nobody -- that of the handful of
14 survivors of this -- of that workforce that we
15 happen to be in touch with recall? Maybe there
16 were other things they didn't know about or,
17 you know, happened to other people. That's,
18 you know, that's one aspect.

19 The other aspect is looking at the
20 film badge readings outside the monitored
21 period. During the monitored period, during
22 the period that was monitored and was during

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 the AEC operation period, there was only one
2 exceptionally high reading on one weekly
3 reading, but then later on there were several
4 in addition to these two that were mostly
5 likely artifacts.

6 There were several, which indicates
7 that there could have been incidents with the
8 betatron or, more likely, and, again, this is
9 from what I have gathered from talking to
10 people, a stuck isotope source where the -- I
11 think they called it the tail didn't retract
12 properly, and suddenly somebody gets a 7.5 rem
13 reading for one week.

14 There could have been others in the
15 early period or even in those couple of years,
16 which -- well, probably, let's say, in the pre-
17 19 -- pre-November '63 period. So it's very,
18 very hard.

19 How do you place upper estimates on,
20 you know, on exposures when you've had these
21 few, albeit few, but, you know, very high
22 readings? It's -- you know, then it becomes,

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 of course, a policy issue of what constitutes
2 a, you know, a maximum exposure, I mean, you
3 know, a plausible maximum exposure, but these
4 are the --

5 So we're not saying -- I mean,
6 neither John or I are saying what our
7 recommendation is going to be, but these are
8 the kind of things which are --

9 CHAIR ZIEMER: Issues that you're --

10 DR. ANIGSTEIN: Issues.

11 CHAIR ZIEMER: -- thinking about.

12 Okay.

13 DR. ANIGSTEIN: Yes.

14 DR. MAURO: By the way, from our
15 perspective in delivering a report that's going
16 to be helpful, let's say, in support of a May
17 Amarillo meeting, the work that -- is that not
18 possible?

19 DR. ANIGSTEIN: I don't think we can
20 have a finished report.

21 DR. MAURO: But bear in mind -- I
22 understand, and I don't want to put you in a --

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 put SC&A in a position of making a commitment
2 that we can't meet. However --

3 CHAIR ZIEMER: I'm just saying we
4 want to move ahead as rapidly as possible.

5 DR. MAURO: We want to move ahead,
6 but bear in mind, when all is said and done,
7 you know what our concerns are. We just talked
8 about them.

9 CHAIR ZIEMER: Right.

10 DR. MAURO: And what you find out --

11 CHAIR ZIEMER: And the film badges
12 and the bounding will become part of that, too
13 --

14 DR. MAURO: Yes.

15 CHAIR ZIEMER: -- for the SEC, as
16 well.

17 DR. MAURO: Yes.

18 CHAIR ZIEMER: I assume they will.

19 DR. NETON: I mean, we're going to
20 pursue it. My concern is that if we have to
21 cover every possible incident that could have
22 conceivably occurred using high radioactive

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 sources, then we're wasting our time going to
2 look at film badge data. I mean, you know --

3 DR. MAURO: Yes, what are we talking
4 -- yes, I think we've got a -- this is a
5 serious problem.

6 DR. NETON: If there is a -- if
7 there is a potential incident that could have
8 occurred or one had occurred, and that is going
9 to be used as the poster child for the fact
10 that you can't do dose reconstructions, why
11 would we even bother to go look through all
12 these Picker X-ray data for? What's the
13 utility of that?

14 MR. RAMSPOTT: Doctors, this is John
15 Ramspott.

16 CHAIR ZIEMER: Yes, John?

17 DR. MCKEEL: John? Go ahead.

18 MR. RAMSPOTT: Dr. Ziemer?

19 CHAIR ZIEMER: Yes, we're listening,
20 John.

21 MR. RAMSPOTT: Dr. Neton just made a
22 very, very important point. The one gentleman

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 that we have documented of having an accident
2 apparently had it one week, and Dr. Anigstein
3 can correct me, because you guys have all the
4 records of badge information being available
5 for this individual.

6 According to, and this is just what
7 Dr. Ziemer or, I'm sorry, Dr. Neton started to
8 say, if this individual, according to the
9 records, looks like a poster child for
10 radiation safety, you've got one week before
11 that, and we know the exact date, because he
12 was home sick, had the day off the day before
13 Kennedy got shot.

14 He watched Kennedy get shot, so we
15 know the exact day, and yet we don't have any
16 of his records. He comes back as a poster
17 child, "Oh, there is no danger." He had an
18 accident over at GSI, was sent to the hospital,
19 sent home, yet his records make him look like a
20 cream puff.

21 So I agree with Jim. If you don't
22 have all the good data, you're really wasting

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 your time.

2 DR. MCKEEL: Can I please make a
3 comment? This is Dan McKeel. I need to make a
4 comment here.

5 We sent the Board and SC&A recently
6 that worker's declaration made soon before he
7 died, and, you know, it explains that instance
8 in great - incident - in great detail, and it
9 mentions that either an AEC report was made, or
10 it was deemed to be AEC reportable.

11 So whereas it may be not equivalent
12 to a criticality incident, it certainly was a
13 major incident involving one of the main, we
14 think, isotope sources that has not yet -- that
15 source has not at all been characterized. We
16 don't have the AEC license for that source
17 term. We don't even know what size it actually
18 was, the manufacturer, et cetera.

19 So here we have a worker that's
20 involved and at least was, you know, sent home
21 from his workplace and has an affidavit to that
22 extent, so we already do have one worker who,

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 in my opinion, should be granted an 8314 SEC
2 just on the very face of the information
3 already provided, and, of course, as you all
4 well know, Mr. Ramspott and I have been
5 advocating since 2005, when we first outlined
6 the six radiation source terms at GSI, that
7 this site, if any ever deserved it, should have
8 gotten an 8314 long ago.

9 So, you know, Dr. Neton's comment
10 not only is pertinent, but, really, NIOSH ought
11 to go back and think about the implications of
12 what they've just said and think about all the
13 uncertainties that there are in our discussions
14 of film badges, the fact that the models, which
15 one way to look at it is that the models well
16 bound the overall dose. Another way to look at
17 it is that the models, you know, are 15 to 18
18 times higher than the film badge doses, and so
19 they don't model them very well at all.

20 You know, the level of uncertainty
21 here is enormous, and it is not going to be
22 resolved, I don't believe, by getting even

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 those old data for the betatron workers who
2 were 100 people out of 3,000 that worked at
3 that plant, and we have provided voluminous
4 data that there were other radiation sources
5 that other workers in Building 6, Building 10
6 were exposed.

7 We have provided affidavits that
8 showed that the uranium itself was carried
9 through the plant on railroad transfer cars,
10 electric cars, and thus could have exposed
11 people in the rest of the plant, as well.

12 So there are enormous uncertainties
13 about this plant, about the job descriptions,
14 about who handled the uranium while it was
15 being transferred in and out of the plant,
16 which was not necessarily the betatron workers
17 themselves.

18 So I just please ask everybody to
19 think about the big picture, that we've been at
20 this now since 2005, and to try to get that
21 research done and get some answers for us, if
22 possible, you know, well before the May

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 meeting, and at the end of all this, we need a
2 recommendation from the Work Group, whether
3 they support NIOSH's denial of the SEC or they
4 don't, and, of course, we hope and believe that
5 the facts that we've presented thus far marry
6 the recommendation to overturn NIOSH's
7 recommendation, and we ask that that all be
8 borne in mind, please.

9 I ask personally that my points of
10 uncertainty that were addressed to the Board on
11 February 18 -- you know, we're still waiting
12 for that transcript, and when we get it, I
13 would please ask you all to read those, review
14 those, and to think about those uncertainties
15 that I've mentioned, and if you can't resolve
16 those and you can't answer them satisfactorily,
17 please consider my recommendation that we
18 should recommend right now that the NIOSH
19 recommendation be overturned.

20 And I would point out to you that as
21 far as I am aware, although we've talked about
22 it and talked about it for four years, we don't

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 have a single calculation made of the dose
2 delivered by either of the cobalt-60 or the
3 iridium-192 or the 250 kVp radiation source
4 terms that have been known to be present at GSI
5 from us since the fall of 2005, when we were
6 discussing Mallinckrodt in the original SEC
7 petition. So I guess that's my final comment.

8 CHAIR ZIEMER: Okay. Thanks, Dan.
9 Jim, a comment?

10 DR. NETON: I just want to say
11 something for the record. I want to be clear
12 that I was not necessarily advocating this
13 become an SEC based on these incidents. I was
14 trying to point out that NIOSH does try to keep
15 an open mind, and we certainly need to look at
16 these incidents and put them into some
17 perspective.

18 Now, at the end of the day, I don't
19 know where we're going to end up on that, but
20 you raise a very good point, and I don't think
21 an incident in and of itself is necessarily a
22 reason to make it an SEC, and we need to really

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 look at this very carefully, though.

2 CHAIR ZIEMER: Well, in fact, where
3 you know an incident has occurred, such as this
4 case --

5 DR. NETON: Right.

6 CHAIR ZIEMER: -- you can, in fact,
7 bound that, because you know the source terms.

8 DR. NETON: The particulars of the
9 incident.

10 CHAIR ZIEMER: I think Bob was
11 talking, raising at least sort of a general
12 question. It may be almost rhetorical, but
13 either incidents we don't know about, and
14 that's the kind where you say, you know, it's
15 sort of unknown incidents, or were there things
16 equivalent to a criticality that we don't know
17 about.

18 DR. NETON: Correct.

19 CHAIR ZIEMER: But those will have
20 to be considered, as well, in conjunction with
21 the issues that Dan has raised, and, Dan, we
22 will not be overlooking the points you made.

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 DR. ANIGSTEIN: I'd like to -- I'd
2 just like to mention one point.

3 CHAIR ZIEMER: Bob, you have a
4 comment?

5 DR. ANIGSTEIN: One brief comment,
6 Doctor. The SC&A report, which is, I believe,
7 on the web, and, you know, our comments and
8 review of Appendix BB did include detailed
9 calculations of exposures from cobalt-60
10 services, both from a small source used in
11 Building 6 and the large used in the betatron
12 building.

13 CHAIR ZIEMER: And, actually, those
14 are -- those kind of sources, the dose rates
15 are much easier to bound than many things that
16 we work with, but nonetheless that has to be
17 taken into consideration, as well.

18 DR. MCKEEL: It's also true, though,
19 just for the record, that although SC&A has
20 offered calculations that it has not been
21 resolved whether NIOSH or the Board accepts
22 those calculations and believes they should be

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 part of Appendix BB.

2 CHAIR ZIEMER: Yes, you're quite
3 correct on that.

4 DR. MCKEEL: Okay. All right.

5 CHAIR ZIEMER: Yes, we do know, I
6 think, at least, we know what needs to be done
7 as far as how you approach that. We're going
8 to have to come to closure here today. We have
9 made good progress in closing out some issue
10 matrices.

11 We've gotten some additional good
12 definition on the dosimetry issues and
13 problems. I'm not going to be able to schedule
14 our next meeting until we get a little better
15 feel for when the report will be ready.

16 On the other hand, if, as NIOSH
17 receives and, Dave Allen, as you reach a point
18 on some of these issues where -- well, let's
19 see. I guess we have a white paper, maybe two
20 white papers that we generated. I think
21 whenever those are ready we can at least
22 distribute those and have a chance to react to

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 them well before we meet, so there are things
2 that we need to be doing as we proceed.

3 DR. MAURO: I would like to usually
4 make sure I understand what SC&A's action items
5 are, and the only ones I have is to provide
6 copies of the Putzier and NUREG citations to
7 the rest of the Work Group. This had to do
8 with the TBD 6000 review. Other than that, we
9 have no action items. Of course, we have our
10 SEC petition. That's done, yes.

11 CHAIR ZIEMER: Right.

12 DR. MAURO: In other words, nothing
13 coming from the Work Group where you expect us
14 to perform.

15 CHAIR ZIEMER: That agrees with what
16 I have here, as well. I want to see if --
17 Mark, did you get back on the line, or Wanda,
18 did you have any additional comments?

19 MEMBER MUNN: No, I've just been an
20 eager listener.

21 CHAIR ZIEMER: Okay. Thank you.
22 Okay, and thanks, Dan and John and the others

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 for your input again today. We appreciate your
2 being on the line for the day with us. We
3 appreciate your input, as well as your -- I
4 guess I'll say it, and I mean this in a kind
5 way, your persistence in making sure we get the
6 information that we need from you, so we
7 appreciate that. Ted, any other pressing
8 issues?

9 MR. KATZ: I just want to check one
10 other follow-up. So, as I understand it, SC&A
11 has the letters, and you will be providing
12 those then to OCAS and for us for Privacy Act
13 redaction that Dan was referring to.

14 DR. MAURO: The letters, right.

15 DR. ANIGSTEIN: Yes, we will follow
16 up with that.

17 CHAIR ZIEMER: The materials that --

18 MR. KATZ: Dan, we will get you
19 Privacy Act reviewed versions of those.

20 CHAIR ZIEMER: That's the material -

21 -

22 DR. MCKEEL: Thank you.

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 CHAIR ZIEMER: -- that he got
2 directly from Landauer.

3 DR. MAURO: Okay, I got you.

4 CHAIR ZIEMER: Was that direct from
5 NIOSH?

6 MR. KATZ: Yes, I just want to make
7 sure.

8 CHAIR ZIEMER: Did you get that for
9 your --

10 DR. MAURO: I missed that.

11 CHAIR ZIEMER: -- review so they can
12 get out to the Petitioners in the appropriate
13 form and a timely fashion? And so, Ted, are
14 you going to make sure that gets transmitted to
15 Dan?

16 MR. KATZ: I am.

17 CHAIR ZIEMER: Okay.

18 MR. KATZ: I will be responsible for
19 that.

20 CHAIR ZIEMER: Dan, are you still on
21 the line?

22 DR. MCKEEL: Yes, sir, I am.

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 CHAIR ZIEMER: Okay, so Ted is going
2 to, as soon as he can get these things cleared,
3 we're talking about the earlier materials that
4 Bob got from Landauer, which --

5 MR. KATZ: Right, the letters or
6 what have you.

7 CHAIR ZIEMER: Yes.

8 DR. MCKEEL: Dr. Ziemer, I do have a
9 comment about that. I did send you and Ted, I
10 believe, what I believe are relevant sections
11 of the FACA law. I think they're Sections 3B
12 and C in which the law as I read it says that
13 presidential commissions such as yours are
14 supposed to -- commissions and advisory boards
15 are supposed to furnish the public with -- and
16 it specifically says in there working papers,
17 so would you all please have your legal team
18 look at that carefully and provide me an
19 answer, because I believe it opens up the
20 possibility, for instance, that the issues
21 matrices that are what's guiding your work,
22 that those are probably considered working

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 papers, and, honestly, I would be interested in
2 all of these papers like the one this morning
3 that was mentioned.

4 MR. KATZ: We will get -- we can get
5 you those. In fact, Dan, I thought you had the
6 matrices. I'm sorry if you didn't.

7 DR. MCKEEL: That would be good.

8 MR. KATZ: In fact, we cleared a
9 version, not the latest version, because SC&A
10 responded then to NIOSH's responses, but we
11 cleared the NIOSH version of that.

12 CHAIR ZIEMER: We have the NIOSH
13 response version, which was, I think, of this
14 Monday. In fact, I think I sent John Ramspott
15 a copy. I didn't realize you didn't have one,
16 Dan.

17 DR. MCKEEL: Okay.

18 CHAIR ZIEMER: Yes.

19 DR. MCKEEL: Well, I'm really asking
20 for a general --

21 MR. KATZ: And on the broader --

22 DR. MCKEEL: There's a general

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 ruling on that.

2 MR. KATZ: On the broader issue,
3 Dan, I mean, I followed up immediately upon
4 receiving your email about that, and I'm
5 waiting to close the loop with folks, with
6 counsel folks in the department.

7 DR. MCKEEL: I'm just asking to
8 please keep that alive and ongoing.

9 MR. KATZ: It's completely alive,
10 Dan.

11 DR. MCKEEL: Ask them to please
12 render a decision. I mean, the language seems
13 pretty clear to me, but I understand it may be
14 more complex, so I'd appreciate it.

15 MR. KATZ: It's completely alive. I
16 promise.

17 DR. MCKEEL: Thank you.

18 CHAIR ZIEMER: Well, I think
19 anything that's not -- it's got to be Privacy
20 Act prepared.

21 MR. KATZ: There's all sorts of
22 things like Privacy Act clearance.

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

1 CHAIR ZIEMER: As fast as we can
2 provide it --

3 DR. MCKEEL: Okay.

4 CHAIR ZIEMER: -- we will certainly
5 try to do that.

6 DR. MCKEEL: All right.

7 CHAIR ZIEMER: Thank you very much.
8 Anything else here? If not, we are in
9 adjournment. Thank you all.

10 (Whereupon, the above-entitled
11 matter went off the record at 3:53 p.m.)

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701