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SUBCOMMITTEE MEETING

The verbatim transcript of the Subcommittee Meeting of the Advisory Board on Radiation and Worker Health held at the Westin Hotel, St. Louis, Missouri, on August 24, 2005.

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August 24, 2005

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TRANSCRIPT LEGEND

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P R O C E E D I N G S

(10:06 a.m.)

WELCOME AND OPENING COMMENTS

1
2
3 **DR. ZIEMER:** I'm going to call the meeting to
4 order. Thank you very much. Just for the
5 record, this is a meeting of the subcommittee
6 on dose reconstruction and dose -- site profile
7 reviews. The full Board will not be meeting
8 until tomorrow. I will make some of the usual
9 announcements and that is to remind everyone to
10 register your attendance. This includes board
11 members, staff people, members of the public.
12 There are registration materials or
13 registration book in the foyer where you can
14 take care of that. There are also other
15 handout materials and copies of the agenda and
16 related materials for all members of the public
17 as well as others who are here today.
18 Also members of the public, there is a sign-up
19 sheet if you wish to speak during the public
20 comment session. The first public comment
21 session will be tomorrow evening at 7:00 p.m.
22 as part of the regular Board meeting.
23 On our subcommittee agenda today we have four
24 main items. We have not assigned any times to
25 them. The subcommittee will simply work

1 through the various issues until we believe
2 we've reached closure and then we'll move on.
3 You'll notice the four main items are the
4 Bethlehem Steel site profile, the selection of
5 the fourth round of 20 dose reconstructions,
6 the Mallinckrodt site profile review, and
7 discussion of candidate site profile reviews
8 for our contractor. We also may want to have
9 some discussion on the status and how to move
10 forward on procedures review, which is task
11 three, I believe.

12 Because of the possibility that we may need
13 additional information from NIOSH as we select
14 dose reconstruction review cases, it was
15 suggested that we take that item up first, the
16 selection of the fourth round of 20 dose
17 reconstructions. So without objection, we will
18 begin with that and then we will move to the
19 Bethlehem site profile after that. And I'm
20 going to -- yes, Lew Wade has a number of
21 comments for us as we get underway today.

22 **DR. WADE:** Thank you, Paul. I'd just first
23 like to start by apolo-- not apologizing, but
24 thanking everyone for coming here. We had a
25 working group meeting not that long ago and

1 during that meeting a number of the Board
2 members present made the strong suggestion that
3 we spend a day in subcommittee because we
4 really had many weighty items to work on --
5 Wanda, Jim Melius, Mark -- and I always do what
6 Wanda tells me to do, so I thought this would
7 be a good idea to have this meeting. But I do
8 apologize that we've sprung it on you
9 relatively late, but I think it is terribly
10 important.

11 A couple of -- Paul alluded to the procedures
12 review. There'll be a couple of things I think
13 we'll get into today as they will flow from
14 agenda items on the subcommittee and the full
15 Board agenda and I'd like to just give you a
16 heads-up on them.

17 The procedures review is something that has
18 been sitting for a while. There is an issue
19 there that relates to dose conversion factors.
20 It turns out that that is a very important
21 issue relative to our deliberations on
22 Mallinckrodt, so I asked the contractor to be
23 prepared to talk to us about those things.
24 Again, we have to schedule it to see that we
25 made progress where we need to, and if that

1 means we need to get into some other areas,
2 we'll be -- I'll feel free to do that.

3 Also as we look at SC&A's work for next year,
4 particularly on site profiles, I think we need
5 to hear where they are on some of the open site
6 profiles -- Savannah River, for example -- and
7 again I asked the contractor to come prepared
8 to give us some insights on those issues. So I
9 think we will have a full day's meeting and
10 again I thank you for your time and attendance.

11 **DR. ZIEMER:** Thank you, Lew. One other item,
12 Board members. As you use the mike, I've been
13 told that the mikes work best if they're about
14 10 inches away from the mouth. So actually
15 that's -- is that right? This is a nine-inch
16 span here. Do I want to be this far away?

17 **THE REPORTER:** Yes. Otherwise I'm getting real
18 -- a buzz.

19 **DR. ZIEMER:** Don't get so close is what Ray is
20 saying. Okay, thank you.

21 **DR. WADE:** Oh, one other thing. Larry Elliott
22 is not with us today and I don't know if Larry
23 will be with us. Just for the record, he's
24 having some health problems, back problem. And
25 so we are ably represented in our offices by

1 **DR. ZIEMER:** Actually that's -- that's the last
2 one, I think, that extra long one.

3 **MR. HINNEFELD:** For the selection of cases this
4 time, since has been an expressed preference
5 for what you might consider a best-estimate
6 dose reconstruction -- recall that we, for
7 efficiency purposes, will do intentional
8 overestimate for cases that aren't going to be
9 compensable even with an overestimated
10 exposure, and an intentional underestimate for
11 cases that won't be compensable even with an
12 underestimating expo-- or will be compensable
13 with an underestimating exposure. But there's
14 been a preference to focus the review on what
15 you might call a best-estimate dose
16 reconstruction.

17 And so in our database of cases that we have
18 in-house, there is a data field that describes
19 the type of dose reconstruction that was done
20 and it's -- we use the term "full dose
21 reconstruction" as opposed to a best estimate,
22 and that field -- that field is selected by the
23 health physicist -- the OCAS health physicist
24 who approves the dose reconstruction report.
25 So for an approved dose reconstruction report

1 we will have a judgment by that health
2 physicist whether this was a best estimate or
3 full dose reconstruction or not.

4 So based on that I selected for the Board's
5 consideration -- I took two possible approaches
6 here because I didn't know what you would want
7 to do. In one case we ran the random selection
8 program, which we normally do, of cases that
9 are in the sampling pool. These are cases
10 where the final decision has been rendered.
11 And so the one list where it has schedule -- or
12 selection ID numbers 2005-08- starting with -
13 001 and running through 100, those were
14 randomly selected in the manner that we have
15 previously randomly selected cases for
16 selection.

17 We've added one additional data column that
18 wasn't in our previous presentations, and
19 that's that last column that says dose
20 estimation type. And so from that dose
21 estimation type you can see whether the case
22 was an overestimate, an underestimate or a full
23 dose reconstruction. You'll notice some of
24 those columns are blank, and that's because
25 this feature of selecting what kind of dose

1 reconstruction is in front of us was not
2 incorporated at the beginning of the program.
3 It was added after we had already approved a
4 number of dose reconstructions and so that
5 field is blank for the early approved dose
6 reconstructions.

7 So that's one possibility, is for selection as
8 normal from the randomly selected cases here,
9 with the additional piece of information of
10 what type of dose reconstruction it was.

11 Now the majority of the cases that we have done
12 have been overestimates or underestimates, and
13 so based on that, there probably won't be many
14 full dose reconstructions on this list. I
15 haven't actually counted how many there are,
16 but I doubt there are very many.

17 So we have about 160 cases that have final
18 decisions that have one of the three full dose
19 reconstruction categories selected. That can
20 be just full dose reconstruction, mainly
21 internal; full dose reconstruction, mainly
22 external; and full dose reconstruction,
23 internal and external -- internal and external
24 talking about the kind of dose that is
25 associated with the case.

1 So we collected all the cases, the 168 -- 160
2 some-odd cases, I don't know how many it is
3 exactly -- that have one of those three full
4 dose reconstruction choices and prepared those
5 on the other table that looks very similar, but
6 the selection IDs start with 101 and then run
7 on out through the completion. That's the
8 entire population in the sampling pool, meaning
9 that there is a final decision rendered, of
10 cases that were done that have that intern--
11 you know, full dose reconstruction done. So
12 those two populations are presented for
13 selection, however you want to proceed.
14 The last question -- yes. Okay. The last
15 sheet, the large sheet, is a statistical
16 breakdown of the selections to date compared to
17 that same statistic of the population as -- in
18 total. Now this is actually of the total claim
19 population. Not just the ones that have final
20 decisions, but the total claim population that
21 we have received that ultimately we will expect
22 to have a dose reconstruction on.
23 So the first upper left -- or the left side of
24 that page apportions cases according to the
25 site where -- you know, where the person

1 worked, the Energy employee worked, and you can
2 see how many of the 60 reviewed cases are from
3 these various sites. And you can see the total
4 down at the bottom of 66. That's because
5 several of these were multiple site cases and
6 so, not knowing what to do, I counted them in
7 both sites. If a person worked in two sites, I
8 counted them in both sites. If one person
9 worked at three sites, the three Oak Ridge
10 sites, so he's counted in all three. And the
11 multi-site cases are explained down below. I
12 think that total adds up to six because --
13 well, I'm pretty sure it adds up to six extras
14 and that's why we get 66.

15 The cancer type section, which is the next
16 section moving to the right, is -- oh, I'm
17 sorry, I wanted to say how we arrived at the
18 projected cases. The projected cases per site
19 took the total number of cases from that site
20 that we have received that have not been
21 pulled. And the reason I subtracted the pulled
22 cases is that theoretically there will never be
23 a dose reconstruction for a pulled case.

24 Pulled case means that Labor has told don't do
25 this one -- usually it's don't do this, we sent

1 it to you by mistake, and so we pull it, but
2 it's -- you know, it's still in our database,
3 but we have a designation of "pulled" in the
4 status category. So for most cases that are
5 pulled, there will never be a dose
6 reconstruction.

7 Now some cases get unpulled and, you know,
8 there's some consideration -- reconsideration
9 and it's submitted back to us. Yeah, go ahead
10 and do the dose reconstruction, so some cases
11 do get unpulled. But as a -- the best
12 approximation I could come up with was we'll
13 just subtract out the pulled cases. So if you
14 take the total cases we've received from the
15 site minus the pulled cases from that site,
16 that's how many dose reconstructions we would
17 ultimately expect to have from that site based
18 on the data available on the day I ran this,
19 which was one day last week. So I took that
20 number of cases times 2 1/2 percent and that
21 gives that projected case number. 'Cause I
22 believe two and a half percent -- I retained
23 that original intent to review 2 1/2 percent of
24 the cases, which was what we started with, I
25 believe. So that's how those projected case

1 numbers were arrived at.

2 The sample of industry groups is a little

3 different, and the problem is that because of

4 the multi-site experience -- you know, many of

5 the cases have multiple -- worked at multiple

6 sites. Many of the Energy employees worked at

7 multiple sites. And so when you add up all the

8 cases from -- that are represented in these

9 sites, and you -- or, you know, adding up all

10 the -- when you add up all the cases from all

11 these sites, you're adding some numbers twice.

12 And so if you added up all the columns of total

13 cases from these sites you'd get probably more

14 than the total cases we have in-house. So to

15 arrive at the sample of industry groups number,

16 the projected number, I had our TST query our

17 database to find out how many cases do we have

18 that don't have any representation in these

19 listed sites. You know, none of these pe-- how

20 many people never worked any of these sites,

21 and that was about 15 percent. About 15

22 percent of the cases we have didn't work at any

23 -- they have no employment at any of these

24 sites. And so, based on the ratio of, you

25 know, 15 over 8, 5 times the original selection

1 number, which was something around a little
2 less than 500, I added in some 80 cases for
3 others. It's all other sites besides the ones
4 that are listed.

5 Okay. I think that's all I can think of to say
6 on that. I've probably made it as confusing as
7 I possibly can so it's time to move on to the
8 next one.

9 **DR. WADE:** Could we just clarify -- not a
10 clarifying question, but just to note something
11 you're telling the subcommittee. So your sense
12 is that for the subcommittee to -- for the
13 Board to meet its original goal of 2 1/2
14 percent of the cases audited, it would involve
15 roughly 550 cases.

16 **MR. HINNEFELD:** Roughly. Roughly. Now the
17 arithmetic gets a little --

18 **DR. WADE:** I understand.

19 **MR. HINNEFELD:** -- funky.

20 **DR. WADE:** Okay, so we're -- so doing 60 a
21 year, we've got 10 years worth of work. Okay.

22 **MR. HINNEFELD:** That thought hadn't even
23 occurred to me, Lew. I'm starting to look at
24 retirement at that time.

25 **DR. WADE:** Well, I mean I'm just putting it on

1 the record because I think the Board needs to
2 consider these things as it sort of learns the
3 reality of what it set out to do. And I'm not
4 saying we go one way or the other. I think
5 it's just -- it's something to note.

6 **MR. HINNEFELD:** Okay. Moving to the right on
7 the page, the next section has the -- refers to
8 types of cancers, and this really requires some
9 more -- better analysis than what I got onto
10 this spreadsheet, as I was thinking about this
11 when I was looking at the numbers. And the
12 problem here is that -- counting total number
13 of cancer diagnoses, which is how I arrived at
14 this -- if you count the total number of cancer
15 diagnoses, you will get far more than the total
16 number of claims because there are many cases
17 with multiple cancers. And as you look at this
18 number and you see that some 40 percent of the
19 cases are skin cancer, that's because skin
20 cancer is a case where very, very frequently
21 there are multiple cancers. Multiple skin
22 cancers in particular occurs. And so the count
23 number doesn't reflect necessarily that if a
24 person had a basal cell carcinoma, they may
25 have had 10 basal cell carcinomas. It still

1 counts as one because that's the way it was
2 presented in the selection sheet. So there
3 needs to be a better analysis here. I need to
4 not count the total number of cancer diagnoses.
5 I need to actually do a count case-by-case, how
6 many cancers are represented in that one and
7 only count a basal cell carcinoma once per
8 case. So this is -- other than see what cases
9 -- what now the -- the count number, the column
10 on the count, that is pretty accurate in terms
11 of the kinds of cancers that were present in
12 the cases that were reviewed. The count is, I
13 believe, accurate in terms of what cancer --
14 types of cancers have been reviewed.
15 Moving to the next segment of the spreadsheet
16 which has -- is job group, in this case I have
17 a revised projected number. I retained the
18 originally projected number from the
19 spreadsheet as it originally appeared. The
20 revised projected number is based on some 2 1/2
21 percent of total cases, and I'm having trouble
22 reconciling all my numbers here, so I'll have
23 to do a little research to figure out exactly
24 why this is 499. I suspect it has to do with
25 not adding in sampling groups or a different

1 starting point from the 2 1/2 percent. The
2 apportionment of the cases into these groups is
3 done by matching the job title that we have on
4 our database, in NOCTS, with the -- into one of
5 these groups. And since there's a lot of
6 question marks about how to do that, I think
7 there should also be a spreadsheet in your book
8 that shows the 60 cases with the job
9 descriptions and the group that I chose to put
10 that -- that I thought fit best with that job
11 description. So that can be changed, whatever,
12 'cause I'm not saying that what I did
13 necessarily was right. For instance, I put all
14 machinists in maintenance, even though at some
15 facilities machinists are in operations because
16 they're machining uranium ingots. I'm not real
17 sure what support -- you know, what category --
18 I put support -- people in support if I
19 couldn't figure out where else to put them, so
20 there's some transportation people and security
21 people and things like that in the support
22 group. So -- but I believe there should be a
23 spreadsheet in the book that describes the
24 selection based on the job titles, so those
25 could be changed and rearranged if you would

1 like.

2 **DR. WADE:** That spreadsheet requires some
3 assembly in that it's in two pieces, but --

4 **MR. HINNEFELD:** Oh, okay.

5 **DR. WADE:** -- the information's all in the
6 book.

7 **MR. HINNEFELD:** Okay. And then the next
8 column, decade first employed, that broke sort
9 of inconveniently so that the count falls onto
10 the next page. That just shows the
11 distribution. The projected was retained from
12 the original spreadsheet that was prepared of
13 the projected numbers that would go in those
14 categories, and I just threw in the count --
15 the numbers -- the actual numbers that we have
16 so far. And then when you get into the years
17 worked category, the same thing. I just threw
18 in the count of the cases actually reviewed.
19 And then I went below and broke out some more
20 five-year intervals because when you group to
21 10 years and then 10 years and over, almost
22 everybody's in 10 years and over. And so I
23 broke it down further -- a little further into
24 additional five year increments up to 30 years.
25 This is on page two of that big sheet.

1 The next column, type of radiation and the
2 count, I didn't fill that in because I wasn't
3 sure I knew how to do that. And then the
4 remainder is -- well, the next column is
5 outcome on how many were compensable and how
6 many were noncompensable. Those count numbers
7 are, I believe, accurate -- 11 of the 60
8 reviewed were compensable and 49 were non.
9 And then the rest is sort of some of the total
10 numbers that I used to arrive at the numbers
11 per site and the projected number per site.
12 And I've listed the numbers for the three
13 gaseous diffusion plants individually that are
14 summed back in the original spreadsheet. So
15 these are the statistics on the sixty that have
16 been selected so far in terms of -- and I guess
17 it's useful in terms of knowing how many have
18 been selected from what site, how many -- from
19 what cancers have been selected, et cetera.

20 **DR. ZIEMER:** Thank you, Stu. Let me ask,
21 subcommittee members, you have any questions
22 for Stu at this point? Is everything clear?

23 **DR. WADE:** John Mauro might want to say
24 something 'cause --

25 **DR. ZIEMER:** John Mauro, did you have any

1 comments at this point or do you want to wait
2 until later?

3 **DR. MAURO:** I'll wait until later.

4 **DR. ZIEMER:** Okay. Now just as a reminder, we
5 had our original 20 cases, then we had a group
6 of -- actually of 18 because two of them were
7 removed because they turned out not to be final
8 or were moved back into the process. And then
9 we had another actually 22 to get us up to the
10 60. And -- and so -- and you have the
11 breakdown of the 60. Now the question is --
12 selection of the next 20 is the immediate
13 question. We have a list of 100 selected at
14 random. This gives us a good pool to choose
15 from, and we have the list of 100 which are in
16 the special category where they were not the
17 maximized or minimized ones.

18 **DR. WADE:** We have all of them. Not a hundred,
19 but all of them.

20 **DR. ZIEMER:** Basically all of them, yeah, not
21 just a hundred. There are actually what, 100
22 and whatever it is, 80 or something.

23 **DR. WADE:** 184 it looks like.

24 **DR. ZIEMER:** Yeah, 184. Now we need to think
25 in terms -- there's a couple of issues that we

1 have to address. One is how to proceed. Do
2 you want to look at a mix of -- you know, a
3 priori say okay, we want to select a certain
4 number of the ones from list two, which is all
5 completed cases with full dose estimation --
6 and let me ask Stu, in that list as you
7 presented them there, are those randomized in
8 any way or are those in the order that they
9 were in your database?

10 **MR. HINNEFELD:** I suspect they're in NIOSH
11 tracking order number, although I won't swear
12 to that. I believe they were in NIOSH tracking
13 -- and then we took that NIOSH tracking number
14 out before we made it available for
15 distribution. So that's what I think the order
16 is.

17 **MR. GRIFFON:** But are these -- Stu, are these
18 all the cases that have done -- were done by
19 best estimate?

20 **MR. HINNEFELD:** Yes, these are all the cases
21 where the reviewing HP clicked that -- one of
22 those full dose reconstruction buttons. It's
23 all of them.

24 **DR. WADE:** But you wouldn't encounter them in
25 random order. You're encountering them in some

1 order, not randomly.

2 **MR. HINNEFELD:** I believe you will be
3 encountering them in NIOSH tracking order
4 number, I think. I don't know 100 percent, but
5 I think they're in NIOSH tracking order number,
6 in which case they'll be roughly chronological.

7 **DR. ZIEMER:** Yeah, and the only reason for
8 raising that is it could conceivably introduce
9 some kind of bias, although I'm not sure that
10 it matters that much at this point since we
11 would be selecting very specifically for a
12 certain parameter. So it loses its randomness
13 in any event.

14 But let me throw the question out to the
15 subcommittee. Do you wish to specify, a
16 priori, some number of full dose estimation
17 cases out of the next 20? For example, do you
18 want 10 of them to be in that category or all
19 of them or five of them or -- because one way
20 to proceed would be to use the random list but
21 to reserve a spot for some number on the other
22 list. Any thoughts on that?

23 **DR. WADE:** If I could insert myself. I mean
24 John, you -- you approached this group and told
25 them of the way you would like to see this go.

1 Could you just recall for us what your views
2 are on this?

3 **DR. MAURO:** You folks have received a handout.
4 Hans -- Kathy Behling basically tried to come
5 up with a sort of what we've done to date to
6 give you a snapshot of -- according to the
7 criteria -- selection criteria where we are in
8 terms of audits of cases. And you can get a
9 pretty good feel of the degree to which we've
10 captured different categories of cases. What
11 is not on that list, of course, is -- as you
12 all know, we've been looking at primarily,
13 overwhelmingly, min/max selections and we felt
14 that the value -- the value to the Board of
15 doing min/max audits is not -- it's not as
16 valuable as doing realistic -- for a variety of
17 reasons. It doesn't fully test the full
18 sophistication of the new TIBs, the new
19 workbooks, the spreadsheets that would allow
20 for more realistic analysis. So it was our
21 recommendation at the last meeting that an
22 effort be made to include certain realistic
23 cases. So -- and we believe that the process
24 of auditing will be better served, and that
25 would move us into a new mode of looking at

1 workbooks, which are -- we believe are going to
2 largely be the tools that will be used to
3 implement the realistic analyses. So we think
4 we're about to enter into a new paradigm -- to
5 overuse use a term -- that will allow us to
6 provide a much more powerful insight into the
7 effectiveness and -- of an audit that would be
8 a lot more complete.

9 One more thought, though, that struck us -- and
10 this is something that struck me and I'd like
11 to share with the Board and that is we recently
12 have been through quite an intensive -- in this
13 series of investigations related to
14 Mallinckrodt site profile whereby an array of
15 strategies and procedures and assumptions were
16 constructed over the past month, which was
17 quite an adventure and challenge -- a technical
18 challenge. I think we have gotten to the point
19 where we -- we, SC&A, have an appreciation of a
20 new way of coming at a very complex problem.
21 One of the things that might be helpful -- and
22 this is something that was not brought up
23 before -- is when we are in a mode where there
24 is a transition occurring in how dose
25 reconstructions are being performed, the extent

1 to which -- to get to the bottom of the story,
2 we would sure like to review some Mallinckrodt
3 realistic cases that are being dose
4 reconstructed right now and are being completed
5 using the new methods so that we could -- you
6 know, we did go through some examples and that
7 was an excellent exercise. But even those
8 examples, as we recall during the working group
9 meeting, didn't fully test a number of issues
10 that are still on the table, issues that I call
11 somewhat marginal, but still need to be worked
12 out. I would very much like to see -- and I
13 don't know how well it fits within the
14 construct of case selection, but there
15 certainly are certain cases that will
16 demonstrate how the TBD and the procedures are
17 coming together into a final form. Because as
18 we all know, they are living documents, but it
19 appears that some of them are approaching
20 asymptotically the methodology. And those case
21 -- cases that represent that methodology need
22 to be reviewed, and that almost closes the
23 circle because right now we really have not --
24 I know Mallinckrodt's going to be on the
25 agenda, but it's not unrelated to what are

1 talking about today. But doing several
2 realistic Mallinckrodt audits within the
3 context of the new Mallinckrodt TBD and how it
4 may even change a little bit further before
5 this is all over is going to really help bring
6 closure to the entire process we're talking
7 about. So I'd like to add that as one more
8 item on the table for discussion. Thank you.

9 **DR. ZIEMER:** Hans, you have something to add to
10 that?

11 **DR. BEHLING:** I guess on Monday -- closing day
12 Monday -- Kathy had forward by e-mail to each
13 of you a set of documents here that by and
14 large defined the criteria -- selection
15 criteria as already discussed by Stu Hinnefeld.
16 But one of the criteria I wanted to point out
17 is the issue of the POC category. And
18 according to the selection criteria, between 45
19 and 49.9 percent POC we were supposed to have
20 about 40 percent of our sample selected in that
21 particular category -- which is the critical
22 category because if you make a mistake in one
23 direction or the other, it would certainly
24 determine whether or not a person should have
25 been compensated that wasn't, or the other way

1 around. And if you look at the very last page
2 of that handout, there's a fourth page there
3 which has the breakdown of what the first 60
4 cases represent. You will see that as of this
5 point in time among the 60 cases that have been
6 reviewed -- or are under review 'cause we're
7 not completely finished at this point -- 82
8 percent fall between zero and 44.9 percent and
9 18, the balance, is greater than 50. So right
10 now we have none of the cases that fall between
11 45 and 49.9. And supposedly the selection
12 criteria would dictate that 40 percent of the
13 cases reviewed should fall into that critical
14 area. So if you haven't had a chance to look
15 at it, this -- these several pages that Kathy
16 sent to you by e-mail identify at this point
17 some of the things that Stu has already
18 mentioned. That is, which facilities have been
19 looked at and what types of cancers, et cetera.
20 But the critical one is the issue of selecting
21 the POC as a criteria, and the critical
22 criteria is the one between 45 and 49.9
23 percent, which we have not yet seen. And
24 supposedly 40 percent of the cases we've
25 audited should fall into that category.

1 **DR. ZIEMER:** Thank you. John, additional --
2 oh, a question here first from Dr. Roessler.

3 **DR. ROESSLER:** Most of my stuff is on my
4 computer. What was the name of that attached
5 file? I'm trying to find it.

6 **DR. BEHLING:** I am not sure.

7 **DR. ROESSLER:** I know I got it, but I can't --

8 **DR. BEHLING:** I know some of you must have it.

9 **MR. GRIFFON:** It's called case selection --
10 case selection. It's a PowerPoint presenta--
11 it's a PowerPoint file.

12 You should be able to find it by that.

13 **DR. ROESSLER:** Case selection.

14 **DR. ZIEMER:** John, did you have an additional
15 comment?

16 **DR. MAURO:** Yes. To make a complicated
17 situation a little bit more complicated, as we
18 discussed at the last meeting, the fact that we
19 may actually have a case that falls between 45
20 and 49, if it turns out it was a maximizing
21 case that fell at 45 to 49, it still doesn't
22 satisfy what we'd like to accomplish. So we'd
23 like to see 45 to 49 -- realistic cases.

24 **DR. ZIEMER:** Yes, thank you. Just one other
25 question, maybe SC&A can help us on this.

1 Basically the first 20 cases we're essentially
2 done with. We have had a couple of outstanding
3 items, I think -- or did we close those off
4 last time, I don't recall. But second -- the
5 next 18 we still have to do the roll-up on.
6 Where are we on the third 22 cases? The reason
7 I'm asking this now is, for example, if we're
8 talking about doing these cases and there's a
9 reliance on the workbooks, and there's a need
10 for a workbook review process, we need to think
11 about sequentially how we do this. You know,
12 are we ready to do this next 20 without having
13 done the workbook review which is being
14 proposed, I believe, really for next year's
15 work. So -- but John, you can answer that
16 after Hans gives his other comment or --
17 **DR. BEHLING:** Yeah, I just wanted to mention
18 where we are on the third set of 22 cases. We
19 are at this point very close to finishing. We
20 do expect to finalize the review process by the
21 end of September and have obviously the draft
22 report in your hands for comments and review.
23 So we're at this point finishing up all of the
24 22 cases which, as I said, will be presented to
25 you in a draft report.

1 **DR. ZIEMER:** Right, and then we'll have to go
2 through the iteration of reviewing --

3 **DR. BEHLING:** Yes.

4 **DR. ZIEMER:** -- comments and resolving issues.

5 **DR. BEHLING:** Yes.

6 **DR. ZIEMER:** Right. Thank you. John?

7 **DR. MAURO:** Whenever case or a TBD is put upon
8 us to work on, next fiscal year, the workbooks
9 are part and parcel of that. In other words,
10 the idea -- the concept that there's a boundary
11 between the two doesn't exist. If in fact
12 we're reviewing a case that -- whereby a
13 workbook was used in order to implement that
14 case and the workbook, by its very nature,
15 implements the provisions of a TBD, well, that
16 workbook, as far as we're concerned, is just
17 one more procedure that is part of the whole
18 that has to be reviewed in the audit process.
19 So I think that we have achieved something
20 important in that we are integrating it into
21 the process, and we will -- those will be
22 reviewed.

23 Now there are also generic workbooks, and
24 here's a separate -- here's where I think
25 things get a little bit more complicated. So

1 from the point of view of site-specific
2 workbooks -- let's say they deal with Savannah
3 River -- we get a case to review it and that
4 case, when it was performed a workbook was
5 used, we have every reason to expect that we
6 will receive that workbook along with the case
7 and we will audit that case using the workbook.
8 And not only that, audit the workbook against
9 the procedures. So it's -- so that the whole
10 story is told and that will be delivered to
11 you.

12 However, there are workbooks that are generic,
13 that cut across all sites. That right now is
14 problematic, in that -- logistically -- in that
15 they may not -- if we're in the process of
16 doing task four audits and if the site -- if
17 the case references that workbook as one of the
18 tools that were used, yes, it will be brought
19 into the audit process. But if it doesn't, it
20 won't be reviewed until it's reviewed as part
21 of task three.

22 **DR. ZIEMER:** Uh-huh.

23 **DR. MAURO:** But maybe that's okay, as long as
24 it's not, you know, needed to do task four,
25 we're fine. One of the problems that could

1 exist is that it may have been used, a generic
2 workbook or even a site-specific workbook may
3 have been used, but may not be cited in the
4 dose reconstruction report. That's one of our
5 concerns. That is, it's important that the
6 dose reconstruction report fully cite
7 everything that it drew upon so that we could
8 track it.

9 **DR. ZIEMER:** Yeah. Basically I'm asking if
10 SC&A is comfortable in moving ahead on
11 reviewing the cases -- the full dose cases
12 without having completed the task of workbook
13 review. And it sounds like you're saying yes -
14 -

15 **DR. MAURO:** Absolutely --

16 **DR. ZIEMER:** -- we can proceed.

17 **DR. MAURO:** Absolutely yes. Absolutely yes.
18 In fact, we see it as the preferred method to
19 have the workbook review very much -- the site-
20 specific workbook reviews very much part of the
21 audits.

22 **DR. ZIEMER:** Okay, thank you. That's helpful.

23 **DR. WADE:** I need to make one more comment.

24 **DR. ZIEMER:** Lew.

25 **DR. WADE:** Just -- just before we start to --

1 the subcommittee starts to deliberate, Stu or
2 Jim, is there anything NIOSH would like to say
3 to inform this discussion and decision, or have
4 you said everything that needs to be said?

5 **MR. HINNEFELD:** I don't know that I have
6 anything else to say. The suggestion that you
7 review Mallinckrodt cases might be a little
8 problematic because I thought the Board
9 reviewed final decision cases. And if we're
10 talking about cases that will be done with the
11 latest up-to-date revisions of the site
12 profile, those won't be final for some period
13 of time. That's the only thing that occurred
14 to me during the discussion.

15 **DR. WADE:** Thank you. I just wanted to make
16 sure we had the record full.

17 **DR. ZIEMER:** Right. That would be a departure
18 from the policy of the Board to do that.
19 Okay, other comments? Yes, John, you have an
20 additional...

21 **DR. MAURO:** Hans just pointed something out to
22 me that I think needs to be -- an appreciation.
23 When we do an audit, Hans -- Hans' expectation
24 is that the audit may very well bring in a
25 particular aspect of a workbook, a particular

1 exposure pathway where the workbook was used.
2 It may not necessarily bring in the full array
3 of tools that are in the workbook.

4 **DR. ZIEMER:** Right.

5 **DR. MAURO:** So we'll what we're going to have
6 is an interesting situation. We will review --
7 we will audit the case, and in so doing we will
8 audit those portions of the workbook that
9 supports the case. But it would not be a
10 complete audit review of the entire workbook if
11 the workbook has a very broad scope.

12 **DR. ZIEMER:** Right.

13 **DR. MAURO:** But that workbook -- let's say it
14 pertains to a particular site -- will receive
15 complete review as part of our site profile
16 review if it's a site-specific. So there's
17 going to be a little bit of synergy between the
18 two. And in addition, if there's a generic
19 workbook out there that is not reviewed as part
20 of either a site profile review or a case, it
21 will be reviewed as part of task three. So I
22 think we're covered.

23 **DR. ZIEMER:** Yeah, so the procedures review
24 would pick it up otherwise, yes.

25 **DR. MAURO:** Yes, so I think we've got this

1 problem in a box.

2 **DR. ZIEMER:** Yeah, I think -- that's helpful.

3 Thank you.

4 Okay, Board members, have you had a chance to
5 think about how to proceed on this next 20
6 cases in terms of, first of all, the mix of
7 random versus full dose estimation cases? Who
8 wants to speak to that? Mark, you have a --

9 **MR. GRIFFON:** Yeah. I mean I think we need to
10 heavily weight it toward the best estimate
11 cases. I did want to point out that when you
12 sort this -- I guess a couple of things. Lew
13 raised the total number of cases, so our
14 projected numbers in our first column, you
15 know, might not be correct if we don't think
16 we're going to do 10 years worth of cases. So
17 there's a couple of variables there, but if you
18 look at these cases, there's about -- I think
19 there's about 180 of them and 67 are Savannah
20 River. And that -- now it may not be totally a
21 bad thing because I think -- just thinking --
22 and I agree with the Mallinckrodt concept in
23 general. I think that we have to wait until
24 Mallinckrodt -- until those cases are fully
25 adjudicated. But with that in mind, I think

1 maybe we want to do some parallel processing
2 with the site profile reviews that are
3 underway, so we'd have Savannah River, Y-12 and
4 Hanford -- I think we've received reports for
5 all three of those, maybe Nevada test site,
6 from SC&A, so it may be good to get some best
7 estimate cases that rely also on that site
8 profile so we're kind of doing -- doing a dual
9 track on that. So -- but I did want to point
10 out that 70 cases out of those 180 are Savannah
11 River, so this a -- and this is all of the best
12 estimate cases. So I went through and I think
13 I came up with like 10 to 15 that I'd even be
14 interested in out of that whole list, so maybe
15 we can get close to 15 and then do some of the
16 -- five of the random ones.

17 **DR. ZIEMER:** So you're suggesting 15 cases out
18 of the full dose estimate table and five others
19 from the random table. How do others feel
20 about that as a... Wanda?

21 **MS. MUNN:** That seems reasonable enough to me.
22 I would think that since we've been asked
23 specifically about the 44-49 percent cases,
24 that perhaps we might pick four or five that
25 fulfill that requirement at the outset,

1 somewhat without regard to -- without focus, I
2 should say, on precisely where they're from.
3 And since so many of the full dose estimates
4 really and truly are Savannah River, obviously
5 a number of those are going to fall in that
6 category. But I would think providing say five
7 such cases would be a good place to start
8 before we move on to the suggestion that Mark's
9 made.

10 **MR. GRIFFON:** Do you know how many fall above
11 45? I haven't sorted that way.

12 **MS. MUNN:** No.

13 **MR. GRIFFON:** I would just be concerned that if
14 they were all lung cancers from Savannah River,
15 I'm not sure -- you know.

16 **MS. MUNN:** No.

17 **DR. ZIEMER:** Let's take a quick look at that.
18 I think we can identify them. Case 110 is
19 colon, Savannah River, 48 percent. There is a
20 44 percent one. It's not at 45, but it's
21 close. Okay, here's a 45, lung at Savannah
22 River, case 145.

23 **MR. GRIFFON:** I can answer the question.
24 There's three cases that fall from 45 to 50.

25 **DR. ZIEMER:** Yeah, there's another Savannah

1 River, male genitalia, case 155. Are those the
2 only three?

3 **MR. GRIFFON:** That's it, those three.

4 **MS. MUNN:** And they're all Savannah River

5 **MR. GRIFFON:** There's some that are really
6 close, 44.96, 44.86, 44.74.

7 **DR. ZIEMER:** There's a 44.7 -- call it 45 -- at
8 Savannah River. It's case 216.

9 **DR. ROESSLER:** There's a 44.74 that's Hanford.

10 **DR. ZIEMER:** Oh, that's Hanford. I looked at
11 the wrong line. Yes, that's the Hanford
12 thyroid. So there are a few of those.

13 **MR. GRIFFON:** So we can probably shoot for four
14 or five in that region, even if it's 44
15 percent, and I think -- yeah.

16 **DR. ZIEMER:** There's a 44.86 -- which basically
17 is 45 -- Savannah River, bone, which is case
18 163.

19 **DR. ROESSLER:** Wouldn't you round up to 45?

20 **DR. ZIEMER:** I would. I don't think we know
21 these to two decimal points, in any event, even
22 though NIOSH likes to show us that. But that's
23 the way it comes out on the computer. You want
24 to start with those and see if you want to
25 include them? Why don't we do that? Is that

1 agreeable as a starting point?

2 Let me ask about case 110, the colon case from
3 Savannah River, do you wish to include that?

4 **DR. ROESSLER:** Yes.

5 **MR. GRIFFON:** Yes.

6 **DR. ZIEMER:** Any objections? Now this will be
7 a recommendation to the full Board tomorrow, so
8 that's one.

9 There is a 44.4, malignant melanoma, case 113,
10 at Savannah River. Do you want to include
11 that?

12 **DR. ROESSLER:** Should round that one down, if
13 we're going to stick to the --

14 **DR. ZIEMER:** Well, it's 44, but I mean...

15 **MS. MUNN:** Yeah, it seems reasonable.

16 **MR. GRIFFON:** I would vote for two other ones
17 before that one --

18 **DR. ZIEMER:** Okay.

19 **MR. GRIFFON:** -- 105 and 216.

20 **DR. ZIEMER:** 105, which is 45. -- really 44.6
21 percent, which is a liver. Yeah, that's a
22 little better.

23 **MR. GRIFFON:** Savannah River.

24 **DR. ZIEMER:** Anyone object to 105?

25 **MS. MUNN:** No.

1 **DR. ZIEMER:** Okay.

2 **MR. GRIFFON:** And 216 is the one that Gen just
3 mentioned, the thyroid at Hanford.

4 **MS. MUNN:** Uh-huh.

5 **DR. ZIEMER:** 216, the thyroid at Hanford.

6 **MS. MUNN:** That's good.

7 **DR. ZIEMER:** What about 163, the bone at
8 Savannah River? Okay on that one?

9 **MS. MUNN:** Yeah, and 155? Oh, is that what we
10 just did?

11 **DR. ROESSLER:** 163 we just did.

12 **MS. MUNN:** Oh, we said 163. What about 155?
13 Again, it's still Savannah River, but it's...

14 **MR. GRIFFON:** Yeah.

15 **DR. ZIEMER:** Which one?

16 **MS. MUNN:** 155.

17 **DR. ZIEMER:** 155, male genitalia and bone at
18 Savannah River.

19 **MR. GRIFFON:** I would kind of vote -- I don't
20 know. We've got three Savannah Rivers in that
21 region.

22 **MS. MUNN:** Yeah, we do.

23 **DR. ZIEMER:** Yeah. Well, there's one --

24 **MR. GRIFFON:** I just assumed we're holding that
25 slot for now.

1 **DR. ZIEMER:** The 155 may be a little better
2 than 163. They're both the same cancer,
3 they're both Savannah River. The 155 is 47
4 percent.

5 **MS. MUNN:** Uh-huh.

6 **MR. GRIFFON:** Well, one's bone and all male
7 genitalia, that (unintelligible).

8 **DR. ZIEMER:** Yeah, they're both bone and all
9 male genitalia.

10 **MR. GRIFFON:** Oh, they are? Oh, yeah, okay.
11 That's fine with me to switch those.

12 **MS. MUNN:** I'd say so.

13 **DR. ZIEMER:** Use 155. Okay, so we have 105,
14 110, 155, and 216 so far out of this list.

15 **MS. MUNN:** Uh-huh.

16 **DR. ZIEMER:** Now that's only four cases. If we
17 want some other full dose cases, in the absence
18 of additional cases between 45 and 50 percent,
19 do you want to select some others that are, for
20 example, 40 to 45?

21 **MS. MUNN:** Well, the issue then becomes do we
22 want to continue in that mode or do we want to
23 start looking at site selection rather than
24 numerical POC.

25 **MR. GRIFFON:** I was keying more in at site at

1 this point, yeah.

2 **MS. MUNN:** Yeah, I agree.

3 **DR. ZIEMER:** Well, that's fine. Let's --

4 **MR. GRIFFON:** And my focus was -- I mean
5 Hanford and Y-12 because we've got those site
6 profile reviews coming, I thought it'd be good
7 to have some real cases to look at while we're
8 looking at the site profiles.

9 **MS. MUNN:** Uh-huh.

10 **MR. GRIFFON:** So with that in mind, I had 264
11 for Y-12.

12 **MS. MUNN:** Uh-huh.

13 **DR. ZIEMER:** 264 is male genitalia, Y-12,
14 basically 28 percent POC.

15 **DR. ROESSLER:** Nervous system.

16 **DR. ZIEMER:** Any objection to that?

17 **MS. MUNN:** No.

18 **DR. ZIEMER:** Add that?

19 **MS. MUNN:** And some comment's been made about
20 these smaller -- that 15 percent category that
21 has been pretty much overlooked so far. How
22 about 262, in that vein?

23 **DR. ZIEMER:** 262, acute leukemia.

24 **MR. GRIFFON:** That's 40 percent, isn't it?

25 **DR. ZIEMER:** Basically -- did you say 262, 39

1 percent?

2 **MS. MUNN:** Uh-huh, because of the facility.

3 **MR. GRIFFON:** Oh, oh, because of the...

4 **DR. ZIEMER:** Heppenstall?

5 **DR. ROESSLER:** What is that?

6 **MS. MUNN:** I have no idea, but that certainly
7 falls in that 15 percent category of "others".

8 **DR. WADE:** Stu?

9 **MR. HINNEFELD:** Well, Heppenstall is an atomic
10 weapons employer. I don't know right off the
11 top of my head what they did, but it was one of
12 the AWE sites.

13 **MS. MUNN:** Yeah, it was one of those 15
14 percenters they were talking about that they
15 seldom see.

16 **MR. GRIFFON:** Right.

17 **DR. WADE:** Yeah, but I bring to mind Dr.
18 Melius's comments to the Board last time that
19 said, you know, when we -- when we decide on
20 site profiles to review, we're looking at those
21 that employed the most. And he was worried
22 that these small sites would be lost, so I
23 think there is some reason to give
24 consideration to them.

25 **MR. GRIFFON:** Sure.

1 **DR. ZIEMER:** You wish to include that one?

2 **MS. MUNN:** Uh-huh.

3 **DR. ZIEMER:** Okay, 262 is in.

4 **MS. MUNN:** In that same vein, 108 is --

5 **DR. ZIEMER:** 108, Nuclear Materials and
6 Equipment Corporation, that's -- actually
7 that's a high -- it's a 63 percent, colon.

8 **MS. MUNN:** Yeah.

9 **MR. GRIFFON:** Is that 108?

10 **DR. ZIEMER:** 108.

11 **MR. GRIFFON:** I have on here -- well, we're
12 jumping around a little bit -- sticking with
13 the theme of the smaller sites, I have 159.

14 **MS. MUNN:** Uh-huh.

15 **DR. ZIEMER:** 159 is basically a 30 percent
16 probability of causation, stomach cancer,
17 Chapman Valve. Any objections?

18 **MS. MUNN:** No.

19 **DR. ROESSLER:** I'd like to ask a question --

20 **DR. ZIEMER:** We'll include that.

21 **DR. ROESSLER:** -- about 190. That one, the
22 four significant digits, is exactly 50 percent,
23 which doesn't fall in our table at all. We
24 have one group 45 to 49.9 and then we have
25 another group greater than 50.

1 **DR. ZIEMER:** Well, it should be 50 or greater
2 because 50 is compensable.

3 **DR. ROESSLER:** Okay.

4 **DR. ZIEMER:** And the table or the pie chart
5 should really read 50 and greater, not greater
6 than 50.

7 **DR. ROESSLER:** Yeah, okay. I'm not
8 recommending that one. I just was curious.

9 **MS. MUNN:** And there's 138, it's Bridgeport
10 Brass.

11 **DR. ZIEMER:** 138, colon cancer, just over the -
12 - it's 53 percent --

13 **MS. MUNN:** Uh-huh.

14 **DR. ZIEMER:** -- Bridgeport Brass. Any
15 objections? Okay, we'll include that, 138.

16 **MR. GRIFFON:** I got like two Hanfords and a Y-
17 12 left. I don't know what count you're up to,
18 Paul, but I'd like to...

19 **DR. ZIEMER:** 1, 2, 3, 4 --

20 **DR. ROESSLER:** Nine, I think.

21 **MS. MUNN:** Nine.

22 **DR. ZIEMER:** I have nine so far designated, so
23 we can take several more.

24 Which one are you looking at?

25 **MR. PRESLEY:** 253, if I may speak.

1 **DR. ZIEMER:** Yes, 253, esophagus, 34 percent at
2 Jessop Steel.

3 **MS. MUNN:** Uh-huh.

4 **DR. ZIEMER:** Okay.

5 **MR. GRIFFON:** Do we -- do we know what Jessop
6 Steel -- is this similar to Bethlehem Steel,
7 they did uranium -- does anyone know?

8 **DR. ZIEMER:** Stu or Jim, do we know what Jessop
9 Steel is?

10 **MR. HINNEFELD:** I don't recall for certain, but
11 I do believe they were a metal-forming AWE.

12 **DR. ZIEMER:** Thank you.

13 **DR. ROESSLER:** How about another Hanford, Mark?

14 **MR. GRIFFON:** Yeah, I got...

15 **DR. ZIEMER:** There's a Hanford that's right at
16 exactly 50 percent that looks -- it's a
17 melanoma, 256.

18 **MR. GRIFFON:** I didn't have that one, only
19 because of the type of cancer, really, but...

20 **MS. MUNN:** There's a similar POC from Bethlehem
21 Steel, 279.

22 **DR. ZIEMER:** What do you want to do on 256?

23 **DR. ROESSLER:** I would vote for that one
24 because of the type of cancer.

25 **MS. MUNN:** Uh-huh.

1 **DR. ZIEMER:** 256 --

2 **DR. ROESSLER:** But I don't know what --

3 **DR. ZIEMER:** -- any objection?

4 **DR. ROESSLER:** -- what others would think about
5 that.

6 **MS. MUNN:** Go for it.

7 **DR. ZIEMER:** Okay, I'm going to include 256.
8 What was your other one, Mark, you had?

9 **MR. GRIFFON:** 130.

10 **DR. ZIEMER:** Mark has suggested 130. It's a
11 pancreas, 20 percent, Hanford. Any objection?

12 **MS. MUNN:** No.

13 **DR. ZIEMER:** Okay, I'll include that. I have
14 12 now designated. We can take three more.
15 And we've covered -- we have an interesting mix
16 of cancers and percentages here -- and
17 facilities.

18 **MR. GRIFFON:** I have a -- well, let's see, a
19 couple of different ones -- 201 is one of them.

20 **DR. ZIEMER:** 201, a bladder, Oak Ridge National
21 Lab, that -- right at 50 percent. Yeah, that
22 looks interesting.

23 **MR. GRIFFON:** And then right --

24 **DR. ZIEMER:** Any objections to 201?

25 **MS. MUNN:** No.

1 **MR. GRIFFON:** And 204, because it was Y-12.

2 **DR. ZIEMER:** Y-12, 204, 23 percent on a colon.
3 Any objections?

4 **MS. MUNN:** Huh-uh.

5 **DR. ZIEMER:** Okay, include that.

6 **MS. MUNN:** There's a high POC at 151 from
7 another one of the small sites.

8 **DR. ZIEMER:** 151 is a 72 percent --

9 **MS. MUNN:** Uh-huh.

10 **DR. ZIEMER:** -- chronic myeloid leukemia from
11 Energy Technology Energy (sic) Center. Want to
12 include that?

13 **MS. MUNN:** I was just looking because of the
14 site more than anything else.

15 **DR. ZIEMER:** How are we on Hanfords, before we
16 decide this? There's a --

17 **MR. GRIFFON:** I have one more Hanford that I
18 was going to recommend, but I don't know how
19 many you have total.

20 **DR. ZIEMER:** We have three Hanfords in the list
21 -- on this -- on this list.

22 **MS. MUNN:** Yeah, three.

23 **MR. GRIFFON:** And you have a total of 14 so
24 far, or how many do...

25 **DR. ZIEMER:** Fourteen.

1 **MR. GRIFFON:** I mean I would say possibly 219
2 is a Hanford --

3 **DR. ZIEMER:** I was looking at that one, also,
4 the breast cancer at Hanford?

5 **MR. GRIFFON:** Yeah.

6 **DR. ZIEMER:** That one, or what was the other
7 one, Wanda? Or -- was it Wanda that --

8 **MR. GRIFFON:** The ETEC, whatever that place is.

9 **DR. ZIEMER:** What was that number and...

10 **MS. MUNN:** 151.

11 **DR. ZIEMER:** 151 versus -- versus --

12 **MS. MUNN:** It's a high POC but an interesting
13 site.

14 **DR. ROESSLER:** How many of the smaller sites
15 have we picked? We might almost overdo that.

16 **MS. MUNN:** It's a possibility.

17 **MR. GRIFFON:** Well, if we look at Stu's sheet -
18 -

19 **DR. ZIEMER:** We have three small sites on this
20 right now. We have that Heppenstall, Jessop
21 and Chapman.

22 **DR. ROESSLER:** I think I'd go for 257, the one
23 that -- which one did you pick, Mark? It was
24 breast cancer at Hanford.

25 **MR. GRIFFON:** Was it 219?

1 **DR. ROESSLER:** I thought that one was a good
2 one.
3 **DR. ZIEMER:** 219 was the Hanford breast cancer.
4 **MS. MUNN:** Uh-huh.
5 **DR. ZIEMER:** Any preference?
6 **MR. PRESLEY:** Can I speak?
7 **DR. ZIEMER:** Yes.
8 **MR. PRESLEY:** Look at 76, please -- 176.
9 **MS. MUNN:** Ah, a good one.
10 **DR. ROESSLER:** Ooh, yeah, very good. What does
11 "other respiratory" mean?
12 **MR. PRESLEY:** That I -- that I don't know.
13 **DR. ZIEMER:** Other respiratory, Stu? Well,
14 that -- that's a National Cancer category.
15 **MR. HINNEFELD:** Right, it could be --
16 **DR. ZIEMER:** Other than lung.
17 **MR. HINNEFELD:** It could be anything in your
18 breathing pipe --
19 **DR. ZIEMER:** Yeah.
20 **MR. HINNEFELD:** -- from the back of your mouth
21 or back of your nose, through your
22 (unintelligible) --
23 **DR. ZIEMER:** Into the bronchials and --
24 **MR. HINNEFELD:** -- through the bronchials, so
25 it's -- it's essentially respiratory tract

1 before the lung. It's ET-2 in the ICR-- ET-1
2 and ET-2 in the ICRP-66 lung model.

3 **DR. ROESSLER:** That's interesting, and on the
4 years worked.

5 **MS. MUNN:** Isn't it.

6 **UNIDENTIFIED:** (Off microphone) Just one year.

7 **MR. PRESLEY:** Yes, and the work decade, too.

8 **MS. MUNN:** Yeah, barely made it.

9 **DR. ROESSLER:** Yeah, that one's interesting.

10 **DR. ZIEMER:** You want to include that then?

11 **MS. MUNN:** Yeah.

12 **DR. ZIEMER:** Is that agreeable? Okay.

13 **MS. MUNN:** A lot going on with
14 (unintelligible).

15 **DR. ZIEMER:** Then case 176, West Valley, the
16 other respiratory. That gives us 15 cases from
17 this list, and if, without objection, we go
18 back to the random list then and pick five
19 more. I'm looking on the random list to see if
20 we have any more that are in the 45 to 50
21 category.

22 **MS. MUNN:** Well, you have 058 there, back at
23 Savannah River -- no.

24 **MR. GRIFFON:** I think I'd stay away from
25 Savannah and Hanford and Y-12.

1 **MS. MUNN:** Yeah, a lot of that.

2 **MR. HINNEFELD:** Excuse me --

3 **DR. ZIEMER:** Stu.

4 **MR. HINNEFELD:** -- I do want to caution that
5 the full -- if it's a full estimation case on
6 the randomly selected list, that case also
7 appears on the -- on the list you just worked
8 from.

9 **DR. ZIEMER:** Right.

10 **MR. HINNEFELD:** So if you select a case on the
11 randomly selected list that says full dose
12 reconstruction, you want to make sure it's not
13 one that you selected off the other list.

14 **DR. ZIEMER:** Right, thank you. Yeah, and that
15 -- that one is probably one that we selected.
16 In fact it is, I see it, so we've already
17 selected it. Yes, Robert?

18 **MR. PRESLEY:** Could you look at one -- at 0110?
19 That's from Pinellas. We have not done
20 anything, to my knowledge, from Pinellas, and
21 it's a 1960 date.

22 **MS. MUNN:** That's back on the other list.

23 **DR. ZIEMER:** What's the number on that one
24 again?

25 **MR. PRESLEY:** 0110.

1 **DR. ZIEMER:** Maybe the zero -- 010 -- 010.

2 **MS. MUNN:** Yeah.

3 **DR. ZIEMER:** Okay?

4 **MS. MUNN:** Squamous cell.

5 **DR. ZIEMER:** Objection? Okay.

6 **MR. GRIFFON:** Actually right after that, 111
7 (sic), I was looking at.

8 **DR. ZIEMER:** Okay, 111 (sic), pancreas, Feed
9 Materials Production Center, 33 percent.

10 **DR. ROESSLER:** What about one from the Nevada
11 Test Site, like 017? The POC, the cancer and
12 the years worked is kind of interesting on that
13 one.

14 **MS. MUNN:** Uh-huh, it is.

15 **DR. ZIEMER:** Any objection?

16 **MS. MUNN:** No.

17 **DR. ZIEMER:** What do we have from Nevada Test
18 Site so far, Mark? Are you tracking there?

19 **MR. GRIFFON:** Yeah, I don't think we have much.
20 Overall we've only got three in the past 60
21 cases so it's not...

22 **MS. MUNN:** Here's a low POC from Los Alamos,
23 035.

24 **DR. ZIEMER:** What number?

25 **MS. MUNN:** 035.

1 **DR. ZIEMER:** 035, Los Alamos case, any
2 objections to that one? What about 034 from
3 Idaho? Do we need any more Y-12s?

4 **MR. GRIFFON:** I don't think -- not this round.

5 **MS. MUNN:** 034 is good.

6 **MR. PRESLEY:** 068 is a low one from Los Alamos,
7 also. It's got a 1970 time frame, that's
8 urinary organs.

9 **DR. ZIEMER:** I'm looking for --

10 **MR. PRESLEY:** (Off microphone) Bridgeport Brass
11 (unintelligible).

12 **DR. ZIEMER:** We just need one, either -- either
13 that Los Alamos, 068, or the Idaho, 034.

14 **MR. GIBSON:** Excuse me, Paul.

15 **MS. MUNN:** Let's do 034.

16 **DR. ZIEMER:** Mike?

17 **MR. GIBSON:** Back on the other list for the --
18 all the cases with the full dose estimate,
19 there's one I see here from Mound, which we
20 haven't done any yet. It's a -- 234, it's
21 bladder cancer, 19.65 probability of causation.

22 **MR. GRIFFON:** What number was that, Mike?

23 **MR. GIBSON:** 234.

24 **DR. ZIEMER:** 234? We can certainly add --
25 there's no reason we can't do 16 from that

1 list. Any objections to that, do the Mound?
2 Okay.

3 **DR. ROESSLER:** Let's do it, sure.

4 **DR. ZIEMER:** Let's put that back in then. So
5 that's 234. So we have 16 now from the full
6 dose list and then we have the following from
7 the random list -- let's double-check the
8 randoms now. It'll be 010, 011, 017 and 035.
9 Is that correct? Everybody agree? That's
10 four, and we have 16 on the other list.

11 **MS. MUNN:** So we decided against -- oh, we did
12 034, not 035, whichever.

13 **DR. ZIEMER:** So just for the record, can we
14 have a motion that we recommend to the full
15 Board these four cases from the random list,
16 plus the 16 cases from the full dose estimate
17 list.

18 **MS. MUNN:** So moved.

19 **DR. ZIEMER:** Is there a second?

20 **MR. GRIFFON:** Second.

21 **DR. ZIEMER:** Any discussion?

22 (No responses)

23 All in favor, aye?

24 (Affirmative responses)

25 Opposed?

1 (No responses)

2 Motion carries, and we will recommend these
3 then to the Board. Stu, thank you very much
4 for providing the matrix material for us. And
5 SC&A, you'll have your work cut out for you
6 here on this next batch as they get under way.
7 Any other questions or comments now on dose
8 reconstruction?

9 Okay, let me -- while we're on this topic, let
10 me ask, where are we on the first 20? Did we
11 have any out-- we closed everything, didn't we,
12 on...

13 **UNIDENTIFIED:** (Off microphone) No.

14 **DR. ZIEMER:** Oh, were there some things going
15 back to NIOSH for -- yes.

16 **MR. HINNEFELD:** We -- we have a series of
17 actions to do and provide a report to you on
18 what we did. So we -- we don't have a report
19 on those today --

20 **DR. ZIEMER:** Oh, okay.

21 **MR. HINNEFELD:** -- or this week, but we do have
22 actions in our house to -- to resolve comments
23 where we agreed yes, we need to go back and
24 look at and re-evaluate --

25 **DR. ZIEMER:** But that is the final step. We

1 don't necessarily need to take action today on
2 that -- or even at this meeting --

3 **MR. HINNEFELD:** That was done -- that was done
4 at the last meeting, and as I understand it, we
5 have -- the next action is ours to provide --

6 **DR. ZIEMER:** There were a few items where we
7 had to come to closure, but --

8 **MR. GRIFFON:** Right, well, there were several
9 items that we deferred to the site profile
10 review process.

11 **DR. ZIEMER:** Right.

12 **DR. WADE:** But just for the record, remember
13 that -- we talked about the next Board meeting.
14 This is a special Board meeting that we called
15 to deal with issues at Mallinckrodt, so --

16 **DR. ZIEMER:** Right.

17 **DR. WADE:** -- we would expect to hear from
18 NIOSH at the next Board meeting.

19 **MR. HINNEFELD:** The October meeting was really
20 what we were --

21 **DR. ZIEMER:** And likewise then, action on the
22 second 18 would -- where are we on that? I
23 think we're somewhere in the matrix process on
24 that. I -- Hans -- he's not here.

25 **DR. MAURO:** Yes, they've all been completed.

1 They've -- all the checklists have been
2 completed, and I believe we're in the process
3 of filling out the -- working with Mark in
4 filling out the matrix and the -- so we're well
5 along on that. And as Hans pointed out, the
6 last set of 22, we're about halfway through,
7 and you'll be getting the full report before
8 the end of the fiscal year.

9 **DR. ZIEMER:** Good. Thank you very much.

10 **DR. WADE:** Just for the completeness of the
11 record, what do we expect to happen at the next
12 Board meeting relative to the second batch of
13 20? We'd have your report at that point, John?

14 **DR. MAURO:** The second set of 18, you have the
15 report.

16 **DR. ZIEMER:** Right.

17 **DR. MAURO:** The report's in your hands. My
18 expectation and my -- would be the same process
19 we went through, working with the Board -- with
20 subcommittee on the matrix and going through
21 the scorecard --

22 **DR. ZIEMER:** Are we awaiting responses on NIOSH
23 from that second 18, or are they awaiting
24 responses from us, or does it -- I think we
25 have your comments --

1 **DR. MAURO:** Yes.

2 **DR. ZIEMER:** -- on the second 18.

3 **DR. MAURO:** I think the ball is in the court of
4 NIOSH in terms of action items related to our
5 findings on the first (sic) set of 18 to be
6 loaded into the matrix and then go through the
7 closeout process at our next meeting.

8 **DR. ZIEMER:** Right.

9 **MR. GRIFFON:** So I would hope -- and maybe we
10 can try to get that on the subcommittee meeting
11 for the next --

12 **DR. ZIEMER:** For the next meeting.

13 **MR. GRIFFON:** Yeah.

14 **DR. ZIEMER:** Right. Thank you.

15 **DR. WADE:** Just -- NIOSH -- Stu, if I could
16 trouble you again.

17 **MR. HINNEFELD:** Sure.

18 **DR. WADE:** Again, since my -- one of my few
19 tasks is to schedule the agenda, would we have
20 the materials available to the subcommittee
21 before the October meeting so that they could
22 take up that issue at the October subcommittee,
23 on the second 18?

24 **MR. HINNEFELD:** Okay. We can have -- we can
25 get to the step in the process where we were on

1 the first 20 at the last meeting. If -- you
2 know, we have a matrix with the findings in --
3 you know, and our response to the finding, and
4 then the amount of convergence that can occur
5 between now and the end of October is a little
6 open -- up in the air as to how much
7 opportunity there'll be for that, but is that
8 the desire then, we work that convergence, you
9 know, we -- we provide our response, we talk to
10 SC&A about -- well, what about this and -- and
11 sort of come to an agreed-upon -- okay, this
12 one goes away and this one we really need to go
13 sort out. There's a -- I think we might be
14 able to do that by the next meeting, to be at
15 that point.

16 **DR. WADE:** As much convergence as possible, but
17 we'll assume that intellectually at the next
18 subcommittee meeting we'll be dealing with this
19 issue of the matrix in front of us, the NIOSH
20 comments, a report on convergence, and the
21 subcommittee then will take up the open issues.

22 **MR. HINNEFELD:** Okay.

23 **DR. WADE:** And we'll close on the first 20 you
24 said.

25 **DR. ZIEMER:** Okay, thank you very much. That's

1 good progress on the dose reconstruction
2 selections.

3 We want to move now to Bethlehem Steel site
4 profile.

5 **DISCUSSION OF CANDIDATE SITE PROFILES**

6 **FOR REVIEW BY SC&A**

7 **DR. WADE:** I would suggest maybe while we're on
8 this vein we could deal with the issue of the
9 candidate site profiles for review. I mean
10 we're talking about tasking SC&A, and it seems
11 that would be a natural flow, if that's okay.

12 **DR. ZIEMER:** We can do that.

13 **DR. WADE:** Stu, are you in a position to walk
14 us through what we have on site profiles?

15 **MR. HINNEFELD:** Upcoming site profiles?

16 **DR. WADE:** What we have in our -- we have a tab
17 that has been provided looking at the... Maybe
18 I can give you that.

19 **DR. ZIEMER:** Well, I think we also got a color
20 version of this, the green and red, also on --
21 by e-mail.

22 **MS. MUNN:** Yeah, I think we did all of the
23 other.

24 **MR. HINNEFELD:** Okay, the tables you have in
25 front of you is the status table for progress

1 on site profile documents -- site profile
2 chapters. You know, each -- all six sections
3 are -- for each site are listed across the top
4 and the sites are listed down the side, and so
5 this is the -- up-to-date as of -- it looks
6 like last week -- progress. Anything that's
7 marked "approved" is approved and out there.
8 There are a few things here that are marked --
9 that are not quite incomplete (sic), they'll
10 either have an ORAU or an OCAS in it, which
11 means that -- if it's OCAS, that means we have
12 it and we are reviewing it, and put to the
13 right comments or approve. If it's on the ORAU
14 side, that means that they either haven't
15 submitted it, but more likely it means they're
16 resolving comments we provided them during our
17 review. So anything that is approved all the
18 way across is the final product available for
19 review.

20 And then the remainder of the sites down
21 through the well, it's -- LLNL, Lawrence
22 Livermore, should be done, you know, forthwith.
23 The remainder of the sites that are all white
24 at the bottom of the second page are scheduled
25 for this calendar year, so they should also be

1 resubmitted -- the original version should be
2 submitted to us by December. I think their due
3 dates are all actually in December, if I'm not
4 mistaken. So these are the -- the site
5 profiles that are complete and available for
6 review are the ones that are green all the way
7 across.

8 **DR. ZIEMER:** Okay. Any questions on these?

9 (No responses)

10 Where's Mallinckrodt on this list?

11 **MR. HINNEFELD:** This list I believe is for this
12 fiscal year and --

13 **DR. ZIEMER:** Oh, I gotcha.

14 **MR. HINNEFELD:** -- Mallinckrodt was on a
15 previous list.

16 **DR. ZIEMER:** Okay. Now John, could you -- you
17 or one of your staff give us a quick update on
18 where you guys are in terms of your current
19 review process on site profiles?

20 **DR. MAURO:** The full scope of services for this
21 -- that'll end at the end of this fiscal year
22 included nine site profile reviews. What is
23 still pending are Nevada Test Site, Rocky
24 Flats, INL and Y-12. Y-12 is completed. It's
25 sitting in our office, but we have to sit on it

1 until we get -- and Joe could tell us a little
2 bit more about it -- authorization to release
3 it from the Department of Energy's
4 declassification process. So that's been
5 completed for quite some time.

6 The other documents, the INL site profile is --
7 is in draft form. In fact, I think I have it
8 in my briefcase and I'm reviewing it. We're
9 probably two weeks away from delivering that
10 report to you.

11 Nevada Test Site and Rocky bring up the rear
12 and we have the -- our expectation is that we
13 will be delivering that -- those two reports to
14 you before the end of September. The only
15 qualifier is the degree to which we will be
16 able to get through the complete process, the
17 complete process being -- especially with
18 regard to Rocky -- issues related to
19 declassification. Our expectation is that we
20 would move that report out and avoid finding
21 ourselves in the delay associated with
22 declassification issues and try to get out what
23 we would call a non-classified version of the
24 report as best we can so that will have that
25 product in your hands before the end of the

1 fiscal year.

2 The other areas -- I'm trying to -- Nevada Test
3 Site, that is probably the one that is going to
4 be going out perhaps without the benefit of
5 some of the -- as much of the review cycle that
6 we would have liked to have had in terms of
7 working all of the interviews into the process.
8 So for I would say two out of the four
9 remaining, they will be complete documents, but
10 may not have benefited from as much of the
11 review cycle that we would've liked and as a
12 result that may necessarily -- that aspect,
13 what I call the back end of the process for
14 those two site profile reviews, may very well
15 have to carry over into next fiscal year.

16 **DR. WADE:** John, just for the record could you
17 specify the nine site profiles that you looked
18 at?

19 **DR. MAURO:** Okay. It's Bethlehem Steel,
20 Mallinckrodt, Savannah River, Hanford, Iowa
21 Ammunition Plant -- that's five -- Nevada Test
22 Site, Rocky, Y-12 -- I'm missing one --

23 **UNIDENTIFIED:** (Off microphone) INL.

24 **DR. MAURO:** -- INL, thank you.

25 **DR. ZIEMER:** Everybody get that list?

1 **MS. MUNN:** Uh-huh. Uh-huh.

2 **DR. ZIEMER:** So there may be a little tail over
3 on some of these into next fiscal year,
4 particularly -- did you say Nevada and INEL?

5 **DR. MAURO:** Yes, I believe that there -- the
6 way things are unfolding in the six-step
7 process, I believe that there will be several
8 site profiles that clearly closure of the -- of
9 issues will carry over to next fiscal year.

10 **DR. ZIEMER:** The main body of your review,
11 though, is going to be largely done this fiscal
12 year.

13 **DR. MAURO:** Yes, a good way to look at is
14 virtually 90 percent, 80 percent of the work on
15 -- the ones that are --

16 **DR. ZIEMER:** The front end work.

17 **DR. MAURO:** The front end work. You'll have a
18 product that will be of sufficient completeness
19 that will allow the process to move forward
20 productively. Unfortunately there will be some
21 carryover because of the six-step process, and
22 in fact in our proposal of work to you folks
23 that I guess will be the subject a little later
24 on this week, you'll see that we -- in our
25 proposal to you we've set aside some resources,

1 recognizing that there would be some carryover,
2 to continue that work.

3 **DR. ZIEMER:** Thank you. Mark?

4 **MR. GRIFFON:** Just in terms of selection for
5 future site profiles that -- the note that
6 Mallinckrodt and Bethlehem Steel aren't on that
7 other list. Are there other -- are there a lot
8 of others that are not on there that are
9 completed site profiles that we might have as
10 part of our pool to select from? I'm getting a
11 little confused at what we have available to
12 select from.

13 **DR. ZIEMER:** Well, what's available to select
14 from I guess is on this table. I mean you have
15 some that are done, like Bethlehem and
16 Mallinckrodt.

17 **MR. GRIFFON:** Mallinckrodt and Bethlehem
18 weren't on there, but are there other ones on
19 there that we didn't review -- not on there
20 that we didn't review.

21 **MR. HINNEFELD:** The gaseous diffusion plants.
22 Are they on there? Okay.

23 **MS. MUNN:** IAAP is done and gone, fortunately.

24 **DR. WADE:** And the question, Stu, is -- the
25 subcommittee needs to understand the universe

1 of sites essentially available to it.

2 **MR. HINNEFELD:** I might have to go do a little
3 research to know for sure.

4 **MS. MUNN:** Well, we did IAAP.

5 **MR. GRIFFON:** Especially from the smaller
6 sites. That's where I'm really at a loss.

7 **DR. ZIEMER:** Just for clarity, the GAO date I
8 think is the date that NIOSH told the
9 Government Accounting Office that -- was your
10 target date for completion of the profile. Is
11 that correct?

12 **MR. HINNEFELD:** Target date for completion of I
13 believe the initial draft of the profile.

14 **DR. ZIEMER:** Initial draft, uh-huh.

15 **MR. HINNEFELD:** And a 60-day implementation
16 period following that.

17 **DR. ZIEMER:** Right.

18 **DR. TOOHEY:** The only ones not on this list
19 that come to mind are Blockson Chemical and --
20 that's -- that's the only one I can think of
21 right now that's not on here. Sandia -- no,
22 that is on there, never mind.

23 **DR. ZIEMER:** Sandia is on the list.

24 **DR. TOOHEY:** Yeah. Okay, that's about the only
25 one.

1 **DR. ZIEMER:** Okay. Lew?

2 **DR. WADE:** No.

3 **DR. ZIEMER:** Oh. Okay, any other questions?
4 And remind us, Lew, how many have to be
5 selected? Can we give that number this time,
6 or do we need to wait?

7 **DR. WADE:** If I had to plan a number, I would
8 say six. I mean, I think it remain-- the exact
9 number will have to await the full Board
10 discussion as to tasking the contractor for
11 next year and it will eventually await budget
12 determinations, but I think six. From my very
13 selfish point of view as Technical Project
14 Officer, we want to keep the contractor working
15 at the start of the year.

16 **DR. ZIEMER:** As a minimum we can specify what
17 the next six cases will be, regardless of
18 whether we do them all this year or not.

19 **DR. WADE:** I think that would put us in a very
20 good position.

21 **DR. ZIEMER:** In terms of the dose
22 reconstruction cases being reviewed and so on,
23 do the Board members have any feeling for which
24 -- which of these you believe should be near
25 the top of your list? For example, we have

1 cases from Hanford coming into the picture,
2 probably Los Alamos. What is your pleasure,
3 Board members? Any -- any preferences?

4 **DR. ROESSLER:** It seems Hanford would be high
5 on the list.

6 **DR. ZIEMER:** Let's see if we can identify --
7 put it out as a strawman.
8 How many -- any objections to Hanford being in
9 the next list of six?

10 **UNIDENTIFIED:** Where is Hanford?

11 **MR. GRIFFON:** Hanford is completed.

12 **MS. MUNN:** It's still in Washington.

13 **MR. GRIFFON:** Hanford's been delivered to us.

14 **DR. ZIEMER:** Yeah, we have Hanford. I didn't
15 mark it down.

16 **MS. MUNN:** A monster.

17 **DR. MAURO:** Are you referring to cases now? I
18 didn't quite follow the --

19 **DR. ZIEMER:** No, no, we're looking at site
20 profiles, but I forgot to check off Hanford on
21 the list here.

22 **DR. MAURO:** When I was listening to the
23 discussion, I -- in my head I thought you were
24 talking about a priority of the next 60.

25 **DR. ZIEMER:** Next six, yeah.

1 **DR. MAURO:** Next six -- oh, not 60. But there
2 was a thought came to mind that might be worth
3 consideration and I'll -- it also was a step
4 backward, though. When we look back over the
5 nine site profiles that we reviewed, certain of
6 them we have raised certain issues that we find
7 -- and there's general consensus in our group -
8 - that are very compelling. Example, Hanford
9 we have -- have cert-- serious concerns with
10 the neutron to photon ratios and how they're
11 developed. We consider that to be something of
12 profound importance in dose reconstruction and
13 how you go about selecting your neutron to
14 photon ratio. Each -- out of the nine that
15 have been done, maybe three or four of them
16 have raised certain concerns that we consider
17 to be extraordinary importance because they
18 have the potential to have a very large effect
19 on doses and also on a large number of cases.
20 We've never talked about that before, and
21 perhaps that should somehow play out when we're
22 selecting realistic cases for the purposes of
23 doing the audits themselves. So I apologize
24 for stepping back a bit, but it was -- while
25 you were talking I was thinking in terms of

1 priority of the 60 cases and that -- that's
2 something that crossed my mind.

3 **DR. ZIEMER:** Thank you.

4 **DR. WADE:** But from a historical point of view,
5 the last time the Board took up this issue it
6 went with the largest employers, as I
7 understand. I mean now you could continue with
8 that and you could get numbers, you could use a
9 different logic. I think we're much more
10 experienced now -- also the interconnectedness
11 of this whole process -- so I think it's a good
12 discussion to have.

13 **MR. GRIFFON:** I got a -- I got a list of seven.

14 **DR. ZIEMER:** Uh-huh, go ahead.

15 **MR. GRIFFON:** I'm looking at Fernald, Los
16 Alamos, Mound, X-10, LLNL -- Lawrence
17 Livermore, and then on the small sites,
18 Bridgeport Brass and Combustion Engineering. I
19 should note -- I just caught it myself -- is
20 that it's not approved yet, so --

21 **MS. MUNN:** Yeah.

22 **MR. GRIFFON:** -- and I didn't realize that when
23 I was checking off --

24 **MS. MUNN:** Yeah, we can do that.

25 **MR. GRIFFON:** So maybe I do have six, I don't

1 know. I'd just throw those out there.

2 **DR. ZIEMER:** Well, it's very close to -- it's
3 got a 9/05 target date on it.

4 **DR. WADE:** Would you say those again for the
5 record, Mark?

6 **MR. GRIFFON:** Yeah, Fernald, Los Alamos, Mound,
7 X-10, Lawrence Livermore, Bridgeport Brass and
8 Combustion Engineering.

9 **DR. ZIEMER:** Just -- yeah, Robert, you have a
10 comment on that?

11 **MR. PRESLEY:** Can I speak? Yes.

12 **DR. ZIEMER:** Yes.

13 **MR. PRESLEY:** Where are we on Pinellas?
14 Pinellas is marked ORAU.

15 **MR. HINNEFELD:** Well, generally we're in
16 comment resolution. That would mean we've
17 commented and it's back to ORAU to resolve our
18 comments. So that's where that is at the time.

19 **MR. PRESLEY:** The reason I bring Pinellas up,
20 it's -- it's different from anything we've
21 done. I believe it's a non-uranium type
22 facility. It would be interesting to see what
23 they find out on their site profile for a non-
24 uranium facility.

25 **DR. ROESSLER:** Lawrence Livermore is -- doesn't

1 look like it's near completion. It does have a
2 6/05 date on it, but there's a lot of red and
3 yellow on that. I'm wondering how -- if we
4 consider that, how far along that is.

5 **DR. ZIEMER:** Dick Toohey maybe can speak to
6 that.

7 **DR. TOOHEY:** I just happened to have a message
8 regarding those on my portable mind received
9 this morning. On Pinellas I think the only
10 things that are open, and this should hopefully
11 match what's on your color chart there, is the
12 internal and external TBDs, and they're in the
13 final comment resolution stage. So if NIOSH is
14 happy with our response to their comments,
15 those will be signed off shortly.

16 Livermore, the introduction, environmental,
17 internal dosimetry and external dosimetry TBDs
18 are also -- we think -- we've responded to
19 NIOSH comments on it and they're back to NIOSH
20 for their review and approval of those
21 comments. So again, if we were successful in
22 addressing their comments, those should be
23 approved shortly.

24 **DR. ZIEMER:** Okay. Thank you very much. So
25 actually we have a suggestion of seven or eight

1 possibilities. Remind us, though, Pinellas --
2 didn't Pinellas do largely timers and so on?
3 Did they have maybe some tritium work? Tritium
4 was the main thing there, right?

5 **MR. PRESLEY:** Tritium, beryllium.

6 **MR. HINNEFELD:** Tritium, and they had some
7 neutron generator work, as well.

8 **DR. ZIEMER:** Wanda?

9 **MS. MUNN:** Since Lawrence Livermore is still
10 having work done on it, if we wanted to look at
11 a laboratory would we do just as well to look
12 at Argonne West?

13 **DR. ZIEMER:** That's a possible suggestion,
14 Argonne West. Uh-huh.

15 **MS. MUNN:** Yeah, it is.

16 **DR. ZIEMER:** Let me go down through these and
17 maybe we can just order them. Any objection to
18 Fernald? Los Alamos? Mound? And X-10? Those
19 four are completed and are probably excellent
20 candidates. Any objection to using those as,
21 for example, our top four? Not necessarily in
22 that order, but -- there appears to be no
23 objection.

24 Now let's look at -- we have Lawrence Livermore
25 -- I'm sorry, what -- Pinellas --

1 **DR. ROESSLER:** Argonne West.

2 **DR. ZIEMER:** And Argonne West.

3 **DR. ROESSLER:** And Bridge--

4 **MS. MUNN:** Uh-huh.

5 **DR. ZIEMER:** And we have two -- two of the AWE
6 sites, Bridgeport Brass and Combustion
7 Engineering.

8 **MR. GRIFFON:** I guess I would be willing to
9 take Combustion Engineering off the list for
10 now since it's got no -- you know, not
11 completed yet.

12 **DR. ZIEMER:** Let me suggest that we include
13 Combustion Engineering in our list so we have
14 at least an AWE site.

15 **MR. PRESLEY:** You mean Bridgeport Brass?

16 **DR. ZIEMER:** I meant Bridgeport Brass, say that
17 three times rapidly, and then perhaps select as
18 our sixth one, one of -- Argonne, Pinellas or
19 Lawrence Livermore. And then the other two --
20 carry those along as the next two in case the -
21 - in case we get there.

22 **DR. WADE:** Resources available.

23 **DR. ZIEMER:** Resources available.

24 **MR. GRIFFON:** I will throw out one other thing
25 that I just thought of, Blockson Chemical --

1 and the only reason I bring that up is because
2 in previous meetings we've had some discussion
3 on how the radon issue is being handled and I
4 know that -- that we've had several -- quite a
5 bit of dialogue on that and I don't think -- it
6 wasn't on the list, that's why I forgot about
7 it, but I'm assuming it's complete. Right?

8 **MS. MUNN:** It's done.

9 **MR. GRIFFON:** Or is it?

10 **DR. WADE:** You need to ask...

11 **UNIDENTIFIED:** Blockson Chemical?

12 **MR. GRIFFON:** Blockson Chemical.

13 **DR. ZIEMER:** I think Stu said it was --

14 **MR. HINNEFELD:** Beg your pardon?

15 **MS. MUNN:** Blockson Chemical, is it complete?

16 **MR. HINNEFELD:** You're talking about radon at
17 Blockson? Is that what you're talking about?

18 **MS. MUNN:** Uh-huh.

19 **DR. WADE:** Is it -- is it available for us to
20 consider for review?

21 **DR. ZIEMER:** It's done, Blockson is done.

22 **MR. HINNEFELD:** Right, Blockson -- the site
23 profile is published, right.

24 **MR. GRIFFON:** But the ra-- the radon section is
25 still reserved at this point?

1 **MR. HINNEFELD:** Yes.

2 **MR. GRIFFON:** Oh, okay, so maybe we should hold
3 off on that until -- all right.

4 **DR. ZIEMER:** Okay.

5 **DR. ROESSLER:** I would speak for Pinellas for
6 the reasons Bob mentioned. It's a very --
7 seems like a very different site and I think
8 that should be looked at.

9 **DR. ZIEMER:** How do the rest of you feel? You
10 want to add Pinellas then as the sixth one?

11 **MS. MUNN:** Yes, uh-huh.

12 **DR. ZIEMER:** Okay, Pinellas will be six, and
13 then perhaps Argonne West and Lawrence
14 Livermore can be seven and eight then. So we
15 have a pool here to draw from. Can I have a
16 motion to that effect?

17 **MS. MUNN:** So moved.

18 **DR. ZIEMER:** And seconded?

19 **MR. GRIFFON:** Second.

20 **DR. ZIEMER:** Okay. The motion is that Fernald,
21 Lawrence -- or Los Alamos, Mound, X-10 and
22 Pinellas and Bridgeport will be our first six.
23 I don't know that we necessarily have to
24 specify the order at this time, do we?

25 **DR. WADE:** Well, I mean I think we will have to

1 do something first. If you want to leave that
2 to my and the contractor's discussion, that's
3 fine. If you want to inform that decision,
4 please do.

5 **DR. ZIEMER:** Okay, we'll come back to that.
6 And then Pinellas and -- or I'm sorry, Argonne
7 West and Lawrence Livermore would be seven and
8 eight.

9 All in favor, aye?

10 (Affirmative responses)

11 Any opposed?

12 (No responses)

13 Motion carries, and we'll recommend that to the
14 full Board. Do you wish to prioritize these
15 first six for the contractor? Mark?

16 **MR. GRIFFON:** I would say let's hold off and
17 maybe get some input from them, the contractor,
18 'cause I'd like to also look at the maybe pool
19 of dose reconstructions and what NIOSH is
20 prioritizing as far as case work. That might
21 drive our decision on what we want to look at.

22 **DR. ZIEMER:** And some of those issues, like the
23 -- was it the photon to neutron ratio issue --
24 that's surely going to come up at some of these
25 places like Los Alamos, big time, and probably

1 at X-10, Lawrence Livermore. Mike?

2 **MR. GIBSON:** Some of the sites -- we might also
3 need to think about -- they're scheduled for
4 closure here in the next six months to a year
5 and it's going to be kind of hard for me to
6 track people down to review the site profiles,
7 so you may want to try to prioritize those.

8 **DR. ZIEMER:** That's a good point, yeah.

9 **MR. GRIFFON:** Yeah, actually Pinellas is good
10 for that reason.

11 **DR. ZIEMER:** Pinellas is -- and what's Mound's
12 status?

13 **MR. GIBSON:** It's similar.

14 **DR. ZIEMER:** It's similar. Right? So get them
15 while you can. Uh-huh, good point. Thank you.

16 **DR. WADE:** So maybe we can hear from the
17 contractor and NIOSH when the Board discusses
18 this if there are any thoughts that need to be
19 considered as to priority.

20 **DR. MAURO:** Just one thought comes to mind now
21 that is of a practical matter. The degree to
22 which the site profile review has been
23 completed prior to us doing the detailed review
24 of the cases -- it's almost a -- when the ca--
25 the three sets of 20 cases move through the

1 system it would be desirable -- for example,
2 let's say the next set of 20 that move through
3 starting October 1st, it would be very
4 desirable for those -- for that set of -- first
5 set of 20 to be cases that already have sitting
6 behind them the fact that we've done a site
7 profile review. So almost to the extent that
8 it's possible -- and I realize the logistics
9 are very difficult -- but when we have the site
10 profile review done and then we are asked to
11 review a case, the power of our -- the ability
12 for us to review that case increases
13 dramatically by having that behind us.

14 **DR. ZIEMER:** Right. Thank you.

15 **DR. WADE:** Mark.

16 **DR. ZIEMER:** Mark?

17 **MR. GRIFFON:** I mean I was just going to say --
18 I was -- I was thinking a similar -- similar
19 thought as you, John, but I could also see a
20 benefit of sort of parallel processing because
21 I know in Mallinckrodt this process that we've
22 gone through -- we looked at the site profile,
23 but we also found that it was beneficial to see
24 a couple of -- of how they were going to do the
25 dose reconstruction, actually how they were

1 going to apply some of those things in the site
2 -- and so either before or parallel to, I think
3 I'm in agreement.

4 **DR. WADE:** Just for the record, I think this
5 whole issue of timing of case review, site
6 profile reviews, SEC petitions is something the
7 Board really needs to discuss. They are all
8 interconnected and I think the Board really
9 needs, when it sits as a full Board, to talk
10 about these issues.

11 **DR. ZIEMER:** Okay. Anything further on the
12 site profile review schedule? Okay. I'm
13 looking at the clock here to see whether we
14 have time to get underway on Bethlehem. We
15 didn't schedule a particular lunch break, but
16 we're almost at the noon hour. So rather than
17 try to get underway on a new topic I think I'll
18 declare a recess here, and I'm not really
19 certain what the eating arrangements are. Do
20 we need more than an hour in this area? We
21 should try to be back by 1:00 if we can. Thank
22 you.

23 (Whereupon, a recess was taken from 11:50 a.m.
24 to 1:20 p.m.)

25 **MALLINCKRODT SITE PROFILE REVIEW**

1 **DR. ZIEMER:** We're ready to go back into
2 session. I trust everybody had a good break.
3 There are two main items this afternoon. One
4 is the discussion on the Mallinckrodt site
5 profile. The other is discussion on Bethlehem
6 Steel. Jim Melius wanted to particularly be
7 here for the Bethlehem Steel discussion and is
8 due to arrive yet this afternoon. So since Jim
9 is not here yet, if there's no objection, we'll
10 proceed with the Mallinckrodt material and
11 begin discussion on that.
12 To kick that off I'd like to call attention --
13 in your Board booklet there's a tab called --
14 **DR. ROESSLER:** Mallinckrodt.
15 **DR. ZIEMER:** -- Mallinckrodt. What a surprise.
16 And there behind that tab you'll find a summary
17 of the action that the Board did take at the
18 last meeting in identifying priority issues
19 relative to that petition and that site
20 profile. And there were six tasks that were
21 identified at that time, and these are
22 enumerated in the material there, tasks where
23 we asked NIOSH to complete those and for those
24 to be worked with our contractor so that we
25 could identify any issues that were not

1 resolvable and identify any outstanding issues
2 that the Board may need to consider in its
3 final decisions. So I think it would be useful
4 if both NIOSH and SC&A had an opportunity to
5 summarize for us what has transpired.
6 Of course you're all aware that we did have a
7 workgroup meeting of the Board with NIOSH and
8 SC&A and the petitioners about a month ago, as
9 well. And I think the Board members have also
10 been apprised as we proceeded with all of the
11 exchange of information, including the
12 exchanges between Dr. Neton and Dr. Makhijani,
13 in terms of attempting to resolve a number of
14 the issues and questions.
15 Perhaps I could ask Jim Neton or one of his
16 staffers to kick it off and summarize your sort
17 of take on the six issues, and then if Dr.
18 Makhijani could follow it up after that. And
19 this doesn't necessarily have to be the formal
20 presentation, but if you could summarize for us
21 -- 'cause I think the Board members also have
22 been tracking this pretty closely, but just to
23 get us all on the same page here, summarize
24 where you think we are and Dr. Makhijani then
25 can summarize where SC&A has come down. Then

1 we'll have a chance for questions and
2 discussion.

3 **DR. NETON:** Yeah, I can do that. I'm not
4 prepared I guess to do a formal --

5 **DR. ZIEMER:** No, I understand. This is just
6 informal.

7 **DR. NETON:** I'm actually looking for my listing
8 of the six issues so that I can speak to them.

9 **DR. ZIEMER:** I have an extra copy, Jim, right
10 here.

11 **DR. NETON:** I got it.

12 **DR. ZIEMER:** Oh, you got it?

13 **DR. NETON:** A lot of water has gone under the
14 bridge since last Board meeting and we've had
15 very fruitful interchange with SC&A on these
16 issues. I'll just go through them one by one.
17 The handling of raffinate exposures, item 1-A,
18 NIOSH should specify the radionuclide ratios
19 for all ore processing. We have developed some
20 ratios -- let me take a step backwards. The
21 proposal at the last Board meeting was that we
22 were going to use air sampling data and some
23 multiplier on top of the urinalysis data to
24 come up with intakes of the non-equilibrium
25 ratios. Since that time NIOSH has reevaluated

1 data and has determined that for areas where
2 there is high radium-bearing ores -- the early
3 part of the extraction process, disequilibrium
4 with radium, that we believe that the radon
5 breath data that we have from the CER database,
6 as well as the HASL data, are better approaches
7 to bound the radium intakes. And then we will
8 apply ratios to radium, not using -- we'll not
9 rely on the uranium urinalysis data for that --
10 that aspect.

11 At the working group meeting we had, though --
12 and by the way, the ratios that we propose to
13 use, and I think SC&A is in substantial
14 agreement with us for the radium-bearing ores,
15 are those that were derived from the raffinate
16 -- the K-65 material that's been stored at the
17 Fernald site. I got ahold of those ratios. It
18 was suggested at the last Board meeting by SC&A
19 that that might be a good point. It turns out
20 almost all of that material came from
21 Mallinckrodt and is stored there, so it's -- I
22 think it's a pretty representative value to
23 use.

24 It's a little hard to discuss without some
25 graphics, I suppose, but when you get --

1 there's two -- there's two slits here. You
2 have the radium-bearing ores, and then once you
3 remove the radium, SC&A has correctly
4 identified that the radon breath analyses are
5 not useful for people who are working with --
6 these are raffinate workers -- who are working
7 with raffinate material that is -- only
8 contains thorium and its daughters and radium
9 is gone. So we have proposed to use the 95th
10 percentile of the air sample data in Plant 6,
11 time-weighted -- 95th percentile of the time-
12 weighted average air sample data and to -- to
13 bracket the exposures from -- from that
14 pathway, and then use ratios that we've
15 developed based on a few literature values that
16 we have.

17 And I have some -- oh, an update on those
18 ratios, of what they are in my formal
19 presentation, but I guess -- I can hand it out,
20 I suppose, if we want later. But essentially
21 what it ends up being is the ratio of thorium
22 to -- protactinium is about I think 15 percent
23 of the thorium value in the waste stream. And
24 that's a fairly conservative estimate.

25 What we've done is we've taken the thorium

1 values, which we know the activity per gram is
2 about ten to the fourth picocuries per gram,
3 based on some laboratory analyses in the --
4 what -- this is what's known as the AM-7
5 material. And we've also looked at analyses of
6 the Sperry cake, which is known to be a very
7 good source of protactinium -- taken that value
8 and assumed that that was present in the
9 thorium ore itself. And that's where you end
10 up with about a 15 percent ratio, 15 percent
11 protactinium to thorium. And we are further
12 assuming that the actinium daughter of the
13 protactinium is in 100 percent equilibrium with
14 the protactinium, even though we have seen some
15 laboratory analyses that indicate that it is --
16 it is depleted in actinium, but we felt that it
17 was not prudent to make that judgment based on
18 just one laboratory analysis.

19 So I think -- I think we've got those ratios
20 defined, and I'm sure SC&A would be willing to
21 comment on that.

22 Once these ratios are developed and we have --
23 if we have radon breath data for a person --
24 let me just outline the scenario now -- we will
25 use the radon breath data to estimate an intake

1 of radium and daughters, and then also take the
2 thorium air sample data to estimate an intake
3 in the thorium areas, and pick the scenario
4 that delivers the highest dose to the worker
5 and therefore the highest probability of
6 causation.

7 Lacking radon breath data, we propose to use
8 the 95th percentile of the radon breath data
9 for residue raffinate workers, and that would
10 be applied -- and then we would compare the
11 95th percentile intake for radon breath to 95th
12 percentile of the -- of the thorium air
13 concentration.

14 By job title, it's -- we've gone through the
15 database and it appears to us that there's
16 substantial overlap in jobs, to the point where
17 it's difficult for us to separate out people
18 who purely worked with raffinate and residues
19 and who worked with uranium. Where we can, we
20 will be very careful and select that, but in
21 general I think a very large percentage of the
22 workforce, particularly in Plant 6, are going
23 to be assigned doses as if they were raffinate
24 residue workers.

25 I think that covers most of what's in six --

1 item one.

2 The radon exposure issue has an interesting

3 history behind it. If you recall the last

4 Board meeting, SC&A proposed that the radon --

5 the doses -- systemic organs from radon

6 inhalation could be substantial given that

7 there are very large concentrations of radon in

8 the air. And we've looked at that and we've

9 looked at SC&A's model. We found -- there were

10 some issues with that model. We've proposed

11 our own model, came up with values -- it turns

12 out that in general there is dose to systemic

13 organs from radon. It's mostly -- for the most

14 part it's due to the dissolved gas in the body

15 and not the progeny that becomes systemic. But

16 rather than assign radon doses to systemic

17 organs, since we're using the radon breath data

18 to bound radium intakes, we've done an analysis

19 and we've distributed this widely that has

20 demonstrated that is sufficiently claimant-

21 favorable in itself so that we don't need to

22 account independently for that source term to

23 the -- to the claimants -- or the cases. So I

24 think that we are in reasonable agreement with

25 SC&A on this approach.

1 Application of dose correction factors,
2 external organs, we've issued and distributed
3 to the Board and others a Technical Information
4 Bulletin that deals with this issue. We have
5 determined that doses for certain work
6 activities could be a factor of two higher than
7 were recorded by the badge and we're prepared
8 to make that adjustment in the appropriately-
9 affected work-- workers.

10 The intermittent exposure issues, we -- we
11 provided some data and some descriptions -- we
12 picked an actual case and went through and -- I
13 think that we are in agreement that the use of
14 a chronic exposure model will in fact be
15 claimant-favorable when there are intermittent
16 acute exposures in the middle. So I think that
17 we have general agreement there.

18 Specification of dose reconstruction
19 methodology for unmonitored workers, we have
20 decided that we will use the 95th percentile,
21 as I indicated earlier, of the air sample data
22 and if -- we pick the highest, the 95th
23 percentile air data or the radon breath data
24 for unmonitored workers, and that would include
25 people working at SLAPS and in the D&D

1 activities. The unmonitored workers who were
2 secretarial, administrative type locations,
3 would get the -- the full distribution of the
4 workers' dose. That is the -- you know, the
5 best estimate would be the median value of that
6 distribution and some assigned geometric
7 standard deviation that brackets the range of
8 exposures observed in the workforce itself.
9 And then the example dose reconstructions for
10 representative cases, it's going to be very
11 difficult to talk through this, but we have
12 constructed a -- we have picked -- picked a
13 worker and reconstructed dose using radon
14 breath, and then taken the same worker and
15 assumed we didn't have radon breath and
16 estimated the doses, and then we also used the
17 same case using the 95th percentile air. It
18 turns out that for those workers it's -- the
19 metabolic organs are extremely high, and in
20 general I think it'd be hard to imagine, for
21 any reasonable duration of employment, that
22 metabolic cancers -- that is liver, bone,
23 leukemia, those type of cancers -- would not be
24 compensated under this model. The metabol--
25 the systemic can-- the non-metabolic cancers

1 are -- are large, but they're not all over --
2 over the top. This is just one example. And
3 again, the internal dose calculations that we
4 did did not include external. The missed dose
5 for external is going to be large, so that will
6 be added, so it's -- it's very difficult to
7 predict what percentage of the non-metabolic
8 cancers would get paid, but -- but certainly,
9 in my estimation, a fairly large percentage --
10 a very large percentage.

11 Then internal dose reconstruction for Plant 7
12 thorium workers, we have identified -- we
13 picked a worker who had a bioassay sample for
14 thorium 230. It turns out that the thorium --
15 the thorium 230 workers did have bioassay in
16 the early period of operation. We've located
17 about 70, 72 samples, somewhere in that
18 vicinity, of thorium bioassay that were in the
19 HASL database. It turns out that Plant 7, in
20 our -- to our estimation, really only processed
21 March '55 through April 19th of '55, and they
22 stopped operation because of concerns of --
23 they needed to -- you know, it was not designed
24 for this operation and they wanted to have
25 better controls in place, and they restated in

1 1956. We don't know exactly in '56, but we
2 would assume sometime early in the year --
3 January -- and processed through '57.
4 We have -- those 70 bioassay samples that I
5 spoke of cover March and April of that
6 operation, so we have bioassay data for that
7 period, and we have located more than 200 air
8 samples that covered the process in '56 and '57
9 in Plant 7E. I have them on my computer if
10 anybody wants to see them in more detail. So
11 we believe we have sufficient information for
12 that particular operation to -- to do dose
13 reconstructions for thorium 230. Those doses
14 from the bioassay samples I -- are large. You
15 can see the example case that we've handed out.
16 The -- I think it was a pancreatic cancer, and
17 that was 200 rem just from the one bioassay
18 point, which is well over 50 percent.
19 That's a quick nutshell summary. I'll be more
20 than happy to answer any questions.

21 **DR. ZIEMER:** Thanks, Jim. Let's see if there's
22 any immediate questions from Board members.
23 If not, before Dr. Makhijani goes to the mike,
24 I want to make sure that all the Board members
25 received the August 16th draft from SC&A, which

1 is the -- let's get -- it's the third
2 supplemental review of Mallinckrodt site
3 profile -- third supplemental review of Rev. 1.
4 And particularly in -- you'll notice not only
5 in the Executive Summary but once you get into
6 the report itself, particularly section three
7 of that report deals specifically with the six
8 priority issues. And is there anyone that did
9 not get a copy of that? I want to make sure
10 you all have it. Okay.

11 Okay, Arjun, if you want to approach the mike
12 and make any comments relative to those six
13 items or related issues, that would be fine.

14 **DR. MAKHIJANI:** Yeah, Dr. Ziemer, I also sent
15 around a SC&A slide presentation, I believe --
16 must have been on August 19th or 20th, a few
17 days after. I don't know if you have that, or
18 if you would like to see it projected I do have
19 it in my computer. I also have a hard copy and
20 you can follow along with me, or we could make
21 copies later on. I don't know what you would
22 prefer.

23 **DR. ZIEMER:** Is this one that you were going to
24 use tomorrow?

25 **DR. MAKHIJANI:** Yes, in case you asked me for a

1 presentation, I was going to use -- use that,
2 but I could go through it now more informally
3 if you'd like --

4 **DR. ZIEMER:** Sure.

5 **DR. MAKHIJANI:** -- or project it, as you'd
6 prefer.

7 **DR. ZIEMER:** Let me ask the Board members, did
8 you all get a copy of this?

9 **DR. ROESSLER:** Yes.

10 **MS. MUNN:** We've all seen it, yes.

11 **DR. ZIEMER:** Okay. I guess if you want to --
12 if you want to use that, we can track along.
13 Is this available to the members of the public,
14 as well? Do we have copies?

15 **DR. MAKHIJANI:** Not -- not yet. There will be
16 --

17 **DR. ZIEMER:** We will have copies out here.

18 **DR. MAKHIJANI:** I didn't -- at least I didn't
19 see copies. Well, I did send it to NIOSH.

20 **DR. ZIEMER:** I suspect LaShawn would probably
21 have made copies. We'll -- we'll double-check
22 to make sure there are copies available for the
23 --

24 **DR. WADE:** Why don't you project it then, just
25 so the public will be able to see it.

1 favorable. And for Plant 7-E, about which
2 there was new information today in Dr. Neton's
3 presentation, we felt the coworker bioassay
4 database needed to be developed. And the basis
5 -- I won't go into the basis of this. That's
6 just a summary.

7 And we had some recommendations for completion
8 of the work. As -- as you can see from the
9 case studies that were done by NIOSH and
10 distributed on August 4th, and there was a
11 slightly updated version -- Jim, correct me if
12 I'm wrong, the subsequent updated version was
13 not much different -- it had some different
14 ratios, but it was not materially different
15 than what you sent me.

16 **DR. NETON:** (Off microphone) (Unintelligible)
17 thorium air concentrations (unintelligible).

18 **DR. MAKHIJANI:** Okay. But I -- there was some
19 work that was sent after that I did not have
20 time to incorporate, but the -- NIOSH has
21 suggested that the normal uranium -- if I step
22 back, the whole problem of non-equilibrium
23 presence of radium, thorium and so on comes in
24 because when uranium was taken out and
25 processed these other radionuclides, which are

1 much more -- which had much higher dose
2 conversion factors so produced much higher
3 doses, become very important. And it turns out
4 that whenever you assign these non-equilibrium
5 ratios of thorium, actinium, protactinium and a
6 couple of other -- polonium, lead, you get
7 much, much higher doses than if you assign
8 equilibrium doses.

9 And one of the things that has happened in the
10 last month, as we perceive it, is the detailed
11 dependence on analysis of job categories has
12 been put aside. They're now much broader --
13 production workers, maintenance workers,
14 unmonitored workers, much broader categories.
15 And NIOSH has suggested that equilibrium
16 values, which produce lower doses, be assigned
17 to uranium process workers. We're not in
18 disagreement with that, but since it makes a
19 very large difference to the dose -- I did -- I
20 did look at the radon breath data, and radon
21 breath was monitored for workers who were
22 exposed to more radium in non-equilibrium
23 concentrations, and I found that there may have
24 been workers in metal working areas who were
25 exposed to radium, but they may have been

1 roving workers. I could not establish from the
2 raw data the meaning of all the datapoints, and
3 I did not in all honesty go through all of the
4 451 pages and thousands of entries of raw data.
5 I just did not have time to do that.

6 But one of the critical things is going to be
7 how it's decided who was not exposed to non-
8 equilibrium ratios, because if you assume
9 equilibrium, it will be a much, much lower
10 dose. And we -- our recommendation from SC&A
11 would be that -- that that be assumed only with
12 definitive evidence that workers did not go
13 into and work in these non-equilibrium areas
14 because it will make a very material
15 difference.

16 One of the things that had not yet been done in
17 our analysis is -- Dr. Neton presented this
18 idea that there were areas where there was very
19 little uranium and very little radium, and so
20 primarily thorium dominated air concentrations
21 and exposures. In those areas, the 95
22 percentile of the air concentrations has -- was
23 not developed, at least as of August 16. I
24 don't have -- I tried to find sort of quickly
25 the air concentration data for those areas but

1 could not locate, and in the April report that
2 we presented to you we had some analysis of how
3 95 percentiles are to be developed. It's not
4 an entirely straightforward matter in those
5 case where there are just a few measurements,
6 and there are these air concentrations where
7 there are only a few measurements and it makes
8 a very significant difference how you calculate
9 that 95 percentile. So the way NIOSH has
10 chosen the Plant 6 95 percentile we're not in
11 agreement with at this stage. So that number
12 needs to be developed. And as of August 16th
13 there needed to be some research to be
14 completed on the values of the ratios.
15 We did -- I had Dr. Thorne -- just so you know,
16 there was really a whole team of experts that
17 looked at this. I had Dr. Thorne look at the
18 feasibility of using radon breath data, whether
19 it was a sensible method, whether it was
20 technically defensible, and his memo is in your
21 report in Attachment 8, and he did say that it
22 was a technically defensible method. Because
23 of the centrality of this issue, I had that
24 memo reviewed by Joyce Lipsztein and
25 (unintelligible), the two internal dose

1 experts, and they were also in agreement. So
2 we are -- we are in agreement with NIOSH on
3 that principle that you can use it.

4 At the August 4th meeting Dr. (sic) Griffon
5 pointed out that some problems with the raw
6 radon breath data -- as I said, I didn't go to
7 that. Much of the data is not readable -- in
8 electronic form, at least -- and there is a
9 question about what to do with unanalyzed
10 points. And one of our suggestions has been
11 that the database needs some cleaning up. The
12 lower values of duplicates should be
13 eliminated. Some workers have scarce data and
14 missing data, and how you handle that --
15 measurement errors, so there's some fine print
16 cleaning up that needs to be done on radon
17 breath data, which could take a considerable
18 amount of work. But it appears to be -- we are
19 in agreement with NIOSH that there doesn't
20 appear to be any serious tampering with the
21 data or anything like that, 'cause that was
22 initially an issue.

23 All right, so this is -- this is further detail
24 on radon breath data that I've just explained.
25 This is the point where Dr. Neton has said some

1 new things today that I was not aware of until
2 -- until today. The -- it seemed to us that --
3 a coworker bioassay data needs to be put
4 forward. The air concentrations that are in
5 the site profile Revision 1 which we have been
6 reviewing for the past six months were clearly
7 not an adequate basis. And just to give you a
8 reference, the intakes calculated in the case
9 study done and presented on August 4th are I
10 think 100 times bigger than inferred from the
11 early air concentration data. I have not
12 looked at the -- had a chance to look at the
13 air concentration data that Dr. Neton talked
14 about today. In fact, today is the first time
15 I heard about it. But if there are such data,
16 clearly they would have to be compared to
17 bioassay and some determination made about a
18 claimant-favorable method, and we haven't had
19 that discussion yet, obviously, because I
20 haven't looked -- we haven't had a chance to
21 look at the data.

22 The Board working group at the August 4th --
23 there are three issues in relation to external
24 dose correction factors. One of them relates
25 to the geometr-- location of the organ relative

1 to the location of the badge. NIOSH did some
2 work in this area. We are in agreement with
3 the approach and with the correction factor
4 suggested. Dr. Behling did the expert work on
5 that for -- for SC&A, and the -- there are two
6 other issues of correction factors that remain.
7 They're broader issues and the Board working
8 group kind of deferred them to this meeting.
9 But we did include them in our report as -- as
10 they were in our last report of July because we
11 don't think that Mallinckrodt dose
12 reconstructions can really go forward unless
13 this -- this issue is settled, and -- and Dr.
14 Behling can address that as he is the one...
15 But the correction factors overall will be
16 substantially bigger than two if all three
17 things are put together. In SC&A's estimate
18 for lower torso organs and radium-type of
19 photons, you'd have correction factors or six
20 to eight. And then of course it depends on
21 photon energy whether they're bigger or lower
22 than other energies.

23 So there were some other priority areas. I
24 sort of went over the most important things
25 first. We agree with NIOSH about the radon

1 doses. We've gone over -- Dr. Anigstein had
2 done this work and -- and Dr. Lipsztein -- a
3 number of us, but specially Dr. Lipsztein and
4 Dr. Anigstein have looked this over and we are
5 in agreement with NIOSH's current approach
6 about that.

7 I think we also think that the unmonitored
8 worker approach is satisfactory.

9 Regarding incidents, NIOSH has said, if I'm not
10 -- if I'm remembering the report correctly,
11 that usually the continuous intake approach
12 will bracket it. I think the examples do seem
13 to demonstrate that. Just as a caution, we did
14 not verify the numerical calculations of the
15 case studies presented. This -- this was
16 clearly not feasible within the time frame
17 because a lot of this stuff came after August
18 4th -- like August 8th, 9th, 10th -- and it was
19 just not possible to verify it in any sensible
20 way. It does turn out that there are some dose
21 conversion factors that may be wrong
22 (unintelligible) source documents -- some
23 source documents, I don't know which source
24 documents, that need to be attended to. That
25 is a point of detail that needs to be cleared

1 up and probably can be cleared up.

2 (Whereupon, Dr. Jim Melius joined the
3 subcommittee.)

4 **DR. MAKHIJANI:** There are some incidents that
5 may be so unusual that this may not bracket it.
6 We did document -- afterwards I went and looked
7 at our previous report, and when I came here to
8 St. Louis in May -- was it, Denise? -- there
9 was someone who mentioned an incident in the
10 ionium processing where the stuff boiled over
11 and was spilled on the worker, and I think this
12 type of incident may not be adequately
13 bracketed. It certainly needs -- unusual
14 incidents need to be examined, but since this
15 is a TBD review, I think overall it seems okay.
16 But there is a caveat there for dose
17 reconstructors I think that should not be
18 ignored.

19 Routine environmental dose, NIOSH's approach is
20 satisfactory. I think they've done -- they've
21 demonstrated that. There is a question of
22 accidental environmental doses. Ms. Brock did
23 provide -- gave me a disk full of documents on
24 August 4th in Cincinnati. I did take a look at
25 many of them and found data from which

1 dispersion coefficients can actually be
2 inferred, and that is in the report, and we
3 think that NIOSH does need to take a look to
4 see at least whether doses from accidents and
5 incidents could make a difference in some
6 cases.

7 And then finally NIOSH has -- we pointed out in
8 July that NIOSH has used a Technical
9 Information Bulletin 2 to maximum internal dose
10 estimates, and now there's a different approach
11 to maximum internal dose estimates that shows
12 considerable intakes. And while we haven't
13 done the calculations, there is some question
14 in my and in our minds as to whether the prior
15 maximum dose estimate is -- well, really a
16 maximum dose estimate.

17 And so here this -- these are the four critical
18 issues -- there are some issues with radon
19 breath data, but these are the critical issues
20 where work remains to be done, and I've given
21 you some idea of who all worked on the report
22 and so on. The ratios, the 95 percentile air
23 concentration -- which I again remind you is a
24 non -- non-trivial issue -- the external dose
25 correction factors and the Plant 7-E data which

1 we have not yet examined. That's...

2 **DR. ZIEMER:** Thank you, Dr. Makhijani. Let's
3 see if there's any questions now from Board
4 members on the information that you've provided
5 for us.

6 **MR. GRIFFON:** Well --

7 **DR. ZIEMER:** Oh, Mark.

8 **MR. GRIFFON:** -- I guess I'd be interested -- I
9 think Jim mentioned two files, one -- and I
10 think this -- this final slide sort of outlines
11 the notes I was making of the sort of remaining
12 major things to consider. I think we -- in the
13 workgroup process we did come to a lot of
14 agreement on most of the issues, but there's a
15 couple critical points here and I -- I mean the
16 -- you know, as -- as Arjun said, the -- the
17 implication -- these ratios sort of end up
18 driving a lot of things because of the dose
19 consequences of thorium, actinium and
20 protactinium, so I -- I would like to see -- I
21 know this -- the air sampling data for the 7-E
22 stuff hadn't been provided previously, so
23 that's new to me. And -- and I -- it would be
24 nice to see sort of the source document by
25 which these ratios were based. Was it a couple

1 samples and they had an -- and -- and generated
2 an average, or -- we -- we haven't seen that.
3 We've talked about it -- okay. And -- and a
4 lot -- I guess the other thing I just wanted to
5 -- maybe a little clarification. On the radon
6 breath data, the -- the last question I had on
7 that, for -- earlier I had -- I had raised a
8 question about the lost or not analyzed --
9 there's a number, I think it's 25 to 30 percent
10 in the '52 to '53 -- I looked at the data, the
11 raw data, and did a quick assessment of roughly
12 25 to 30 percent were lost or not analyzed.
13 But I -- I came to a similar conclusion than
14 NIOSH did, which is that there didn't appear to
15 be any trend. They weren't --

16 **DR. WADE:** I have some --

17 **MR. GRIFFON:** -- they weren't skipping certain
18 high-risk workers or anything like that. There
19 wasn't -- wasn't like they were not monitoring
20 -- not analyzing all the warehouse workers and
21 analyzing all the administrative people. It
22 wasn't anything -- didn't look like any trend
23 like that. So it -- it may not be an issue in
24 terms of the overall distribution and the
25 values that he calculate.

1 The second issue that I -- that I raised
2 recently was I had time to go back and look at
3 '54/'55. I hadn't had that data before, and it
4 wasn't only that a lot of values were
5 illegible, as Arjun pointed out. There are
6 some questions -- and that might be a result of
7 scanning the documents, too, I don't know. But
8 I also found a number of points in '54 that I
9 could -- they were very legible on the -- on
10 the scanned copy that did not appear in the CER
11 database, and it -- and it was a number of the
12 values that were greater than .7 and -- and in
13 the scheme of things, most of the values in
14 this database are around .1, if you look at it,
15 so that .1 is sort of the -- probably near the
16 geometric mean on a lot of these things, so .7
17 and then all the way up to as high as values of
18 -- one value of 4 that I -- that -- that seems
19 pretty clear in the scanned copy were not in
20 the CER database. And all these radium intakes
21 are generated off the CER database, so I was
22 questioning whether the database had been
23 validated in any way and is that going to be a
24 -- you know, result in a problem or hold-up on
25 using this data, or is it going to change

1 intakes significantly? I'm not sure I know the
2 answers to those questions, but those are some
3 things that I've (unintelligible) about. I
4 think Jim's right here --

5 **DR. ZIEMER:** Jim, is that something you can
6 respond to?

7 **DR. NETON:** Way to go, Mark, I could think
8 about this for over a month.

9 **MR. GRIFFON:** Yeah, I was just giving you time
10 to --

11 **DR. NETON:** That's good. You raised some -- I
12 can't tell if this is working or not, is it?

13 **MS. MUNN:** Yeah.

14 **DR. NETON:** You've raised some really good
15 issues, and I'm not sure which one to tackle
16 first. I think I'll start with the HASL radon
17 breath data.

18 As we talked about, there's 451 pages of data,
19 fully agree that it's hard to read some of
20 these images. And it's our interpretation it's
21 a scanning problem. We actually have a team in
22 Germantown starting yesterday that are re-
23 scanning the entire 451 pages. And matter of
24 fact, I expect by Wednesday or so we're going
25 to have this whole thing re-coded.

1 The issue with the radon breath data are -- is
2 that when ORAU inherited the Mancuso dataset,
3 they did a validation of all the data they had.
4 They did a 10 percent sampling of the radon
5 breath data and came to the conclusion that the
6 air rate was about three percent or something -
7 - which was acceptable for -- for an
8 epidemiologic study.

9 To do that, though, they went and polled
10 against the original medical records. They did
11 not use the HASL data. Once I found that out,
12 we decided to go back and capture -- recapture
13 the HASL data in complete format and generate
14 the distribution from the data there.

15 I'll agree with you there's some -- what appear
16 to be high values, but it turns out that
17 analysts use different ways of recording
18 values. A good scientist would have a 0.7 so
19 you'd know. Many analysts would just put .7.
20 The scan is such that those little points are
21 not showing up, I think. That's -- it's
22 possible it's as high as 7. I'd be surprised
23 if there was a 7 picocurie per year --

24 **MR. GRIFFON:** No, I didn't say -- the highest I
25 saw was 4, and would even question the fact

1 (unintelligible) --

2 **DR. NETON:** Even 4 sounds really, really --

3 **MR. GRIFFON:** -- and that might have been a .4,
4 right.

5 **DR. NETON:** That's what I was saying --

6 **MR. GRIFFON:** The other ones were very clearly
7 high values that weren't in the database.

8 **DR. NETON:** Right. We -- we can't tell from
9 that. We're re-scanning the entire dataset.
10 It's in the posses-- I was in the original data
11 capture effort at EML offices in Manhattan.
12 DOE picked up that dataset and is maintaining
13 it now in Germantown -- Roger Anders*, Office
14 of Worker Advocacy. We know where it is.
15 We're there. It's -- it should -- it's
16 probably been re-scanned by now, I don't know.
17 So -- so we're addressing that issue. And --
18 and to me, that is the gold set. That is the
19 original analytical data at HASL.
20 Now let's talk briefly about the missing data
21 and what happened there.

22 I got in touch with Dr. Naomi Harley, who was
23 an analyst and ran the radon breath data -- at
24 least in the latter periods of that time -- and
25 I asked her what -- what does a lost sample

1 mean. You know, what does this -- what does
2 this mean, and why -- especially like in August
3 of 195-- I forget which year -- there's a lot
4 of missing data. Sorry, it actually says -- a
5 whole sheet would be not analyzed. And her
6 memory was clear on the analysis, not clear on
7 real specifics, but her -- her guess was at
8 that time that the -- the shipment problem --
9 they did not have Federal Express back then.
10 These samples were shipped from Mallinckrodt to
11 New York, and if they sat too long on one end
12 of the loading docks, radon's got a fin-- a
13 three-day half-life or so, it may be that those
14 samples had just decayed too long that they
15 couldn't be analyzed or to have any meaningful
16 information, or it may be that the person who
17 was the primary runner of the instrument at
18 that time was also gearing up and being
19 involved with fallout data collection around
20 the country and he may have been on travel
21 status at that point, when the samples arrived,
22 and didn't get to them. So there's a number of
23 issues that can explain this. That doesn't
24 make it right, but I guess at least it points
25 to the fact that there was no intentional

1 censoring or biasing of analyzing which
2 datasets.
3 In fact, we went back and looked at this to
4 some extent, and I have to rely on my slides
5 for later, so you guys are going to have a
6 repeat performance of some of my slides maybe
7 later in the week. But we went back and
8 collapsed the job categories -- I thought I'd
9 fixed that typo in the title -- but we
10 collapsed the job categories of radon breath
11 data, and they fall into a pretty wide
12 distribution, and kind of what you might
13 expect. About 58 percent were operations
14 folks, 13 percent trades and crafts,
15 laboratory, warehouse, and then some
16 administrative and miscellaneous. But it looks
17 to me there's a fairly broad -- broad sampling.
18 This was based on an analysis of the HASL data.
19 Well, actually the data that were coded.
20 But what we did was look -- and went to that
21 month of August where a lot were missing -- oh,
22 this is just another breakdown of the percent
23 of the samples by year, and so it kind of flows
24 by year, the same distribution by year of radon
25 breath. There's a lot of data. I mean there's

1 thousands of samples here. But what was more
2 significant is we said okay, what happened with
3 these people that were missing in August? They
4 just didn't analyze their samples. Did they in
5 fact have any valid radon measurements?
6 Remember, radon breath is an indication of the
7 amount of radium in the body, so it's a long-
8 term indicator, much like any other bioassay
9 that has a long half-life in the body. If you
10 miss a sample and you get one three months
11 later, there's really not much difference there
12 'cause it's a long-term deposition measurement.
13 So to make a long story short, within one year
14 of the 40 -- the 40 workers that we identified
15 in that month of August that didn't have
16 samples, 98 percent of them had a valid radon
17 sample at least in the HASL database someplace.
18 So we feel pretty comfortable it was not
19 selective censoring. They went back and we
20 have data on a routine program where we at
21 least have one sample for -- for the people
22 that appear to have missing information.
23 So I think there's a pretty good story here on
24 the radon. I agree that the missing data looks
25 suspect, but you know, we've done everything we

1 can to try to answer it.

2 **DR. MELIUS:** Can you just explain, what do you
3 mean by selective censoring?

4 **DR. NETON:** Well, I mean did they go in and
5 throw out -- not analyze the people that were
6 likely to be high, you know, the raffinate
7 workers, and say we're not going to analyze
8 those people because they were over-exposed or
9 we don't believe the data because they're high
10 or something like that.

11 **DR. MELIUS:** Yeah, but -- but that wouldn't
12 rule out some other kind of selective sampling
13 -- August was high or whatever. I mean all you
14 can say is that the individuals weren't --

15 **DR. NETON:** But the individuals were re-
16 sampled. I mean 98 percent of the individuals
17 --

18 **DR. MELIUS:** Yeah, that's fine, I'm just trying
19 to understand. I'm not trying to argue with
20 you about it. I'm just trying to understand
21 your conclusion there.

22 **DR. NETON:** Okay. It just appears to us to --
23 the people who were on the routine program have
24 samples and they just were missing August for
25 whatever reason.

1 **MR. GRIFFON:** I guess my -- the second part we
2 had seen in the workgroup, too, and I -- you
3 know, I did a similar sort of look at that data
4 by job and things, and I get that general
5 conclusion, as well. The first part I have a
6 little more heartburn with --

7 **DR. NETON:** What's that?

8 **MR. GRIFFON:** -- which is the CER database
9 potentially missing elevated values and --

10 **DR. NETON:** Yeah, yeah, and we're going to re-
11 code based on the HASL data, the original data
12 itself.

13 **MR. GRIFFON:** And there's another item in there
14 which -- you know, just from the validation
15 standpoint, it's clear many times in the raw
16 data that -- that something was labeled a re-
17 sample -- or, I'm sorry, a repeat. Not a re-
18 sample, but a repeat. And in some cases they
19 put it in the database in a second column and
20 in some cases they put a whole new sample line
21 in. So there's -- there's some questions on
22 the -- you know, the quality of that database
23 for individual dose reconstructions, anyway. I
24 mean --

25 **DR. NETON:** Right, I'll grant you that. So I

1 think -- I think that's about all I can say
2 about radon breath. I think we're recapturing
3 it. We've got the original 5,000 samples or
4 whatever there were and we're going back and
5 putting those issues to bed, I hope.
6 Now the other issue you brought up, Mark, was -
7 - well, the ratios, the raffinate ratios. And
8 we passed out a sheet -- I apologize for some
9 of the preliminary nature of these things, but
10 this is real-time science. Essentially what
11 we're doing is developing a workbook here.
12 You've all talked about site profiles and we
13 have the Mallinckrodt site profile. We're --
14 we've been developing the workbook to do these
15 individual cases on the fly, so to speak, in a
16 -- you know, in real time.
17 What you see here is a summary, and there
18 aren't many samples to quantify the amount of
19 thorium -- there aren't many references. We've
20 listed the references here. There's actually
21 one on here that we just got that's even a
22 little more recent, an Argonne Laboratory
23 analysis, but basically what we end up having
24 is a couple of references that put the -- put
25 the airport cake thorium in the low tenths of a

1 part per million range, which equates to about
2 70,000 picocuries per -- per gram of material -
3 - pretty high material. In fact, it's almost
4 the same -- the thorium 230 content of the
5 airport cake is about the same concentration as
6 in the K-65 material, which kind of surprised
7 me. You wouldn't think a process would split
8 selectively like that and go fifty-fif-- well,
9 I don't know if it's fifty-fifty or not because
10 the mass of concentra-- the masses could vary,
11 depending on additives during the process. But
12 nonetheless, it's about 70,000 picocuries per
13 gram. I think we feel fairly comfortable it's
14 in that range.

15 What we were having more difficulty with is the
16 protactinium content. The sample that we chose
17 to use for the protactinium analysis was a
18 couple of analyses that were done of the Sperry
19 cake itself. Now Sperry cake was identified
20 early on as a very good source of protactinium.
21 In fact they selectively used Sperry cake to
22 isolate protactinium because it was such a good
23 source.

24 We are assuming that the protactinium content
25 of the AM-7, the airport cake material, is

1 equal to the protactinium concentration of the
2 Sperry cake itself. We believe that to be a
3 fairly sufficiently bounding calculation. If
4 you do that, you end up with about a 15 percent
5 of the alpha activity in the air is going to be
6 related to protactinium 231 and about 85
7 percent related to thorium 230. Actinium 227
8 itself is not an alpha emitter -- it has a lot
9 of daughters that are -- so that doesn't come
10 into the mix, but we're assuming 100 percent
11 equilibrium with actinium 227.

12 So that -- that results in some fairly high
13 doses, and I think what I'd like to show is
14 something that's fairly interesting as a result
15 of the example cases that we've done. And let
16 me pull up what we call Case 1-2, which is the
17 dose reconstruction example for a person who --

18 **MR. GRIFFON:** Jim --

19 **DR. NETON:** Yes?

20 **MR. GRIFFON:** -- before you go into that, you
21 don't have any spreadsheet that -- that will
22 show me this stuff in similar units? I mean
23 this is a -- this is -- it's sort of difficult
24 to get a sense of an average value when you
25 have -- I don't even know for the first one,

1 two grams of protactinium for 20 tons of cake -

2 -

3 **DR. NETON:** Well, that wasn't used in the
4 calculation, I can tell you that.

5 **MR. GRIFFON:** Okay.

6 **DR. NETON:** If you read all the way through it,
7 it will tell you which values were ended up --
8 we ended up using.

9 **MR. GRIFFON:** Okay.

10 **DR. NETON:** It's only a couple of analyses, but
11 --

12 **MR. GRIFFON:** I'll hold on.

13 **DR. NETON:** -- I can get that to you.

14 **MR. GRIFFON:** I would like that.

15 **DR. NETON:** But let me show you something I
16 think is of significance here. This is the
17 case where we had a worker -- a -- these are --
18 as a matter of fact, this only applies, by the
19 way, to residue raffinate workers at
20 Mallinckrodt, which is going to be a large
21 percentage, based on, you know, how we ended up
22 realizing that workers shared a lot of jobs.
23 But this person we assumed had no radon breath,
24 even though he did, and did the analysis as if
25 we had to use the thorium -- the 95th

1 percentile of the time-weighted average of the
2 air concentrations in Plant 6. That ends up to
3 be about 607 disintegrations per minute per
4 cubic meter, roughly about 8 or 9 times the
5 maximum allowable concentration at the time.
6 By the way, these are not several samples. For
7 instance, in 1950 when they did an air dust
8 study in Plant 6, they went and collected 500,
9 600 samples, and then they collapsed those
10 samples into a distribution of workers -- they
11 had job occupations, so they used all -- this
12 is all the (unintelligible) for 600 samples and
13 came up with a time-weighted average for about
14 30 or 40 different occupations within Plant 6.
15 It seems to me that that's the best way to
16 figure out what the 95th percentile worker is
17 exposed to. Otherwise, if you used a -- you
18 know, the data -- the raw data in itself, then
19 you run into the situation that SC&A has
20 rightfully criticized NIOSH for doing sometimes
21 is how do you know that those samples are
22 representative of the whole distribution? How
23 do you know that they didn't go and selectively
24 pull more samples in administrative areas
25 versus production areas? This is

1 representative of the 403 workers in 1950.
2 But let me -- nevertheless, we used the 9 MAC
3 air or whatever it was and came up -- this
4 ratio's a little different than what you have,
5 so the doses will actually even be higher. We
6 used a ratio of about 12 percent protactinium
7 to thorium 230.
8 But what I want to point out here is the doses.
9 If you look at the dose to what I would
10 consider the non-metabolic -- what we consider
11 the non-metabolic organs -- and this would be
12 here, and that would include things like
13 prostate and pancreas and all those kind of
14 organs, the organs that do not specifically
15 concentrate the thorium -- or the protactinium
16 or actinium -- almost all the dose is driven by
17 thorium 230. I mean there's some from the
18 uranium, but I think 95-plus percent of the
19 dose for a non-metabolic organ is driven by the
20 thorium 230. So in some respects, the
21 protactinium/actinium ratios are almost
22 irrelevant for this calculation. In fact, it's
23 better to assume all thorium 230 for those
24 organs. And in fact, I would suggest that we
25 may want to do that because we don't know these

1 ratios perfectly. It's accepted that it's 15
2 percent or so, in that ball park -- and that's
3 a high -- if we use 15 percent and we assume
4 that's a high estimate, which we believe it is
5 because it's based on Sperry cake, then we
6 would probably be lowering this dose by putting
7 more actinium and protactinium into these non-
8 metabolic organs. So for those situations it
9 would seem to be appropriate just to use
10 thorium 230, assume all the air concentrations,
11 use thorium 230.

12 What you end up with -- and there's only
13 several organs that concentrate
14 actinium/protactinium. Clearly actinium 227 is
15 the heavy hitter in the liver, the bone
16 surfaces. We don't have it shown here, but it
17 would also be similar for red bone marrow and
18 the gonads, the testes and the ovaries. Those
19 are the only organs where actinium really
20 produces doses, and you can see that these
21 doses are huge. I mean we're talking 30,000
22 rem to the bone surfaces from just that intake.
23 So for those organs I think it's claimant-
24 favorable to take that 15 percent -- and
25 they're going to be even higher than this now

1 if we use 15 versus 12 -- and apply them to the
2 non-metabolics.

3 The issue that Arjun alluded to here was the
4 surprising low value here in the liver for
5 protactinium 231. Our ICRP documents and IMBA
6 come up with -- shows that this is not too
7 unreasonable. Arjun has access to a FRG-13
8 (sic) report that says there should be closer
9 unity. I'm not sure which is right. All I
10 know is we've used ICRP. It needs to get to
11 the bottom of the issue. That would only,
12 though, tend to drive these doses even higher,
13 if the protactinium were closer in unity, so
14 these metabolic organs would even go -- go
15 higher, even though they're already fairly
16 high.

17 In fact, if you look -- well, we didn't even
18 bother with the PC calculation here because
19 these are all well over 50 percent, and in the
20 kidneys, as well. The kidneys, interestingly,
21 are driven by thorium, as well. So again, the
22 liver, bone surfaces, red bone marrow and --
23 and gonads are metabolically active, but
24 particularly for actinium, possibly
25 protactinium, and that's what drives those --

1 those doses.

2 Although I might add that the thorium doses are
3 not trivial. In fact, these doses alone -- the
4 thorium intakes alone would -- would more than
5 likely make this case compensable without any
6 actinium or protactinium. So I just want to
7 point that out.

8 Okay, so I think I've talked a little bit about
9 the ratios. I'm not sure what else there --
10 did you -- what other -- what other issues did
11 you bring up, Mark, that --

12 **MR. GRIFFON:** Just the -- the new thorium air
13 data for the --

14 **DR. NETON:** Right. Right, thank you. As I
15 indicated, there was a couple campaigns for
16 thorium, and this is a fairly busy spreadsheet
17 but you can see we have samples identified by
18 pretty good job description -- good location
19 here, covering a wide range of years --
20 somewhere on here I have the year. But I think
21 the most significant thing to point out is this
22 is the fit to the couple of hundred datapoints.
23 You get a nice lognormal fit to the
24 distribution. R-square is .99, so you get a
25 reasonable fit, and these are for that second

1 campaign in '56 and '57. These samples were
2 collected -- and I don't have the dates handy
3 here, but they were over that '56/'67 time
4 frame. I'm not sure where the dates went on
5 here.

6 So we have these data for the second campaign.
7 And the first campaign, I don't have the
8 bioassay samples here, but we have 70 bioassay
9 samples that were -- that were taken on workers
10 during the fir-- what I call the first
11 thorium/ionium campaign.

12 So I apologize. This is fairly late-breaking
13 information, but I thought it was important to
14 throw it out here, you know, when we get it.
15 This of course would only affect workers who
16 worked on that ionium project in Plant 7-E for
17 the campaigns. And we have workers who -- we
18 have cases that do have Plant 7 -- 7-E
19 indicated in their work history.

20 I'm trying to see where -- oh, here's the
21 dates. Sorry. The dates are there now. You
22 can see '56, '57 -- and clearly we're going
23 through trying to figure out what the -- what
24 the airborne was in the plant during that time
25 period.

1 **MR. GRIFFON:** Jim, do you have -- could you
2 provide us with that electronically and --

3 **DR. NETON:** Sure.

4 **MR. GRIFFON:** -- and the -- you said you have
5 something else that might have the same units
6 for those fractions that --

7 **DR. NETON:** Yeah, I can send electronically a
8 spreadsheet that actually is the basis for
9 that.

10 **MR. GRIFFON:** That's what I'd like to see.
11 Thank you.

12 **DR. NETON:** Yeah, it's a -- you know, it may
13 take a little work to decipher. It's not
14 prettied-up for public consumption necessarily,
15 but you should be able to figure it out.

16 **DR. ROESSLER:** I might have kind of forgotten -
17 - can I talk? In the previous slide where you
18 had the table with the various radionuclides on
19 it, and then you said something about NIOSH is
20 using ICRP data, and then you said Arjun has
21 access to something else. What was that?

22 **DR. NETON:** FRG-13 -- FGR-13, Federal Guidance
23 Report 13.

24 **DR. ROESSLER:** FRG-13 (sic).

25 **DR. NETON:** Which is -- you know, it should be

1 the same values.

2 **DR. ROESSLER:** I would think you could track
3 that back, because --

4 **DR. NETON:** We're going to.

5 **DR. ROESSLER:** Yeah.

6 **DR. NETON:** We've got Keith Eckerman's ICRP,
7 whatever number it was, and Arjun's got the
8 Federal Guidance, and -- but what's interesting
9 is our values that IMBA calculated tend to
10 agree with the ICRP. The Federal Guidance
11 Report seems to be up, but it doesn't mean that
12 ICRP doesn't have a mistake and was annotated
13 later but been fixed, we just don't know. And
14 those are only 50-year doses.

15 **DR. ZIEMER:** Arjun has a comment.

16 **DR. MAKHIJANI:** This is actually, in light of
17 what Jim just said, more than a point of
18 figuring out which official reference is
19 correct. Because for instance, in regard to
20 the breast, the -- in Federal Guidance Report,
21 leaving the liver aside where the discrepancy
22 is orders of magnitude, and there's something
23 wrong somewhere in some official publication --
24 but if you look at other organs and compare
25 protactinium and thorium, the dose conversion

1 factor -- committed 50 years, admittedly -- for
2 the breast is four times bigger for
3 protactinium than it is for thorium. So I --
4 I'm not sure -- some -- somehow I think these
5 discrepancies in what radionuclides are
6 important really does need to be cleared up
7 because it will go to your assumption that
8 thorium is the most important radionuclide
9 because if the Federal Guidance Report dose
10 conversion factors are correct, then you're
11 going to have to revisit the question of
12 whether protactinium is more important or
13 thorium is more important. And at this stage,
14 I just -- I don't know which is right.

15 **DR. NETON:** Right. I looked at all the organs
16 that we have modeled, and I didn't -- unless I
17 missed it, I didn't see breast be higher, but
18 it's possible. I mean I don't know.

19 **DR. MAKHIJANI:** Yeah, I'm just making a
20 statement of what is in the Federal Guidance
21 Report 13, which is supposed to be from ICRP-
22 68, I think. I just checked up the numbers,
23 and -- just to try to understand your results
24 in a quick, back-of-the-envelope way, and I
25 couldn't quite understand them exactly.

1 **DR. NETON:** Well, I think -- I think the point
2 is, though, that -- you know, the -- the organs
3 that have metabolically been modeled as
4 concentrating actinium or protactinium are
5 going to clearly have much higher doses. The
6 doses that are considered the remainder, which
7 is all other soft tissue, are going to be
8 driven by thorium 230. There just -- that's
9 just a fact, because there is no sync/sink* for
10 those organs -- for the -- in those organs for
11 actinium or protactinium. I don't know what
12 the metabolic model is, in my head, for
13 protactinium versus actinium. The other issue
14 is, actinium -- even if they have the same
15 metabolic model -- is going to deliver five
16 times the dose per unit intake because it's got
17 a string of very short-lived alpha-emitting
18 daughters that -- that grow in fairly rapidly,
19 very easily within the first year or two of
20 exposure. And that's why the actinium doesn't
21 surprise me as being high.
22 Now being that far off, I don't know. We do
23 need to get to the bottom of it. I totally
24 agree on that.
25 **DR. ZIEMER:** Thank you, Jim. Board members,

1 other questions at this point? Mark, did you
2 have another one? You look a little restless.

3 **MR. GRIFFON:** (Off microphone) (Unintelligible)
4 stumbling around (unintelligible).

5 You know, I guess -- I mean it -- it just dawns
6 on me in some of this, the path we've taken --
7 and I know a lot of work has gone into all this
8 -- but what -- what's striking, and I think
9 people -- maybe everybody realizes this, but
10 the part that's driving the doses and the POC
11 in this whole thing is the part that we know
12 the least about, and we have the least data
13 for. You haven't heard much about uranium
14 urinalysis lately. That's because we've gone
15 away from -- you know, all that tons of data
16 that we have, it's not really being used
17 anymore because, like Jim said, the dose is
18 being driven by these other -- other isotopes.
19 It's important to remember that there's no
20 personal data -- well, there -- there is the
21 radon breath data, but there's no personal data
22 for the thorium, actinium, protactinium, except
23 for that one small sector. Am I wrong on that
24 or...

25 **DR. NETON:** Right, we have ionium data for

1 about 70 workers.

2 **MR. GRIFFON:** For two months.

3 **DR. NETON:** Yeah.

4 **MR. GRIFFON:** But -- so I mean, you've got --
5 that -- that's why everything comes down to the
6 importance of these fractions and where they
7 came from and who they're going to apply to.
8 And I think -- and I've been involved
9 throughout this process, and I'm still a little
10 bit unclear on who, where, when. And I think
11 your intention is to be favorable, given --
12 whether radon breath or thorium -- you use the
13 higher of the two derived values. But is it --
14 and I think what I heard, maybe I'm wrong, is
15 that short of a very clear work history that
16 says that they weren't in Plant 6, you'll
17 assume they were a residue worker. Is that --

18 **DR. NETON:** Absolutely. Yeah, I mean I totally
19 agree with SC&A's position on this, that
20 lacking evidence to the contrary, we're going
21 to assume that these people were raffinate
22 residue workers in Plant 6. And as far as the
23 95th percentile, I think if you look at it,
24 assigning the 95th percentile of the radon
25 breath data to a worker will usually result in

1 higher doses than using the 95th percentile of
2 the air data. I can't say across the board,
3 but it's almost a certainty that most of the
4 time it's going to be higher. And then if you
5 apply the -- a distribution of the values to
6 the people who were not considered to be
7 raffinate residue workers, but just in the
8 vicinity of the area, is also a claimant-
9 favorable approach I think.

10 'Cause you've got to remember, I think these --
11 these thorium values we're talking -- this was
12 a wet process. This is not like they're
13 manufacturing thorium metal here. This is a
14 wet process until you get to the -- to the end
15 where you generate the cakes. And admittedly
16 there was a large amount of that, but this was
17 not manufactured, ground -- you know -- I mean
18 so you can get air concentrations, don't get me
19 wrong. But I think to assign the full air
20 concentration, as we're doing, to either
21 thorium 230 or the actinium is a fairly
22 claimant-favorable approach. And you can't
23 discount the thousands of air samples we have,
24 Mark. I mean I think you're right.

25 **MR. GRIFFON:** No, I know. I guess -- I guess

1 the other -- to -- to go on your point, I guess
2 the other interesting observation in all this
3 is the case -- the case comparison, when you
4 look at somebody who have radon breath data
5 versus the person who didn't have radon breath
6 and use the coworker model assuming the 95th
7 percentile, that individual gets quite a bit --
8 I forget the numbers, but quite a bit higher
9 dose assigned overall. So --

10 **DR. NETON:** That's part and parcel of this
11 program. Unmonitored workers where you're
12 claimant favorable, and you don't know, get
13 higher -- that's not unique to Mallinckrodt.

14 **MR. GRIFFON:** I underst-- I'm just pointing
15 that out. That's a --

16 **DR. NETON:** I mean I don't know how you get out
17 of that box. I mean if you want to be claimant
18 favorable and you don't know -- but again,
19 you're going to -- you're not going to be just
20 stuck with using the radon breath data because
21 then you're also going to do the 95th
22 percentile of the air data and compare the two,
23 and that's going to drive you into the
24 situation where you've got the high -- high
25 thorium intakes that are going to drive you to

1 some pretty high values.

2 **DR. ZIEMER:** Additional questions or comments?

3 (No responses)

4 Now we will have extensive time again later in
5 the meeting for discussion of the Mallinckrodt
6 petition and the materials here. One of the
7 questions for the subcommittee was whether or
8 not the subcommittee wishes to raise any
9 further questions for the Board to consider, or
10 any -- to make any recommendations for the
11 Board to consider relative to any follow-up on
12 this, additional questions or information that
13 we identify.

14 Yes, Jim?

15 **DR. MELIUS:** I actually just have a follow-up
16 question for Jim. You don't need to get up, I
17 don't think, but are you planning on handing
18 out anything else new in terms of documentation
19 or something? 'Cause it'd be better to have it
20 now than wait until --

21 **DR. NETON:** I understand.

22 **DR. MELIUS:** -- if it's ready now.

23 **DR. NETON:** No. No, I don't really have
24 anything else to offer other than maybe
25 electronic spreadsheets that Mark has

1 requested.

2 **DR. MELIUS:** Okay, thanks.

3 **DR. ZIEMER:** Wanda?

4 **MS. MUNN:** In response to your direct question,
5 Dr. Ziemer, from my perspective, NIOSH and SC&A
6 have fulfilled our request for additional
7 information and I feel that we've taken this
8 issue as far as it needs to be taken. I am
9 hoping that the subcommittee will recommend
10 that we remove the tabled item and consider it
11 at this meeting this week.

12 **DR. ZIEMER:** It certainly is in order if you
13 want to recommend that the subcommittee make
14 that recommendation. The subcommittee cannot
15 un-table the motion, but we can make a
16 recommendation to that effect, if you so wish.
17 Are you making such a motion?

18 **MS. MUNN:** That was my hope, that the
19 subcommittee would provide that recommendation
20 to the full Board.

21 **DR. ZIEMER:** I'll interpret that as a motion.
22 Wanda has made a motion that the subcommittee
23 recommend that the Board remove from the table
24 the previous -- previously-tabled action for
25 consideration. Is there a second to that

1 motion? This is not a motion to un-table, it's
2 a motion to recommend that the Board take the
3 motion from the table and consider it. Is
4 there a second?

5 **MR. PRESLEY:** Second. Does it have to come
6 from a committee member?

7 **DR. ZIEMER:** We're all members of the
8 subcommittee.

9 **MR. PRESLEY:** I'll second it.

10 **DR. ZIEMER:** Any discussion on that motion?
11 Jim?

12 **DR. MELIUS:** I believe, from the agenda, we're
13 going to be considering the issue of the
14 Mallinckrodt Special Exposure Cohort on Friday
15 morning. And again, I may have missed some of
16 the discussion that's gone on here, but I think
17 a motion to do with the -- Wanda's motion that
18 was tabled at our last meeting would be more
19 appropriate in the context of the full Board
20 meeting. I'm not sure what we gain or lose or
21 -- from having a recommendation from the
22 subcommittee. I think we're all assuming it's
23 on the agenda. Let's deal with it in the
24 context of the NIOSH presentation on the
25 petition and then, you know, presentation of

1 what work's been done by our contractor and so
2 forth.

3 **DR. ZIEMER:** I might comment if this motion
4 passes it still requires a motion at the Board
5 meeting to take it from the table, yes.

6 Denise, did you have a question or comment?
7 I'll recognize you --

8 **MS. BROCK:** I do. Is it all right if I --

9 **DR. ZIEMER:** You bet.

10 **MS. BROCK:** -- ask something? I was just
11 curious about the external dose conversion
12 factors. Can that be addressed now? I'm --

13 **DR. ZIEMER:** Sure.

14 **MS. BROCK:** -- very curious about that.

15 **DR. ZIEMER:** Yes.

16 **DR. WADE:** Just for the record, I mean the
17 petitioner's been involved throughout this
18 working group process so I think it's most
19 appropriate that she has an opportunity to
20 speak as she likes.

21 **MR. GRIFFON:** Yeah, I was actually going to
22 ask, once we moved past this, that we do the
23 procedures review. And one of the first items
24 we should consider is the dose conversion
25 factors.

1 you're simply recommending that the issue at
2 the -- recommending to the full Board that the
3 issue of the motion on the petition be removed
4 from the table and considered in the full Board
5 meeting. Again, this motion is not binding on
6 the Board in any event. It still would require
7 an actual motion to remove from the table.
8 Okay, all in favor of this motion, say aye.

9 (Affirmative responses)

10 Okay, let me get a show of hands -- one, two,
11 three, and the Chair will vote for it, that's
12 four.

13 Those not favoring the motion, say -- raise
14 your hand. Let's see, one, two, three, four.
15 In essence the motion fails for lack of a
16 majority. One of the awkward things about the
17 way we operate with the subcommittee is that
18 since all members are members of the
19 subcommittee, we don't have a defined number to
20 work from, which is a problem we may have to
21 address in the future.

22 So -- now it may -- it may be harder to have a
23 motion, if the -- if the subcommittee so feels,
24 that is more the nature of your preliminary
25 comments, that -- that the subcommittee

1 believes that NIOSH and our contractor have
2 addressed the six issues appropriately. This
3 doesn't necessarily mean that every point has
4 been brought to closure, but unless there are
5 additional things we want to send them back to
6 do, it may be appropriate to make some motion
7 along those lines.

8 **DR. MELIUS:** Can I just -- I'm a little
9 confused because I -- as I recall, when we
10 originally established the working group, we
11 weren't contemplating a subcommittee meeting.
12 So it was really after the fact that we
13 suddenly decided that the workgroup reports to
14 the subcommittee and then reports to the
15 committee. And I'm -- I don't think -- I don't
16 think this materially changes anything we're
17 going to be doing in our full Board meeting,
18 but it is a little --

19 **DR. ZIEMER:** It does not. It simply gives this
20 subcommittee an opportunity, if you so wish.
21 You -- they were under no obligation to take
22 any action.

23 **DR. MELIUS:** Yeah, and may I also say that the
24 working group really -- I don't think it was
25 charged with coming up with a report. I mean

1 **DR. ZIEMER:** Comfort break, 15 minutes, and
2 we'll reconvene.

3 (Whereupon, a recess was taken from 2:40 p.m.
4 to 3:05 p.m.)

5 **DR. ZIEMER:** Time to reconvene. Just prior to
6 the break we had a question raised by the
7 petitioner, Denise Brock, about the dose
8 conversion factors. And this might be an
9 appropriate time for us to address one other
10 item that we spoke about this morning. It's
11 not just dose conversion factors, but in fact
12 generically the issue of the procedures review,
13 of which the dose conversion factors were a
14 portion.

15 Let's see, I guess before I do that, Denise, I
16 believe you said you had an additional comment
17 and I'd like to give you the floor if you'd
18 like to make that now.

19 **MS. BROCK:** (Off microphone) (Unintelligible)

20 **DR. ZIEMER:** Oh, okay, we'll -- we'll catch you
21 later. Thank you.

22 **TASK III REPORT**

23 So the kind of generic issue that we need to
24 consider is the issue of what the Board would
25 like to do with the task three report. We have

1 a report from our contractor, which is the
2 summary of the procedures review. We've had
3 that report for some time. It contains a
4 number of findings. Earlier in the week Board
5 members were sent an e-mail copy of a matrix
6 showing all the findings. There are copies
7 available here, also, on the table if you
8 didn't get that in your e-mail.

9 **MR. GRIFFON:** It's a -- a --

10 **DR. ZIEMER:** It's called Summary of Task Three
11 Procedure Findings Matrix.

12 **MR. GRIFFON:** I should say it's a -- a partial
13 listing. Kathy's still working on it, but --
14 so this is a partial listing of what's in the
15 full report.

16 **DR. ZIEMER:** May have some additional items,
17 but it captures a lot of what's in --

18 **MR. GRIFFON:** Yeah.

19 **DR. ZIEMER:** -- in there, and basically it's a
20 findings matrix, which is somewhat analogous to
21 what -- the matrices that we've developed on
22 other reports. It has the NIOSH procedure
23 number -- or maybe an ORAU procedure number, I
24 think, in many cases. It has a finding number
25 and a description of the finding and the

1 location of where that occurs in the SC&A
2 report. As she developed her matrix, in
3 anticipation of perhaps how the Board might
4 proceed, there's a -- currently a column
5 designated "NIOSH response", and you'll notice
6 there's nothing there because we've not asked
7 NIOSH to respond to this report, but we may
8 wish to.

9 Now in connection with that report, if you look
10 on the second page, starting with Finding
11 Number IG001-09, 09 and 10, and really 12, 13
12 and 14, I believe. Those five at least have to
13 do with dose conversion factors of one type or
14 another. And I think for -- for the -- our
15 immediate needs as far as the Board's
16 concerned, we may want to ask the question, for
17 the Mallinckrodt site profile what issues come
18 out of this? That is, what are the dose
19 conversion factors that would be used. And of
20 course generically you have these questions in
21 terms of the procedures in general, across the
22 board.

23 It would seem to be appropriate to ask -- to
24 raise the dose conversion factor with respect
25 to Mallinckrodt. Now Jim, you talked a little

1 bit about that earlier today, did you not,
2 in...

3 **DR. NETON:** I just addressed the issue that was
4 raised regarding the exposure geometries at
5 Mallinckrodt, and we -- I think we're in
6 agreement that the factor of 2.1 is
7 appropriate.

8 There's a second separate issue that was raised
9 related to the dose conversion factors in the
10 implementation guide and their application
11 generically. I mean it certainly applies at
12 Mallinckrodt, but it would apply to every
13 single site that we're doing dose
14 reconstruction -- where we're doing dose
15 reconstructions and so it's the applicability
16 of the -- and -- and the angle of the incidents
17 of the radiation. And also I believe SC&A
18 raised some issues where they do environmental
19 effects on dosimeters and how that's accounted
20 for, and we have not addressed that at this
21 point.

22 **DR. ZIEMER:** Now as far as Mallinckrodt is
23 concerned, what questions are still open as far
24 as dose conversion factors -- in SCA's mind?
25 Let's see, where's Arjun? Is Arjun here?

1 Arjun, we're talking about dose conversion
2 factors. And specifically in the Mallinckrodt
3 case, what are the open issues in your mind on
4 dose conversion factors as far as Mallinckrodt
5 specifically is concerned?

6 **DR. MAKHIJANI:** Yes, the two open issues are
7 the generic issues, and I think Hans would be
8 better to address them. He knows -- he wrote
9 the memo. It's in Attachment 8/A*. The one
10 issue relates to the angle of incidents on the
11 badge because you have the shielding, and when
12 it's incident at other than normal, it goes
13 through a greater depth of shielding and so
14 there's an attenuation there. And other --
15 second issue is the dose conversion factor,
16 mostly in geometries other than AP. But I
17 think Hans is the person who developed the
18 issue -- these two issues, and since they are
19 multiplicative, it makes a fair amount of
20 (unintelligible).

21 **DR. ZIEMER:** So in case of this matrix here,
22 it's item 12 and 13 then, the geometry issue,
23 and perhaps rotational and isotropic geometry.
24 Basically it's the angular issues and
25 geometrical issues. Okay.

1 **DR. MAKHIJANI:** Yes, Dr. Ziemer, that's right.
2 And in the table -- there's a summary table in
3 the report, the third supplemental review, in
4 the summary table under external dose, I think
5 it's item three dash --

6 **DR. ZIEMER:** In the procedures review or in --

7 **DR. MAKHIJANI:** No, in -- in the Mallinckrodt
8 report --

9 **DR. ZIEMER:** Oh, in the Mallinckrodt report.

10 **DR. MAKHIJANI:** -- that you have.

11 **DR. ZIEMER:** Right.

12 **DR. MAKHIJANI:** They are listed as items 3-2
13 and 3-3 in the summary report, I believe.

14 **DR. ZIEMER:** Okay.

15 **DR. MAKHIJANI:** It's -- it's close to the front
16 of the report, in that big table.

17 **DR. ZIEMER:** Yes, I found it -- 3-2, angle of
18 incidents to badge for deep dose and 3-3 is AP,
19 PA and rotational isotopic geometry.

20 **MR. GRIFFON:** So those look like 13 and 14 on
21 our -- on our procedures review spreadsheet.

22 **DR. ZIEMER:** Yes, that's correct.

23 **MS. MUNN:** Yes.

24 **DR. ZIEMER:** Well, and then there also is an
25 external deep dose conversion factor that has

1 been identified here, as well, in the
2 Mallinckrodt report.

3 **MR. GRIFFON:** Is that the 2.1 -- that's the
4 factor --

5 **DR. MAKHIJANI:** That's -- the 3-1 part of it I
6 think has been addressed by the Attila modeling
7 by NIOSH and -- and we are in agreement with
8 that.

9 **DR. ZIEMER:** Which one is that?

10 **DR. MAKHIJANI:** The 3-1 in the third
11 supplemental Mallinckrodt --

12 **DR. ZIEMER:** Oh, organ versus badge?

13 **DR. MAKHIJANI:** Yes.

14 **DR. ZIEMER:** Yeah.

15 **DR. MAKHIJANI:** Organ versus badge, we believe
16 NIOSH has addressed.

17 **DR. ZIEMER:** Oh, okay, right. So on 3-2 and 3-
18 3, that remains to be -- our -- I'm trying to
19 get a determination of whether we are in
20 disagreement or if that's just going to be
21 followed up. Where --

22 **MR. GRIFFON:** Disagreement.

23 **DR. MAKHIJANI:** I don't believe that the --
24 that NIOSH has addressed it, at least in the
25 context of Mallinckrodt. I think -- Hans,

1 would you...

2 **DR. NETON:** Could I just say something for --

3 **DR. ZIEMER:** Jim, yeah.

4 **DR. NETON:** I just think -- the confusion I
5 think exists is what the Board has identified
6 as priority issues, and I think NIOSH has gone
7 off and addressed the priority issues, of which
8 in the external arena was the organ dose versus
9 the badge reading.

10 **DR. ZIEMER:** Right, right.

11 **DR. NETON:** Now the other two issues that
12 remain are generic issues that were raised in a
13 task three review, and those are complex-wide
14 issues. They --

15 **DR. ZIEMER:** Right.

16 **DR. NETON:** -- are not unique to Mallinckrodt.

17 **DR. ZIEMER:** Right.

18 **DR. NETON:** I'm not suggesting they don't need
19 to be addressed, I'm just saying that it's not
20 a Mallinckrodt-unique situation related to an
21 SEC evaluation, in my mind.

22 **DR. ZIEMER:** Right. Okay. Thank you, Jim.
23 Yes, Denise.

24 **MS. BROCK:** With all due respect to Dr. Neton,
25 it may be generic, but we are addressing

1 Mallinckrodt on my petition this week, and
2 until a bow is tied completely around this
3 thing and these things have been addressed,
4 each and every one of them, then we have a
5 situation here that's going to create a lot of
6 problems. I need to know exactly how you plan
7 on doing this, and I need to know that right
8 away -- not later, not years from now, right
9 away.

10 **DR. ZIEMER:** Okay. Thank you. Jim, additional
11 comment? Yeah.

12 **DR. NETON:** Denise is concerned, in the case of
13 Mallinckrodt, dose reconstructions have not
14 used -- for badged workers -- the dose
15 conversion factors for anything other than the
16 AP geometry, so we -- we agree, we've looked at
17 SC&A's issue related to the dose conversion
18 factor for rotational. It needs some work.
19 It's based in ICRP-74 -- I think the values are
20 correct. The application of those values --
21 certainly there's room for inappropriate use of
22 those values and they could be wrong if applied
23 exactly as written in the profile, that's true.
24 But we're not proposing to use rotational
25 geometry, we're proposing to use AP geometry

1 for these dose reconstructions. So I think
2 that -- that eliminates the dose conversion
3 factor issue, I think.

4 Now angle of incidents is a different issue.
5 When we were working on that, the angle of
6 incidents does vary, it's -- actually as a
7 function of angle and also as a function of
8 energy. We have seen the 1959 reference by
9 SC&A, the Hines and Brownell -- well, we
10 haven't seen it yet. We've heard what they
11 said. We've been trying to get a copy and
12 they're going to send us I think the relevant
13 pages, but we've evaluated other data by Fix
14 and others that we believe that the effect
15 that's portrayed is not as severe as indicated
16 in the review comments, to the point where, for
17 high energy photons, the film badge respond
18 almost the same as a parallel normal incident
19 beam even at 90 degrees.

20 **MR. GRIFFON:** Paul?

21 **DR. ZIEMER:** Yes, Mark.

22 **MR. GRIFFON:** Jim, I'm just cur-- and I mean
23 this would be good to hear -- hear, but you're
24 -- you're confirming now that you'll only use
25 AP geometry for these? 'Cause I'm looking on

1 the revised site profile, 2-A that we just got
2 --

3 **DR. NETON:** Yeah.

4 **MR. GRIFFON:** -- and there's table 18 which
5 gives all these different jobs and different
6 geometry percentages that --

7 **DR. NETON:** Right, yeah. That's -- you know,
8 we were trying to -- trying to clean that up.
9 The -- it's been our policy -- not our policy.
10 It's been our -- our way of doing business very
11 much in the recent times, even before this,
12 that the AP geometry was pretty consistently
13 used. When we drafted this implementation
14 guide, we envisioned rotational isotropic -- in
15 reality it turns out that it's very difficult
16 to position someone in time and space in the
17 workplace and know that with any certainty --
18 it just was not a defensible calculation we
19 believed we could do. So we've been defaulting
20 for -- for the most part. Some of the earlier
21 dose reconstructions I think you will find
22 rotational, and we're going to address that.
23 But it's AP geometry we believe -- with some
24 caveats. I mean AP geometry, after our
25 analysis, might not end up being the most

1 claimant-favorable geometry. We're in the
2 middle of this analysis. It turns out that a
3 rotational geometry -- believe it or not, it
4 may end up being a little higher, but it's not
5 a factor of -- you know, it's within a factor
6 of two, I believe, but I'm quoting very
7 preliminary results.

8 **DR. ZIEMER:** Thank you. Hans.

9 **DR. BEHLING:** Yeah, just for the benefit of the
10 Board, I just need to make you understand what
11 the issue is. The dose conversion factors that
12 are cited here are technically correct, but
13 misrepresented for the application that's being
14 used here. If -- and I was just talking to Jim
15 during the break.

16 If this was a room that was a radiologically-
17 controlled area, and we had sources -- either a
18 surface area -- infinite surface area or even
19 an immersion exposure which is totally then
20 isotropic, those values would be correct if --
21 in other words, if I came in here and I said to
22 a worker, I'm not going to badge you but I'm
23 going to measure the actual radiation field.
24 And I would take a victorine-R* chamber and
25 measure a air dose in R and measure that and

1 then say go ahead in. I know what my air dose
2 is and I know I'm going to send you in there
3 for eight hours. I could then use these DCFs,
4 based on an R measurement, and they would be
5 perfectly correct.

6 The truth is, what we're looking at here is a
7 measurement that was done by film or TLD that
8 is taken with the presence of a body. It's no
9 longer an air dose. What you're measuring is
10 now a dose that is measured by my film or TLD,
11 and if this is -- if this radiation field was
12 all around me, part of that radiation has to
13 traverse my body. It's no longer an R dose.
14 Moreover, the badge has a filter on it that's
15 10 millimeter -- or one millimeter silver, and
16 that already measures a deep dose, so we're not
17 talking about an R dose value that gets
18 converted to a kerma dose that gets converted
19 to an organ dose using ICRP-74. We're dealing
20 with a starting point that's cons-- totally
21 different from the starting point that's being
22 used to derive these DCFs, and that's the --
23 that's the center stage issue that makes me
24 believe that we're underestimating the organ
25 dose if we use an R value and then convert it

1 to a kerma and using ICRP-74. The only time
2 those values would be correct -- it would be
3 for those individuals who were not monitored
4 but we had an air monitoring measurement.
5 In other words, an R02 or some other instrument
6 was used as a surrogate, then those values
7 would be correct, but not using a film or TLD.
8 And if you look at the 30 to 250 keV photon
9 range and you look at most of the organ doses,
10 whether it's the female breast, the eyes, the
11 thyroid, male testes, so forth, very surficial
12 tissue, the -- the dose conversion values for -
13 - PA geometry is of course the -- the worst of
14 it because it is -- makes an assumption that
15 the dosimeter is really on the backside as
16 opposed to here. All the surficial tissues
17 that -- that are on the anterior side would
18 really only be approximated by an AP geometry
19 DCF. All the other ones would be off by at
20 least a factor of two, and that's my
21 conclusion.
22 And so when Arjun earlier talked about an
23 effective value of six to eight, that really
24 was the multiplicative (unintelligible) of
25 three independent measurements. In other

1 words, the 2.1 which says I'm wearing my TLD
2 here but I have organ doses that are below the
3 level here that are much closer to the close,
4 and that's the 2.1. Another potential value of
5 two is the issue of DCF that I just discussed.
6 And thirdly, possibly the issue of angle of
7 dependence, because all film dosimeters and
8 TLDs are always calibrated with the face of the
9 film or the TLD normal to a single source mono-
10 energetic beam. The minute I start to rotate
11 it, that same exposure translates to a much
12 lower response on a part of the film or the
13 TLD. And if you were to integrate the reduced
14 efficiency by which your dosimeter responds to
15 an incident beam of photons as I rotate it, you
16 would probably come up with a potential
17 correction factor of about two, and that would
18 approximate an isotropic source, basically a
19 summation of angle of dependence that deviates
20 from normal. And so you have two times two
21 times two, which possibly may result in an
22 underestimate of a factor of eight.

23 **DR. ZIEMER:** Okay. Additional comments, Jim?
24 Well, while you're coming up there, let me --
25 do we know, in Mallinckrodt's case -- because

1 many film badges are actually calibrated with
2 phantoms, not in air, anyway. Do we know in
3 Mallinckrodt's case how the badges were
4 actually calibrated?

5 **DR. NETON:** Yes, I think --

6 **DR. ZIEMER:** Were they using a commercial
7 service or --

8 **DR. NETON:** You know, I don't recall right now.
9 I didn't -- you know, I haven't looked at that
10 recently, but we have and we've discussed the
11 calibration of the badges I think in previous
12 workgroup meetings. We believe that we've
13 accurately portrayed the HP10 dose. I think
14 that's not an issue. I think we've -- we've
15 got an HP10 dose. I think where Hans is -- I
16 take a little exception to what Hans said is
17 that Hans is thinking in terms of radiation
18 protection quantities. HP10 is -- is, pure and
19 simple, a radiation protection construct to
20 make sure that workers are not exposed -- their
21 individual organs are not exposed above a
22 certain level.

23 What the ICRP-74 has done is taken and allowed
24 an HP10 reading to be inferred as to what the
25 actual organ dose is. For example, the breast.

1 It -- I would argue that the dose at one
2 centimeter in the breast is equal to the deep
3 dose, which is equal to the breast dose. If
4 you look in ICRP-74, it's actually about .8
5 something because they actually modeled --
6 they've taken air kerma, the dose to the actual
7 organs themselves, so that's -- that's the
8 subtle difference there.

9 The issue of dose conversion factors, I agree
10 with Hans. The values in our tables certainly
11 need to -- need to be adjusted to represent a
12 more appropriate application what they were
13 intended for for rotational and PA. I think,
14 for the record, we've never done a dose
15 reconstruction using the PA dose conversion
16 factor. I think it's just not -- we don't have
17 any workers who had badges on their backs while
18 they were being monitored or anyone that has
19 been exposed univ-- you know, unilaterally to a
20 PA geometry.

21 So I believe that the ICRP-74 calculations are
22 correct and you need to go to air kerma to come
23 up with individual organ doses themselves.
24 And the issue is a little more complicated than
25 Hans I think is indicating because you have two

1 competing things going on here. As the -- as
2 the geometry changes and the energy goes down,
3 yes, the badge is reading less dose than is
4 really measured. But at the same time, the
5 individual organs themselves are receiving less
6 dose because of the -- of the particular
7 geometry, and it's very difficult to project
8 based on -- first -- I mean you just can't
9 project what -- how the effect is going to be,
10 so you know, if you have 30 keV and the badge
11 under-responds by a factor of three, that may
12 be true, but then the organ dose itself may be
13 lower by a factor of three -- and we've seen
14 this quite often, that there's competing --
15 competing interests here going on and we're --
16 we're drafting a Technical Information Bulletin
17 that addresses all these issues in some detail.
18 We just unfortunately don't have that complete
19 right now.

20 **DR. ZIEMER:** Has -- is there any data in the
21 literature, Hans, that you're aware of on --
22 basically, you could imagine an -- a typical
23 case, a person is not standing still, they're -
24 - they're moving around, and you sort of end up
25 integrating all possible angles, maybe -- maybe

1 weighting it a little bit, but what -- what do
2 you end up with? Is it kind of a weighted
3 average of the extremes from -- from the acute
4 angle all the way to the perpendicular?

5 **DR. BEHLING:** Yeah, I believe in the handout
6 that Arjun had provided as part of an
7 attachment you will see discrete measurements
8 at -- at angles that start with zero, 22 and a
9 half, 45, 67 and a half and 90. And you'll see
10 obviously, as the energy photon -- energy is --
11 decreases, the -- the angle of dependence is
12 much more pronounced. When you get to the
13 point where you're measuring something like
14 cesium 137, the issue of angle of dependence
15 starts to diminish drastically. It's most
16 pronounced at the energies of 100 to 200 keV,
17 which is oftentimes the energy that we're
18 talking about here, or sometimes even lower.
19 And so if you look at the average value of
20 zero, 22 and a half, 45, 67 and a half and 90,
21 you end up with a value that is approximately a
22 factor of two too low, based on a reduced
23 response. And -- and I do intend to -- to
24 provide NIOSH with the Hines and Brownell
25 reference which -- from which that information

1 comes from. And I do believe, if I recall,
2 that it does involve the 502 DuPont film, which
3 is the more sensitive component of a two-
4 component film badge that has a low sensitivity
5 and a high sensitivity film, and I think the
6 502 is the high sensitivity film.

7 **DR. ZIEMER:** Now those are done just with films
8 in the air, I believe, usually. It would be
9 surprising to me if someone hasn't in fact done
10 something similar with a phantom, looking at
11 the angle of incidence on the badge but seeing
12 the impact of that on organ doses by using
13 implanted TLDs or something like that in a
14 Rondo phantom. Do -- isn't there such data
15 available?

16 **DR. BEHLING:** (Off microphone) I think Fix had
17 done (unintelligible) that. There are some
18 data that Fix has measured angle of dependence
19 by means of a phantom.

20 **DR. NETON:** There's actually about five
21 different studies that have been done
22 contemporaneously -- within the last ten years,
23 anyway. Fix has done it. There was a
24 (unintelligible) study done from a 15-country
25 radiation worker study that was just released

1 by IR where Fix was involved in that analysis.
2 Grossfeldt* also, in *Radiation Protection*
3 *Dosimetry*, published a -- an article related to
4 this where he did a Monte Carlo simulation of
5 what is the HP10 dose for dosimeters for -- not
6 a dosimeter, for actually a ten -- one
7 centimeter deep detector at various angles.
8 And there's another article that was published
9 -- I forget who did -- Tierrychef* published an
10 article. So there's a number of data that are
11 out there. Most of them indicate not as severe
12 declines as indicated in the Hines and Brownell
13 article. I don't know if the Hines article --
14 Hines (unintelligible) used a phantom or not.
15 These all use either a Rando phantom, an ICRU
16 sphere or a PMMA slab. So they -- they were
17 done with some pretty good science, and they're
18 readily available in *Radiation Protection*
19 *Dosimetry* for anybody to look at, and that's
20 what we're basing our analysis on.

21 **DR. ZIEMER:** Hans?

22 **DR. BEHLING:** (Off microphone) Yeah. The issue
23 that also has to be addressed in some of the
24 findings that are cited in our matrix is the
25 uncertainty. I believe that -- for instance,

1 it's correct and Jim has pointed out, we can
2 introduce this as part of the uncertainty. But
3 if you look at the uncertainty discussion in
4 Implementation Guide 1, you realize that it's
5 really addressing only laboratory uncertainty.
6 And of course laboratory uncertainty is defined
7 by a very controlled exposure to a mono-
8 energetic beam at zero degree angle, and it's
9 acute exposure, et cetera, et cetera. So what
10 we have to look at is uncertainty that goes
11 beyond laboratory, and that is the radiological
12 uncertainty which is part of this discussion
13 here. And that is probably dominated by
14 angular dependence.

15 **DR. ZIEMER:** Thank you. So is it -- is it
16 correct to say that although you may not be
17 prepared, Jim, today to say what -- as Denise
18 has suggested, to say what those numbers are,
19 when in fact it comes time for dose
20 reconstruction you would in fact have analyzed
21 and determined a number that would be used in
22 some particular cases.

23 **DR. NETON:** Yes, we're very close. I just am
24 not -- won't be able to release the document
25 right now. I'm reviewing it currently. But I

1 think we will have a va-- this is a generic
2 issue that was brought up in task three. It's
3 not necessarily linked to Mallinckrodt. This
4 is a complex-wide issue, I mean, and -- and to
5 bring this up in the SEC evaluation, I -- I --
6 we weren't tasked with doing that --

7 **DR. ZIEMER:** No, no, I understand.

8 **DR. NETON:** -- (unintelligible) six high-
9 priority issues.

10 **DR. ZIEMER:** Right.

11 **DR. NETON:** It was thrown into SC&A's report at
12 the -- at the -- when it came out and we agree
13 it's an issue.

14 **DR. ZIEMER:** Right.

15 **DR. NETON:** But we did not give it as high a
16 priority as the other six priority issues that
17 we were evaluating --

18 **DR. ZIEMER:** Right.

19 **DR. NETON:** -- as instructed by the Board.

20 **DR. ZIEMER:** Thank you. Board members,
21 additional questions on the general topic of
22 dose conversion factors? Though as I -- I
23 would like to ask if the Board -- or if the
24 subcommittee has some suggestions on how to
25 proceed with the general task three findings

1 and how to go forward from -- with -- with that
2 set of findings. Jim?

3 **DR. MELIUS:** Someone may have to refresh my
4 memory or -- I seem to recall that one of our
5 earlier discussions of this issue -- it had
6 been pointed out that a number of these
7 procedures have changed, that there were
8 supplemental documents to them.

9 **DR. ZIEMER:** Well, for example, many of these,
10 in practice, are replaced by workbooks.

11 **DR. MELIUS:** Right.

12 **DR. ZIEMER:** And so that one possible step in
13 moving forward would be to identify which of
14 these in fact are even utilized anymore -- or
15 if they're utilized, are they utilized by way
16 of a workbook.

17 **DR. MELIUS:** Right.

18 **DR. ZIEMER:** So that's one possible thing that
19 we could ask be done by NIOSH, to tell us
20 either -- well, what is your response. One
21 response is we don't use this procedure
22 anymore, or this procedure is superseded by a
23 workbook, which may be subject to procedures
24 review, too, under next year's task.

25 **DR. MELIUS:** Right.

1 **DR. ZIEMER:** Yeah.

2 **DR. MELIUS:** I would propose that we, you know,
3 segregate in that way, we go through and sort
4 this and categorize these. And those that are
5 being used, then we, you know, set up a
6 procedure where we request that NIOSH respond
7 to them. And -- and then we take steps to --
8 you know, our usual sort of resolution process
9 to -- to try to address these and that -- that
10 for those of which have been superseded or
11 supplemented, whatever you want to call it, by
12 a workbook or a revisi-- revised document, that
13 we then consider for, you know, their
14 prioritization -- appropriate prioritization
15 for SC&A review for next year. I mean I don't
16 think we should spend time trying to review
17 something that's already been changed. It just
18 doesn't make sense. I would hope that NIOSH,
19 in developing the workbook and so forth, would
20 have at least read the document and tried to
21 address concerns or make sure that appropriate
22 technical concerns are addressed in what
23 they've developed, but I don't think we need to
24 spend time, given the length of time it's been
25 since SC&A finished -- finished their review.

1 **DR. ZIEMER:** Are you making a motion then,
2 which would be a recommendation to the full
3 Board?

4 **DR. MELIUS:** I would so move.

5 **DR. ZIEMER:** Is there a second?

6 **MR. GRIFFON:** I don't know what the motion is.

7 **DR. ZIEMER:** The motion got lost in a multitude
8 of words here.

9 **DR. MELIUS:** Yeah, let's try to --

10 **MS. MUNN:** You can second it anyway.

11 **DR. ZIEMER:** The motion is to ask that NIOSH,
12 in a sense, segregate these to identify those
13 that are still in effect and those that may
14 have been superseded by -- by work-- workbooks
15 --

16 **MR. GRIFFON:** I guess --

17 **DR. ZIEMER:** -- and then to address those that
18 are still in effect. I think that's the
19 motion.

20 **DR. MELIUS:** Yes.

21 **MR. GRIFFON:** Okay.

22 **DR. ZIEMER:** Are you thinking you want to
23 second it?

24 **MR. GIBSON:** I'll second it.

25 **DR. ZIEMER:** It's seconded by Mike, okay.

1 Thank you. Now let's discuss.

2 **MR. GRIFFON:** Now I might friendly amend the
3 motion. I mean my -- my only -- superseded,
4 I'm a little concerned about that. I think all
5 these are findings, and I -- I agree that if --
6 we don't want to go back in time, but some of
7 these procedures were used for cases that were
8 already done, so -- but what -- what I was
9 thinking more of was to -- to look at the
10 findings and determine whether we -- there's --
11 do go through our normal resolution process and
12 then for those that we determine that this
13 finding is addressed or -- or that this finding
14 is sort of a -- is handled in a workbook which
15 was not reviewed under this initial review, we
16 can defer those as an action. We can defer
17 that to the extent -- the next stage in the
18 review process.

19 **DR. ZIEMER:** So I'm going to interpret here. I
20 think Mark's concern is that insofar -- even if
21 something is not currently being used or is
22 superseded, if it in fact had been used to
23 bring to closure some cases previously and was
24 an incorrect procedure, one might want to know
25 what the impact of that would have been on

1 those cases, and that would be --

2 **DR. MELIUS:** Well, I -- I would have a friendly

3 amendment to Mark's friendly amendment. That

4 would be that -- it seems to me that it would

5 be more efficient to do that at the time of the

6 -- the follow-up review that -- say there's a

7 procedure, now it's been -- there's a workbook

8 that supplements or changes that or whatever,

9 that particular procedure. We ask SC&A to

10 review that new process -- they would --

11 procedure, workbook, whatever it is. They've

12 already got the review of the first one. Then

13 -- then we consider them both at the same time,

14 both the initial review and the -- the sort of

15 follow-up review of the workbook. In that way

16 -- if not, we're just going to spend a lot of

17 time saying -- you know, NIOSH is going to

18 respond and say we've already taken care of

19 that, and then well, have they really taken

20 care of it and -- you know, we'll go back and

21 forth a lot. I just don't think that's a very

22 efficient use of SC&A's time and effort, nor

23 NIOSH's. And I still think we would be able to

24 address the concern about the initial -- you

25 know, potential impact on other ca-- you know,

1 earlier cases by NIOSH's -- you know, by
2 NIOSH's response to the follow-up and so forth.
3 I think that would get addressed.

4 **DR. ZIEMER:** Well, these friendly amendments
5 are becoming so extensive even the Chair
6 doesn't know what they are. I have a feeling
7 that we're almost back to where you started.

8 **DR. MELIUS:** That was -- I'm -- so it's --
9 actually I reject Mark's friendly amendment for
10 the reasons --

11 **DR. ZIEMER:** And withdraw your friendly
12 amendment --

13 **DR. MELIUS:** It's not so friendly, Mark.

14 **DR. ZIEMER:** Basically what we're asking is for
15 NIOSH to review these and kind of tell us which
16 are still in effect, which aren't, and perhaps
17 what their response is. And then we can --

18 **MR. GRIFFON:** Right, I -- I guess my -- and Jim
19 spoke to my intent, which is to not lose a
20 finding just because a procedure's got Rev. 2
21 out.

22 **DR. ZIEMER:** Right.

23 **MR. GRIFFON:** We don't want to lo-- you know --

24 **DR. ZIEMER:** And when we get that list back and
25 if -- if -- we can look at that and say okay,

1 we -- we still want you to do something with
2 this.

3 **MR. GRIFFON:** Right.

4 **DR. ZIEMER:** Are you ready to vote on this? We
5 had a second. This would be a recommendation
6 to the full Board in a meeting later this week
7 to take action on.

8 All in favor, aye?

9 (Affirmative responses)

10 Any opposed, no?

11 (No responses)

12 Any abstentions?

13 **MS. MUNN:** I'm not sure what I'm voting on
14 still, so --

15 **DR. ZIEMER:** Those that are so confused that
16 they're abstaining?

17 (Indicating)

18 Okay, two abstentions. We will make that
19 recommenda-- the recommendation will be for
20 NIOSH to respond. That's really what we're
21 recommending.

22 **DR. MELIUS:** I would also, though, like to
23 recommend that we then move on to have NIOSH do
24 -- their response would be just to identify
25 what's been revised, but they would also

1 include a response to those that haven't been
2 revised yet or supplemented --

3 **MR. GRIFFON:** Start the resolution process.

4 **DR. MELIUS:** -- (unintelligible) resolution
5 process in place where SC&A would -- you know,
6 what -- what we've done on other things.

7 **DR. ZIEMER:** I actually thought that was what -
8 -

9 **DR. MELIUS:** Okay.

10 **DR. ZIEMER:** -- part of the -- I interpret that
11 as part of the motion.

12 **DR. MELIUS:** Okay.

13 **DR. ZIEMER:** Either what is the response to it
14 or what -- whether it's in effect. Okay, we
15 will so recommend.

16 I think we're ready now to address Bethlehem
17 Steel.

18 **MR. GRIFFON:** I think the other --

19 **DR. ZIEMER:** Oh --

20 **MR. GRIFFON:** -- just -- just a practical thing
21 on those lines is that -- that this is only a
22 partial matrix, so I think SC&A will provide --

23 **DR. ZIEMER:** Yeah, I think SC&A has said there
24 are some additional items that -- not yet
25 appeared on the list with --

1 **MR. GRIFFON:** Just didn't have time to complete
2 it, that's all, yeah.

3 **BETHLEHEM SITE PROFILE**

4 **DR. WADE:** As we get to Bethlehem Steel if I
5 could just have a -- I was contacted by Kevin
6 Riley of Senator Schumer's office, who asked if
7 I would share with the Board the Senator's
8 belief that the Bethlehem issue -- the
9 Bethlehem site profile issue will not be fully
10 resolved until SC&A has an opportunity to
11 formally comment. Certainly that is not
12 binding on this group, but he asked me to make
13 that statement and I did.

14 **DR. ZIEMER:** Thank you very much. Let me
15 remind the Board, we had an action at the
16 February meeting. There were five motions made
17 at the February meeting with respect to
18 Bethlehem Steel. These are contained in the
19 February Board minutes. There were a number of
20 items that said the Board concurs with NIOSH's
21 -- NIOSH's approach and so on. There were
22 several outstanding items -- all our items are
23 outstanding, actually, but these were carry-
24 overs. Here's one of them.

25 (Reading) The Board requests that NIOSH and

1 SC&A meet to discuss and resolve any remaining
2 technical issues related to SEC's (sic)
3 comments and NIOSH's responses, and members of
4 the Board should be present at the -- at the
5 meeting.

6 And then let me identify for you those items
7 which fell into that category. Let's see --
8 now let me just go down through -- work
9 quickly.

10 The Board concurred with use of 95th percentile
11 of distribution of air samples at Bethlehem
12 Steel.

13 Board requested NIOSH review the use of ICRP
14 default values.

15 Board concurs with NIOSH's characterization of
16 aerosol size and density.

17 Board concurred with NIOSH approach to
18 characterizing external exposures.

19 I guess that was it. Now you'd have to lay
20 this beside the finding table of SC&A to see
21 what the unresolved issues were, I guess. And
22 I don't --

23 **MR. GRIFFON:** (Off microphone) Was
24 (unintelligible) on breathing rate or the
25 residual dose...

1 **MS. MUNN:** I think it was the mouth breathing
2 thing.

3 **MR. GRIFFON:** (Off microphone) (Unintelligible)

4 **DR. ZIEMER:** (Reading) Board concurs with use
5 of 95th percentile distribution of air samples
6 at Bethlehem Steel to characterize upper limits
7 of exposure. However, NIOSH should continue to
8 evaluate other approaches to characterize
9 exposures in the work environment similar to
10 Bethlehem Steel, including better ways to
11 characterize exposures to workers in high-risk
12 job categories and better methods to identify
13 such workers.

14 And then (reading) NIOSH -- review the use of
15 ICRP default values for heavy work to determine
16 if appropriate.

17 I think that was the issue of the --

18 **UNIDENTIFIED:** (Off microphone)

19 (Unintelligible)

20 **DR. ZIEMER:** Yeah. Now in the meantime, there
21 was a revision and you have all received some
22 material from Mr. Walker, and should have
23 received Larry -- Larry's reply -- Larry
24 Elliott's reply -- or NIOSH's reply to -- to
25 those issues that were raised by Ed Walker. So

1 insofar as those may be considered new issues,
2 we may wish to respond or indicate whether or
3 not we accept that response or not. I guess my
4 question is is there anything else besides this
5 that is new material that we need to respond
6 to?

7 **DR. WADE:** (Off microphone) I mean if I could
8 offer -- oh, Jim has his (unintelligible).

9 **DR. MELIUS:** Well, go -- if you want to clarify
10 the sequence, which is what I was going to
11 clarify.

12 **DR. WADE:** I mean I think -- you spoke to the
13 motions that were made by the Board. It's my
14 understanding that there were discussions
15 between SC&A and NIOSH. NIOSH then prepared a
16 revision to the site profile, a draft revision
17 to the site profile. When the Board last met
18 it -- it started to discuss it and then
19 realized it didn't have that material in its
20 hands for long enough, so we postponed
21 discussion until this subcommittee meeting and
22 Board meeting. So theoretically, what you have
23 is the NIOSH revised site profile and a
24 judgment at least to be made as to whether that
25 (unintelligible) -- profile conforms with the

1 issues that -- that you have placed on the
2 table. Then you have the Ed Walker material
3 that you introduced, but it's that revised site
4 profile that I think is the pertinent
5 (unintelligible).

6 **DR. MELIUS:** Can I just add one more piece of
7 information? We had also left unresolved at
8 our last meeting as to whether we would have
9 SC&A review the NIOSH response to the revised
10 site profile, as well as their -- their
11 response to -- to SC&A's comments. And right -
12 - shortly after our last meeting, John Mauro
13 sent all of us a e-mail -- okay -- asking
14 whether he -- he -- they -- we wanted to
15 formally task -- I think that's the correct
16 verb, task them with doing a review. And I
17 think we all dutifully didn't respond to the e-
18 mail, so it's been left open. And I don't --
19 and when I checked just before the meeting, my
20 understanding was that SC&A had not done any --
21 anything further. They'd not reviewed the
22 revised site profile, nor have they responded
23 to NIOSH's --

24 **DR. ZIEMER:** And in fact the Board cannot do
25 that by e-mail anyway. We cannot task our

1 contractor --

2 **DR. MELIUS:** Right.

3 **DR. ZIEMER:** -- in that fashion, so -- so the
4 absence of e-mails probably reflects the fact
5 that we can't -- even if all of us had said
6 yes, go ahead, it has no -- no bearing 'cause
7 it's not done in a public forum, so -- any--

8 **DR. WADE:** So everyone understands, John's
9 question was should SC&A proceed with the
10 closeout process based upon the draft revised
11 Bethlehem Steel site profile or await the final
12 version to be posted. That was his question.

13 **DR. ZIEMER:** So what the Board really has
14 before it then is -- is what to do with the
15 revised site profile, vis-a-vis our contractor
16 or closing things out. And now is it safe to
17 say that -- does anything in Larry Elliott's
18 response to Ed Walker become part of the NIOSH
19 profile, per se, or is that simply a response?

20 **DR. MELIUS:** My reading of that -- of Larry's
21 response was -- was that it -- it basically
22 dismissed Mr. Walker's concerns, and I think --
23 I think addressed them by saying, in effect,
24 that they had been addressed in the revised
25 site profile. Is that -- correct

1 characterization, Jim?

2 **DR. ZIEMER:** It didn't appear to change however

3 --

4 **DR. NETON:** Right, there was no modification
5 made to the profile or the draft, I -- as --
6 and I think Dr. Melius characterized it
7 appropriately there. We believe that the
8 revised site profile substantially addressed a
9 number of Mr. Walker's concerns.

10 **DR. ZIEMER:** Okay. So I think the question
11 then remains what -- what do you like -- what
12 would the subcommittee recommend to the Board
13 as far as the revised site profile review? Dr.
14 Melius.

15 **DR. MELIUS:** I would propose that we ask SC&A
16 to -- we need to come to closure on this, but I
17 think first we need to have SC&A review NIOSH's
18 response, as well as review the revised site
19 profile, which I think has made some
20 significant changes, and -- and report to us on
21 that at our next meeting, and we then try to
22 come to closure on this.

23 **DR. ZIEMER:** Are you making that as a motion?

24 **DR. MELIUS:** I will make that as a motion,
25 yeah.

1 **DR. ZIEMER:** Second?

2 **MR. GRIFFON:** I second that.

3 **DR. ZIEMER:** It's seconded. Now discussion,
4 pro or con. Wanda?

5 **MS. MUNN:** Just a question. Do we have a feel
6 for how many major items must be placed in
7 SC&A's hands from this revised site profile? I
8 -- I saw some changes, but nothing that --

9 **DR. ZIEMER:** Yeah --

10 **MS. MUNN:** -- appeared so major to me that it
11 be --

12 **DR. ZIEMER:** -- Jim, could you or one of the
13 staff just very quickly summarize -- I don't
14 recall any really big changes.

15 **DR. NETON:** I think we were in substantial
16 agreement with SC&A on most issues.

17 **MS. MUNN:** I thought so, too.

18 **DR. NETON:** I think the 95th percentile was --
19 there may be some issues left remaining there
20 as to -- you know, what 95th percentile is
21 used, I suppose. And the breathing rate issue
22 we -- we chose -- we evaluated it and we -- we
23 determined that we didn't believe we needed to
24 make any changes, so that's certainly out
25 there. The oro-nasal breathing and the -- the

1 use of the 1.7 cubic meter per hour heavy
2 worker we're -- we're sticking with. So those
3 are some issues that they need to look at and
4 review our opinions.

5 **DR. ZIEMER:** What about changes in the profile
6 itself?

7 **DR. NETON:** Well, the profile added the 95th
8 percentile. The triangular distribution is
9 gone.

10 **DR. ZIEMER:** Right.

11 **DR. NETON:** I mean that's a --

12 **DR. ZIEMER:** That was based on their
13 recommendation.

14 **DR. NETON:** I believe we added some residual
15 contamination issues related to in between
16 rollings. I'm trying to think -- those are --
17 those are --

18 **DR. ZIEMER:** Well, my point is, I think the
19 review would not require as substantial effort.
20 Now I know everything you guys do is
21 substantial, but you understand what I'm
22 saying.

23 **DR. MAURO:** Jim has -- along with the revised
24 site profile, Jim had also provided us with a
25 very nice what I call white paper --

1 DR. ZIEMER: Yeah --

2 DR. MAURO: -- where he --

3 DR. ZIEMER: -- summarizing --

4 DR. MAURO: -- summarizing --

5 DR. ZIEMER: Right.

6 DR. MAURO: -- (unintelligible) I forget the
7 number of items --

8 DR. ZIEMER: No, so you could -- you could step
9 through it pretty --

10 DR. MAURO: And it is not going to -- it's --
11 it's a matter of us -- in fact, many of us have
12 already read --

13 DR. ZIEMER: Yeah.

14 DR. MAURO: -- that material. It's really a
15 matter for us to get together --

16 DR. ZIEMER: You haven't charged us for reading
17 it yet, have you --

18 DR. MAURO: I've read it. I believe Arjun's
19 read it, and I marked mine up. I have -- I'm
20 formulating my -- my own thoughts on the
21 matter, but I'd rather not discuss
22 (unintelligible) --

23 DR. ZIEMER: No, I understand.

24 DR. MAURO: -- (unintelligible) an opportunity
25 to caucus with (unintelligible) our team --

1 **DR. ZIEMER:** Right, right.

2 **DR. MAURO:** -- but we're not far away from
3 being able to -- going down the list of items
4 and having this material in your hands,
5 certainly well before the next meeting.

6 **DR. ZIEMER:** Thank you. Yes, Robert.

7 **MR. PRESLEY:** What we -- what you are
8 requesting them to review is not this draft,
9 but the new revised site profile.

10 **DR. MELIUS:** Correct.

11 **DR. ZIEMER:** That's correct.

12 **MR. PRESLEY:** Thank you.

13 **DR. WADE:** I do think that what is out there is
14 a draft.

15 **DR. MELIUS:** Yeah, yeah, yeah.

16 **DR. NETON:** The revised site profile is in
17 draft form.

18 **MR. PRESLEY:** I want to make sure, though, that
19 we're not going to review a draft and then
20 somebody's going to come back and want to do a
21 revised site profile.

22 **DR. NETON:** (Off microphone) Well, it's
23 (unintelligible) --

24 **DR. ZIEMER:** (Unintelligible)

25 **DR. NETON:** -- the chicken or the egg. I mean

1 we -- we could finalize it, submit it to SC&A
2 and then go through a negotiation process and
3 issue Rev. 3. I mean -- but it's our best
4 shot. We intend to -- we believe it's -- it's
5 ready to go, but we -- I think it would better
6 serve to leave it open as a draft rather than
7 issue it.

8 **DR. ZIEMER:** Right.

9 **MR. GRIFFON:** Yeah.

10 **DR. ZIEMER:** Okay. Are we ready to vote on the
11 -- the motion is to proceed to have it -- yes,
12 Jim, a comment for --

13 **DR. MELIUS:** Just one more further comment.
14 Some of these issues are also generic in the
15 sense they will affect other site profiles and
16 other dose reconstructions, so I think there's
17 some value to making some additional effort on
18 this --

19 **DR. ZIEMER:** On this first one, yeah.

20 **DR. MELIUS:** -- site -- particular site profile
21 that'll help us in the -- the longer term, as
22 well as I think contribute to the -- sort of
23 the credibility of -- of the NIOSH -- of the
24 new site profile.

25 **DR. WADE:** But also Robert's clarification is

1 not a trivial one. We do need, as a Board, to
2 talk about when we take something in time to
3 say here it is and then move forward from it.
4 So Robert, your point is -- is strong and needs
5 to be discussed.

6 **DR. ZIEMER:** Okay. Are you ready to vote then
7 on this motion? The motion then is to
8 recommend to the Board that this draft revision
9 of Bethlehem Steel be reviewed by our
10 contractor.

11 All in favor, aye?

12 (Affirmative responses)

13 Any opposed, no?

14 (No responses)

15 Any abstentions?

16 (No responses)

17 It's so ordered. Thank you.

18 **DR. WADE:** The only item that Mark had asked be
19 talked about in the context of this agenda was
20 possibly an update on where we were with
21 Savannah River. I don't know, Mark, if you
22 would like to (unintelligible) we have time.
23 We also have a very tired group of folks, so...

24 **DR. ROESSLER:** So be short.

25 **DR. WADE:** But we could do that if

1 (unintelligible).

2 **DR. ZIEMER:** Just a status report in terms of -

3 -

4 **MR. GRIFFON:** The status report is it's in our
5 hands.

6 **DR. ZIEMER:** Well...

7 **MR. GRIFFON:** And I -- I guess I just would say
8 -- I think this was the first -- was this the
9 first one provided to us, John, of the ones you
10 reviewed? Savannah River I think was the fir--

11 **DR. MAURO:** (Off microphone) First one was
12 Bethlehem Steel (unintelligible).

13 **MR. GRIFFON:** So -- so Savannah River -- yeah,
14 so -- so after Bethlehem Steel, this was the --
15 so -- and I think we've got Hanford and -- in
16 the hopper, and do we have another one?
17 Anyway, I just thought we should initiate this
18 and maybe sort of start the ball rolling, even
19 if it has to be on the workgroup level. Let's
20 get something going on this where we can have
21 some discussion of the findings -- you know --
22 -- talk specific--

23 **DR. WADE:** Decide the steps you want us to
24 take.

25 **DR. ZIEMER:** We don't have the Savannah River

1 on the agenda, though, per se --

2 **UNIDENTIFIED:** (Off microphone) No.

3 **DR. ZIEMER:** -- to --

4 **MR. GRIFFON:** I thought we did.

5 **DR. WADE:** I think it is -- is acceptable to
6 talk about in terms of looking at SC&A's
7 tasking for next year and our --

8 **DR. ZIEMER:** Yeah, yeah.

9 **DR. WADE:** So I think it's legitimate to talk
10 about. I did send the site profile out to
11 everyone. But it's the subcommittee to --

12 **DR. ZIEMER:** Yeah.

13 **DR. WADE:** -- as to how much detail you want to
14 go into.

15 **DR. ZIEMER:** But I assume you will want a full
16 re-- presentation, perhaps at the next Board
17 meeting, of that. We're ready to go on that --
18 right, Joe --

19 **MR. FITZGERALD:** Yeah.

20 **DR. ZIEMER:** -- Savannah River? Yeah, you're -
21 -

22 **MR. FITZGERALD:** (Off microphone)
23 (Unintelligible)

24 **DR. ZIEMER:** -- dust it off and -- right.

25 **MR. GRIFFON:** Well, I -- I don't know if

1 there's any -- I mean I -- I hate to wait to
2 have all these things backed up for another
3 Board meeting, so my concern is, is there any
4 way between now and the next Board meeting that
5 we can have some real work done on this thing
6 at the workgroup level and come back with
7 here's the list of findings, here's what NIOSH
8 agrees with, here's their action -- you know,
9 some resolution process (unintelligible) --

10 **DR. ZIEMER:** Well, one of -- one of the -- one
11 of the possibilities, if we agree that the
12 general process will be one where the findings
13 go to NIOSH for the initiation of the
14 resolution process, and I think the question
15 here would be do you want that to happen before
16 the Board has even officially looked at the
17 document? I know you have it, but it has not
18 been presented to us.

19 **MS. MUNN:** No, it hasn't.

20 **DR. ZIEMER:** Yes, Jim.

21 **DR. MELIUS:** Yeah, I concur with Mark. I think
22 we need to get going on this, and I see no
23 advantage of -- or necessity to wait to have a
24 formal presentation. I think we'd be much
25 better off being able to try to go from

1 presentation into resolution of this. It's a
2 lot easier and I think it's a much more
3 efficient process, and -- and I would hope that
4 we could, either the subcommittee or the
5 meeting -- come -- full Board meeting is sort
6 of set up a schedule now to get some of these
7 other ones moving --

8 **DR. ZIEMER:** Under way.

9 **DR. MELIUS:** -- Hanford and I can't recall what
10 else, but we need to get those -- now obviously
11 we can't do them all at the next meeting, but I
12 think we ought to get some processes started to
13 address these. And I think also -- some of
14 these are old enough now we also have got to
15 have some concerns about are there additional -
16 - are there -- revisions or are there workbooks
17 or other documents -- changes that -- that we
18 ought to get reviewed so that we -- and handle
19 those changes at the same time.

20 **DR. ZIEMER:** Let's get some other input and
21 then we'll call for a motion, one way or the
22 other. Wanda Munn.

23 **MS. MUNN:** Yeah. Do we -- it's been so long
24 since I've looked at the Savannah River
25 material, do you recall, Joe -- were there

1 extensive findings?

2 **MR. GRIFFON:** They can't remember everything
3 we're doing.

4 **MS. MUNN:** I'm -- I'm just drawing a complete
5 blank is the reason --

6 **MR. FITZGERALD:** Well, that's understandable.
7 No, there were certainly some relatively
8 significant findings. The high five, if you
9 recall, that was one --

10 **MS. MUNN:** Yes.

11 **MR. FITZGERALD:** -- thing we wanted to
12 certainly focus on and provide some feedback
13 on, which the report does.
14 I might add that we did do an issue resolution
15 process for the first phase of Mallinckrodt. I
16 think you were actually there for that session
17 in Cincinnati, and I thought that was a pretty
18 productive session where we had a working
19 session and went through the issues and
20 findings and were able to provide the Board --
21 Board members were present, I think there were
22 two or three present --

23 **MS. MUNN:** Uh-huh, worked very well.

24 **MR. FITZGERALD:** -- and that turned out to be I
25 think a pretty productive use of time and it

1 moved the ball forward I thought fairly
2 productively. We were able to identify where
3 we had factual issues, where we had issues that
4 needed to be resolved or where we agreed or
5 disagreed, so that tended to move the thing
6 forward.

7 That's the only time we actually attempted that
8 was for Mallinckrodt the first time around, and
9 we really haven't been back to that again. I
10 think we've been sort of looking at
11 Mallinckrodt in this process, gone on to other
12 reviews. But that might be a possibility in
13 the sense that that would be a working session.
14 It would be focused on the issues, but you
15 still -- what was unresolved from that which we
16 can agree on -- or that which has been
17 superseded by ongoing revisions to the site
18 profile, which I think is an issue for things
19 like Savannah River. So I just wanted to
20 remind the Board that, you know, we did start
21 that process. I think it's been called the
22 six-step process. That process I thought
23 worked pretty good at the beginning of
24 Mallinckrodt. We haven't been back there
25 again, but certainly that's a possibility for

1 Savannah, to both bring the Board up to speed
2 and bring ourselves up to speed on the issues,
3 and then get into a process where we can
4 distill what's left that has to be addressed,
5 and maybe get to the same place that task --
6 what is it, task three or four has been --
7 where task three has been where we can come up
8 with a matrix and be very clear on where, you
9 know, we need to resolve some issues.

10 **DR. ZIEMER:** Yeah, what the issues are and how
11 they're resolved and track them
12 (unintelligible).

13 Okay. Mark?

14 **MR. GRIFFON:** Yeah, I -- I actually -- you
15 know, I actually think, since we're not busy
16 enough with work on this Board, that we should
17 do Savannah River and Hanford. That might be a
18 little -- a little ambitious on my part, but
19 they've both been out there a while and I hate
20 to see them sitting there and having new revs
21 come out while we're -- and have the workgroup
22 take those up initially and come back 'cause
23 that's where we can really get into the meat of
24 these issues. And the Savannah River ones have
25 come up -- you know, these -- the organically-

1 bound tritides and the high five are showing up
2 in the procedures review, the first 20 cases,
3 they're hanging -- they're ongoing, hanging
4 issues that I think we need to just --

5 **DR. ZIEMER:** Let me suggest something to you
6 here. Let's -- let's vote on the Hanford thing
7 and then we can go ahead wi-- or Savannah
8 River, rather, and then we can go ahead with
9 Hanford and suggest that in the -- you may not
10 necessarily want to put a timetable on it, but
11 make sure that it's in the wings waiting to go
12 as soon as the -- as soon as the contractor's
13 able to do that, and NIOSH. I mean you're
14 superimposing these things on some other things
15 that they're working on, so -- Jim?

16 **DR. MELIUS:** Are we thinking -- is the
17 subcommittee going to recommend a workgroup for
18 that process and then maybe it's worth some
19 thought as to whether -- I believe the meetings
20 were held in Cincinnati, the one on
21 Mallinckrodt, is -- is -- would -- is people's
22 preference that two workgroups or have one
23 workgroup that sits through them both, you
24 know, for a two-day meeting or whatever? I
25 mean not -- again, not necessarily that we

1 would try to then address both at the next
2 meeting, but that we would have a process
3 that's ongoing and give, you know, NIOSH and
4 SC&A some time to -- whatever needs to be --

5 **DR. ZIEMER:** I think we need to hear from both
6 NIOSH and SC&A whether that's feasible in terms
7 of practicality of their staff and so on to --
8 Jim is saying, you know, can we do basically
9 both of these back-to-back as -- get them both
10 underway or do we need to sequence it?

11 **MS. MUNN:** Well, you know, this is -- this is a
12 --

13 **DR. ZIEMER:** Wanda, a comment.

14 **DR. MAURO:** My expectation was that the month
15 of September would be dedicated to moving out
16 the last three site profiles -- Rocky Flats,
17 Nevada Test Site and INL. So with regard to
18 our task one activities, all of our resources
19 are being dedicated to moving that out.
20 However, that being said, I think we can take
21 on the Bethlehem Steel. It's a very well-
22 defined set of issues. We have been giving a
23 lot of thought to that for quite some time, so
24 we're prepared to take that on also.
25 I'd have to say, though, that to engage the

1 six-step process on Savannah River and Hanford
2 in the month of September would be -- would
3 over-extend our resources.

4 **DR. ZIEMER:** But in terms of the sense of the
5 motion, it would be that as you're able to move
6 into that, you wouldn't have to wait for
7 another Board meeting; you would proceed.
8 Isn't that -- you weren't necessarily, Jim,
9 moving that they do -- start this this week or
10 something.

11 **DR. MELIUS:** Oh, no, no.

12 **DR. ZIEMER:** It's just so you're not sitting
13 there waiting for something to happen before
14 the next Board meeting.

15 **DR. MAURO:** Oh, I --

16 **DR. ZIEMER:** What -- have you run out of stuff
17 to do, we --

18 **DR. MAURO:** No, we would appreciate that. Just
19 a --

20 **DR. ZIEMER:** Yeah, understand you have a
21 workload and that's why I asked the follow-up
22 question. Would you be prepared -- you want to
23 do those sequentially as opposed -- that is
24 Savannah River and then Hanford, versus -- and
25 I ask the same question of NIOSH 'cause you

1 have issues to address in those cases, too.

2 **DR. MAURO:** From our perspective, yes, we can -

3 -

4 **MS. MUNN:** I cannot hear.

5 **DR. MAURO:** -- move those (unintelligible) once
6 we clear the backlog of September, we can --

7 **DR. ZIEMER:** Once you know that you have the
8 green light to proceed.

9 **DR. MAURO:** Yes, if you have -- if we have the
10 green light to proceed, beginning of October we
11 certainly could move forward with both, the
12 Savannah River (unintelligible) --

13 **DR. ZIEMER:** Yeah, and again, subject to
14 scheduling time with NIOSH and Board members.

15 **DR. MAURO:** Sure.

16 **DR. ZIEMER:** Jim, you want to add to that?

17 **DR. NETON:** We have a pretty heavy workload.

18 **DR. ZIEMER:** Yes.

19 **DR. NETON:** I don't think that we could commit
20 to having anything done by the October Board
21 meeting for those two processes, although we
22 (unintelligible) engage in the Savannah --

23 **DR. ZIEMER:** At least get it under way.

24 **DR. NETON:** Under way, but to have that
25 completed, resolution of this (unintelligible)

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DR. ZIEMER: I think the sense of the motion, though, was to get it under way.

DR. NETON: We -- we are certainly in agreement with that.

DR. WADE: I think the spirit would be maybe an early October working group.

DR. ZIEMER: Jim, and then Wanda.

DR. MELIUS: I'd just point out that if we aren't able to address Savannah River at the next meeting, that would be putting it off until January of next year is our next scheduled Board meeting, and --

MS. MUNN: We can change that.

DR. MELIUS: -- that puts us further behind.

DR. ZIEMER: Wanda?

MS. MUNN: I can't believe that I'm the only member of this group who is physiologically and intellectually incapable of handling the processes of four or five sites at the same time in my brain. I just simply can't follow all those. I'm sorry. And I have serious questions as to whether or not this Board has the resources to be able to pursue, in a very focused fashion, two or more new site

1 undertakings in addition to the not-yet-closed
2 issues that we have before us. I would far
3 prefer to see our -- our decision made to take
4 these in a logical sequence and to, if
5 necessary, schedule more Board meetings and/or
6 workgroup meetings than we have on our current
7 calendar than to try to put two or more on the
8 table right now.

9 **DR. ZIEMER:** Thank you. The motion before us
10 is to give the contractor the authority to move
11 ahead with NIOSH on the comment resolution
12 process for Savannah River. You ready to vote
13 on that motion? It does not have a timetable
14 on it. We already understand that it probably
15 wouldn't start till October and is subject to
16 availability of NIOSH staff getting together
17 with the contractor. But it does give them the
18 green light to proceed. Yes?

19 **MR. GRIFFON:** Can I ask, when is our next Board
20 meeting scheduled? Is it October --

21 **DR. ZIEMER:** 17th. It's scheduled for Oak
22 Ridge, I believe.

23 **MR. GRIFFON:** I mean I would like --

24 **MS. MUNN:** Yes, it is.

25 **MR. GRIFFON:** -- a timetable on it, and even if

1 we have one preliminary workgroup meeting in
2 early October -- I'm not saying that we're
3 going to resolve all the issues, but we have to
4 have that initial workgroup meeting to get --
5 to get a matrix fleshed out, where are we on
6 these different issues, is there agreement, is
7 there not, that kind of thing. So I would ask
8 --

9 **DR. ZIEMER:** And I think John is saying that
10 they would be prepared in October to --
11 sometime to get that underway and the workgroup
12 would have to be involved in...

13 **MS. MUNN:** Yeah, we're scheduled October 17th,
14 18th and 19th.

15 **DR. ZIEMER:** Right, this -- this would probably
16 be before that, but -- okay, you ready to vote
17 then? This is simply on Savannah River.
18 All in favor, aye?

19 (Affirmative responses)

20 All opposed, no?

21 (No responses)

22 And abstentions?

23 (No responses)

24 It carries. Now do you wish to make a motion
25 on Hanford?

1 **DR. WADE:** Before you do that, could you at
2 least identify the workgroup members for
3 Savannah River so I could begin to work to
4 schedule a meeting?

5 **DR. ZIEMER:** We would like to have at least
6 four individuals again.

7 **DR. WADE:** (Off microphone) (Unintelligible)
8 take this up when the full Board
9 (unintelligible).

10 **DR. ZIEMER:** We probably should do it in the
11 full Board.

12 **MR. GRIFFON:** Yeah.

13 **DR. ZIEMER:** So everybody has an opportunity if
14 they want to participate.

15 **MS. MUNN:** That's a wise idea.

16 **DR. ZIEMER:** But I would like to have four
17 members, at least two of whom have -- at least
18 are sort of technically oriented.

19 Okay, do you wish to take any action dealing
20 with Hanford? Mark?

21 **MR. GRIFFON:** I'm a little scared to. I mean I
22 -- I guess -- I guess I'd like Wanda's
23 statement that maybe I'm willing to hold off on
24 a motion on Hanford, but we might want to
25 consider scheduling more workgroup meetings

1 and/or Board meetings, but you know, I think we
2 need to -- to get that started soon to -- so
3 maybe it's right after the next Board meeting
4 (unintelligible) -- but I will hold off --

5 **DR. ZIEMER:** And there again, it doesn't -- it
6 doesn't appear to me that -- that NIOSH is
7 going to be ready to do issue resolution on
8 Hanford by -- by October, in any event, so we
9 can still take action at the next meeting if
10 necessary.

11 Okay, thank you. Do we have any other items
12 for the subcommittee today? If not, we're
13 going to adjourn the subcommittee. Is there a
14 motion to adjourn?

15 **MS. MUNN:** So moved.

16 **DR. ZIEMER:** Second? All in favor, please
17 leave.

18 (Whereupon, the subcommittee meeting adjourned
19 at 4:10 p.m.)
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21

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

I, Steven Ray Green, Certified Merit Court Reporter, do hereby certify that I reported the above and foregoing on the day of August 24, 2005; and it is a true and accurate transcript of the testimony captioned herein.

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

WITNESS my hand and official seal this the 7th day of October, 2005.

STEVEN RAY GREEN, CCR
CERTIFIED MERIT COURT REPORTER
CERTIFICATE NUMBER: A-2102