

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

convenes the

THIRTY-FIRST MEETING

ADVISORY BOARD ON  
RADIATION AND WORKER HEALTH

DAY TWO

The verbatim transcript of the Meeting of the  
Advisory Board on Radiation and Worker Health held  
at the Chase Park Plaza Hotel, St. Louis, Missouri,  
on July 6, 2005.

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July 6, 2005

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DR. JIM NETON, NIOSH  
MR. LARRY ELLIOTT, NIOSH  
DR. PAUL ZIEMER, CHAIR

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

(9:10 a.m.)

WELCOME AND OPENING COMMENTS

1  
2  
3 **DR. ZIEMER:** I'd like to call the meeting to  
4 order. A couple of announcements before we  
5 return to our agenda. First a reminder to you  
6 to register your attendance. Even if you were  
7 here yesterday and signed in, we ask you to do  
8 that each day. This is everyone -- Board  
9 members, staff, members of the public.

10 Also if you need copies of the agenda or other  
11 related materials, those are on the tables in  
12 the room to my right, sort of toward the rear.  
13 So avail yourselves of those materials.

14 Dr. Wade has a couple of comments for us, as  
15 well, as we get underway this morning.

16 **DR. WADE:** Yeah, thank you, Paul. I just  
17 wanted to spend a minute sort of putting today  
18 in context. As you'll notice from the agenda,  
19 today is spent almost exclusively on issues  
20 related to Mallinckrodt, and I thought I'd  
21 provide you just a very brief background as to  
22 why we framed today the way we did.

23 You'll remember over the last several Board  
24 meetings there've been a number of actions  
25 related to Mallinckrodt. Two meetings ago this

1 Board approved an SEC -- the addition of a  
2 class to the SEC cohort for Mallinckrodt, the  
3 years '42 to '48. It did that for a number of  
4 reasons. One of those reasons was an issue of  
5 data reliability.

6 Two meetings ago as well NIOSH brought a  
7 petition evaluation to this Board to deny  
8 adding a class to the SEC for the years '49 to  
9 '57 for Mallinckrodt. At the last meeting the  
10 Board considered and debated that, and asked  
11 that two things happened as it postponed its  
12 decision. It asked that NIOSH go back and --  
13 and come to this Board with reasons that the  
14 Board should not be swayed by issues of data  
15 reliability as it was when it voted on the '42  
16 to '48 petition. Jim Neton had presented some  
17 hypothetical examples to the Board as to why  
18 there was sufficient information and NIOSH felt  
19 it had a sufficiently robust dataset that it  
20 need not be concerned about issues of data  
21 reliability, and the Board asked for Jim to  
22 come back with real examples of that.

23 In parallel, SC&A was going through a detailed  
24 review of the Mallinckrodt site profile. The  
25 Board asked that SC&A continue its work into

1 the evaluation of that site profile and bring  
2 its findings back to this meeting.

3 So this morning we're going to start with some  
4 discussions about the site profile. SC&A's  
5 going to present its findings. Jim Neton is  
6 going to present some of the information that  
7 the Board asked him to bring back concerning  
8 why we had a sufficient data array not to be  
9 concerned overly about issues of data  
10 reliability.

11 Once we've finished those discussions of the  
12 site profile, then we'll spend our time  
13 addressing the open question of the SEC  
14 petition for Mallinckrodt for the years '49 to  
15 '57. So I think that's the context of the day  
16 as we face it.

17 **DR. ZIEMER:** Thank you, Lew. And one of the  
18 reasons that Wanda Munn perhaps felt it was  
19 deja vu all over again was -- was the fact that  
20 at our last meeting we had a review -- a  
21 Mallinckrodt-related review which raised a  
22 number of questions, and I think that NIOSH had  
23 not had an opportunity to interact on those.  
24 Indeed there was an initial review of Rev. 1.  
25 There was a supplemental review, and the Board

1 received just Friday what is referred to as the  
2 second supplemental review of the NIOSH site  
3 profile Rev. 1. And it's that document, second  
4 supplemental review Rev. 1, which Board members  
5 have received -- I believe there are copies  
6 available here for the public -- and this will  
7 be reviewed for us at this time by Dr.

8 Makhijani. And then --

9 So on your agenda where it says Mallinckrodt  
10 site profile, it's really the review -- the  
11 supplemental review of that by our contractor,  
12 SC&A, as presented by Dr. Makhijani.

13 So Arjun, if you'll take the podium now, we'll  
14 be pleased to hear from you.

15 **SUPPLEMENTAL REVIEW**

16 **DR. MAKHIJANI:** Thank you, Dr. Ziemer. Yeah, I  
17 -- but we called the first one supplemental  
18 because the first review was really of Rev. 0  
19 and then was supplemented by what we did on  
20 Rev. 1, and so this is the second round of  
21 that.

22 Last time our review was partial and  
23 preliminary, as we said, due to the very short  
24 time. And we've tried to complete it, so we  
25 addressed --

1 First of all, before I launch into this, I  
2 really want to give some thanks to some people.  
3 I came out here at the end of May -- near the  
4 end of May -- to talk to site experts and  
5 workers and -- and I really thank them all.  
6 Many showed up and I really want to thank  
7 Denise Brock for organizing that meeting. She  
8 put a lot of time to do that. And I also want  
9 to thank Kay Drey, who lives here in St. Louis  
10 and has a -- quite a large archive of documents  
11 and -- and she allowed me into her basement and  
12 -- and -- to look at the documents and that was  
13 very useful.  
14 And I -- I really want to thank NIOSH. I know  
15 they have a lot on their plate and they're very  
16 pressured, and we have lots of questions. We  
17 had a meeting in Cincinnati and -- and it -- it  
18 really -- I'm grateful that they were as  
19 responsive -- a lot of the correspondence is --  
20 is in the attachments.  
21 The Board basically asked us to look at the  
22 questions of data and the usability of the site  
23 profile for the '49 to '57 period for the  
24 downtown site, and there were some incomplete  
25 items from the last time we looked at this. We

1           hadn't looked at the airport site, both for the  
2           '49-'57 period, and we hadn't looked at the  
3           decommissioning section that -- that NIOSH had  
4           added, so we did that.

5           As you all know, there was uranium processed  
6           there, ores of various kinds, and then some  
7           residue processing also occurred, and we tried  
8           to address all those issues. So this review  
9           really covers the -- both the downtown site and  
10          -- and the SLAPS -- the airport site -- St.  
11          Louis Airport Site, as it relates to processing  
12          at Mallinckrodt. And so that's the -- I think  
13          I've already covered this.

14          The other thing that we did here is we -- we  
15          did try to look more completely or -- or get a  
16          better sample of those five, six boxes and see  
17          what was in them that might not be reflected in  
18          the site profile. The -- the transcript of the  
19          Cincinnati meeting is -- is not yet available,  
20          but I presume it will be posted on -- on the  
21          OCAS web site when it is.

22          So the -- the main focus of my presentation is  
23          going to be on this '49-'57 period, and so let  
24          me just get on to that so there's some time for  
25          questions.

1           Our overall conclusion was -- as more fleshed  
2           out now -- is the same as it was before, that  
3           to do anything other than minimum doses for  
4           compensation, major modifications to the site  
5           profile will be necessary. Also the -- the  
6           revised site profile will then have to be  
7           converted into a set of recipes and procedures  
8           to enable the dose reconstructors to have  
9           sufficient guidance about a -- a quite complex  
10          operation to be able to actually reconstruct  
11          doses in a way that's scientifically  
12          defensible, and we tried to flesh out what that  
13          might mean.

14          The data and analysis in the TBD really -- so -  
15          - so -- they -- it -- the TBD is just a first  
16          starting point, and so there'll be more work  
17          that'll be necessary after the TBD's complete.  
18          Our major con-- so there are three categories  
19          of doses that we've always talked about.

20          There's the minimum dose, which we've dealt  
21          with already. There's the reasonable dose with  
22          claimant-favorable assumptions, and there's the  
23          maximum dose with scientifically reasonable  
24          worst-case assumptions.

25          Now I distinguish between the last two -- when

1 I think of reasonable dose with claimant-  
2 favorable assumptions, I think of a situation  
3 where, for instance, you have bioassay data for  
4 all the relevant radionuclides for which the  
5 worker was exposed, so if they were exposed to  
6 radium and thorium and neptunium and uranium,  
7 then you have radionuclide-specific data. You  
8 may have some gaps about solubility and  
9 particle size and so on which you fill in with  
10 claimant-favorable assumptions. But what --  
11 what you have is really a measurement-based  
12 dose with some claimant-favorable assumptions.  
13 If you take that idea of reasonable dose with  
14 claimant-favorable assumptions, something  
15 that's quite accurate and leans toward the  
16 claimant, then we concluded that reasonable  
17 doses with claimant-favorable assumptions were  
18 not possible, that the dat-- the data along the  
19 lines that we were talking about is not there  
20 to sustain such a type of dose reconstruction.  
21 We listed a -- we list a number of items that  
22 will be necessary to fix, both in terms of data  
23 and analysis, and I'll go into them in some  
24 detail. That will be necessary if maximum dose  
25 constructions with scientifically defensible

1           worst-case assumptions are to be made. And I  
2           really want to stress the latter part of this  
3           because it's always possible to make worst-case  
4           assumptions that are subjective, that you can  
5           say well, it can't possibly be bigger than  
6           this. But I -- as -- as we look at the  
7           situation, the worst-case assumptions do have  
8           to have some scientific basis, and that's also  
9           how we read the regulations. And I'll come  
10          back to that at the end of my presentation  
11          because I think there are some quite difficult  
12          regulatory issues to be addressed in regard to  
13          maximum doses.

14          But first let me go to the technical issues.  
15          Why do we think that reasonable dose estimates  
16          are unlikely to be possible. Well, Mont Mason  
17          himself said that radon dose data are not  
18          sufficient except for minimum and maximum  
19          estimates. And it's not simply a question of  
20          the number of radon measurements that were  
21          taken. We all agree that there were thousands  
22          of radon measurements that were taken. It is  
23          that the radon exposures were primarily puff  
24          exposures. For instance, when the drums of ore  
25          were being opened, or when the drums of

1 residues were being opened and so on. And  
2 because they were puff exposures and we don't  
3 have -- we don't have the data from those puff  
4 exposures for the individual workers, you --  
5 you can't make reasonable estimates and the  
6 type that I was talking about, but you could  
7 make bounding estimates by using distributions  
8 and 95 percentiles and so on, but you do have  
9 to collect all the data. We discuss that we  
10 feel that radon in many areas might be high  
11 enough to affect non-respiratory tract organs.  
12 The other part that -- that's unclear is what  
13 was the history of residue processing in Plant  
14 6, and that's not very clear so it's not --  
15 it'll not be possible, we think, with the  
16 existing data to make an accurate assumption  
17 about radionuclide ratios in the composition of  
18 the air. So some kind of -- if you can't find  
19 that history exactly and we -- we didn't see an  
20 indication that you could, then you'd have to  
21 make some kind of maximizing assumption about  
22 that. So a reasonable estimate is not possible  
23 -- no distribution, no -- no time period for  
24 processing.  
25 Similarly we didn't find Mallinckrodt-based

1 measurement data for these other radionuclides.  
2 There's some data on radium 226. I believe  
3 it's actually one measurement that was taken in  
4 1947, one set of measurements, and that  
5 measurement was not related to the period in  
6 which the re-extraction of uranium was done.  
7 But I did find, and I -- we agree with NIOSH  
8 that that was a good starting point and that  
9 100 to one ratio for radium would be -- would  
10 be applicable for the later period for -- for  
11 ore proc-- ore processing and first -- first  
12 cycle K-65 residues.

13 We have no radionuclide-specific bioassay data  
14 for the most important radionuclides for a lot  
15 of workers -- thorium 230, radium 226, actinium  
16 227 and protactinium 231. There may be a  
17 possible small exception -- I think there might  
18 be some thorium 230 bioassay data for -- for  
19 the thorium extraction in the '55-'57 period,  
20 but -- but I'm not sure about that.

21 There's insufficient information to develop  
22 accurate correction factors for Barnes Hospital  
23 urinalyses, 1949 and early 1950. We -- we do  
24 think that -- from the information available  
25 that Barnes Hospital analyses might have been

1 systematically underestimated. But the degree  
2 of underestimation would have been variable  
3 because of precipitation of uranium from the  
4 standard, and -- and it may be possible to  
5 develop a maximum correction factor. But  
6 accurate correction factors, it at least --  
7 there didn't appear to be the base and data to  
8 -- to be able to do that. That applies just to  
9 a limited period of '49 and maybe early 1950.  
10 There are incomplete environmental release  
11 data. Now this was -- this is a new item.  
12 There are no environmental release data in the  
13 site profile. We found in the five, six boxes  
14 of consid-- that there was -- there's evidence  
15 of -- of large releases of uranium on a partial  
16 basis that's compiled. That -- that  
17 information is on -- on page 38 of -- of the  
18 report where I compile -- I simply compiled a  
19 table that was in the document cited there.  
20 And as you know, Plant 4 is not mentioned here.  
21 And in my experience, every single es--  
22 estimate that has been done of environmental  
23 releases from nuclear weapons plants in modern  
24 times, including those sponsored by the CDC,  
25 has found the old estimates to be significant

1           underestimates. So I -- these values are not  
2           to be taken as accurate. It's just -- these  
3           values are to be taken as what was thought to  
4           be released at the time, and it would take a  
5           significant amount of work to actually develop  
6           environmental doses, and probably some  
7           maximizing assumption would have to be made.  
8           There's not enough data on incidents to be able  
9           to do accurate doses, we think, for -- for --  
10          for rare incidents. For instance, there was  
11          spills from the digester tanks when there was a  
12          lot of foaming, and there was cleanup  
13          operations involved with those spills. They  
14          were very episodic, of course. For frequent --  
15          for frequent events like blowouts that workers  
16          experienced, that would be a different matter  
17          and that can be done.  
18          There's a lack of air monitoring data at the  
19          airport site. Mallinckrodt workers went there.  
20          There's a question of radionuclide ratios over  
21          there. And a lot of the wet residues dried out  
22          at the airport, so how -- some -- some kind of  
23          worst-case assumptions will need to be made  
24          there.  
25          And we think that unmonitored workers were at

1 risk of significant exposure and they were  
2 quite -- the clerical workers were unmonitored,  
3 so some kind of maximizing assumptions will  
4 have to be made for that.

5 So to update the TBD for maximum dose --  
6 possibly; we don't know whether it'll all hang  
7 together when it's done, but this is what we  
8 believe needs to be done to make that judgment  
9 -- incorporate all the available radon data,  
10 the residue composition, processing history and  
11 development of worst-case assumptions. And it  
12 may be that if -- if it can be tracked to  
13 Fernald, it might be simpler than -- than what  
14 I found, but I was not able to track it to  
15 Fernald. So the suitable radionuclide ratios  
16 need to be developed.

17 In this context I would like to say that --  
18 that I might not have made it clear enough  
19 during the subcommittee meeting, but I don't  
20 think that the air concentrations can be used  
21 for -- for doing dose reconstructions, even if  
22 you had these radionuclide ratios. I think you  
23 do have to go back from the bioassay data and -  
24 - and use those because there's no -- there's  
25 no evidence that we've come across that the air

1 concentrations were actually measured when the  
2 residues were being processed. And I think  
3 because of the high concen-- high specific  
4 activity of these radionuclides and -- and in  
5 the residue, I -- I don't think there's any --  
6 I -- at least I have not seen any analysis that  
7 would allow me to be comfortable that the air  
8 concentration data, in the absence -- that --  
9 the air concentration data can be used for lots  
10 of things, but I don't believe they can be used  
11 for dose calculations for these radionuclides.  
12 I think you do have to develop ratios and go  
13 backwards from bioassay data, and you have to  
14 be comfortable that those ratios are -- are  
15 defensible.  
16 You have to develop a correction factor for the  
17 Barnes Hospital data.  
18 I think the thorium 230 urinalysis data do need  
19 to be located. I don't see how -- how these  
20 doses for the AM-7 residues processing can be  
21 done otherwise.  
22 The air concentration measurements in -- in  
23 Table 22 of the site profile are not useful.  
24 They were not made during the production time.  
25 The multiplicative factor of three is -- is not

1           founded in any -- any data or any surrogate  
2           analog, and I don't think the air concentration  
3           data are going to be useful unless some -- some  
4           very close process someplace else can be found,  
5           and we haven't seen any evidence of that. So  
6           without bioassay data I think it'd be --  
7           currently I don't know how -- how the thorium  
8           230 doses could be reconstructed.  
9           And I think a better -- better assumptions  
10          about airport site workers need to be developed  
11          for air concentrations. I'm not comfortable  
12          that -- that what's there in the site profile  
13          is -- is a good set of worst-case assumptions.  
14          For incidents that were frequent we had this --  
15          we had a discussion as part of our June 1st and  
16          2nd meetings. This did come up at the last  
17          Board meeting, how are blowouts and incidents  
18          going to be happened -- going to be taken into  
19          account. And when I came here to St. Louis it  
20          was again confirmed that -- that blowouts were  
21          very frequent, sometimes once a week, twice a  
22          week, once every two weeks. They varied  
23          according to plant and period because the metal  
24          production was shifted to a newer plant in --  
25          around 1950. And -- but they were pretty

1 frequent relative to the bioassay frequency.  
2 And so long as they were once a week or once  
3 every two weeks, they -- the intakes would look  
4 more like routine intakes and -- and would be  
5 covered if a maximizing approach to analyzing  
6 bioassay data is used. That is, NIOSH has  
7 suggested -- I believe at the last meeting, or  
8 -- or on June 1st or 2nd, I don't remember when  
9 -- that if -- if the inferred air concentration  
10 envelopes all bioassay data, then for frequent  
11 incidents we would agree that this would be a  
12 reasonable approach.

13 I'm not sure -- we're not sure that this would  
14 cover infrequent incidents. For instance,  
15 there were dust bag ruptures and -- they were  
16 not as frequent, so far as I know. I -- I've  
17 not been able to establish any idea of the  
18 frequency; perhaps more interviews might be  
19 able to settle that. But we're not -- we're  
20 not comfortable, from what we've seen, that a  
21 defensible or worst-case approach has been  
22 demonstrated as yet for infrequent incidents.  
23 It can possibly be done, but it hasn't been  
24 demonstrated during our discussions.

25 Site expert and worker interview data will be

1           essential for infrequent incidents 'cause you  
2           first of all have to establish the types of  
3           incidents we're talking about, what the  
4           radionuclide -- this radionuclide ratio is  
5           going to appear in a variety of incarnations  
6           and situations because it will appear in the  
7           environmental data -- we've got environmental  
8           data for uranium. We don't know how much  
9           radium or thorium and so on is there with it.  
10          And it's going to have to be estimated because,  
11          from worker interviews, we know that the alleys  
12          had a lot of dust and, as you heard yesterday,  
13          tables in cafeterias and so on and -- and  
14          there's evidence that -- that this -- this  
15          problem will -- will occur in a number of  
16          guises, and a suitable set of assumptions needs  
17          to be developed.

18          In regard to incidents, I've said this last  
19          time, also, that survivor claimant dose  
20          reconstructions are going to pose more  
21          challenges if, as appears to be the case from  
22          the files at Mallinckrodt, that the incidents  
23          are not in -- in the file generally. Some  
24          incidents are in the file, but I think the  
25          incidents of the type that we're talking about

1           -- at least I -- I didn't see fully documented,  
2           so there -- there are serious data gaps in this  
3           regard.

4           We had -- and here I'm especially thankful to  
5           NIOSH and to -- for -- for actually doing these  
6           calculations. We -- we raised the question --  
7           and -- and in the annex four of the report you  
8           can actually see the geometries that were  
9           studied on page 66 through 68 of the report.  
10          NIOSH studied three different geometries of --  
11          of external dose exposure, location of the film  
12          badge, and -- and there's a little table of  
13          correction factors on page 64 of the report.  
14          And it seemed reasonably clear that correction  
15          factors will have to be developed by job type  
16          and by organ. Where the job type is specified  
17          to be a particular location for a given period  
18          of time -- and by the way, we agree with NIOSH  
19          that job type data are very good at  
20          Mallinckrodt generally, and they are available  
21          and they are in the worker files. And so this  
22          -- this data is available to be used. There  
23          are very few cases in which job type data are  
24          not available. And -- but correction factors  
25          will have to be specific to the source, the job

1           and the organ.

2           How the roving workers are going to be handled

3           in this regard is going to be a special

4           challenge. And in view of this, we've

5           suggested that one -- or a short set of

6           claimant-favorable or worst -- defensible

7           worst-case correction factors might be

8           developed. But it'll still be necessary to do

9           quite a lot of work. These are very

10          preliminary numbers, as we understand from

11          NIOSH. They don't incorporate beta doses and

12          they don't incorporate other complicating

13          factors. They're not done with a -- with the

14          assumption of a real-life dummy that has the

15          characteristics of a human body.

16          The other TBD changes that are needed is worker

17          monitoring history for Plant 1 and 2

18          decommissioning need to be established. Plant

19          and 1 and 2 decommissioning was done in '49 and

20          '50. There are no records for this

21          decommissioning. It's not clear that the

22          workers who did the decommissioning were

23          monitored. If they were not -- if they were

24          monitored there would not be a -- a difficulty

25          here. But if they were not monitored, we don't

1 see that the kind of air concentration data  
2 that are available for production can be  
3 applied to decommissioning. So you know, we  
4 don't have an approach to suggest other than  
5 researching documents. A closeout survey was  
6 certainly done.

7 The -- for those workers for whom surrogate  
8 worker cohorts are needed, we don't know how  
9 many there are. Presumably there are few. The  
10 Tables 28 for internal dose deri-- for air  
11 intake are derived from bioassay and Table 33  
12 for external dose need to be revised.

13 And then there are the usual set of revisions -  
14 - 95 percentile values for air concentrations  
15 if they're going to be used; oro-nasal  
16 breathing, which is an outstanding issue upon  
17 which we -- we don't have agreement yet, if I  
18 was to understand Dr. Neton's presentation from  
19 yesterday.

20 It's clear that the working hours per year in  
21 the site profile don't reflect the normal  
22 experience of workers. Workers normally worked  
23 six days a week. They were working overtime.  
24 There's very clear evidence that in peak  
25 periods workers even slept at the site in the

1 dispensary. Independently more than one worker  
2 said this. It is documented in attachment 6.  
3 I -- I think that the presence, the time of  
4 presence on site is a very critical factor.  
5 We cannot ignore the fact that workers were  
6 even sleeping there at the site in terms of --  
7 now if you have bioassay data and so on, this  
8 is okay. But if -- if you don't have bioassay  
9 data, I think it -- it raises major questions  
10 about how -- how the -- the working hours  
11 default at least should take six days a week  
12 into account, and overtime was very, very  
13 common. And if it's not built into the site  
14 profile and the claimant is not -- and the  
15 employee is not alive, it -- it makes it -- it  
16 makes it very difficult 'cause you would  
17 normally go back to the default assumption, and  
18 I think the default assumption is not good  
19 enough.

20 We do think that breathing rates for heavy work  
21 periods should be incorporated; that the 1.2  
22 cubic meters that's currently in the site  
23 profile doesn't reflect the variety of  
24 conditions and it should be adjusted for those  
25 periods.

1           One issue that did come up that I don't have in  
2           my slides, but it is in the report, is when I  
3           showed -- when we discussed the AEC time data  
4           for how long it took to do the bomb charging  
5           with workers -- I must say they all laughed  
6           when I -- when -- when they -- when they looked  
7           at -- they told me 30 minutes, of their own  
8           accord before I showed them the data. And then  
9           I showed them the data so I -- I didn't want  
10          them to be biased in any way by what was in the  
11          AEC records. When I showed them the AEC --  
12          laughter was really the first and uniform  
13          response. I don't know how we're going -- I  
14          think the use of air concentration data is --  
15          spent -- the time-weighted data is going to be  
16          very difficult.

17          Review of the boxes, boxes contained quite a  
18          bit of data. The external dose data, there's  
19          quite a bit of it that remains to be captured.  
20          It would be useful for worker cohort  
21          development as necessary for maximum dose type  
22          of things. It won't be useful for typical  
23          worker cohort development because in most cases  
24          the job locations are not identified. They are  
25          identified only for the most exposed workers,

1           and dose ranges are not uniform.

2           I've already mentioned the environmental

3           releases. I think this is -- the importance of

4           the environmental release point should not be

5           underestimated in -- because people were moving

6           back and forth between buildings, we don't know

7           whether these were puff releases, we don't know

8           the patterns of exposure, they -- this is --

9           this is a big new item that I just developed as

10          I -- you know, discovered, rather, I should say

11          -- as I was making a final check to see whether

12          I'd covered my review of these boxes properly,

13          and -- and I came upon this table which --

14          which I've reproduced for you. So -- so I

15          think -- I think it's very important to

16          understand that this is -- this is a new item

17          that needs to be properly considered. And its

18          implications for -- for unmonitored workers,

19          including clerical workers, are at this time

20          unknown. But the releases are large enough

21          that they could be significant.

22          (Unintelligible) survey of the decommissioning,

23          the type of file indicates that dose

24          reconstruction currently stopping at '62, but I

25          don't know how the workers are tagged in terms

1 of who were Mallinckrodt workers and when they  
2 are followed and how long they're followed, and  
3 I did not attempt to research this issue  
4 further. But -- but how long the dose  
5 reconstructions are carried out for  
6 Mallinckrodt workers and how long the residues  
7 in the airport site and the movement of the  
8 residues is taken into account is -- is kind of  
9 a -- somewhat unclear to me, but could be  
10 important for individual workers 'cause workers  
11 may have gone from Mallinckrodt to the  
12 contractors and then to the new contractors,  
13 and I'm not clear that -- that we can track  
14 them.

15 The good news on the decommissioning is that  
16 the -- the bioassay data seem to have been done  
17 well and in triplicate and there seems to have  
18 been some quality control for -- for the  
19 bioassay data, and it should be available for  
20 most workers.

21 A lot of the assumptions in the site profile  
22 regarding suspension and the indoor work year  
23 and so on seem to be claimant favorable.

24 There are some outstanding factors. There's  
25 the pesky issue of radionuclide ratios again;

1 the external exposure geometry issues may not  
2 be as complex, but we didn't see a discussion  
3 of that.

4 I'm not sure the SLAPS workers were -- were  
5 monitored. I didn't -- didn't see clear  
6 tracking of that.

7 I -- I do think that -- that we can't assume  
8 that the airport site's chemical composition  
9 and solubilities and so on were the same,  
10 because they dry out over there, they get  
11 oxidized, they -- they change chemically.  
12 And ingestion -- when air concentration data  
13 are used for production times and no bioassay  
14 data, then of course ingestion has to be taken  
15 into account. We're still not comfortable with  
16 the way NIOSH is handling the ingestion  
17 question. It's not just a question of  
18 particles being deposited on surfaces from the  
19 air. There's -- there's large particle  
20 ingestion issues that are apart from the  
21 deposition out of the air onto surfaces that --  
22 that need to be taken into account.

23 But overall, the -- the work remaining to be  
24 done on the decommissioning period seems to be  
25 possibly less than -- than in other cases,

1           especially if these radionuclide ratios are  
2           established.

3           The -- the big regulatory question that we came  
4           across is if in the absence -- our judgment is  
5           that -- that reasonable dose reconstructions  
6           will not -- are unlikely to be possible at  
7           Mallinckrodt, so only maximum doses will be  
8           possible, if they are possible. We can't make  
9           a judgment. If all -- quite a lot of work  
10          remains to be done, and at the end of it there  
11          will have to be a scientifically defensible set  
12          of assumptions for maximum dose calculation or  
13          maximum plausible dose calculation. And in  
14          that case, if an SEC petition is denied it will  
15          go back to 42 CFR 82. Currently 42 CFR 82  
16          defines this efficiency method for dose  
17          calculation. I did -- we did review all the  
18          six cases that have been denied at  
19          Mallinckrodt. In a number of cases the  
20          internal doses that are being used are -- are  
21          not a scientifically defensible set of internal  
22          doses. They've used Technical Information  
23          Bulletin 2, which has radionuclides like  
24          plutonium and strontium and cesium, which were  
25          probably not present at all and, if present, in

1 extremely trace quantities. And it's not --  
2 it's not defensible to use those kind of  
3 assumptions -- or not fair and not equitable.  
4 And if you use those assumptions for  
5 Mallinckrodt, then you can use any assumption -  
6 - then you can justify any -- any set of  
7 assumptions for any worker. And -- and that  
8 level of -- of -- that -- that departure from  
9 the basic history of the site as to what  
10 happened there seems -- seems not justified to  
11 us. And so the question is how are these  
12 maximum criteria going to be developed and are  
13 they going to be used for compensation as well  
14 as denial. And in that case is there one set  
15 of worst-case assumptions or are there two sets  
16 of worst-case assumptions. And then in that  
17 case, how do you define -- as we read 42 CFR  
18 82, all -- in order to be fair, the worst-case  
19 assumptions do have to be scientifically  
20 reasonable. And if they're -- if they're -- if  
21 they are used for denial and compensation, then  
22 the question is what happens to all the cases  
23 in which worst-case assumptions have been used  
24 only for denial and POCs greater than 50  
25 percent and then they are recalculated.

1 We don't have an answer to this, but this  
2 clearly seemed a very confusing and unclear  
3 thing to us that -- that we felt that we should  
4 point out to the Board, and this -- this  
5 elaborates what I have just told you and that  
6 gives you the team of -- of people who worked  
7 on it.

8 I'd be happy to take questions.

9 **DR. ZIEMER:** Thank you very much, Arjun. Let's  
10 begin with Dr. Roessler.

11 **DR. ROESSLER:** I have two questions. The first  
12 question is on this slide you mention the  
13 internal team reviewers. I don't see Joyce  
14 Lipsztein on there.

15 **DR. MAKHIJANI:** Yes, I think Joyce was very  
16 busy with other things. I did send things to  
17 Joyce and I don't think she fully -- she got a  
18 chance to get to them 'cause she was working on  
19 Y-12 and various other things. Mike Thorne is  
20 also a very good expert on internal dose  
21 issues, and I also used Bernd Franke, who also  
22 has experience in bioassay and internal dose.  
23 I did send all the materials to Joyce, but she  
24 --

25 **DR. ROESSLER:** Okay, but Joyce is still --

1           **DR. MAKHIJANI:** Oh, yes.

2           **DR. ROESSLER:** -- with -- with the team in some  
3           --

4           **DR. MAKHIJANI:** She's working on Y-12 -- if I'm  
5           right, Joe. Is Joe here? John, is that right?  
6           Yeah, I saw all the e-mail traffic so I'm -- I  
7           know that she was working on Y-12.

8           **DR. ROESSLER:** I think it's unfortunate she  
9           wasn't involved in this particular review.

10          **DR. MAKHIJANI:** Yes. Well, I did send her the  
11          materials for -- for review, but...

12          **DR. ROESSLER:** The other question I have is on  
13          slide 13, and in here you talked about the  
14          decommissioning, 1958 onward. I'm wondering  
15          what the pertinence of that is with regard to  
16          this petition, which ends with the 1957 period.

17          **DR. MAKHIJANI:** Well, the -- Dr. Roessler, the  
18          decommissioning does not have to do with the  
19          '49-'57 period. Since we were asked to do a  
20          site profile review, the last time we had said  
21          it was incomplete. We thought it proper not to  
22          have to go back again and say oh, it's still  
23          incomplete and we're going to do it next time.  
24          So we did put some effort, although not the  
25          major part of the effort, in doing this. It

1 doesn't have a direct relevance to --

2 **DR. WADE:** And for the record --

3 **DR. MAKHIJANI:** -- the main question before --

4 **DR. WADE:** -- SC&A's review is of the site  
5 profile.

6 **DR. MAKHIJANI:** So we didn't -- we didn't want  
7 to have to tell you that we haven't finished  
8 yet and we'd like more time, so we tried to  
9 finish everything.

10 **DR. ZIEMER:** Arjun, just for clarity, your  
11 sixth slide --

12 **DR. MAKHIJANI:** This goes backwards one at a  
13 time.

14 **DR. ZIEMER:** Well, it -- it's entitled "Bases  
15 for finding that reasonable dose estimates are  
16 --

17 **DR. MAKHIJANI:** Yes.

18 **DR. ZIEMER:** -- unlikely," which I -- I think  
19 one might take that to be kind of the bottom  
20 line. But then the following slides suggest a  
21 number of changes in the Technical Basis  
22 Document --

23 **DR. MAKHIJANI:** Yes.

24 **DR. ZIEMER:** -- that -- the implication is that  
25 if these changes were made, then reasonable

1           dose estimates perhaps could be made. Is that  
2           the position that SC&A is taking or --

3           **DR. MAKHIJANI:** No, I don't believe we took a  
4           contradictory position like that. I think -- I  
5           think there are some items there that -- that  
6           could be like in the -- fall in the category  
7           for that item of reasonable doses, but overall  
8           I think most of those items relate to the  
9           development of scientifically defensible worst-  
10          case assumptions for maximum doses. So when --  
11          when you add up all the changes, we don't think  
12          -- we think there are a number of items that --  
13          listed in that slide for which you cannot make  
14          reasonable dose estimates. So when you make  
15          all the changes and add it all up, you are  
16          going to -- you're going to have -- you're  
17          going to be in the territory, in our judgment,  
18          of -- of maximum dose estimates.

19          **DR. ZIEMER:** As opposed to reasonable.

20          **DR. MAKHIJANI:** Yes.

21          **DR. ZIEMER:** You're not ruling out the  
22          maximizing process.

23          **DR. MAKHIJANI:** Well, what we've said in regard  
24          to maximizing is, because the changes are so  
25          major and outstanding data questions are

1 significant, we -- and then it all has to be  
2 translated into do-- that we couldn't make a  
3 judgment whether at the end of the road you'd  
4 actually be able to --

5 **DR. ZIEMER:** Yes, understood.

6 **DR. MAKHIJANI:** -- do it.

7 **DR. ZIEMER:** Yes.

8 **DR. MAKHIJANI:** But this is the -- necessary,  
9 but whether it's sufficient or not, I don't  
10 know.

11 **DR. ZIEMER:** Yes, understood. Wanda?

12 **MS. MUNN:** Dr. Makhijani, could you  
13 characterize a little more clearly for us what  
14 is the issue with the Barnes data?

15 **DR. MAKHIJANI:** Yes. The -- we didn't find any  
16 evidence that the urine samples were  
17 contaminated and so on. The issue with the  
18 Barnes data was that the standard itself was  
19 deteriorating with time, and so the standard of  
20 -- comparison amount of uranium in the standard  
21 was decreasing because the uranium was getting  
22 precipitated out of the solution at the time of  
23 the comparison. And so there was a discussion  
24 and a number of tests and comparisons were  
25 done, which is in the February 2, 1950

1 document. That document was analyzed and a  
2 full analysis is presented in Attachment 7,  
3 Mike Thorne did that for us. And so far as we  
4 are able to tell, it appears that one of the  
5 systematic error -- one systematic error arose  
6 from the standard deteriorating, and that would  
7 have tended for samples to be overestimated, if  
8 there hadn't been another error. However, it  
9 appears when they did the independent tests,  
10 and this was the set number six -- I'll point  
11 you to the place in the discussion. If you go  
12 to the end of the report, on page 85 you'll see  
13 over there a test that was done on -- on this,  
14 and the Barnes data were actually systematic  
15 underestimates when tested by the New York  
16 Operations Office, not against the Barnes  
17 standard but against the New York Operations  
18 Office standard, which we presume was okay.  
19 It appears then that there were two competing  
20 errors, one arising out of -- we do not know  
21 what, maybe a calibration issue of the  
22 equipment or something that seemed to give  
23 approximately a 30 percent underestimate. And  
24 that was being offset over time by  
25 deterioration of the Barnes standard. At the

1           time a comparison was made, it -- you know, New  
2           York Operations and -- and Mallinckrodt were  
3           reading the same thing and it seemed like  
4           Mallinckrodt was making an overestimate  
5           compared to the standard, but the standard  
6           itself had deteriorated.

7           So there -- there appears to be some kind of an  
8           error in Barnes. We're not sure -- this is the  
9           best that we could tell from the data  
10          available.

11         **DR. ZIEMER:** Jim Neton, can you add to this?

12         **DR. NETON:** Yeah, I'd just like to add a little  
13         bit to that. I -- I've read the Mike Thorne  
14         analyses and I'm very familiar with the memos  
15         that are cited. I -- I think it was  
16         erroneously attributed to me in the review that  
17         I stated that the source of the high values was  
18         just contaminated samples. There is indication  
19         that there were contaminated samples. There's  
20         a memo to that effect. But we also discussed  
21         this possibility of the standard precipitating  
22         out of solution, which was well covered in that  
23         February 2nd memo.

24         And in fact, I think the competing interest or  
25         competing effect that is referred to here -- on

1 three occasions Mallinckrodt was called to  
2 Barnes Hospital. This was written up in the  
3 Mont Mason letter, and Mont Mason did a very  
4 nice evaluation of this. On three occasions  
5 they kept saying the instrument's losing  
6 sensitivity. In other words, they measure  
7 their same standard, and it would read low.  
8 Well, on three occasions they actually  
9 artificially boosted up the calibration curve  
10 so that they now read like they used to,  
11 artificially raising the efficiency. And I  
12 think on those three occasions that explains a  
13 lot of the discrepancies that Mike Thorne was  
14 observing. So I think it's not an unknown. I  
15 think it was well covered by Mont Mason, and so  
16 it does explain a lot of these differences. So  
17 I think that's what was going on. Standard's  
18 precipitating, artificially jacking the  
19 calibration curves back up to expectation  
20 rather than calibrating, and -- so I think it's  
21 something that we need to take into account,  
22 but I think the issue is well documented and  
23 well characterized.

24 **DR. MAKHIJANI:** Yeah -- yeah, I think the issue  
25 is documented. We've -- we've presented some

1 kind of a rough, sketchy analysis of it, not --  
2 not -- and we haven't recommended a correction  
3 factor. But we think that there is some  
4 correction to be done and some looking into.  
5 They did try to develop a constant correction  
6 factor, and we think -- and this is -- this is  
7 discussed in the site profile as it currently  
8 stands, to some extent. And that -- so -- but  
9 it's not -- it's not clear that the Barnes  
10 Hospital data are systematic overestimates for  
11 all the data that were taken. And so a  
12 question of correction factors does arise.

13 **DR. ZIEMER:** Other comments or questions? If  
14 not, we'll continue with the presentation by  
15 Dr. Neton from NIOSH. And again, Board  
16 members, you should have a copy. And thank  
17 you, Arjun, for --

18 **DR. MAKHIJANI:** Yes.

19 **DR. ZIEMER:** -- your presentation to us. You  
20 should have a copy of Dr. Neton's overheads, as  
21 well.

22 **MR. GIBSON:** (Via telephone) Excuse me, Dr.  
23 Ziemer?

24 **DR. ZIEMER:** Yes, Mike, are you on the line?

25 **MR. GIBSON:** Yeah, I just wanted to let you

1 know that I -- I called in about an hour ago.  
2 I just didn't want to interrupt Dr. Armanjani  
3 (sic), but just to let you know that I am in  
4 participation now.

5 **DR. ZIEMER:** Very good, Mike, glad to have you  
6 aboard. I wonder, were we able to provide Mike  
7 with copies of these documents?

8 **DR. WADE:** Not to my knowledge. Do you have  
9 access to a FAX machine, Mike?

10 **MR. GIBSON:** No, I -- I have some of the  
11 preliminary stuff, the -- the PDF documents  
12 that were sent e-mail, but I don't -- I don't  
13 have the -- the rest of the stuff, no.

14 **DR. ZIEMER:** We'll try to get copies to you  
15 somehow today, Mike, so you have a hard copy of  
16 these presentations.

17 **DR. MAKHIJANI:** I could e-mail them from my  
18 room.

19 **DR. ZIEMER:** Would you like -- if you have  
20 access to e-mail, Dr. Makhijani can e-mail his  
21 overheads to you from his room here yet this  
22 morning.

23 **MR. GIBSON:** Yeah, yeah, I do have access to e-  
24 mail.

25 **DR. ZIEMER:** I think we have his e-mail in the

1 document, do we not, in the -- in the book?  
2 We'll get it to you.

3 **UNIDENTIFIED:** (Off microphone) I have -- I  
4 have his e-mail.

5 **DR. ZIEMER:** Okay. That will --

6 **DR. WADE:** Mike --

7 **DR. ZIEMER:** -- that will come to you shortly,  
8 Mike.

9 **DR. WADE:** Mike, are you --

10 **MR. GIBSON:** That'd be great. Thank you.

11 **DR. WADE:** Mike, are you able to hear the  
12 proceedings adequately?

13 **MR. GIBSON:** Yes. I mean there's a little  
14 cutting in and out, but I think I'm -- I'm  
15 hearing most all of it.

16 **DR. ZIEMER:** Thank you, Mike.

17 We'll -- we'll proceed with Dr. Neton's  
18 presentation, and at the break I think Dr.  
19 Makhijani will try to e-mail you this material.

20 **MR. GIBSON:** Okay. Thank you.

21 **MALLINCKRODT SITE PROFILE**

22 **DR. NETON:** Okay. Good morning again. I'm  
23 going to talk about Mallinckrodt and dose  
24 reconstructions in a couple of specific areas.  
25 I'm not here to necessarily rebut, point by

1 point, the SC&A review. I'm -- I'll certainly  
2 be happy to answer any questions that we're  
3 talking -- you know, and discuss that in the  
4 general context, but here I'm really to talk  
5 about two -- two issues, really.

6 At the last Board meeting there was this  
7 outstanding issue of integrity of the data and  
8 biasing of the data low and that sort of thing.  
9 So I'm here to present our analysis of the data  
10 and what we've found as to that issue. I  
11 think, to some extent, this has been mitigated.  
12 SC&A has also, I believe, agreed that their  
13 analysis has shown that there has been no  
14 obvious gross alterations of the datasets, but  
15 I'll go through these slides nonetheless just  
16 to show what we've done.

17 And secondly, I've added a slide because I  
18 sensed that the raffinate issue was going to  
19 loom large on the horizon, so I have a few  
20 slides just to go over the raffinate, to set  
21 the stage for maybe some discussion.

22 Before I proceed, though, I would like to  
23 credit -- SC&A has done a tremendous job in  
24 reviewing these profiles. As you can sense,  
25 they leave no stone unturned and they've done a

1           tremendous job in -- in reviewing the dataset,  
2           and I think this profile and our dose  
3           reconstruction process is much stronger for  
4           that. So I will give them a lot of credit.  
5           Okay, moving forward, though, I would like to  
6           start and just outline the dose reconstruction  
7           process again because I think, in some sense,  
8           SC&A and NIOSH are a little bit -- coming at  
9           the approach from slightly different avenues.  
10          There are a number of data elements that make  
11          up the site profile, or a number of data  
12          sources, and that's represented over here on  
13          the far left. The first thing we do is we go  
14          and collect Department of Energy data, to the  
15          extent possible -- what we've got as far as  
16          monitoring data, that sort of thing.  
17          We have the claimant file where the claimants  
18          often put in information, in -- you know,  
19          annotations about incidents and such.  
20          And then unique to Mallinckrodt, we have what's  
21          known here as the CER database, the Center for  
22          Epidemiologic Research database. That is an  
23          electronic database that has a pedigree. It  
24          was inherited from the Mancuso study way back  
25          in the late '70s, and was validated by ORISE at

1           that time, and we have the legacy database  
2           here, which is very helpful in performing these  
3           dose reconstructions. I'm going to talk to  
4           some extent about this piece.

5           But -- so we have -- we have the data. And  
6           then what happens to this data. This is where  
7           we start. Now we have site profiles, and in  
8           addition to site profiles we have procedures,  
9           implementation guides, Technical Information  
10          Bulletins, that sort of thing that help  
11          interpret all these sources of data, as well as  
12          the claimant interviews that help identify  
13          unique conditions. As Dr. Makhijani pointed  
14          out, this is most helpful and useful when we're  
15          interviewing claimants who are former workers  
16          and less help from survivors, but nonetheless,  
17          we have this avenue available to us.

18          All of this goes together under the -- under  
19          the review of an experienced dose  
20          reconstructor, we have minimum experience  
21          requirements, who assemble this and come up  
22          with the dose at the end of the day.

23          What I'd like to point out is the site profile  
24          is one piece of this. In -- in some sense,  
25          when you listen to these reviews -- and

1           justifiably so -- they -- they appear like  
2           they're stand-alone documents used in a vacuum.  
3           Where, as you'll see in my discussion, we have  
4           much, much information here that does not need  
5           to be relied on -- does not need to rely on the  
6           site profile to do an adequate job  
7           reconstructing doses.

8           So let me just talk a little bit about the  
9           sources of data. Again, the DOE responses are  
10          individual and summary film badge reports. We  
11          have gone out and asked the Department of  
12          Energy to give us all relevant information you  
13          have, including incidents, medical X-rays. We  
14          have tabulation of urinalysis results for  
15          claimants, these dust study cards that we  
16          discussed this morning -- individual cards that  
17          document by year an individual's work locations  
18          on a weekly basis. And then these McBee cards,  
19          which some of you may remember. Before the  
20          days of the computer, these cards that have  
21          little holes punched in the top and you -- you  
22          push in a rod and you can sort by different  
23          fields. This is what the original film badge  
24          data are on. And in fact we have a large  
25          number of workers with the cards with the

1           handwritten weekly doses entered onto them.  
2           The CER database, of course, is a compilation  
3           of all the data that was at the site, including  
4           much of the information that was -- was  
5           available at the Department of Energy. But I  
6           just want to give you a sense of the magnitude  
7           of the data that we have available that's  
8           already computerized.  
9           We have over 9,000 of these air dust cards,  
10          representing 1,443 workers through 1955. After  
11          '55 these are less useful. They tended not to  
12          keep track of them as often because I think, as  
13          you'll see later, the air concentrations in the  
14          plant were decreasing rapidly, and I think they  
15          relied more on the urine monitoring program.  
16          The database also contains 13,600 urine sample  
17          results, individual urine sample results,  
18          almost exclusively for uranium, although there  
19          are thorium measurements in there that we -- we  
20          have found.  
21          There's also over 8,000 person-years of film  
22          badge results. That's 8,000 yearly values for  
23          workers at the site.  
24          Importantly, there is about 4,700 area radon  
25          measurement results that we can rely on for

1           characterizing the radon in the work  
2           environment.  
3           And something that hasn't been discussed so far  
4           is about 2,400 radon breath measurements.  
5           These are breath measurements that were made  
6           primarily by the Health and Safety Laboratory  
7           to help determine what the intake to radium was  
8           in these workers. We believe to some extent  
9           these can be used to help put upper bounds on  
10          the radium intake of workers at Mallinckrodt.  
11          The SC&A review has challenged the value of  
12          some of the early samples. The memos that they  
13          cite, to my knowledge, really refer to falsely  
14          high values because the radon in the room was -  
15          - was elevated, therefore leading to elevated  
16          radon breath measurements. So if anything, I  
17          think that these would tend to bias the results  
18          high. But these can be used and there's a  
19          large number of workers that were measured.  
20          And in fact, these can almost be used to help  
21          trace which workers were involved in processing  
22          raffinate because there's no reason to measure  
23          the radon in breath, which is an indirect  
24          measurement of radium intake, unless the worker  
25          was potentially exposed to that -- that waste

1 stream. So I think to a large extent we can  
2 use these to help bracket who was exposed to  
3 raffinate materials.

4 Now let's get back to the issue of data  
5 integrity. We have -- in going through the  
6 database, we have about 1,300 pages of original  
7 laboratory result sheets from the Health and  
8 Safety Laboratory. You might remember that  
9 that was the laboratory that had oversight of  
10 these AEC operations as far as health and  
11 safety goes, a very credible laboratory with a  
12 well-qualified staff. In looking at these  
13 sheets, there's about -- there are 14 entries  
14 available per form. Now not all forms are  
15 completely filled and we didn't go in and count  
16 every sheet. But if on average there's about  
17 10 entries per form, which I think is probably  
18 not an overestimate, you end up roughly with  
19 about 13,000 urine sample results that are the  
20 original coded sheets that HASL sent to -- sent  
21 to Mallinckrodt.

22 Now I just want to point out that it's kind of  
23 suspicious that we have 13,600 urine sample  
24 results that were coded off the original  
25 workers' cards, and we have, by my estimation,

1           pretty close to that number of HASL urine  
2           sample data. Now I'm not going to suggest  
3           that's 100 percent, but I think what we've  
4           found -- and I'll talk about this later -- is  
5           virtually all of the uranium measurements after  
6           1949 were done by the Health and Safety  
7           Laboratory by our own independent evaluation,  
8           which gave us a fairly good comfort level that  
9           the urine sample results can be relied on, to a  
10          large extent.

11          We also have these results of periodic dust  
12          studies that were conducted. There were  
13          campaigns on an annual basis to go characterize  
14          the work environment and dust at these various  
15          work locations, but also campaigns that would  
16          go and measure specific areas where there was  
17          concern. So between '49 I think and '57 there  
18          are -- I wrote this down -- 42 dust study  
19          reports. Those are individual reports that are  
20          each made up of hundred of individual --  
21          individual air sample measurements. So you get  
22          the sense that at Mallinckrodt we have a large  
23          volume of data to start with.

24          Okay. Now lets get back again to this -- this  
25          integrity of the data issue. We approached

1           this from a multi-faceted viewpoint and so we  
2           tested in several different ways. We poked  
3           around and looked at the data to see if, you  
4           know, it walked right, smelled right, looked  
5           right, make sure the data appeared to be okay.  
6           So the first thing we did was we got together  
7           with ORISE and got their validation studies,  
8           what was their protocol that they used to  
9           accept the Mancuso data that was -- already had  
10          been coded in the '70s, was inherited from the  
11          University of Pittsburgh when they took over  
12          the studies. And they did a ten percent random  
13          sampling of the data against the original  
14          jacketed cards that they'd pull out of the  
15          medical records and validated that they  
16          believed that the data that were already coded  
17          were -- were acceptable. With the exception of  
18          the urine data, they felt the data could be  
19          relied on, to a large extent. They actually  
20          went back, though, and recoded all the urine  
21          data -- 100 percent recoding -- and so we have  
22          very good confidence in the urine data here,  
23          and also good documentation of the other data  
24          that they -- they accepted were valid.  
25          So we went back and looked at the CER data and

1           went back and looked at some of the original  
2           data sources that -- that were available, such  
3           as the HASL data. We looked at the HASL data  
4           sheets and compared it with the results that  
5           were in there. And then we looked at the  
6           consistency of the fit in the CER data with  
7           typical occupational exposure data, did this  
8           data look about -- look right; from a person  
9           who's done a lot of occupational data and  
10          looking at literature values, do these have the  
11          right characteristics of what you'd expect.  
12          Then finally we went back and looked at some of  
13          these intakes and, using the values in the  
14          profile, estimated what the intakes -- compared  
15          the intakes estimated using the air  
16          concentration data and the intakes one would  
17          expect using the air data.

18          I will be the first one to admit that this has  
19          a lot -- there's a lot of uncertainty in the  
20          intakes based on urine data. Those who have  
21          worked with any bioassay data recognize that  
22          there's large uncertainties. What we were  
23          really looking for here is, again, is there any  
24          gross deviation from what's expected, and we'll  
25          see what happened.

1           And then finally we went back and said okay, if  
2           these data do appear to be okay, what is the  
3           extent of the data available for the active  
4           cases. Do we actually have real data for  
5           people, or do we have to have surrogate data  
6           for 90 percent of the workers.

7           Okay, I'll just -- I have a few of these  
8           slides, and they're quite colorful and pretty,  
9           but I think the most important thing to note is  
10          the nice linearity of these -- these graphs.  
11          The red line represents the dust concentration  
12          in dpm per cubic meter -- that's on the left  
13          axis -- and the urine concentration data is on  
14          the right side -- is on the right axis. And  
15          you can see that these things -- these fit  
16          straight lines on a log probability plot very  
17          well. And what's interesting is they tend to  
18          be parallel, which is kind of interesting.  
19          You'd expect the urine sample to somewhat  
20          parallel the air sample data if the  
21          concentrations did indeed go up and down  
22          concomitantly.

23          So I have slides here for 1949. We see no  
24          perturbation there. That looks very consistent  
25          with -- with our evaluation of standard data;

1           1950, similar. There is some trend here toward  
2           divergence here, but nonetheless these R-  
3           squared values are really good.

4           Now this is interesting. I spoke about this  
5           earlier at the working group meeting. This is  
6           a good example of what happens when you've got  
7           some -- when you have some censored data. The  
8           dust concentration data here was entered right  
9           out of the CER database and plotted on a log  
10          probability plot, and you see here that there's  
11          this extreme down-turn right around 30 percent.  
12          And I mentioned this morning -- for those of  
13          you who weren't here, I'll repeat it -- that it  
14          turns out that the dust concentration data in  
15          1952 and onward were not computed on the  
16          individual sheets. I'm not saying that they  
17          don't exist. The sheets are there. I've  
18          looked at some of the original sheets. They've  
19          entered -- remember I said they kept track of  
20          where the workers were by week in individual  
21          years? They never bothered to go back and  
22          calculate the dust concen-- add in the dust  
23          concentration data for those jobs, for whatever  
24          reason. When ORAU coded this, they put in zero  
25          to hold the place as a missing value, and this

1 is what happened. And I've confirmed this with  
2 Betsy Ellis, who reviewed this dataset, and  
3 this is exactly what happened. So this is  
4 somewhat of a fortuitous example of what can  
5 happen when you do have data that are censored,  
6 and we were able to figure out what -- what  
7 hap-- what went on.

8 Okay. Interestingly, we just plotted here the  
9 mean -- the median value of the urines over  
10 time with its fifth and 95th percentile values,  
11 just to show that there is a consistent down-  
12 turn in the urine monitoring data over time,  
13 and a fairly consistent spread of the data. So  
14 this is essentially a replot of all the data  
15 that I just showed you on one slide.

16 Now this probably won't be tremendously  
17 readable. I got this right out of an AEC  
18 report, but my intent here is to show that the  
19 down-turn in the urine data -- this is on a log  
20 scale -- is very consistent with what the AEC  
21 is reporting based on their analyses and  
22 different engineering controls that were put in  
23 place over time. This line right here  
24 represents the average air concentration -- and  
25 this is for Plant 6, I believe -- yes. The

1 average air concentration in Plant 6, starting  
2 in 1949 and continuing on through the 1950s,  
3 and a tremendous drop here in around 1949  
4 through -- between 1949 and '50, indicating  
5 that a lot of these work practices were put in  
6 place, work practice and work controls. And  
7 that's very consistent with what we see in the  
8 urine data. This value here, you might wonder,  
9 is the maximum values that were measured, and  
10 this is the average values.

11 Okay. We did the same thing -- I'm not going  
12 to present you a litany of the external data,  
13 but suffice it to say that the external data  
14 fit very nicely the same way, and we saw no  
15 evidence of -- of a fudging of the datas, and  
16 I'm just going to show 1949 and 1957, and  
17 you'll have to trust me on this; I can produce  
18 the graphs if you'd like, but they're all very  
19 boring and fairly straight, like this.

20 Okay. Let's get on to the -- so we -- we've  
21 got the feel that the data do not look askew,  
22 and the last test that we did was we looked and  
23 said okay, let's compare the air dust data --  
24 which are the red dots -- against the urine  
25 data for a subset of the workers. So in this

1 particular case we're talking -- we're looking  
2 at the ether house, which is -- remember we  
3 talked earlier in the day about the ether house  
4 being the extraction area where the raffinate  
5 was already -- the radium was removed and here  
6 they're trying to get more pure uranium.  
7 So here are the points representing the median  
8 value of four workers' urine who had fairly  
9 complete monitoring over time. I believe  
10 actually there -- there was four here and --  
11 and another set here, but nonetheless there  
12 were four workers with fairly complete urine  
13 monitoring data. And I indicated here the  
14 fifth and 95th percentile air bars, assuming a  
15 GSD of three, which is very consistent with  
16 what we use in our site profile -- in our dose  
17 reconstructions. It's well-established that  
18 there's a number of reasons why urine data has  
19 uncertainty. Partly it has to do with what we  
20 talked about yesterday, the breathing rate;  
21 part of it has to do with the particle size; a  
22 lot of it has to do with the individual  
23 metabolism of the workers. So I just wanted to  
24 show that there is uncertainty here and that  
25 the -- the red squares, which are the air dust

1 data, I think I can say are not inconsistent  
2 with the urine data.

3 Now again, the uncertainties are large, but  
4 there's no gross indication that these data  
5 were -- for example, if the urine data were all  
6 down in here, I'd start to worry a little bit  
7 that maybe they were under-reporting the urine  
8 data.

9 But I've just done this for a few plants. This  
10 is Plant 6 where there's no -- no radium source  
11 term.

12 Now if you look at -- this is a cloth operator,  
13 and I think SC&A has this same analysis. It's  
14 not graphically presented in their report, but  
15 the same -- I think they've done the same  
16 comparison. I was actually encouraged to see  
17 we got the same -- pretty much the same  
18 numbers.

19 What you see here is interesting that in the  
20 earlier days you see a higher value for the  
21 uranium dust -- the dust data, decreasing down  
22 over time, and still not inconsistent with the  
23 -- with the bioassay data here. But what seems  
24 to be happening here is you have a radium  
25 source term. The ether -- the cloth operators

1 are the people who were working with the radium  
2 product that was precipitated out. And one can  
3 envision that as the pitchblende ore  
4 concentration started decreasing in quantity of  
5 -- of raf-- of radium, you started more  
6 approaching a value that was closer to the --  
7 to this situation. So I thought that was kind  
8 of an interesting indication that where you  
9 have -- in fact, if you look at the ratio of  
10 this to this, it's almost like around 100 to  
11 one, which I think is extremely fortuitous, but  
12 nonetheless interesting. Again, all of the  
13 values are within the air bars.  
14 Similar analysis here not quite as good  
15 agreement. Again, this is real data, warts and  
16 all. But again not inconsistent data for a pot  
17 room operator. These are people working with  
18 the -- the purified form of the uranium in the  
19 pots in Plant 6. Higher here, but it's still  
20 in the same general vicinity is all I'm trying  
21 to point out.  
22 This is an interesting operation here. I'm not  
23 exactly -- I can't explain this away, other  
24 than -- I thought about this point a long time.  
25 It's high. You would -- it's encouraging that

1           it's high, not low, but at the same time, this  
2           -- we modeled these as Class W materials, and  
3           it's quite possible -- in the packaging  
4           operations sometimes workers were handling UO-  
5           2, which is Type S material. One would expect  
6           less in the urine than what we're seeing for W,  
7           so maybe that explains it. But this is the  
8           only slide where I felt there was some issue,  
9           but again, I'm encouraged that the value is --  
10          is higher for the -- you know, it's -- it's  
11          easier to consider why that value is high  
12          rather than extremely low.

13          So again, I'm not saying that this is --  
14          validates it completely, but if you -- if taken  
15          collectively, you know, the -- the lognormal  
16          fit of the data, the not inconsistent agreement  
17          with the urine and the air data, one has a  
18          sense -- and I think SC&A agrees -- that  
19          there's -- the integrity of the data is -- is  
20          not really an issue.

21          Let's talk a little bit about the percentage of  
22          the workers monitored here. I've got a graph  
23          here, and I think Larry Elliott has a slide  
24          that shows actual numbers, but this is a  
25          graphic representation by year of what we

1 believe to be the percentage of workers that  
2 were actually monitored with these types of --  
3 of measurement techniques. You can see the  
4 breath radon was a small subset of the workers,  
5 but about 15 to 20 percent over time,  
6 terminating in '55. This may actually be the  
7 affected population of raffinate workers.  
8 There may be more than that, but certainly  
9 these would represent the more heavily exposed  
10 workers. You would be taking breath radon  
11 measurements on the more heavily exposed  
12 worker, and -- and we know -- we know who these  
13 people are. I mean we actually have their --  
14 their job cards and everything.  
15 Followed by the urinalyses, starting at about -  
16 - less than 60 percent in '48 and increasing  
17 over time to where you have about 80 percent of  
18 the workers monitored through '55, and a slight  
19 down-turn here after '56 when production  
20 operations started to -- to decline. I think  
21 '57/'58 was pretty much agreed that that was  
22 the end of the production operation for -- for  
23 the Mallinckrodt facilities.  
24 Air dust, we have a similar pattern, for the  
25 most part, of 50 percent -- not quite as many

1 here in '50, but then increasing rapidly to 80-  
2 plus percent '51 and '52. Now I have to  
3 explain, the red -- the red bar is the air dust  
4 cards that we actually have the time-weighted  
5 average values filled in. I've indicated here  
6 on this graph the air dust card we have for  
7 workers after '52, which give us information  
8 about job location but have not necessarily  
9 been finalized to the -- to the time-weighted  
10 average value, but we could go back and  
11 reconstruct that ourselves.

12 And film badge data, we have a very consistent  
13 percentage, 75-80, up to almost 100 percent of  
14 the workers monitored in the later years. So  
15 again, we have a lot of data on these workers.  
16 This is projected based on the total population  
17 that worked on the uranium project at the -- at  
18 the -- at Mallinckrodt.

19 Okay. So that -- that's our projection, based  
20 on what we know to be the work -- you know, the  
21 number of workers we have data for versus the  
22 number of workers we believe to actually be  
23 working at the Mallinckrodt facility.

24 Now we went back and looked at records  
25 available for claims that we have. Right now

1 we have 109 cases in our possession who have  
2 employment start dates between 1949 and '57.  
3 Now these are people who are not in -- as part  
4 of the SEC. I mean they started after 1948.  
5 And we went back and looked at a number of  
6 these individually.  
7 First we went back and looked at job title work  
8 category information, and we at least have some  
9 information on what these people did for 98  
10 percent of these 109 cases. There's something  
11 in their file that tells us what they did. I  
12 think there's only two people out of these 109  
13 where it says unknown, and one of -- I've  
14 looked at both of those and it's -- it's an  
15 interesting -- it does not appear to be -- they  
16 do not appear to be workers who had a high  
17 potential for exposure, let's put it that way.  
18 The DOE response and CER files were reviewed.  
19 We looked at -- do we have -- what -- do we  
20 have any urine data and film badge data for  
21 these 109 workers, and we went back and looked  
22 at every single one, and we found that we have  
23 -- for about -- almost 80 percent of the cases,  
24 we have some urine data and film -- some film  
25 badge data. I'm not saying we have complete

1 monitoring records for all 78 percent for every  
2 year, but there is some indication of what  
3 their magnitude of their exposure was for --  
4 based on urine and film. That's a pretty --  
5 pretty large percentage of the work force.  
6 It's interesting -- these are -- these are not  
7 necessarily the same workers. For example, in  
8 some cases you may have urine and no film and  
9 some film and no urine, but it came out about  
10 the same. You have -- still about 78 percent  
11 of the workers have some data.  
12 Now of -- I mentioned about 12 percent we don't  
13 have bioassay data. I thought it would be of  
14 interest to just sort of catalog the workers  
15 where we don't have bioassay data, and many of  
16 these make sense -- clerk/typist, secretary,  
17 foreman possibly. Some of these, though, I --  
18 were surprising. But then I started looking at  
19 these, and some of these -- subcontractor at  
20 the kiln, maintenance welder -- these are --  
21 research chemists -- these people started later  
22 in the Mallinckrodt years at Destrehan Street.  
23 And in fact, if you go back and look at their  
24 Weldon Spring files, you'll find some urine  
25 data. So overall, the percentage is even

1 higher than 78 percent if you start  
2 incorporating urine data that you have from the  
3 time they went to Weldon Springs. And of  
4 course those can be used, to a limited extent,  
5 to go backwards in time and figure out some  
6 bounding estimate based on that.

7 Okay. All right. Another thing we did when we  
8 looked at the Center for Epidemiologic Research  
9 data versus the Health and Safety Laboratory  
10 sheets, we went back -- and remember, there's  
11 1,300 of these sheets and they were somewhat  
12 arranged chronologically, but not perfectly,  
13 which kind of made the effort a little more  
14 labor-intensive. But we went and looked at 20  
15 percent of those 109 cases that we -- we have.  
16 And we compared the data that was in the CER  
17 database to the actual coded sheet on the  
18 Laboratory analysis result. And we found that  
19 98 percent of all the bioassay results were  
20 found in the HASL laboratory sheets. In other  
21 words, 98 percent of the results for those --  
22 those 20 percent of the workers were HASL  
23 laboratory results. I think there was only a  
24 couple that weren't -- three I think weren't  
25 found. Two of those were in the 1949 time

1 frame, which were more than likely done by  
2 Barnes Hospital, interestingly weren't in the  
3 database at all. And another one -- it appears  
4 to be a duplicate where the CER database had  
5 two samples one day apart with the same value,  
6 and it appears to be just a -- a clerical entry  
7 error.

8 So we had very good comfort that the data that  
9 we're working with these claimants -- these  
10 cases are -- are HASL urine data. 94 percent  
11 of the data that we found exact -- exactly  
12 matched what was in the CER database against  
13 the HASL.

14 Like any database, we did discover some errors  
15 in transcription of dates, the dates were off.  
16 Reading numbers that are handwritten oftentimes  
17 you'll see a four transcribed as a nine, that  
18 sort of thing. Those are the type of errors  
19 that we -- we found in here. We do believe  
20 that the errors were reflective of data on the  
21 Mallinckrodt cards and not the CER data,  
22 although we've -- we've looked at this in a  
23 couple of cases, it seems to match, but we're  
24 not saying that it was always the case. But  
25 nonetheless, this gives us a pretty good

1 picture that the CER database for the urine are  
2 pretty usable for dose reconstructions.

3 Okay. I've gone through this and I don't want  
4 to belabor the point, but you know, to  
5 summarize what we've done with this  
6 characterization work, large percentage of  
7 workers monitored. Almost everybody we have  
8 some job information about job title or  
9 category.

10 The distributions of the data are very  
11 consistent with what we've seen ourselves in  
12 NIOSH and other research studies. No evidence  
13 of alteration. The decrease is consistent with  
14 what we've seen from the AEC reports.

15 The intakes and -- based on urine and air are  
16 not inconsistent with expectations given --  
17 even given their large uncertainty term.

18 And the urine samples in the CER database agree  
19 very well with the original HASL reports.

20 So -- so that -- given that volume of  
21 information, I think we -- we've got a pretty  
22 good picture of how to proceed with dose  
23 reconstructions. And remember, where we have  
24 the original data we have to rely less and less  
25 on the site profile to make up these -- you

1 know, to use these surrogate worker  
2 distributions that we talked about.  
3 Now I just want to finish up with a couple of  
4 slides on raffinate. Again, raffinate is a  
5 term used to define residues created from the  
6 refinement of ore. The chemical process  
7 creates a disequilibrium, so it's well known  
8 that this disequilibrium is most important for  
9 the daughter-- radium-226, actinium-227,  
10 thorium-230 and protactinium-231.  
11 I think this is a fairly instructive slide.  
12 This is an AEC report when -- this is a  
13 simplistic view of it, there is more going on  
14 here, but just so we know where the waste  
15 streams come off -- as we talked about this  
16 morning, this lead sulfate cake is really the  
17 K-65 cake. This is where radium -- sulfate,  
18 lead sulfate were precipitated, so this is  
19 where you take out all of your radium. This  
20 was a refinement process here where they just  
21 wanted to remove the excess sulfate. There is  
22 some radium in here, but most of the radium --  
23 as far as I understand the chemistry -- stays  
24 up in this lead sulfate cake.  
25 We talked a little about this morning -- in

1           1949 they started to add a step here where they  
2           would take this cake and wash it with sodium  
3           carbonate -- both of these processes were  
4           washed with sodium carbonate, with the intent  
5           of removing additional uranium, to improve the  
6           recovery of the uranium. That's a little  
7           different than reprocessing all the way from  
8           the beginning like we talked about. I mean  
9           this is not a full reprocessing with digestion  
10          and everything. This is just taking the cake  
11          and essentially washing it and taking out more  
12          uranium.

13          Once you get down to the diethyl ether  
14          extraction process, there were occasions where  
15          there'd be a precipitate. This would include  
16          some junk that they needed to filter off. This  
17          was filtered off using the Sperry ca-- Sperry  
18          press, thereby the name Sperry cake. This  
19          Sperry cake was what was used and sent to  
20          Mound, 20 tons, to obtain protactinium-231. As  
21          we mentioned, two grams of protactinium-231  
22          were extracted from 20 tons of this material,  
23          so we have an idea what was in this junk as far  
24          as protactinium.

25          And then, after going through the whole process

1           and liming it, the aqueous phase is dumped in  
2           the river, and then you have the airport cake  
3           which ended up being a huge pile of stuff, 25  
4           feet high, covering -- I don't know -- acres  
5           over at the St. Louis airport site. This was  
6           just essentially dumped on the ground, is the  
7           way I understand, reading it. This material  
8           was drummed, being essen-- originally it was  
9           the property of the Belgian Congo government, I  
10          believe. This was -- this was preserved more  
11          in drums, but this was just left on the ground.  
12          So we do acknowledge that there are  
13          disequilibria in each of these things. We do  
14          believe that there are techniques that can be  
15          used, even including taking this material and  
16          running it back through to extract more  
17          uranium. We can account for the disequilibrium  
18          using either urine and/or air sample data and  
19          use default assumptions that -- that bound the  
20          exposures for the workers.  
21          I think with that -- I have just one more slide  
22          here, but that's essentially what I just said.  
23          We can use default ratios for thorium and  
24          radium exposures. If we -- if we do it both  
25          ways, if we base it on a urine result and we

1 use a air sample result, we're going to pick  
2 the higher of the two and assign the dose to  
3 the worker, so that -- that's our approach for  
4 dealing with the raffinate issue.

5 I think with that, that's all I have to say. I  
6 guess I'd be happy to discuss this if there's  
7 any questions.

8 **DR. ZIEMER:** Okay. Thanks, Jim. Dr. Roessler  
9 has a question.

10 **DR. ROESSLER:** My question has to do with the  
11 radon breath analysis, which has nothing to do  
12 with radon in the environment. It's an  
13 indication of how much radium is in the body  
14 and comes out in the breath. I think that  
15 should be clarified.

16 But you -- you indicated that this -- looking  
17 at those measurements -- on certain individuals  
18 would be an indication of how you could look at  
19 the ones who might have been exposed to  
20 raffinate. And I'm wondering if you're making  
21 that assumption based on the fact that these  
22 people might have been expected to be exposed  
23 to radium -- but did they know back then about  
24 the raffinate?

25 **DR. NETON:** Oh, yeah, I think that's why they

1           took the radon breath analyses, they were --

2           **DR. ROESSLER:** Okay, there's indication --

3           **DR. NETON:** -- they were concerned about the  
4           radium. Oh, sure.

5           **DR. ROESSLER:** But -- radium, but what about  
6           the protactinium and thorium and the other ones  
7           that have been brought up as radionuclides of  
8           concern?

9           **DR. NETON:** I believe they were -- they were  
10          aware of the waste stream. But as has been  
11          pointed out, very little bioassay were done for  
12          -- particularly the Sperry cake operators.  
13          There are thorium-230 samples in the database.  
14          Now the thorium-230 process actually took the  
15          residue, ran it through -- it was a wet  
16          process, by the way, and when it was shipped to  
17          Mound it was liquid, and so it -- with the  
18          exception of dumping this into the digesters,  
19          it's a wet process the entire way. There were  
20          bioassay monitoring taken for thorium-230 for  
21          those workers, and it was a limited campaign.  
22          It was a -- it was a one-shot deal to extract  
23          that thorium and send it to Mound, so we have  
24          some confidence and there's some indication  
25          from interviews with Mont Mason that ORISE did

1 back in 1980 that it was a limited campaign.  
2 It took place in Plant 7E, we know the  
3 facility. So we do have some ability to  
4 bracket the time and the facility where these  
5 occurred.

6 **DR. ROESSLER:** So are you also saying that --  
7 that because they took these measurements on a  
8 limited number of individuals that that helps  
9 define the --

10 **DR. NETON:** Well --

11 **DR. ROESSLER:** -- raffinate problem or --

12 **DR. NETON:** -- I think so. I think it's a safe  
13 assumption to bet that if you were monitored  
14 for radon in breath, there was some potential  
15 for you to exposed to raffinate. We would be  
16 hard pressed not to assume that the person was  
17 at least involved in the raffinate --  
18 transportation, processing, handling -- in some  
19 way. I mean it doesn't make sense that they  
20 would take a subset of workers and measure them  
21 for radon in breath without there being some --  
22 in fact, there are lists that I've gone through  
23 that talk about who's being added to the list  
24 and who's being taken off and that sort of  
25 thing. And there's clearly, in my mind, a

1 decision process to -- to cover these workers  
2 who were exposed to radium, at least. But they  
3 -- they won't be informative at all about  
4 thorium-230 or that sort of thing, but at least  
5 as far as people who were exposed in the  
6 process stream. Whether we would end up  
7 defaulting to a protactinium exposure or  
8 actinium, thorium or thorium-230 exposure is  
9 something that we would determine on a case-by-  
10 case basis.

11 For example, if we knew the person was a  
12 digester and we knew that they're working the  
13 digester before any re-extraction had gone  
14 through, it would be a pretty safe bet to  
15 assume a one to one equilibrium of radium to  
16 uranium.

17 **DR. ZIEMER:** Dr. Anderson.

18 **DR. ANDERSON:** Yeah, I was -- I was just  
19 wondering, it -- it -- a lot of this sounds  
20 very reasonable and -- and the decision to who  
21 to do breath analysis on, but is there any  
22 documentation describing that that -- you know,  
23 do we have something more than the assumption  
24 that if you're going to do it, you would do  
25 these workers because they're exposed to radium

1           rather than it's our -- we're just interested  
2           in what the radium exposures in the work force  
3           would be. I mean that would be another way to  
4           look at it, and --

5           **DR. NETON:** Yeah --

6           **DR. ANDERSON:** I mean you would think that  
7           there -- these would have a sampling strategy -  
8           - I'm sure they had it at some time. The  
9           question is was it ever written down.

10          **DR. NETON:** Right. I'm not aware of any at  
11          this point. But I don't want to imply that we  
12          would only assume those people were radium --  
13          or raffinate workers. I was just trying to  
14          indicate that that would be a good starting  
15          point to say well, certainly these people have  
16          potential. Now let's go and look at, for  
17          instance, the film badge results. If you  
18          recall, radium has a huge photon emission from  
19          the daughters. So people with extremely low  
20          film badge results are very unlikely to have  
21          worked with significant quantities of radium.  
22          But if you -- on the other hand, if you have  
23          very large film badge results -- and believe  
24          me, they are high film badge results in the  
25          early Mallinckrodt years -- that's an excellent

1           indication that you're working with radium, or  
2           around radium material. So that's another  
3           indication.

4           Then you couple that with job and -- and those  
5           type of issues --

6           **DR. ANDERSON:** Yeah.

7           **DR. NETON:** -- you should be able -- we should  
8           be able to get a fairly good feel. And of  
9           course where there's doubt, we're going to err  
10          on the side of the claimant on this issue.

11          **DR. ANDERSON:** My -- my other question was --  
12          very interested in the 109 individual -- I mean  
13          part of it is can it be done technically, and I  
14          think you're showing that it can. The question  
15          is how practical and feasible to do all of  
16          these combinations and cross-checking as -- as  
17          how many of people who filed claims during this  
18          period actually have -- have had the dose  
19          reconstruction done, not just the efficiency  
20          process. I mean you're saying -- you haven't  
21          been waiting for the site profiles in order to  
22          complete these, so have any of them actually --  
23          you have a lot of individual data. How many  
24          have actually gone through the full evaluation  
25          and have done -- that have reconstructors

1           actually done what you're describing, cross-  
2           referencing all of these various -- I mean it's  
3           a fascinating process to be able to do. It  
4           also sounds very time-intensive, so I --

5           **DR. NETON:** It is. These are 109 what we would  
6           call active cases, meaning they still need to  
7           have dose reconstructions completed. I think -  
8           - and I don't have this number exactly, but I  
9           want to say that we've done 30 or so dose  
10          reconstructions thus far at Mallinckrodt, maybe  
11          36 -- Arjun may know better than I do at this  
12          point -- but most of those were compensable,  
13          and most of those were lung cancers because, as  
14          you can see, the source term here lends itself  
15          to very large lung doses.

16          **DR. ANDERSON:** Yeah.

17          **DR. NETON:** The radon component, the uranium,  
18          the radium. In fact, I think one of them were  
19          compensable based on an actinium-227 dose  
20          calculation. I think there were five or six  
21          that were non-compensable that Dr. Makhijani  
22          spoke to, and we did use these over-estimating  
23          -- what we would call a deliberate overestimate  
24          approach. We would say we don't know exactly  
25          what happened, but it's certainly less than X,

1 based on our -- our knowledge of what's going  
2 on. And I -- I recognize there's some issues.  
3 When you start adding radionuclides that  
4 weren't present at the site, it stretches --  
5 stretches the credibility issue a little. So  
6 we've done some of those.

7 I don't know that we've done any what we would  
8 call complete dose reconstructions for any of  
9 these workers thus far.

10 **DR. ANDERSON:** It just becomes kind of a  
11 practical issue. Given the workload that's  
12 there to be done, the amount of effort one has  
13 to put into a relatively small number of cases  
14 here, an efficiency issue would be something to  
15 look at.

16 **DR. NETON:** Right, yeah, I don't want to imply  
17 that we're going to do full, complete refined  
18 dose reconstructions. I think in many cases  
19 the maximum assignments -- maximum credible  
20 assignments -- plausible assignments, not using  
21 these -- these overestimating things -- will  
22 end up possibly, for systemic cancers, being --  
23 you know, using the efficiency process and  
24 demonstrating that it's less than 50 percent.  
25 It's the -- it could work either way.

1           Although, on the other hand, for some of these  
2           raffinate workers where one cannot do a  
3           refinement other than a maximum credible dose,  
4           it's possible that many of those cancers would  
5           be -- would be compensable.

6           **DR. ANDERSON:** But up to this point, after this  
7           amount of time, we haven't really done any of  
8           those so you --

9           **DR. NETON:** No.

10          **DR. ANDERSON:** I mean it's feasible, you're  
11          saying, to do, but it hasn't actually occurred  
12          yet.

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

14          **DR. ZIEMER:** Roy DeHart.

15          **DR. DEHART:** But we've heard concern on the  
16          part of the petitioners that they're -- they  
17          were not getting information at the time they  
18          were employed, and I assume that much -- this  
19          data was identifying the individual by badge  
20          number or name. Do you know whether reports  
21          were rendered -- I realize this was an early  
22          time -- back to the employee?

23          **DR. NETON:** I do not. That doesn't mean that  
24          it wasn't.

25          **DR. DEHART:** Okay. Thank you.

1           **DR. ZIEMER:** Other questions for Jim Neton? If  
2 not, we're going to take a break at this time.  
3 Thank you, Jim. And we'll --

4           **MR. GIBSON:** Dr. Ziemer?

5           **DR. ZIEMER:** Yes, Mike.

6           **MR. GIBSON:** Could I make a comment?

7           **DR. ZIEMER:** Oh, yes, you certainly can.

8 Didn't mean to ignore you, Mike. Go ahead.

9           **MR. GIBSON:** I'm sorry, I guess you didn't see  
10 my card.

11           **DR. ZIEMER:** Out of sight, out of mind, Mike,  
12 yeah.

13           **MR. GIBSON:** You know, with respect to the  
14 quantity of data, and I know I've in some ways  
15 raised the hackles of some of my colleagues  
16 before and I didn't intend to do that -- you  
17 know, a couple of years ago Secretary -- then-  
18 Secretary Richardson said we have not  
19 adequately monitored these workers. So with  
20 respect of the quantity of the data -- and  
21 let's assume for the moment that the quality of  
22 the data is correct -- you know, the Board was  
23 made up intentionally of medical professionals,  
24 health physics professionals and labor, and I  
25 think that was for a reason. Because there are

1           those of us who have been in the field and ac--  
2           for decades and actually seen what went on, and  
3           it's the -- sometimes the way people are  
4           monitored, number one.

5           For instance, were air samples taking at the  
6           breathing zone where the work was going on, or  
7           were air samples taken where the monitor sat  
8           over in the corner of a room, which is not  
9           going to give you an adequate representation.  
10          Were air monitors set up up-stream or down-  
11          stream of the air flow if you're working  
12          outside. So irregardless (sic) of the quantity  
13          of the data you have available for you -- and  
14          again, let's assume that the data that was  
15          analyzed by the professionals is correct -- to  
16          me -- I've seen instances where it's still not  
17          -- the monitoring that may or may not have  
18          taken place is still not representative of the  
19          exact position of the workers, irregardless  
20          (sic) of if it was taken in the same building,  
21          the same room, it still wasn't -- not  
22          necessarily put in a position to where it truly  
23          indicates what the workers may have been  
24          exposed to.

25          **DR. ZIEMER:** Okay. Yes, thanks, Mike. Good

1 point.

2 **MR. GIBSON:** And as far as default assumptions,  
3 you know, I am not a professional, but the  
4 default assumptions they take when they have  
5 personal bioassay data and the like -- even if  
6 you take the worst-case assumptions for those  
7 default factors, those default factors are not  
8 always necessarily the correct factors to be  
9 taken into consideration.

10 In mean, for instance, a lot of bioassay  
11 samples -- I know at Mound the default factor  
12 was 45 days from your last bioassay test. It  
13 may have happened the day after your last  
14 bioassay test, which may have been 90 or 180  
15 days ago. Another default factor is they  
16 assumed 33 percent weekly, 33 percent slow, 33  
17 percent, you know, yearly type solubility  
18 classes of the -- of the material. So even if  
19 you take that worst-case assumption, that's  
20 still the worst case of the default factor they  
21 use, in my opinion, and not necessarily the  
22 worst case of what it may have been. So I --  
23 you know, I just wanted to --

24 **DR. ZIEMER:** Yeah, thank you -- thank you for  
25 making those points, Mike.

1 Other comments? Yes, Mark Griffon.

2 **MR. GRIFFON:** Just -- just a quick follow-up on  
3 that. I think one thing that I -- I -- I  
4 wanted to re-emphasize maybe that Jim mentioned  
5 was that in the cases where they're back-  
6 calculating intakes, they're going to look at  
7 the air sampling data along with urinalysis  
8 data and -- and it's at least somewhat  
9 reassuring to me that -- that most of these  
10 people have urinalysis data. I -- I have some  
11 questions on the air sampling data, also -- the  
12 representativeness of it. It was -- it was  
13 studies and I think later they assigned some of  
14 those job values to individuals, so it's not  
15 really -- when you look at the CER data, it's  
16 my understanding is that even though it looks  
17 like you sort by individuals and you have data  
18 there for them, those data were actually  
19 averages from a prior study on that certain job  
20 title, if I'm understanding this correctly.  
21 But -- but notwithstanding any of that, it's  
22 reassuring that -- you back-calculate intakes  
23 two ways, using urine data and using the air --  
24 and forward calculate it using the air sampling  
25 data, and they -- NIOSH is committing here, I

1 think, to saying we're going to take the worst-  
2 case value of either one of those and carry it  
3 forward with -- to -- to calculate the  
4 appropriate doses. So I think that -- that's  
5 one somewhat reassuring statement.

6 **DR. ZIEMER:** Any other comments before we take  
7 our break?

8 Okay, we'll take about a 15-minute break and  
9 then we'll reconvene. Thank you very much.

10 (Whereupon, a recess was taken from 10:50 a.m.  
11 to 11:15 a.m.)

12 **DR. ZIEMER:** We're ready to reconvene this  
13 session, ask everyone to take their seats.  
14 Dr. Wade has a couple of comments as we get  
15 underway again.

16 **MALLINCKRODT SEC PETITION**

17 **DR. WADE:** Just as we begin an SEC discussion,  
18 I -- I'd remind you of several things we've  
19 talked about before. What'll happen this  
20 afternoon now -- this morning and continue this  
21 afternoon is that you'll be presented with an  
22 SEC petition evaluation report by NIOSH. We'll  
23 hear from petitioners as to that report. The  
24 Board'll then deliberate and make a  
25 recommendation. That recommendation will go to

1 the NIOSH Director, who will form a decision  
2 package that will go to the Secretary.  
3 I've said this to you before and I'll say it to  
4 you again. I think it's terribly important  
5 that you create a record that strongly supports  
6 the package that you send forward. It is this  
7 record, as well as the recommendation, that  
8 will go to the NIOSH Director and form the  
9 basis of the decision package that goes  
10 forward. So I -- I stress again, make sure  
11 that everything you feel pertinent to your  
12 recommendation is contained in the record and  
13 will support the recommendation that goes  
14 forward. Thank you.

15 **DR. ZIEMER:** Thank you, and I want to also  
16 check and see if Mike is still on the line.  
17 Mike, are you with us still?

18 **MR. GIBSON:** Yes, still here.

19 **DR. ZIEMER:** Thank you. Then we are going to  
20 proceed with the Mallinckrodt SEC petition  
21 evaluation by Larry Elliott.

22 **MR. ELLIOTT:** Thank you, Dr. Ziemer, and good  
23 morning again, members of the Board and the  
24 public. I won't go through some of the slides  
25 you've seen before. In this particular

1 presentation, as I did yesterday, I truncated  
2 the presentation because I feel the Board  
3 already knows its responsibilities under the 83  
4 rule that we have and you're following those,  
5 so I just keep my comments specific to the  
6 evaluation of the Mallinckrodt SEC petition at  
7 hand.

8 I would remind the audience and the Board that  
9 there is a two-pronged test that must be met,  
10 according to the statute. This test consists  
11 of, one, is it feasible to estimate the level  
12 of radiation doses of individual members of the  
13 class with sufficient accuracy. And I'd call  
14 your attention to the rule again on what  
15 sufficient accuracy means in this regard, and  
16 that is whether or not we can estimate the dose  
17 with a maximum bounding dose or a more precise  
18 dose estimate.

19 Secondly in the test, is there a reasonable  
20 likelihood that such radiation dose may have  
21 endangered the dose of members of the class.

22 If you answer no to the first part of the test,  
23 then you have to answer the second part of the  
24 -- of the test.

25 Our evaluation process of this petition, as

1 with all petitions, includes examining all the  
2 available data and information that has been  
3 obtained through the site profile development  
4 and all the other tools that are related to the  
5 particular site in question, as well as looking  
6 at dose reconstructions that have been  
7 completed to date and the petition information  
8 that was submitted by the petitioners. In that  
9 we are to determine the completeness of the  
10 data search and examine the quality as well as  
11 the quantity of the data and the information  
12 that we find.

13 The petition at hand was submitted to NIOSH on  
14 July 21st of 2004. The initial class  
15 definition was all employees that worked at the  
16 uranium division at the Mallinckrodt Destrehan  
17 Street facility in St. Louis, Missouri from  
18 1942 through 1957.

19 The petition was qualified for evaluation on  
20 November 24, 2004. And as you know, we work  
21 diligently with the petitioners to make sure  
22 that a full basis of information is provided  
23 with the petition for examination, and that's  
24 part of this qualification effort.

25 The petitioners were notified and a *Federal*

1           *Register* notice was provided regarding the  
2           qualification of the petition, and that was --  
3           both of those were done on December 20th of  
4           2004.

5           NIOSH evaluated the petition and submitted a  
6           summary of findings and petition evaluation  
7           report to the Board and the petitioners on  
8           February 2nd, 2005. A summary of the  
9           evaluation report finding was published in the  
10          *Federal Register* on February 3rd of 2005.  
11          On February 8th, 2005 we presented the  
12          evaluation reports and proposed class  
13          definitions to the Board. Those class  
14          definitions consist -- were -- there were three  
15          class definitions and they consisted of the  
16          following: One, all DOE, DOE contractors or  
17          subcontractors employed by the uranium division  
18          of Mallinckrodt during the period from 1942  
19          through 1945; secondly, all DOE, DOE  
20          contractors or subcontractors who worked at the  
21          uranium division at the Mallinckrodt Destrehan  
22          Street facility during the period of 1946  
23          through 1948; and the third class, all DOE, DOE  
24          contractors or subcontractors who worked at  
25          uranium division of the Mallinckrodt Destrehan

1 Street facility during the period from 1949  
2 through 1957.

3 In that evaluation discussion of the SEC  
4 petition at hand in February, additional issues  
5 were identified by this Board and NIOSH  
6 responded to those issues in a supplemental  
7 report. The Board sent a recommendation to the  
8 Secretary of Health and Human Services on March  
9 11th, 2005 and in that recommendation you asked  
10 that a SEC designation for all DOE contractors  
11 or subcontractors or Atomic Weapons Employees  
12 who worked at the uranium division at  
13 Mallinckrodt Destrehan Street facility during  
14 the period from 1942 through 1948, the first  
15 two classes that we identified for you, be  
16 added to the Special Exposure Cohort.

17 The Board reserved judgment, as you recall, for  
18 workers employed during the period of 1949  
19 through 1957 until NIOSH had completed its  
20 supplemental report on that time period and  
21 answered some of the questions the Board had  
22 raised.

23 Meanwhile, as we were working on those issues,  
24 the Director of NIOSH sent a recommended  
25 decision to the Secretary of Health and Human

1 Services on April 6th, 2005 that was consistent  
2 with the Board's recommendation to add a class  
3 of workers for the time period of -- up to  
4 1948.

5 The Secretary of Health and Human Services sent  
6 his decision to Congress on April 11th, 2005 to  
7 add the uranium division employees at the  
8 Mallinckrodt Destrehan Street facility for the  
9 period of 1942 through 1948 to the Special  
10 Exposure Cohort.

11 Now on April 27th, 2005 NIOSH presented its  
12 supplemental report to the Board. At that time  
13 the Board requested verification of data and  
14 examples of dose reconstructions using actual  
15 data, and Dr. Neton has presented that to you  
16 today. The Board also at that time reserved  
17 judgment pending that information from NIOSH  
18 for workers employed during the period 1949  
19 through 1957.

20 Beginning in 1949 Mallinckrodt established an  
21 operational program of radiation monitoring of  
22 employees and work areas. This monitoring was  
23 conducted by -- with the oversight by the  
24 Atomic Energy's Commission on Health and Safety  
25 Laboratory, or HASL. And notwithstanding the

1 data reliability concerns that have been raised  
2 or were raised for the early period, NIOSH  
3 believes that there is sufficient information  
4 from the various monitoring activities,  
5 together with the information on radiological  
6 sources and processes, to reconstruct and  
7 validate the dose estimates for the period of  
8 1949 through 1957.

9 In the SEC petition evaluation report 00012-2,  
10 Section 7.3 on items two, three and four,  
11 you'll find reference to this table and the  
12 following table that I'll present. But item  
13 two raised issues about breath radon and  
14 questioned the limited number of data and the  
15 use of zeroes in that data. I think Dr. Neton  
16 has presented to you today a solution to that  
17 by using urinalysis results to cure that data -  
18 - data gap.

19 On item three, the purportedly lost medical  
20 records, NIOSH has searched all documents and  
21 we have not found any indication that medical  
22 records were lost, and so the loss is not  
23 confirmed as of this date.

24 Item number four regarded altered records and a  
25 conscious cover-up, referencing a 1949 dust

1 evaluation which was never finalized -- a dust  
2 study which was never finalized. Our solution  
3 for this particular data gap would be the  
4 availability of data from a fully operation  
5 program from 1949 to 1957 that had the  
6 oversight of the AEC HASL laboratory and the  
7 ability to cross-reference data streams and  
8 validate the data sources, as Dr. Neton has  
9 portrayed for you earlier this morning.  
10 In these two slides and in Dr. Neton's  
11 presentation we have presented to you that a  
12 large percentage of the workers were monitored  
13 and tracked by not only job title but also job  
14 category. There are considerable data and --  
15 and distributions of urine, dust and external  
16 data that are consistent with occupational  
17 exposure datasets. Dr. Neton talked about  
18 lognormally distributed data as we would expect  
19 it to be; that he identified no evidence of  
20 significant alteration on either the low or the  
21 high ends of those distributions of data; and  
22 that the decrease in urine monitoring results  
23 over time were consistent with the reduction in  
24 the source terms due to improvements in  
25 engineering controls.

1 We also pointed out that the comparison of  
2 intakes from urine and air sampling data are  
3 consistent with our expectations. It was made  
4 clear I think that the urine sample data in the  
5 CER database agrees very well with the original  
6 HASL data, and we have made a commitment that  
7 we would use -- with regard to urine or air  
8 data -- whichever would be the highest and most  
9 claimant-favorable dataset for use in dose  
10 reconstruction.

11 In summary, for the years 1949 to 1957 NIOSH  
12 finds that radiation dose estimates can be  
13 reconstructed and validated for compensation  
14 purposes for this particular class. So we find  
15 that it is feasible to do dose reconstruction  
16 and therefore, while we believe that health was  
17 endangered here, we don't have to answer that  
18 particular prong of the two-part question.  
19 And that concludes my brief presentation on  
20 this evaluation report. You've heard this  
21 three times and I welcome any questions you  
22 have at this point.

23 **BOARD DISCUSSION, MALLINCKRODT SEC PETITION**

24 **DR. ZIEMER:** Thank you very much, Larry. We  
25 will open the floor for questions from the

1 Board members, if you have any at this time.

2 Dr. Melius.

3 **DR. MELIUS:** Yeah, Larry, in your presentation  
4 -- sorry.

5 In your presentation, under petition overview,  
6 you referred to follow-up to the April 27th  
7 Board meeting, said the Board requested  
8 verification of data, and I think -- believe  
9 that's what Jim presented. And you also say --  
10 says examples of dose reconstructions using  
11 actual data. Now what -- what are you  
12 referring to there that Jim has presented --

13 **MR. ELLIOTT:** Jim did not present any of those.  
14 We felt that the data that -- that this  
15 presentation that he gave gave you insight into  
16 the various data streams. I'll let Jim answer  
17 the rest of it.

18 **DR. NETON:** Actually I think the dose  
19 reconstructions using real data were the intake  
20 calculations that we -- we presented that were  
21 based on real -- real data, compared to the  
22 intake estimates using the air concentration  
23 data. So if you recall like the ether plant or  
24 ether room, they were like  $N$  equals three or  
25 four --

1           **DR. MELIUS:** No, I gue-- I just --

2           **MR. ELLIOTT:** They weren't actual dose  
3 reconstructions, but they were --

4           **DR. NETON:** No, they were examples --

5           **MR. ELLIOTT:** -- how we use the data in dose  
6 reconstruction.

7           **DR. MELIUS:** They're one component of a  
8 possible dose reconstruction. I just --

9           **DR. NETON:** Right.

10          **DR. MELIUS:** -- think that's sort of  
11 mischaracterizing them to say that they're --

12          **DR. NETON:** Okay.

13          **DR. MELIUS:** -- examples of that and --

14          **MR. ELLIOTT:** That's what the Board asked for  
15 in February -- or in Cedar Rapids, and we  
16 didn't go to that extreme, you're right.

17          **DR. MELIUS:** Well, I wouldn't -- since I was  
18 the one that requested it, I would disagree  
19 with you calling that extreme. I think you're  
20 basically saying you didn't do it and that's --  
21 let's leave it at that 'cause I -- I -- I have  
22 some issues with that, but we can talk more  
23 about that later.

24          **DR. ZIEMER:** Okay. Other comments or questions  
25 from -- from the Board members. I'm sorry,

1 just the Board members, yeah.

2 Okay, then -- oh, Henry, yes.

3 **DR. ANDERSON:** Yeah, I'm -- I'm just interested  
4 in the existing claims that have been filed.  
5 What -- what proportion of those -- or how many  
6 individuals would fit into this?

7 **DR. ZIEMER:** You're talking about the  
8 Mallinckrodt claims that have been filed to  
9 date?

10 **DR. ANDERSON:** Yeah, we heard earlier about 109  
11 that are currently open. I guess I just want  
12 to have a sense of -- of what's currently in  
13 the queue, what number of individuals would  
14 potentially then fall under this process versus  
15 the dose reconstruction process that we heard  
16 that none of the cases to date have actually  
17 gone through the dose reconstruction, although  
18 we heard that, you know, there's a lot of data  
19 that individually that's there and you haven't  
20 been waiting on the site profile, so the  
21 backlog on these is -- they just haven't been  
22 done.

23 **MR. ELLIOTT:** I think if you look in your  
24 booklets under Program -- Program Status  
25 Reports, you'll find a summary there that's

1 provided by our communications development team  
2 on the number of cases. It's after my  
3 presentation, if my presentation's inside your  
4 book. It's -- I don't believe it's going to  
5 break it out the way you want it, Dr. Anderson.  
6 It talks about how many cases exist at  
7 Destrehan Street in our -- in our holdings. I  
8 think there are around 300-some. At the other  
9 end of the spectrum, how many of those have  
10 been completed and sent on to the Department of  
11 Labor, I believe that number is 75. The 109  
12 cases that Jim was talking about are active  
13 cases in -- in the process. We can't -- I  
14 don't have a ready number for you to tell you  
15 how many cases would be affected for this time  
16 period because these cases, as you know, are  
17 individualized and some of them have time  
18 across time periods.

19 **DR. ANDERSON:** Yeah.

20 **MR. ELLIOTT:** I don't have that number. We can  
21 probably get it for you today, but --

22 **DR. ANDERSON:** Yeah, I mean --

23 **MR. ELLIOTT:** -- I don't have it at my disposal  
24 right now.

25 **DR. ANDERSON:** I mean some of these individuals

1           would -- would qualify under the earlier time  
2           period issue --

3           **MR. ELLIOTT:** Yes, that's true.

4           **DR. ANDERSON:** -- so I -- you know, yesterday  
5           we talked about the small group of people when  
6           we expanded the -- the Iowa by --

7           **DR. ZIEMER:** Perhaps Jim Neton can add some  
8           light here.

9           **DR. NETON:** Yes, I think there's some confusion  
10          here. The 109 active cases we -- we have in  
11          our possession worked in the 1949 to '57 time  
12          period, so those -- those 100 percent fall  
13          under this evaluation report right now.  
14          Now there are an additional 50 or 60 cases that  
15          have employment that spill over into this time  
16          period that are also members of the original  
17          SEC class.

18          **DR. ANDERSON:** That's -- that's -- yeah.

19          **DR. NETON:** That's your question, possibly --

20          **DR. ANDERSON:** Yeah.

21          **DR. NETON:** -- and -- and I don't know how many  
22          of those are SEC versus --

23          **DR. ANDERSON:** Yeah.

24          **DR. NETON:** -- you know, non--

25          **MR. ELLIOTT:** We'd have to look at those on an

1 individual case basis is the point I was trying  
2 to make --

3 **DR. NETON:** Yeah.

4 **MR. ELLIOTT:** -- and determine how much time  
5 they had in each time era.

6 **DR. NETON:** But my point was, the 109 I spoke  
7 about have no employment in the SEC classes  
8 that have already been awarded.

9 **MR. ELLIOTT:** Your question, Dr. Anderson --

10 **DR. ANDERSON:** Yeah, that's --

11 **MR. ELLIOTT:** -- was how many had a foot in  
12 both.

13 **DR. ANDERSON:** Yeah, I mean it's kind of what's  
14 --

15 **DR. ZIEMER:** Yeah.

16 **DR. ANDERSON:** -- what is the impact and how --  
17 how much time is expected to do these dose --  
18 dose reconstru-- I mean to me the issue is one  
19 of feasibility, I think. There's a lot of data  
20 available and we've heard kind of theoretical  
21 ways to go about doing it, but up to this point  
22 it really hasn't jelled yet into having been  
23 applied, and -- and is it totally feasible to  
24 do this? I mean it could be done, but we  
25 haven't seen it's actually been done and I want

1 to know how many of those potentially are out  
2 there because if there's 109 or so that's, you  
3 know, one-third of one month's evaluation  
4 review and so maybe those could get done pretty  
5 quickly.

6 **DR. ZIEMER:** Thank you. Other comments? Dr.  
7 Melius.

8 **DR. MELIUS:** Just a question and then a  
9 comment, just make sure I understand what's on  
10 the record from NIOSH. The only thing new on  
11 the record from NIOSH for this meeting is  
12 really Jim's presentation.

13 **MR. ELLIOTT:** That's correct.

14 **DR. MELIUS:** Relevant to Mallinckrodt.

15 **MR. ELLIOTT:** That's correct. We did not  
16 change the evaluation report --

17 **DR. MELIUS:** Okay.

18 **MR. ELLIOTT:** -- the 02 -- the 2 or the  
19 supplement to that.

20 **DR. MELIUS:** Okay. And then my comments, back  
21 to what Henry was just asking about and to my  
22 earlier comment, the question also is the  
23 question is of feasibility and what -- I  
24 thought we as a Board had requested last time  
25 was some evidence of feasibility by looking at

1           example cases -- do that. And instead what we  
2           got was examples of -- rather than example  
3           cases, we've had parts of dose reconstructions  
4           and -- and issues of feasibility related to --  
5           to those. And -- and I think those are --

6           **DR. NETON:** I think that --

7           **DR. MELIUS:** -- somewhat different.

8           **DR. ZIEMER:** Jim.

9           **DR. NETON:** That wasn't my understanding. I  
10          presented, if you recall, last time a graph  
11          that had parallel lines that showed intakes  
12          based on urine data and intakes based on air  
13          data, and that was a hypothetical slide. And I  
14          believe what -- what we were asked to do was to  
15          go back and -- and not use hypothetical data to  
16          present those slides, but to actually fill them  
17          in with three or four or so examples using real  
18          data, which is what we've done. So I  
19          reproduced essentially the graphs I presented  
20          in Cedar Rapids, using real data as opposed to  
21          hypothetical data. And I'm sorry if I  
22          misunderstood the intent, but that's what I  
23          believe we were asked to do.

24          **DR. MELIUS:** Well --

25          **DR. ZIEMER:** Thank you for that clarification.

1           **DR. MELIUS:** Just for the record is --  
2           I had a subsequent question with --  
3           conversation with Larry trying -- making sure -  
4           - clarifying at least what I meant and what I  
5           think the Board meant, and I think enough said  
6           on that, but I think it is -- puts us in a sort  
7           of a difficult position 'cause we still really  
8           haven't evaluated full feasibility on a number  
9           of example cases, and I -- I think -- makes our  
10          decision-making here much more difficult.

11          **DR. ZIEMER:** Okay. Thank you. Other comments?

12          **MALLINCKRODT SEC PETITION**

13                 If there's no other comments, then we want to  
14                 hear from the petitioners, and let me begin by  
15                 introducing Denise Brock and -- on behalf of  
16                 the petitioners. And Denise, if you'll take  
17                 the floor, and any others you want to have  
18                 speak to the petition, as well.

19          **MS. BROCK:** I'd first like to say hello to  
20                 everybody. And you'd think I'd be used to this  
21                 by now, as many times as I've done it, but my  
22                 hands actually sweat. I had to get Larry to  
23                 get me some water. Thank you, Larry.

24                 And again, hello. I would like to thank  
25                 everyone for coming today, and I would like to

1           second Senator Bond's welcome yesterday to all  
2           of you again today. I feel very blessed that  
3           St. Louis is once again the meeting place for  
4           this petition. And I would also like to offer  
5           my thanks to members of the Advisory Board,  
6           Senator Bond and Talent, all the members of the  
7           Congressional delegation, as well as NIOSH,  
8           Department of Labor, ORAU and SC&A staff. I  
9           thank you to all the claimants and members of  
10          the public who are here today.

11          I actually had a quote that I had gotten from a  
12          book -- Robert Oppenheimer -- but this was just  
13          brought to my attention by someone in the  
14          audience who is a former Mallinckrodt worker  
15          and he actually wrote this himself. His name  
16          is Sonny Schwenisen\*, and I quote, (reading)  
17          With our hearts and hands we helped this nation  
18          through a dark and difficult time. We now ask  
19          the nation to show us their heart and help us.  
20          One year ago I filed a petition for Special  
21          Exposure Cohort status for the Mallinckrodt  
22          workers from 1942 until 1957. At that time a  
23          site profile of Rev. 0 was being used to do  
24          dose reconstructions. In February of this  
25          year, during your last visit here, NIOSH

1           decided to split my cohort. Thankfully you  
2           voted to give the workers SEC status from 1942  
3           until 1948. This decision gave many workers  
4           and/or their surviving family members a feeling  
5           of closure, a feeling of justice being served.  
6           I commend you for this decision and I ask you  
7           to give the remaining workers at this site the  
8           same designation. I want to thank you for your  
9           diligence, as well as your patience in hearing  
10          my repetitive comments and pleas.

11          I believe that during the February meeting the  
12          site profile for Mallinckrodt Rev. 0 was  
13          undergoing a revision, and Rev. 1 was underway.  
14          SC&A had not yet been given an opportunity to  
15          start their audit on this revision. As you  
16          will remember, decision on the remaining years  
17          of my petition were tabled due to some newly-  
18          found boxes of data and a so-called Mont Mason  
19          memo. NIOSH felt that this information, along  
20          with the revised site profile and their view  
21          that AEC oversight gave way to more credible  
22          assay, was enough to do an accurate dose  
23          reconstruction on the remaining years.  
24          NIOSH was given time to further their research  
25          on the Mallinckrodt datas, and SC&A was

1 reviewing the newly-revised site profile. As  
2 you already know and as I've previously stated,  
3 the boxes and the memo turned out to be very  
4 different than what NIOSH had originally  
5 claimed. The Mason memo raised many questions  
6 as to who actually authored the memos and only  
7 seemed to strengthen my case.

8 In Iowa during the month of April I came before  
9 this Board again to plead my case. Due to the  
10 unforeseen problems with the IAAP, SC&A was  
11 unable at the time to complete the review of  
12 Rev. 1 for Mallinckrodt. The Board voted to  
13 direct SC&A to finish this review and take it  
14 up at this meeting.

15 Now I've recently learned that on June 1st and  
16 2nd there was a meeting between SC&A, NIOSH and  
17 the Board, and I'm really perplexed as to why  
18 this happens the way it does. As a petitioner  
19 I feel that I should have been alerted to that  
20 meeting, either via e-mail, phone call, mail,  
21 something, and I should have been privy to that  
22 meeting. I don't know that these are closed or  
23 -- or private. Even if they're not open to the  
24 public, I think as a petitioner I was put at a  
25 distinct disadvantage again not being able to

1           hear the findings or whatever had went on, and  
2           I wasn't able to even take a look at SC&A's  
3           findings. Most of the Board I believe got that  
4           on Friday. I just got that about a day ago, so  
5           that puts me at a disadvantage again.  
6           And I understand that as a result of this and  
7           as part of comment resolution, NIOSH was given  
8           a list of corrective actions. I don't know  
9           that that's been completed.  
10          SC&A was to complete findings on whether or not  
11          it was feasible to estimate dose. Based on the  
12          findings of this audit of Rev. 1, it does not  
13          appear that it provides a basis to do dose  
14          reconstruction with sufficient accuracy.  
15          The radon portion of this TBD is still not  
16          complete, although SC&A has noted that it may  
17          be possible to do this at a later date.  
18          However, there are aspects of this site profile  
19          for which data does not exist. For example,  
20          there is no isotopic-specific assay which would  
21          allow NIOSH to verify raffinate dose in the  
22          same way there is data to verify uranium.  
23          Frankly, this is the core issue which has got  
24          to be addressed. And so far what NIOSH has  
25          produced is a set of ratios between the

1 concentrations of the raffinate and uranium  
2 which they assert can be used to estimate dose.  
3 This is based on one day of isotopic air  
4 sampling at Mallinckrodt.

5 As the SC&A audit points out, there is  
6 significant uncertainty, if not doubt, about  
7 the 100 to one activity ratio. On page 27 of  
8 the audit report, and I quote, (reading) Much  
9 more research is needed to determine the radon-  
10 226 to the U-238 ratio of the residues that  
11 resulted from reprocessing.

12 And again on page 20-- end quote, I'm sorry.  
13 And on page 28 I quote, (reading) Expected  
14 ratio would be in the range between 100 to  
15 1,000. End quote.

16 Further on, three other radionuclides were not,  
17 it appears, taken into account in NIOSH's 100  
18 to one activity ratio -- thorium-230,  
19 protactinium-231 and actinium-227.

20 On May 23rd and 24th, 2005 Arjun Makhijani of  
21 SC&A met with a series of former Mallinckrodt  
22 workers and conducted interviews. During this  
23 interview one of the many extensive discussions  
24 was in reference to time and task, and I think  
25 Arjun mentioned this earlier. For example, the

1 AEC estimated that one job in particular took  
2 6.5 minutes, and as Arjun said, the workers got  
3 quite a chuckle out of that. Everyone there  
4 present rejected these findings and estimated  
5 the job to be at least 30 minutes or longer.  
6 Well, I have a few of these workers here today  
7 who you will hear give expert testimony as to  
8 the multitude of explosions, blowouts, spills.  
9 You'll hear about excessive dust, mist, vapors,  
10 et cetera from the raffinates.  
11 As SC&A previously noted in its review of Rev.  
12 0, even one more rem of the Sperry cake per  
13 month over a few years has a potential for  
14 significant internal dose. This raffinate, and  
15 I've stated this before but for the record,  
16 this raffinate was dewatered in a Sperry press  
17 and contained actinium-227, protactinium-231,  
18 thorium-230, as well as radium. These  
19 raffinates were acidic and neutralized with  
20 lime and a cake was created. This mixture  
21 could create an exothermic reaction. Durations  
22 of raffinate exposures are not well quantified.  
23 More significantly, NIOSH has been unable to  
24 identify which workers were exposed in Plant 6.  
25 Does NIOSH have a scientifically sound basis

1 for determining who was or was not exposed in  
2 Plant 6? The answer is no, and this is why  
3 Congress created the SEC.

4 I would now like to read and quote from notes  
5 taken during the interview process with Arjun  
6 Makhijani and some of the site experts. On  
7 page 6, digester process for ore and  
8 raffinates, in the mid-1950s the ore drums were  
9 handled by a mechanical arm that would empty  
10 them into a large digester tank. The personnel  
11 were separated from the tank by a glass wall.  
12 This was after the process had been automated  
13 and manual shoveling of the ore and raffinates  
14 into the digester tank was no longer carried  
15 out. The acid in the tank would foam.  
16 Sometimes the tank would overflow.  
17 A similar process was used for thorium ionium  
18 extraction. The response to the question "Was  
19 it normal for stuff to boil over" from a site  
20 expert who worked in the area for about six  
21 months during the thorium-230 extraction period  
22 in 1955 to 1956 was, and I quote, (reading) Oh,  
23 yes, there were all kinds of messes there, end  
24 quote.

25 This problem extended to thorium-230

1 extraction. Site expert: They were trying to  
2 recover ionium out of the raffinate. The  
3 raffinate was on the alkaline side. It would  
4 foam and boil. It would go on the floor.  
5 One severe accident required the  
6 hospitalization of a worker from the burns that  
7 resulted from liquid spilling all over his  
8 body. By the way, that worker is here today,  
9 scars and all. It is unclear how many workers  
10 were involved in the clean-up process, and how  
11 long that lasted. It involved hosing down the  
12 area.  
13 Workers were also lowered into these tanks to  
14 clean them out. When they were lowered in,  
15 someone -- or, I'm sorry. When they lowered  
16 someone in, they had to have a mask and someone  
17 at the top with a lifeline. However, there may  
18 have been more manual handle of the raffinates  
19 at the airport. I quote, (reading) The stuff  
20 would be scooped into drums at the airport and  
21 would come into a conveyer. The  
22 (unintelligible) would come onto a conveyer  
23 belt and it was behind the glass screen and the  
24 mechanical arm would grab it, manipulated by an  
25 operator, and pour the (unintelligible) into

1           the vat and then it would start foaming, end  
2           quote.  
3           Arjun Makhijani asked, "Were there fine  
4           particles of acid in the air?" Site expert:  
5           The main project was the big 10,000 gallon  
6           tank. (Unintelligible) agitator filled up the  
7           tank with nitric acid and it would be heated up  
8           and there would be 100 drums of uranium ore  
9           emptied into it. Each drum would be cut into  
10          the -- cut in the hallway. You'd take the lid  
11          off, wear your respirator. You'd sample the  
12          drum and put the sample in a jar. The lid was  
13          put back in. The drum was rolled onto a  
14          platform press and the button -- I'm sorry --  
15          platform press the button and it would go up  
16          and grab the hydraulic arm, and you would push  
17          buttons and it would empty the drum into the  
18          tank. You'd reach in and take the lid off. It  
19          was the -- well, it was on rollers and the drum  
20          was washed with water spray, and you'd keep  
21          adding to the drums. We had ore from all over  
22          the United States, some from Africa. The fast-  
23          reacting drums would be added and then it would  
24          be the slower-reacting ones that would be  
25          added. Sometimes there would just be fumes,

1           and sometimes there would be red-hot nitric  
2           acid fumes all over the plant.

3           Arjun asked, "How often did that happen?" Site  
4           expert said the operation was round the clock.  
5           It happened at least once a week, at the  
6           minimum, probably more. It was round the clock  
7           so hard -- so that it's hard for me to say  
8           because he was not on all shifts. It was all  
9           out of operation and the foreman would have to  
10          get out the air hoses and thin -- and thin it  
11          would -- oh, I'm sorry -- and then it would --  
12          and then it would get back to work. I would  
13          breathe a lot of nitric acid fumes. I don't  
14          know if there was uranium dust in the fumes or  
15          not, but there could have been. Then it was  
16          pumped out into the ether area where they  
17          extracted uranium.

18          The other thing I wanted to mention, I found  
19          this interesting, too -- a site expert said  
20          sometimes a skip hoist would fail and the drum  
21          would come crashing down. Those drums were 800  
22          or 900 pounds, and they would spill all the  
23          stuff and it would get all around the rollers.  
24          There would be ore on the limit switches, and  
25          maintenance workers would have to clean it up.

1           That's just part of the wonderful -- wonderful  
2           interview that Arjun did with the -- the  
3           workers. They -- they did a wonderful job.  
4           You will also hear from one of the many  
5           survivor claimants. As Arjun mentioned, the  
6           insurmountable hurdles that these family  
7           members must go through to even complete a  
8           phone interview, so I do have someone here  
9           today to speak on that.

10          In the task three report, page 212 of 260 under  
11          5.7, summary and conclusions, it states that  
12          based on procedures under review the adequacy  
13          of the interview process is adversely affect --  
14          affected and compromised when the claimant is a  
15          family member. It goes on to state, and I  
16          quote, (reading) Lastly, the potential problems  
17          in the interview process as an integral part of  
18          the dose reconstruction process, especially for  
19          a family member claimant, are complicated by  
20          the current absence of a published procedure  
21          that specifically addresses the closing  
22          interview and the failure to involve the  
23          claim's dose reconstructor or a qualified  
24          health physicist in the closing interview in  
25          real time, end quote.

1           On pages 213 and 214 of the task three report,  
2           under 5.8, there are nine suggestions for  
3           improvement on this process. I do not know if  
4           these have been completed yet.

5           I would like to restate for the record what  
6           Congress directed NIOSH to do with respect to  
7           Special Exposure Cohorts. In the FY 2005  
8           Omnibus Appropriations Conference Report, I  
9           quote, (reading) Radiation exposure, the  
10          committee strongly encourages NIOSH to expedite  
11          decisions on petitions filed under the  
12          procedure for designating classes of employees  
13          as members of Special Exposure Cohorts, 42 CFR  
14          Part 83. It was Congress's intent in passing  
15          the EEOICPA of 2000 to provide for timely,  
16          uniform and adequate compensation for employees  
17          made ill from exposure to radiation, beryllium  
18          and silica while employed at DOE nuclear  
19          facilities or while employed at beryllium  
20          vendors and atomic weapons facilities. The  
21          committee urges the Department to recognize  
22          that in situations where records documenting  
23          internal or external radiation doses received  
24          by workers at the specific facility are of poor  
25          quality or do not exist, the workers should be

1 promptly placed in a Special Exposure Cohort,  
2 end quote.

3 NIOSH believes that it is feasible to estimate  
4 dose on the Mallinckrodt workers 1949 to 1957.  
5 I would like the Board to consider that the  
6 concept of feasibility goes beyond the  
7 scientific, technical ability to reconstruct a  
8 radiation dose.

9 Senator Jeff (unintelligible) in an October 12,  
10 2004 statement involving enactment of this law  
11 stated that, and I quote, (reading) And  
12 feasibility could entail the lack of relevant  
13 radiation dose records, that the records are  
14 missing altogether, that it would be  
15 prohibitively expensive to reconstruct dose, or  
16 it might take so long that the workers would  
17 have died by the time the job was completed,  
18 end quote.

19 Congress did not limit feasibility to only  
20 technical, scientific issues.

21 The first Mallinckrodt site profile was  
22 complete in October of 2002. It is now going  
23 on its third version, and it has been a year  
24 since I filed my SEC petition. NIOSH has not  
25 completed (unintelligible) contractor, and

1           although I appreciate -- and I do -- NIOSH's  
2           diligence in trying to correct these problems,  
3           it is time to honor Congressional intent. As  
4           Senator Bond noted, the site profile may be a  
5           living document, but when do we decide that  
6           enough time has passed? Do we allow the very  
7           claimants that this law was enacted for to die  
8           while waiting for NIOSH to have revision after  
9           revision.

10          Workers and claimants alike are dying. Every  
11          meeting that I have pled my case for this group  
12          of ailing workers I have been at a distinct  
13          advantage (sic), everything from surprise  
14          material and documents to reports that I  
15          haven't been given an opportunity to review.  
16          This meeting was no different, and I'm  
17          referring to the Cincinnati meeting and seeing  
18          all the reports.

19          There is no procedure in place to give  
20          assistance to petitioners by an independent  
21          source. There is no procedure to notify the  
22          petitioner when there is other meetings  
23          relevant to what they have petitioned for. But  
24          the Advisory Board is here to say when enough  
25          is enough.

1           Mallinckrodt workers from 1949 to 1957 deserve  
2           equity. Congressional intent demands justice  
3           for this set of workers. I am beseeching you,  
4           begging you as Senator Bond did, to add this  
5           class of workers to the Special Exposure  
6           Cohort. SC&A has stated that (unintelligible)  
7           finding reasonable dose estimates are unlikely.  
8           And I had noticed, too, when Dr. Neton was here  
9           he talked about job categories without  
10          bioassay. I understand that maybe certain  
11          things would not have bioassay because maybe  
12          the secretaries weren't badged or clerical  
13          people weren't badged. But it looked to me as  
14          though there were some things in there such as  
15          chemical operators and maintenance men and  
16          different things, and I found that perplexing  
17          that there was no bioassay on those people or  
18          there was bioassay missing.  
19          There are numerous discrepancies and problems  
20          with this current TBD. Time, you know, again,  
21          to revise this. It's -- it's time that  
22          claimants do not have. And to the extent,  
23          however, that you are unable to determine that  
24          the entire group should have inclusion, I would  
25          urge you to consider a sub-cohort of these

1 workers who had potential exposure to  
2 raffinates, who were employed in Plant 6, and a  
3 group on page 29 of 86 on the SC&A report.  
4 This case has been made that the raffinate-  
5 exposed work force, for which there is no  
6 isotopic-specific bioassay, limited air  
7 monitoring and no means for verification of the  
8 potential exposure.

9 Again, feasibility has to do with time, as  
10 well. It has been a year -- almost a year  
11 since I filed this petition. Every day these  
12 workers are dying, and not just the workers,  
13 the claimants. This is an excruciating  
14 process, and -- and not just for us. I know it  
15 is for the Board. I know it is for NIOSH. I  
16 know that NIOSH does the best they can do. But  
17 there has to be somewhere -- somewhere to draw  
18 this line.

19 I agree with what -- what Wanda said. We're in  
20 the same place here. That's my struggle, too.  
21 We were in the same place in Iowa, and this is  
22 a living document. There's always going to be  
23 some new box or some new information that's  
24 going to come forward. But these workers do  
25 not have the luxury of time. They are dying

1 and the longer they live, the more cancers they  
2 end up with. They're suffering. They could  
3 use help with their medical bills.

4 Congressional intent was not to drag this on.  
5 It was not, and I urge you, I beg you to please  
6 give them the justice that they deserve.

7 I thank you for your time. I know you have a  
8 hard decision in front of you and I respect  
9 each and every one of you. I appreciate all  
10 you've done. I appreciate NIOSH having so many  
11 meetings in St. Louis for me.

12 I do have several workers that I would like to  
13 make some statements, and I've asked them to  
14 please try to keep it to about three minutes  
15 because I know everybody would probably like to  
16 break for lunch. The first person that I would  
17 like to call up is a wonderful former worker  
18 named George Blue\*. George actually worked in  
19 the raffinate house and had a terrible,  
20 terrible accident, so I'll stand up here in  
21 case George needs any help, and then I will  
22 call the next one. And thank you again.

23 **DR. ZIEMER:** Thank you, Denise. And if George  
24 prefers to speak from there, that will be fine,  
25 too.

1           **MR. BLUE:** Do I have to come over there?

2           **DR. ZIEMER:** Either -- your choice, whatever  
3 you would prefer.

4           **MR. BLUE:** There's something I'd forgotten to  
5 mention earlier. It was related to the digest  
6 tanks where the -- occasionally the big mass of  
7 red fumes would -- would spew out of the tank,  
8 and the company kept two or three guys  
9 constantly crawling up in the I-beams washing  
10 off dust so when the fumes boiled down it took  
11 a lot of dust -- uranium dust in the air.  
12 I think what Denise wanted me to talk about  
13 mostly is the experience I had at the raffinate  
14 tank where we were dissolving the raffinate in  
15 -- in an acid to extract an element out of it.  
16 And my job, after the raffinate was dumped in a  
17 small tank and digested in acid and fumed over  
18 and boiled back and sumped back, and when it  
19 was sent to my tank it was supposed to be  
20 stabilized. And then I would heat it up to  
21 about -- I think it was 190 degrees, and then  
22 sample it and maybe it needs more acid.  
23 Anyway, as I was agitating and bringing up the  
24 temperature, I seen this starting to react,  
25 foam up, and I shut -- tried to shut the steam

1 off and ran down the steps. And before I got  
2 hardly any ways it came over and it covered  
3 about 80 percent of my body. I peeled off all  
4 except my left arm and left leg, and I got  
5 scars on various part of my body from it and I  
6 spent about eight days in the -- Barnes  
7 Hospital and then a few days after -- after I  
8 got back, they called me to work and said I  
9 wouldn't have to do anything. But the foreman  
10 wanted me to start cleaning up and the -- I --  
11 I did start and then I got real weak and -- and  
12 they sent me home. I don't -- I don't remember  
13 how, but anyway, after a few more days I went  
14 back to work. They told me that getting sick  
15 had nothing to do with the accident. The  
16 accident stopped whenever I came back to work,  
17 so I always kind of appreciated that, but I  
18 didn't -- you want me to talk about opening and  
19 sampling drums more or...

20 **MS. BROCK:** About the urinalysis, they only did  
21 one at the hospital. They had to catheterize  
22 you and you never had any more urinalysis after  
23 that.

24 **MR. BLUE:** No, I -- yeah, they kept wanting me  
25 to urinate when I was in the hospital and I

1           wasn't able to and they had to catheterize me  
2           and got a sample, but I never heard of  
3           anything. And working with raffinate, I always  
4           figured it was just dust and mud and stuff. I  
5           never heard radon mentioned one time, and I  
6           thought it was -- I knew it had a little bit of  
7           uranium left in it after refining, but...

8           **MS. BROCK:** Tell them about how it just filled  
9           the room with smoke. Remember when you talked  
10          about that going all over (unintelligible)  
11          everything was going all over?

12          **MR. BLUE:** Yeah, yeah. When one of those big  
13          tanks would boil over, the smoke and dust and  
14          fumes would spread through the building. You  
15          want me to mention about the -- that tank that  
16          exploded?

17          **MS. BROCK:** Sure.

18          **MR. BLUE:** Yeah, they -- they had a large tank  
19          where all the floor sweepings and -- and hosing  
20          down and everything went in this tank and they  
21          boiled that down and then send that to refinery  
22          and digest. And one night -- luckily the  
23          operator was -- was on break, but the tank  
24          exploded and blew a big hole in the roof and  
25          concrete block wall had a big hole in it, and

1           they was -- (unintelligible) lot of places with  
2           holes in it where acid ate -- ate through the  
3           concrete and...

4           The -- the sampling of the drums -- there'd be  
5           about 100 drums put in the digest tank and the  
6           drums were put down on a open hallway and you'd  
7           take the lid off with a respirator, which  
8           wasn't a very good respirator, but -- then  
9           sample each drum. And it -- that could have  
10          been in front of a hood or some place where --  
11          you know, we didn't consider radon gas or  
12          anything like that, it just -- you know, just  
13          something you -- you never -- you weren't  
14          informed about or aware of, but I think I went  
15          over my three minutes, though.

16          **DR. ZIEMER:** Thank you. Denise, you have  
17          others I think that you want to have join you  
18          there, too, and please, go ahead.

19          **MS. BROCK:** Next I have Anthony Windisch.

20          **MR. WINDISCH:** Good afternoon. My name is  
21          Anthony Windisch. I worked at the Mallinckrodt  
22          Destrehan uranium plant in St. Louis from 1945  
23          to 1957, and I worked at the Weldon Springs  
24          plant from 1958 to 1967. At a previous meeting  
25          of the Advisory Board I testified that I am a

1 certified computer professional. I started  
2 working with computers at the Weldon Springs  
3 plant in 1962. I testified that the Mason memo  
4 shows how most of the recently-found computer  
5 keypunch cards and other radiation records was  
6 a bunch of garbage and useless.

7 In May I attended a meeting with your audit  
8 investigator. I testified that as an  
9 electrician at the Mallinckrodt uranium plant I  
10 had witnessed and/or experienced production  
11 mishaps at almost every processing step during  
12 the production of uranium metal. For example,  
13 I worked to help clean up the contaminated  
14 electrical equipment after the ether house fire  
15 -- explosion; I'm sorry, not a fire, explosion.  
16 And I often worked to repair the large electric  
17 furnaces that were damaged because of the  
18 misfiring of uranium processing bombs.

19 The processing bomb was placed into a large  
20 electric furnace and heated to about 1,200  
21 degrees. After some time, the bomb would  
22 implode with a chemical reaction where the pure  
23 uranium metal would settle down into the  
24 smaller, lower section of the bomb and form a  
25 uranium metal billet or biscuit that was about

1           15 inches in diameter and about six inches  
2           thick.

3           These processing bombs would often explode.  
4           The uranium and other metal -- materials would  
5           burn through the liner and through the one-  
6           inch-thick steel shell, spitting out uranium  
7           and other contaminants that would wreck the  
8           inside of the electric furnace. Chemical  
9           operators, electricians and others had the  
10          dusty and radioactive hazardous job of  
11          repairing the furnace. During one period of  
12          time these bomb explosions occurred once a  
13          week, sometimes every other day.

14          In my employment records I understand there is  
15          an employee suggestion verifying that because  
16          of the frequent bomb explosions there was a  
17          shortage of pre-cast ceramic tile, and I had  
18          recommended that more readily available fire  
19          brick should be used to repair the electric  
20          furnaces.

21          In 1962 when I was promoted to the job of  
22          computer programmer and analyst, one of my  
23          first jobs as a programmer/analyst was to  
24          review and analyze requirements, design and  
25          program computer programs and write computer

1 programs to produce a monthly badge exposure  
2 report. My monthly badge exposure report for  
3 each processing department listed each  
4 employee, with weekly badge readings and a  
5 calculated average daily badge film exposure.  
6 The department average daily badge exposure was  
7 also reported.

8 As an analyst I needed to understand what I was  
9 working with, and I review this with you. The  
10 worker film badge did not measure the amount of  
11 radiation activity. It was simply a Kodak  
12 picture film that recorded or measured the  
13 level of radiation. It did not record the  
14 amount. A high level of the badge exposure  
15 alerted the safety department to reconstruct  
16 what is now called a work site dose  
17 reconstruction profile, where they would  
18 actually go out to that worker's work site with  
19 a Geiger counter and air sampling devices and  
20 try to project a measure of radiation dosage  
21 during a specified period of time.

22 They would then take this dose profile and  
23 multiply that by the time that the worker spent  
24 on the job and come up with the total amount of  
25 dosage. This dose -- dose profile is a

1 standard radiation exposure rate which is  
2 multiplied by the amount of time worked, giving  
3 the total amount of radiation exposure for the  
4 worker.

5 In 1962 I was working with an IBM 12K computer  
6 that did not have the capacity nor the  
7 expertise to calculate complex dose  
8 reconstruction profiles, and with limited  
9 keypunch card storage information, which is now  
10 obsolete.

11 A work site dose reconstruction profile was a  
12 very important tool and an ever-changing means  
13 for calculating and tracking radiation  
14 exposure. The safety department maintained a  
15 current dose reconstruction profile for each  
16 unique work site at the Destrehan uranium  
17 plant. When a uranium processing job stream  
18 was modified and changed to improve production  
19 and/or to improve health and safety conditions,  
20 the safety department would calculate a new  
21 dose reconstruction profile to reflect current  
22 working conditions. And as a previous speaker  
23 pointed out to a chart showing that lower  
24 urinalysis reports indicated that over the  
25 years the working conditions at the plant -- as

1 the urinalysis went down, the working  
2 conditions went up.  
3 NIOSH may have, for example, the latest 1957  
4 site reconstruction profiles for each work site  
5 at the St. Louis Destrehan plant, and these  
6 1957 profiles can be used in dose  
7 reconstruction for the time worked at the  
8 Destrehan plant during 1957. On the other  
9 hand, a 1957 dose reconstruction profile is not  
10 a valid measure of radiation dosage for any  
11 earlier years of 1949 through 1956 when the  
12 same work sites were more primitive and had a  
13 more hazardous environment.  
14 In addition, there is no specific dose  
15 reconstruction profile to measure the ether  
16 house explosion, the exploding radium  
17 processing bombs, the overflowing raffinate  
18 tanks and other production mishaps.  
19 Thank you for your time, your attention and  
20 consideration. And may I add a full context of  
21 my speech for the records?

22 **MS. BROCK:** The next worker that I have  
23 actually is what -- it's a claimant, a survivor  
24 claimant. His father was a worker. His name  
25 is Eugene Pape and Steve Pape would like to

1           come up for a couple of minutes and just talk  
2           about what it was like to go through that  
3           telephone interview.

4           **MR. PAPE:** Hello, my name is Steven Eugene  
5           Pape. My father was Eugene C. Pape. He worked  
6           at the Destrehan Mallinckrodt Chemical Company  
7           from 1945 -- through 1945 till his death in May  
8           10th, 1977. He was diagnosed with carcinoma  
9           lung cancer April 21st of 1977. My mother died  
10          of complications of diabetes September 6th of  
11          1999.

12          It was very difficult for my mom and I. I was  
13          17 years of age. My -- my dad was 58. It was  
14          very difficult for us for those years. My --  
15          my dad was very adamant about not speaking  
16          about his -- his work. I never knew what he  
17          did. He got his job right after -- at  
18          Mallinckrodt right after World War II. He was  
19          in the Army in the south Pacific and received a  
20          purple heart. He was -- like I said, he was  
21          very adamant about what he -- about his job.  
22          He never ever spoke about it. We never knew  
23          what he did whatsoever until October 28th of  
24          2004 when I had to do the NIOSH dose  
25          reconstruction.

1 Here's a -- here are some of the questions, and  
2 I could not answer them accurately, but I did  
3 the best I could. It says here, building  
4 location, Building 7. And it says production  
5 operator. I never knew that. It says did the  
6 covered employee participate in a biological  
7 radiation monitoring program -- urine, fecal,  
8 breath, in vivo, whole body count? Answer:  
9 Don't know. Was the covered employee ever  
10 restricted from the work place or certain job  
11 duties because they had reached a radiation  
12 dose limit? Don't know. Was the employee ever  
13 required to have a medical X-ray for this job  
14 as a condition of employment? Answer: Don't  
15 know. Was the covered employee ever involved  
16 in an accident during radiation exposure or  
17 contamination? Answer: Don't know. It says  
18 can you name coworkers or other witnesses such  
19 as consulting industrial hygienists or  
20 radiation safety specialists who can confirm or  
21 expand upon the information you have provided  
22 us? Answer: No. Are you aware of any records  
23 related to the information you have provided  
24 that may help us estimate the doses for the  
25 covered employee? Answer: No. It says have

1 we missed any questions -- sorry, have we asked  
2 -- have we missed asking you about any  
3 conditions, situations or practices that  
4 occurred during this job which you think may be  
5 useful to estimate radiation doses for the  
6 covered employee? Don't know. Comments were  
7 he worked seven days a week for a number of  
8 years, and that's -- it was very hard for me to  
9 answer these questions, but I did the best --  
10 the very best I could, to the best of my  
11 ability, so that's -- I'm sure that this is a  
12 lot harder for -- for widows or widowers of --  
13 of these workers. And I know that it would  
14 have been very hard for my mother, so thank  
15 you.

16 **MS. BROCK:** Would it be all right -- I have a  
17 couple of more workers that have come (sic) a  
18 little bit of a distance and I said they would  
19 keep it to about three minutes, and then I have  
20 just like one sentence and we're finished. Is  
21 that okay?

22 Next I'd like to call Bob Leach -- Robert  
23 Leach.

24 **MR. LEACH:** My name is Robert Leach and I went  
25 to work for Mallinckrodt in 1950. I was

1 transferred to the uranium division in '52. I  
2 worked down in Plant 4 from '52 to '57 and then  
3 I was transferred to Weldon Springs to -- until  
4 they closed the plant, 1965.

5 When I first walked into Plant 4 I'd never  
6 worked in such a dirty and filthy place in my  
7 life. I was assigned to help make the bombs,  
8 and around on the floor there would be green  
9 salt, there would be magnesium fluoride all  
10 over the place, and it was the same area which  
11 they used the jolters and everything to fill  
12 the liners full -- with. And this was all over  
13 the area, and many times these -- has been  
14 stated before -- these -- well, we called them  
15 bombs, but actually they weren't. But anyway,  
16 they came through the side of the -- the shells  
17 and it was up to me and many others, after they  
18 cooled down, to go into those furnaces and to  
19 clean them up and to chip out the molten metal  
20 and all of that inside the furnaces.

21 Now this was a furnace where they used -- put  
22 the small ones in, which was about -- I believe  
23 about 300-pound ingots that came out. And then  
24 later on, why they -- we started putting them  
25 into the bigger furnace, and sometimes the

1 metal mol-- or the metal would be about a  
2 3,000-pound ingot. And many times -- this  
3 happened the same way in the -- in the furnace.  
4 It would come out in the furnace, and then it  
5 was up to me and many other operators to get in  
6 there and clean that out, all the slag,  
7 magnesium fluoride and the metal. And more  
8 than once the metal came completely through the  
9 bottom of the furnace and would -- would be  
10 running out into the area. And of course we  
11 were -- common sense told us to get the hell  
12 out of there, and we did until it cooled down.  
13 But then we had to go right back in again and  
14 clean it all up.  
15 I had one foreman or somebody there told us  
16 this metal won't hurt you, said -- like these  
17 3,000-pound ingots, you could set on them all  
18 day and anything that you absorbed in your body  
19 would be gone within seven days. Or if you  
20 want to take a piece of paper and put it over  
21 it and then you can set on it, it wouldn't  
22 bother you there. Well, they didn't know what  
23 in the hell they were talking about, as they  
24 found out later.  
25 And this -- this went on for quite some time,

1           and our exposure on this depended on who the  
2           foreman told you to get into the furnace and  
3           clean it out or ever what needed to be done.  
4           And this is why there is no way in the world  
5           they can take a chart and all of that and  
6           figure out what each of us was exposed to.  
7           They're just whistling in the wind if they  
8           think they can do it because it is impossible.  
9           And I know, ladies and gentlemen, this is --  
10          petition was up to 1957, and then I went to  
11          Weldon Springs. But out there, in case I'm not  
12          around by the time we get around to Weldon  
13          Springs, which is very likely, it was many,  
14          many times that we worked anywhere from 40  
15          hours to 76 hours a week. We would work 12  
16          hours a day and Saturday and Sunday. Now  
17          that's just not me 'cause I was a foreman part  
18          of the time, but it was all of the operators.  
19          Now how are you going to figure out one man's  
20          exposure on this? And like I said before,  
21          there's no way in the world that you can figure  
22          it out. Thank you.

23          **MS. BROCK:** I would now like to ask Ed Luecke  
24          to come up, please. This is the final worker  
25          that I have to speak today, and then I just

1 want to wrap it up with a couple of comments.

2 **DR. ZIEMER:** Denise, for our recorder, could  
3 you give us the name again?

4 **MR. LUECKE:** Yes, would you --

5 **MS. BROCK:** Yes, Ed Luecke.

6 **DR. ZIEMER:** Ed Bicky, B--

7 **MR. LUECKE:** It's spelled L-u-e-c-k-e. I  
8 started to work for Mallinckrodt May 6th, 1947.  
9 At that time I was in Plant 4, and Plant 4  
10 basically was two floors. The one floor below  
11 was below ground level and I went to work and  
12 they had what they called coffins. And these  
13 coffins -- we'd take what we called brown oxide  
14 and put them in there and they treat it with  
15 (unintelligible), and then this  
16 (unintelligible) would turn that brown oxide  
17 into what we called green salt. We had two --  
18 four of us worked down there. One of the  
19 persons who's a -- Brad at that time, he was a  
20 lead man -- he was the one that added the  
21 (unintelligible) into it. And the other  
22 person, like myself, all I did was to pull  
23 these out and put them (unintelligible). It  
24 was a very, very hot job. And these other two  
25 were the ones who took and put the green oxide

1           into drums to be weighed off, and then they put  
2           brown oxide on -- on these -- and these are  
3           called -- what we called coffins. You put  
4           those in there and after that the salt would  
5           take a -- later on be mixed with magnesium and  
6           blended together.

7           And they asked about badges, we had no badges.  
8           We had nothing, and we had no vacuum to pull us  
9           away. And they took the -- we mixed those two  
10          together like the magnesium was put in on top  
11          of what we called green salt, we had all these  
12          fumes. We did have -- the company did give you  
13          a respirator, but it was made out of hard  
14          rubber and that was very uncomfortable to have  
15          on. We just forgot about that word.

16          And after that, I was moved -- after Plant 4  
17          was done away with, I was moved to Plant 6E.  
18          Well, 6E was a much better plant and when I  
19          went in there and went to work -- like my job  
20          at that time -- I was a utility man, moved  
21          around a lot. Down at Plant 6 I moved around a  
22          lot of jobs. Now we had what they called a  
23          vacuum that drags all this away, and on the  
24          inside there there was a huge bag and the --  
25          the bags would be vacuumed, pulling it up, and

1           on the outside of those bags they had air rings  
2           and the air would go up and down and blow that  
3           dust loose that would drop down and that  
4           material you were talking about going to the  
5           airport, that's how it got to the airport.  
6           They'd take a load of that in trucks and move  
7           it out of -- anyway, what had happened, there's  
8           electric eye on the inside. Anything that come  
9           through breaks that beam of light in any way,  
10          it shuts it down. Well, and that worked real  
11          good until later on, would say about three  
12          years later, I go to foreman one particular  
13          morning on a Monday and I said to him that  
14          number two system up there will not stay on  
15          automatic. You mean to tell me you worked on  
16          Saturday, time and a half and Sunday double  
17          time and you come to me on a Monday and you  
18          tell me that that system won't stay on  
19          automatic? Put that thing on manual and forget  
20          it. All these persons on the outside walking  
21          around saying I'd, you know, get a good breath  
22          of air in the morning.  
23          What they were breathing is all this dust --  
24          well, later on they moved that to Weldon  
25          Springs, but the conditions at that Plant 4,

1           they were -- oh, just deplorable. I mean you  
2           never realized -- I need to -- about time?  
3           Okay. And I want to thank you for your time  
4           and listening to what I had to say, but I have  
5           to leave now. Thank you.

6           **MS. BROCK:** I would like to thank everybody  
7           again, but I'd like to give a special thanks to  
8           the workers, claimants that I had come up.  
9           They are absolutely a wealth of information  
10          and, to me, as a daughter of a worker and a --  
11          you know, a daughter of a claimant, this  
12          procedure seems somewhat backward to me. I  
13          love the fact that SC&A came in to talk to  
14          workers, but it just seems to me -- and I don't  
15          mean this in a bad way to anybody, but it just  
16          seems to me that this sort of thing should be  
17          done while you're doing the site profile, or  
18          before you do a site profile, and to  
19          incorporate these workers' statements because  
20          it's so relevant. They are absolutely amazing  
21          and their -- their memories are impeccable.  
22          They trigger each other's memory and I -- I  
23          just think that sometimes instead of guesswork  
24          maybe we should talk to them first, not after.  
25          And I also wanted to state for the record that

1 I know that NIOSH feels that there are certain  
2 things that they can do to correct the site  
3 profile. And I listened to SC&A's report and  
4 myself, I'm not completely sure that if -- how  
5 much time it will take to actually do all these  
6 revisions. And even once they're all done,  
7 there are no assurances that dose could be done  
8 even after that, not -- not scientifically  
9 based. We're wasting time.

10 Again, I just have to stress that. I -- I know  
11 there was an environmental issue. I -- I don't  
12 know how much is involved with that but I would  
13 like the Board to actually really think about  
14 that and think about how much time this could  
15 take. And then even after all that time, would  
16 it be fruitless. And this law was enacted to  
17 help these workers and these claimants.

18 Again, I think it's time to act and I -- I hope  
19 you act on their behalf. I thank you again  
20 very much.

21 **DR. ZIEMER:** Thank you, Denise, for a very  
22 articulate presentation.

23 We're going to recess now for lunch. We will -  
24 - let me see how we are time-wise. It's 12:30.  
25 We're going to shoot for 1:30, according to the

1 Designated Federal Official. Let's try to be  
2 back about 1:30. We'll reconvene. The Board  
3 will then discuss further the Mallinckrodt  
4 petition at that time. Thank you very much.  
5 (Whereupon, a recess was taken from 12:30 p.m.  
6 to 1:45 p.m.)

7 **BOARD DISCUSSION, MALLINCKRODT SEC PETITION**

8 **DR. ZIEMER:** I'd like to call the meeting back  
9 to order. We're going to begin a discussion of  
10 the Mallinckrodt SEC petition. This is a  
11 discussion of the Board members. They may call  
12 on the petitioners or NIOSH or our own  
13 consultants, SC&A, to assist in answering  
14 questions pertaining to this issue. At some  
15 appropriate point when Board members feel that  
16 they're sufficiently informed of the issues,  
17 the Chair will call for a formal motion of some  
18 sort. There are several possible options, but  
19 we will ask for, at some point, formal action.  
20 Before we take such action I will also ask that  
21 the legislative requirements be read, and I  
22 think we have someone searching out to get the  
23 original language, so counsel is getting that  
24 for us so that Board members, at the request of  
25 Mr. Owens, we will read the language so we know

1 exactly what the statutory requirement is in  
2 terms of the actions that we may take.

3 So let me open the floor for discussion. Any  
4 questions of either the petitioners, of NIOSH  
5 or of our own consultants -- or general  
6 observations or discussions on the petition.  
7 Who wishes to begin? Yes, Leon will begin.

8 **MR. OWENS:** Dr. Ziemer, I would like to ask Dr.  
9 Makhijani, in terms of the review that SC&A  
10 performed on the site profile, just would like  
11 to know whether or not, in terms of the other  
12 documentation that SC&A has reviewed as part of  
13 the site profile, if the completeness and the  
14 accuracy of the records is as we have heard  
15 earlier. I'd just like to hear his comments in  
16 regard to that.

17 **DR. MAKHIJANI:** Well, aside from the question  
18 of radionuclide ratios, which we've discussed  
19 quite a lot and where there may be data in the  
20 Fernald K-65 silos -- and I wasn't able to  
21 track that, but that might be possible -- I  
22 think there are data sufficiency questions in -  
23 - in several areas. One of the more important  
24 ones I think is the question of infrequent  
25 incidents. We've said that the analytical

1 procedure isn't demonstrated, but also who was  
2 present during infrequent incidents is not  
3 known because these infrequent incidents, like  
4 bag ruptures and severe foaming spills, are --  
5 are not well documented, to my knowledge. At  
6 least I haven't been able to find the  
7 documentation.

8 I believe that in order to -- to -- to make a --  
9 -- a dose estimate of some kind, either some  
10 very maximizing assumption has to be made with  
11 different solubilities because there were these  
12 acid fumes that might have had uranium. You  
13 could have had Class S -- so the whole question  
14 of infrequent incidents I think is a pretty big  
15 one.

16 I mentioned environmental dose several times,  
17 Mr. Owens, and I think the importance of that  
18 should not be underestimated. The CDC itself  
19 has spent quite a bit of money, many millions  
20 of dollars, sponsoring studies of environmental  
21 releases from nuclear weapons plants. And I  
22 was surprised at the magnitude of the partial  
23 estimates that were made in the '50s. This  
24 would apply not to the workers with bioassay,  
25 but there were 20 percent of the workers who

1           were not monitored, and so you've got 20  
2           percent of the workers for whom you would --  
3           now this wouldn't be a full-scale research  
4           project, but just to give you an idea, the CDC  
5           dose reconstruc-- the reconstruction of the  
6           source term, which was a major part of the  
7           study of Fernald that was sponsored in the --  
8           in the 19-- early 1990s cost \$6 million. And  
9           the Fernald plant was fairly similar, broadly  
10          speaking, to the Mallinckrodt plant. And while  
11          this would not be a similar research project  
12          and you could undertake some maximizing, I  
13          don't know of the data that exists that would  
14          allow you to make maximizing estimates for  
15          environmental dose. In fact, for Plant 4 I --  
16          I did not find any environmental data at all.  
17          I mean I just found one document with some  
18          information. I have no idea if more exists or  
19          not, and I don't think at this stage NIOSH  
20          should say whether it knows, but I haven't seen  
21          any indication that NIOSH has any information  
22          about this more than what we've said.  
23          There's a question of the correction factors  
24          for the roving workers, which I mentioned in  
25          passing. This -- we -- we -- I think these

1 workers were badged. There's a whole set of  
2 analytical difficulties that would be pretty  
3 severe, and I think one of them would be what  
4 kind of correction factors do you use for  
5 external dose.

6 So there's a -- there's -- I think the -- both  
7 the analytical revisions to the TBD that need  
8 to be made would be -- are very major, and  
9 there are some data gaps. That's the -- the --  
10 the reason I said, or we concluded that at this  
11 stage we don't know if everything -- when all  
12 is said and done, we can't really be sure at  
13 the end that you could construct a  
14 scientifically defensible dose.

15 I'll give you a short example and -- and then  
16 pause, because, for instance, your typical  
17 uranium intakes, based on bioassay, are in --  
18 in the 10,000 to 100,000 picocuries per year  
19 range. If you apply factors of several hundred  
20 for radium and a factor of 100 for thorium and  
21 a factor of 4, do you wind up in a place that's  
22 reasonable. We have pretty serious question  
23 about whether radon breath data are suitable.  
24 And certainly the people who were monitored for  
25 radon breath do not exhaust the population of

1 workers who were exposed to non-equilibrium  
2 radionuclides. I believe that proportion of  
3 workers was very likely to be much more than 15  
4 percent.

5 So there are some real -- real data problems in  
6 relation of which workers, even after you've  
7 made maximizing estimates, that -- that would  
8 need to be addressed. That's why we couldn't  
9 say whether, at the end of the day, you'd be  
10 able to arrive at a reasonably based --  
11 scientifically based maximum dose. Thank you.

12 **DR. ZIEMER:** Thank you. Before we have the  
13 next comment, I just want to double-check and  
14 see if Mike is -- Mike Gibson is on the line.  
15 Mike, are you with us this afternoon?

16 **MR. GIBSON:** Yeah -- yeah, I --

17 **DR. ZIEMER:** Thank you.

18 **MR. GIBSON:** -- (unintelligible) --

19 **DR. ZIEMER:** Okay, and feel free to call out,  
20 Mike, if you have a question from where you  
21 are.

22 **MR. GIBSON:** Absolutely. Thank you.

23 **DR. ZIEMER:** Jim has a follow-up on that last  
24 comment -- Jim Neton.

25 **DR. NETON:** Yeah, I'm sorry, I'd just like to

1 address this -- this one issue, at least, of  
2 the -- the inability to reconstruct infrequent  
3 incidents. It struck me as odd in the -- in  
4 the report when I read it last night again, and  
5 it still strikes me as odd that -- it's  
6 somewhat counter-intuitive that SC&A contends  
7 that somewhat frequent incidents can be  
8 reconstructed using chronic inhalation intake,  
9 but infrequent incidents cannot be. In a  
10 sense, if you have an infrequent incident and  
11 we -- and we model a chronic exposure, then  
12 that infrequent incident, if it occurred, would  
13 actually drive up the chronic intake so that  
14 the integration of the picocurie per liter days  
15 excretion would essentially remain fairly  
16 constant, and we've demonstrated this with some  
17 models within our organization.  
18 Take, for example, this ten to the fifth  
19 picocurie per year intake that Dr. Makhijani  
20 speaks of, which is fairly normal when we're  
21 doing these calculations. If a person had an  
22 intake that resulted in 100 times the maximum  
23 allowable air concentration for ten, 15, 20  
24 minutes -- and you've heard workers testify  
25 that in those off-normal situations,

1 particularly in blowouts, they would leave the  
2 area; they were not going to stay there -- it  
3 would add a very small incidental increase to  
4 the overall intake. And we contend that that -  
5 - it would even be included in the chronic  
6 intake model. You can't have several intakes  
7 that are acute and not drive up the chronic  
8 intake model at the end of the day. So I want  
9 to clear that up. It's very counter-intuitive  
10 to say you cannot do infrequent inci-- intakes.  
11 In the area of environmental dose, I'd just  
12 like to mention that 80 percent of the workers  
13 did have monitoring data. A number of the  
14 workers that were there on that chart were  
15 workers, as Denise Brock correctly pointed,  
16 probably should have been monitored, we just  
17 don't have their data. So they would be  
18 monitored using some sort of coworker surrogate  
19 data. The remaining few that are clerical  
20 types and administrative folks certainly could  
21 be monitored, and the thought crosses my mind  
22 that the lower bound of the air sample  
23 distributions might even be appropriate.

24 **DR. ZIEMER:** Arjun, did you have a --

25 **DR. MAKHIJANI:** I think there's a

1           misunderstanding about what I said. I didn't  
2           say that infrequent incidents couldn't be  
3           modeled. I said that a claimant favorable way  
4           or maximizing way hasn't been demonstrated. I  
5           did work during the June 2nd -- on June 3rd I  
6           think we discussed this question of whether  
7           routine intakes, along with an infrequent -- if  
8           you assumed an infrequent intake, one incident  
9           during a six-month period as compared to a  
10          routine intake, would that drive up the dose,  
11          and it was thought not -- Mr. Allen thought  
12          not. And then he was surprised, when we ran a  
13          check, that it did. The -- if -- if you assume  
14          an intake just after the last bioassay, as has  
15          been suggested, assuming there's only one  
16          incident and the bioassay represents that one  
17          incident, it becomes very sensitive to the  
18          solubility assumptions because you have only  
19          one -- you have only one bioassay every six  
20          months, or even one bioassay every year. And I  
21          -- I bel-- I'm not saying -- the SC&A position  
22          isn't that it can't be done. The -- we agreed,  
23          I thought, on June 1st when Cindy Bloom  
24          correctly pointed out that when you have  
25          frequent incidents they do look like routine

1           intakes. So that -- that was a major issue at  
2           the last time that we had brought up and we had  
3           questioned it and -- and we believe that when  
4           workers actually experienced frequent incidents  
5           like blowouts when they worked in Plant 4, then  
6           this would show up in the bioassay and a  
7           maximizing way can be found. And I don't think  
8           there's an argument about that, but I do  
9           believe there's still an argument about -  
10          And 100 times did not apply to uranium intakes.  
11          I think that was a misunderstanding, too. I  
12          just said that if you have a ten to the five  
13          intake from uranium and then multiplied that by  
14          several hundred for radium and thorium, then  
15          you might wind up with numbers that might not  
16          look so realistic or defensible on the  
17          scientific grounds for total intake. Thank  
18          you.

19          **DR. ZIEMER:** Thank you. Okay, Dr. Anderson,  
20          then Dr. Melius.

21          **DR. ANDERSON:** Yeah, just -- just a couple of  
22          observations. I think one of the -- the issues  
23          that I'm grappling with is what we heard from  
24          Senator Bond and we've heard from a lot of the  
25          participants, and that's the timeliness issue

1 of how soon and when will these be done.  
2 Clearly an SEC petition -- the need to spend a  
3 lot of time doing reviews is quite a bit less,  
4 so there's more timeliness there. And I guess  
5 part of my questions this morning dealing with  
6 109, and I guess I would ask NIOSH is it  
7 reasonable if -- if in fact they were going to  
8 move ahead with doing these dose  
9 reconstructions, of which I understand really  
10 no detailed ones have been done yet, could  
11 these 109 be accomplished in the next three  
12 months so we get a sense at this point the  
13 question about the feasibility of all this, you  
14 know is -- hypothetically we've seen or  
15 theoretically or technically it -- it -- and we  
16 have to take NIOSH at their word and they're  
17 saying they can do it, it just hasn't been done  
18 yet. If -- if that kind of time frame we could  
19 expect they would be done, I -- I would be much  
20 more comfortable in hearing that there's a  
21 residual of people who -- who somehow are still  
22 in the system but we don't know where they're  
23 at, so how -- how quickly do you think you  
24 could move on these if -- if you were going to  
25 be tasked to -- to do this?

1           **MR. ELLIOTT:** Well, I appreciate that question  
2           again, and I have some information from -- from  
3           Cincinnati that would inform us a little more.  
4           There are 151 cases that started employment  
5           prior to 1948. That means -- this number, 151,  
6           would have less than 250 days in that 1948 time  
7           period, so they wouldn't fit into that class.

8           **DR. ANDERSON:** Yeah.

9           **MR. ELLIOTT:** Okay? So you understand. Forty-  
10          one of those are Mallinckrodt workers and --  
11          excuse me, 107 are Mallinckrodt only workers,  
12          41 are Mallinckrodt and Weldon Spring workers,  
13          so that we'd have to account for Weldon Spring.  
14          And three are Mallinckrodt workers and at some  
15          other AWE site, so if my -- oops, I just lost  
16          the whole thing. Modern technology, a bane.

17          **DR. ANDERSON:** 107, I think.

18          **MR. ELLIOTT:** Yeah, 107 -- 107 would be the  
19          number --

20          **DR. ANDERSON:** Pretty clean.

21          **MR. ELLIOTT:** -- and I would offer this in  
22          response to your question, that I think in four  
23          months time we can work through those 107. But  
24          a month of that four months I think would take  
25          for us to get with SC&A and iron out any issues

1 on the site profile that remain, and make sure  
2 that we approach these 107 with full due  
3 consideration and a full, thoughtful,  
4 deliberative site profile that'll aid us in  
5 working through these -- these 107 claims. So  
6 I would say give us a month to work that out  
7 and three months to work the claims, the 107.

8 **DR. ANDERSON:** Okay. And another just point I  
9 wanted to -- being a epidemiologist and a  
10 statistical person, the graphs that were  
11 showing the lognormal distribution of the air  
12 monitoring and the urine monitoring, and some  
13 very impressive R-squareds, my understanding is  
14 those R-squares are related to lognormality,  
15 not that the air concentrations correlate  
16 exactly with the urines for the same -- I mean  
17 typically you would do an R-square looking at -  
18 -

19 **DR. NETON:** I'm sorry, that -- yeah, the R-  
20 square value represented the goodness of fit to  
21 a straight line --

22 **DR. ANDERSON:** Right.

23 **DR. NETON:** -- on that graph.

24 **DR. ANDERSON:** So until we get to the  
25 individuals, you won't know are the high air

1 measurements --

2 **DR. NETON:** Yeah, I'm sorry, I never meant --

3 **DR. ANDERSON:** -- correlated with the levels --

4 **DR. NETON:** I'm sorry, I didn't mean to imply  
5 that and I --

6 **DR. ANDERSON:** 'Cause an R-square of .98 for a  
7 biologic thing like that would be unheard of.

8 **DR. NETON:** Right, my --

9 **DR. ANDERSON:** So you would be arguing that in  
10 fact you chose one and then you assigned values  
11 of the urine based on the air or vice versa and  
12 that's how you got --

13 **DR. NETON:** Yeah.

14 **DR. ANDERSON:** -- such a great correlation.

15 **DR. NETON:** Well, actually the intent was to  
16 demonstrate that the data are lognormally --

17 **DR. ANDERSON:** Yeah.

18 **DR. NETON:** -- distributed --

19 **DR. ANDERSON:** Yeah.

20 **DR. NETON:** -- which --

21 **DR. ANDERSON:** I understood that.

22 **DR. NETON:** Yeah, okay. I'm sorry.

23 **DR. ANDERSON:** I just wanted people -- when you  
24 put the two up there, the assumption is that  
25 somehow the value of one correlates with the

1 other, but it's really the distributions that  
2 you were looking (unintelligible).

3 **DR. NETON:** Correct, but I would point that the  
4 slopes of those lines, they parallel fairly  
5 closely --

6 **DR. ANDERSON:** Yeah.

7 **DR. NETON:** -- which indicates that there is --

8 **DR. ANDERSON:** Yeah.

9 **DR. NETON:** -- increasing urine values with  
10 increasing air concentrations, although they  
11 weren't -- I didn't correlate them  
12 individually, which is --

13 **DR. ANDERSON:** Yeah.

14 **DR. NETON:** -- I think what your impression  
15 was.

16 **DR. ANDERSON:** Yeah, it has to do with the  
17 population, not individual correlation between  
18 the value, so it kind of -- how it would be  
19 used for an individual, you might have a lot  
20 more discrepancy, just luck of the draw.

21 **DR. NETON:** Well, actually we've committed, in  
22 cases where --

23 **DR. ANDERSON:** Yeah.

24 **DR. NETON:** -- where the -- the raffinate issue  
25 comes into play, that we would use the higher

1 of the two dose reconstructions, either the air  
2 monitoring data or the reconstructed dose using  
3 the urine and applying a ratio and then  
4 applying an appropriate geometric standard  
5 deviation to each of those. And whichever  
6 results in the higher -- essentially dose to  
7 the organs -- would be used.

8 **DR. ANDERSON:** Okay. And -- and the other  
9 thing I just wanted to say, following back to  
10 the last meeting that -- where we gave you --  
11 asked -- some charges that I think a lot of the  
12 questions that we raised that we deferred  
13 voting on this have in fact been addressed.  
14 The validity of the data, I think we're much  
15 more comfortable that, you know, the likelihood  
16 of it being doctored in any way is -- is  
17 relatively remote, so I think that -- I want to  
18 say thank you for doing that.

19 Again, my only issue is the one of  
20 hypothetically -- you believe you can do it.  
21 We've heard that you don't think we can do it,  
22 and the only way to really know is --

23 **DR. NETON:** To do it.

24 **DR. ANDERSON:** -- is doing it, and that's why  
25 I've -- if -- if you're prepared to do that in

1 a timely fashion, I think that'll address some  
2 of the concerns of the issues.

3 And then the only third one is we're sort of  
4 left with three groups of people, the pre-  
5 approved group. Then you have people who have  
6 cancers that are not covered by the SEC group  
7 who worked both pre- and post-, and how one  
8 addresses that we may have to talk about later.  
9 And then we have the group that I was going to  
10 focus on, those that really would only fit into  
11 this group, that we should be able to move on  
12 quite expeditiously.

13 **DR. ZIEMER:** Yes, Dr. Melius is next.

14 **DR. MELIUS:** Yeah, just to pursue that point a  
15 little bit. You know, I think the crux of this  
16 comes down to how we sort of pull together two  
17 related but sort of divergent sets of data in  
18 terms of how they've been -- evaluations, how  
19 they've been put together. One is the SC&A  
20 evaluation of the site profile and the second  
21 is this -- NIOSH's evaluation of the SEC  
22 petition and do that. And I think that somehow  
23 we need -- need to make those work together and  
24 I think we have sort of several different  
25 approaches that -- that could be used. I am --

1           like Henry, I'm reluctant to simply take NIOSH  
2           at its word without understanding what the  
3           process would be for -- you know, they say they  
4           can do individual dose reconstructions. Well,  
5           you know, let's see them do it. Let's -- let's  
6           get that process moving. It -- it can't go on  
7           forever and I think feasibility is a -- a --  
8           something that we -- we have to consider in  
9           some way, though, albeit it's -- there's no  
10          fine line there and I think we're going to --  
11          would struggle to come up with what is  
12          reasonable in that way and -- and there's  
13          probably a divergence of opinion on the Board  
14          as to what would -- what would be reasonable to  
15          do.

16          As part of resolving that, I think -- question  
17          comes up is what -- what do we do procedurally?  
18          And you know, one is we could deal with the --  
19          the petition and take NIOSH at its word and --  
20          on the assumption that NIOSH can do what Larry  
21          said they can do, we can, you know, reach some  
22          decision on -- on the petition, saying --  
23          turning it down and saying they should be --  
24          individual dose reconstructions are feasible.  
25          Another option is to wait and see what happens

1           when this -- NIOSH works with SC&A to resolve  
2           the issues on the site profile review.  And  
3           that, I think, we -- could there be issues that  
4           will come up that would say that certain --  
5           significant segment of these workers cannot  
6           have their dose reconstructed?  Would that --  
7           might that be identified in -- as part of this  
8           effort to resolve the -- the comments that --  
9           that NIOSH -- that -- excuse me, that SC&A made  
10          on the NIOSH site profile.  It may be, I don't  
11          well understand that completely.  I was not  
12          present at the subcommittee meeting this  
13          morning so I don't know to what extent some  
14          further detail was discussed about that.  But I  
15          think certainly one option is we postpone any  
16          decision until we've seen where we get with  
17          that resolution and maybe we have firmer  
18          evidence that NIOSH can do -- that these issues  
19          are resolved and that, at least in a general  
20          sense, there's nothing that would -- would be  
21          in the way of NIOSH being able to do full,  
22          complete, individual dose reconstructions.  
23          A third option and when -- was the option I  
24          tried to offer at the -- at the last meeting  
25          and one that, even if we don't do it here, I

1 think we need to consider for future SEC  
2 evaluations, is -- I find it very hard to  
3 simply accept or reject NIOSH's sort of very  
4 general statement, we can do them all/we can't  
5 do them all. And even though there's some  
6 refinement to that in terms of how they -- they  
7 work to define the class and -- it -- it's  
8 still pretty broad -- a broad stroke. And when  
9 we get into a complicated site like  
10 Mallinckrodt where there's a significant amount  
11 of data, we're not sure if it covers every  
12 situation and so forth, that kind of a broad  
13 stroke I think is very hard for us to evaluate  
14 without really seeing how all that information  
15 that is available would be applied in some  
16 specific cases.

17 So whether it's for Mallinckrodt or, if not for  
18 Mallinckrodt, for future cases, I would be much  
19 more comfortable, and I think the Board and the  
20 whole process would be much better served if --  
21 if NIOSH would actually work through some of  
22 the cases, some representative number of cases,  
23 examples, to -- to really test and evaluate in  
24 more detail whether or not it really is  
25 feasible to do dose reconstruction.

1           So for Mallinckrodt, you know, another option  
2           is that, in addition to trying to -- that we  
3           work to resolve the SC&A comments on the site  
4           profile, we also ask NIOSH to do some example,  
5           representative dose reconstructions. Come back  
6           to us, show that they -- they are really  
7           capable of doing that. I was -- I was hoping  
8           they would do it for this meeting. They --  
9           they did it part-way. They didn't do it as  
10          completely as I think would be helpful to us.

11         **DR. ZIEMER:** Thank you, Jim. And you have  
12         saved the Chair from pointing out the options,  
13         I think, so -- and -- and done it very well.

14         **DR. MELIUS:** Good.

15         **DR. ZIEMER:** I -- I think before we, however,  
16         reach the point of action, we may want some  
17         additional comments and so on. Roy?

18         **DR. DEHART:** I would like to ask NIOSH if I  
19         heard correctly this morning that you could do  
20         a self-identified exclusion from doing the --  
21         the dose reconstruction. In other words, you  
22         can identify an individual in whom you cannot  
23         do dose reconstruction and move -- in the sense  
24         like a -- you're -- you're identifying a  
25         specific cohort. Is that correct? You haven't

1 done that yet, but you could do that.

2 **MR. ELLIOTT:** Yes, both our dose reconstruction  
3 rule and our SEC petition rule afford us an  
4 opportunity to identify situations or cases in  
5 the dose reconstruction arena -- we could  
6 identify a case we can't do a dose  
7 reconstruction for and operate that -- I think  
8 it's under 82.7. I believe 83.14 in the SEC  
9 rule offers us the ability to say here's a  
10 situation, a class within a facility where we  
11 cannot do dose reconstruction, and we work with  
12 a claimant currently situated in that class to  
13 become a petitioner, and we're working through  
14 that right now on -- on some of these  
15 situations where we feel that there's  
16 insufficient data to do dose reconstructions,  
17 so we're trying to work with current claimants  
18 to establish a petition.

19 **DR. DEHART:** Thank you. That -- that would  
20 then broaden the opportunity, if -- if we chose  
21 to vote for them to go ahead and move with dose  
22 reconstruction.

23 **DR. ZIEMER:** Jim.

24 **DR. NETON:** I'd just like to add to what Larry  
25 said, and it's true, when we do these analyses

1           it's very difficult to predict all -- all  
2           possible combinations. And so we do -- and we  
3           do the best we can to present objectively the  
4           data that we have and -- and the fact that we  
5           think, for all the classes we can conceive  
6           within that group, we can do dose  
7           reconstructions. But it doesn't preclude us  
8           from, when we start doing dose reconstructions,  
9           saying whoa, there's a special case or two in  
10          here and maybe even in the -- in the interview  
11          or there's some incident that occurred that we  
12          were previously not aware, we would be able to  
13          self-identify that and then that would go  
14          through this process that Larry just mentioned.  
15          So you know, it's -- we -- we can't -- I don't  
16          think I'm standing here saying with 100 percent  
17          certainty we can do every -- we believe we can  
18          do everything -- every single one based on all  
19          the data that we've looked at. But short of  
20          doing all 109 dose reconstructions, we can't  
21          say that. That's what I'm trying to say. And  
22          there is a possibility that, you know,  
23          something is out there that we just didn't  
24          anticipate.

25          **DR. ZIEMER:** Did you have a follow-up on that,

1 Roy?

2 **DR. MELIUS:** I actually have something.

3 **DR. ZIEMER:** Yeah, I'll come back. I just also  
4 want to remind the Board, superimposed on the  
5 options mentioned, the issue of timeliness in  
6 terms of delaying decisions versus moving  
7 forward. We need to have that in the  
8 background.

9 And then I also want to pose a question --  
10 maybe I will ask Denise, because I heard her  
11 talk about a sub-- I think you used the term  
12 "sub-cohort," and you maybe specifically  
13 mentioned raffinate workers. I would like to  
14 learn whether or not, for example, are workers  
15 classified as raffinate workers or would one be  
16 able to identify a priori the raffinate  
17 workers?

18 **MS. BROCK:** I was --

19 **DR. ZIEMER:** Did I understand what you said  
20 correctly, Denise?

21 **MS. BROCK:** You did. I was actually suggesting  
22 Plant 6 workers, and I believe it was page 29  
23 maybe of 86, if I remember correctly, in  
24 Arjun's report. And I'll have to ask Arjun,  
25 was that Plant 6 that was the raffinate area?

1 Is that correct? I'm thinking it was.

2 **DR. ZIEMER:** Well, I understand that part of  
3 it. I'm asking can you -- can you go to job  
4 descriptions -- maybe NIOSH can answer this --

5 **MS. BROCK:** Somebody else, yeah, would have --

6 **DR. ZIEMER:** -- and identify --

7 **MS. BROCK:** -- to answer that. I don't know.

8 **DR. ZIEMER:** -- and say a priori oh, this is a  
9 raffinate worker, or do you have to depend on  
10 the fact that maybe somebody took radon lung  
11 exhalation measurements or how -- how would one  
12 a priori identify if there were a sub-set, for  
13 example, of that type?

14 **DR. NETON:** It would have to be based on -- and  
15 this is the crux of the issue that we discussed  
16 this morning -- on the job title category of  
17 the worker and what they were doing in Plant 6.

18 **DR. ZIEMER:** But they would not neces-- they  
19 wouldn't be classified as a raffinate worker.

20 **DR. NETON:** No, but -- but the job categories  
21 are --

22 **DR. ZIEMER:** Might give you a --

23 **DR. NETON:** -- such that --

24 **DR. ZIEMER:** -- clue to it.

25 **DR. NETON:** -- you -- a clear-cut example was a

1 feinc operator, a cloth operator, those type of  
2 people. But as SC&A has correctly pointed out,  
3 it is broader than that. Anyone that is  
4 working, particularly on the reprocessing of  
5 the K-65 residue from the digestion process  
6 through, would be correctly identified as a  
7 raffinate worker that worked with raffinate in  
8 more -- in disequilibrium, let's put it that  
9 way.

10 **DR. ZIEMER:** Yeah, I didn't want to necessarily  
11 focus on that group except that I'd heard  
12 Denise mention that, but it was a follow-up to  
13 the question of, in a sense, could there be a  
14 sub-set within this group that you learn you  
15 simply cannot do dose reconstruction --  
16 whatever that sub-set might be.

17 **DR. NETON:** Right, and Larry might be --

18 **DR. ZIEMER:** Or is it more likely just to be an  
19 individual in each case?

20 **DR. NETON:** It's more likely to be an  
21 individual by individual basis if we have the  
22 job category information. But one issue, and  
23 Larry may be able to speak better to this, is  
24 the Department of Labor, if -- if the SEC were  
25 identified as a sub-set of workers, the

1 Department of Labor actually qualifies those  
2 people based on their application as to whether  
3 or not they are in the SEC. We don't make that  
4 determination.

5 **DR. ZIEMER:** Yes.

6 **DR. NETON:** And to the extent that they would  
7 be able to -- to parse that out based on these  
8 more specific -- job categories are really part  
9 of the dose reconstruction process I can't  
10 speak to.

11 **DR. ZIEMER:** Okay.

12 **DR. WADE:** Denise.

13 **DR. ZIEMER:** Larry?

14 **MR. ELLIOTT:** Let me just add to that -- that  
15 at that critical juncture when DOL makes its  
16 determination of eligibility for a cla-- for a  
17 member of a class, they use the full case file  
18 that's been developed. That -- that  
19 development would include work history,  
20 information that we add to the file, both from  
21 the CATI interview -- from the interview  
22 process, but also from looking up in the data  
23 that Jim has -- has spent numerous hours going  
24 through, can we put the name with a job title,  
25 and we add that and they will use that.

1           **DR. ZIEMER:** Denise, did you have a follow-up  
2           on...

3           **MS. BROCK:** I was just curious if -- if Jim or  
4           Larry could explain it to where I can  
5           understand it, are you stating that the Labor  
6           Department would be the one to ultimately make  
7           that decision? Are you having to find the  
8           worker to fit the job title, and if... I guess  
9           I'm not understanding.

10          **MR. ELLIOTT:** Development of the case file  
11          starts when the file is submitted to DOL.  
12          DOL's claims examiners work with the claimant  
13          to make sure that the -- the file is determined  
14          eligible by the diagnosis, through a death  
15          certificate or medical -- physician's report or  
16          whatever, and that the person worked at a given  
17          site.  
18          They then send that over to us once it's deemed  
19          eligible as a claim and we work up the work  
20          history. That's part of what we go through --  
21          the interview process I know is a -- a major  
22          concern to a lot of people. It's not a  
23          required process. It's something we've added -  
24          - we felt all along that it -- anything that we  
25          could gain from actually using a questionnaire

1           and we have to use a standardized  
2           questionnaire, but anything that could gain we  
3           would benefit the claimant would benefit from  
4           that. That's part of this development.  
5           As we go through data -- data such as what Jim  
6           presented this morning -- where we actually  
7           have individuals' names on these cards and the  
8           job titles that they held during the time that  
9           the sampling or the measurement was acquired --  
10          whether it's a dust sample or a urinalysis  
11          sample or a badge result, we have those names.  
12          Jim was able to go in and find 109, which is  
13          now 107, but he found 109 people and he knows  
14          what their job titles were. We'll have to  
15          provide that to Department of Labor. And yes,  
16          Denise, that is their job. We don't make that  
17          determination. They're required to make that  
18          determination of eligibility for the class. We  
19          help them as much as we can by providing this  
20          additional work history information that's been  
21          developed. Does that -- does that help?

22          **MS. BROCK:** It does. Thank you.

23          **MR. ELLIOTT:** Okay.

24          **DR. ZIEMER:** Thank you.

25          **DR. MELIUS:** Can -- can -- can I just add to

1           that? I would think, though, if someone gets  
2           forwarded to you for individual dose  
3           reconstruction and as part of your process you  
4           discover that they really should have been in  
5           the Special Exposure Cohort, you would refer --

6           **MR. ELLIOTT:** Yes.

7           **DR. MELIUS:** -- them back.

8           **MR. ELLIOTT:** Oh, absolutely.

9           **DR. MELIUS:** Yeah.

10          **MR. ELLIOTT:** Yes, we don't want to --

11          **DR. MELIUS:** So I --

12          **MR. ELLIOTT:** -- see anybody mis--  
13          misclassified here.

14          **DR. MELIUS:** Yeah. Yeah.

15          **MR. ELLIOTT:** Yeah.

16          **DR. MELIUS:** So there's a safety net, so to  
17          speak --

18          **MR. ELLIOTT:** Absolutely, yes.

19          **DR. MELIUS:** -- for that. I -- I think we  
20          recognize -- this is back to Jim and Larry's  
21          comments earlier. I think we recognize that as  
22          part of individual dose reconstruction -- for  
23          example, for this Mallinckrodt cohort -- that  
24          you would -- you may identify people --  
25          individuals, you know, a small number, that --

1           for whom, for whatever reason, there's just not  
2           adequate information for dose reconstruction.  
3           I think what we're trying to avoid is -- have --  
4           - finding out down the road that there's a  
5           large percentage of this group, you know, and  
6           what that large is, is it 20 percent or, you  
7           know, 15 percent or whatever it may be that --  
8           that you really don't have adequate information  
9           for and so we -- I think we need to fine-tune  
10          the process, at least low enough that we can  
11          try to identify those -- those groups ahead of  
12          time and -- and I think I would actually argue  
13          for an interim evaluation step there, that we  
14          take a look at the site profile review from  
15          SC&A, we work to resolve that and see if out of  
16          that do we feel that there is a sub-group that  
17          -- such as the Building 6 workers who there may  
18          not be adequate information for. I don't have  
19          a good sense from our discussions so far how --  
20          to what extent we believe that is a  
21          possibility, but certainly it's been raised and  
22          cer-- certainly something that at least to me  
23          would be a cleaner process if we -- and a  
24          better process is if we take an interim step,  
25          which would be resolving the SC&A comments. At

1           the same time that would allow -- I think give  
2           NIOSH a better sense of are there -- is there  
3           going to be a significant proportion of this  
4           cohort that -- of this petition that they will  
5           not be able to do individual dose  
6           reconstructions on and -- and that we delay our  
7           decision until that point in time, rather than  
8           having us make a decision now and then having  
9           to change it -- I don't know exactly what the  
10          process would be. I'm sure it's workable, but  
11          I -- also I'm afraid that it will just -- I  
12          think we want to avoid unnecessary delays if we  
13          can -- can help it.

14          At the same time I think that process -- if we  
15          did it that way, then we wouldn't slow down the  
16          individual dose reconstruction process 'cause  
17          it's still a necessary, you know, one-month  
18          step to -- for us to try to resolve these SC&A  
19          comments on -- on the site profile.

20          I would also just add, though, that -- that --  
21          that is presuming certain amount of logistical  
22          work on the part of NIOSH to -- can we pull the  
23          Board together in a reasonable time, and if the  
24          next Board meeting isn't -- isn't feasible for  
25          three or four months, then I think we're --

1           have to consider other options.

2           **DR. ZIEMER:** Right. Unfortunately we've been  
3           pushing both our contractor and NIOSH against  
4           our own meeting time deadlines. And  
5           realistically, we end up doing a disservice to  
6           them because there are issues that they need,  
7           in essence, to discuss and -- and try to  
8           resolve so that we have whatever level of  
9           agreement we can reach in advance. And where  
10          the disagreements are we know that they have at  
11          least talked and -- and these disagreements  
12          remain.

13          **DR. MELIUS:** Yeah.

14          **DR. ZIEMER:** But for -- for NIOSH to see the  
15          report for the first time a day or two before  
16          our meeting is very difficult, and that's not  
17          the contractor's fault. In a sense it's our  
18          fault 'cause we pushed the -- pushed the  
19          contractor to try to get things on a real --  
20          very short time frame.

21          **DR. MELIUS:** Yeah, can -- can I just add --

22          **DR. ZIEMER:** Yeah.

23          **DR. MELIUS:** -- I -- I think -- regardless of  
24          how we deal with this, I think from the point -  
25          - perspective of trying to resolve these SC&A

1           comments on the site profile, I think it would  
2           be helpful if either the committee or the  
3           subcommittee could continue some of the  
4           dialogue from this morning -- as much as we can  
5           be specific about what we want pursued and what  
6           we think is important and what we think is  
7           maybe not as important so we can make that --  
8           this follow-up as efficient as possible, I  
9           think it would be -- be helpful and I think it  
10          would be better for all and -- and I agree with  
11          you fully that I think it's unfair to expect  
12          NIOSH to have complete -- or comments on a  
13          report they only saw a few days ago, so...  
14          **DR. ZIEMER:** And the same is true of the  
15          petitioners.  
16          **DR. MELIUS:** Yeah.  
17          **MR. ELLIOTT:** I was just going to have some of  
18          the similar remarks that you just made, Dr.  
19          Melius. I -- I think this morning we had a  
20          very good scientific discussion here on a  
21          report that just came out last week, and I  
22          don't think anybody's at fault here. I think  
23          it's just a set of circumstances that we  
24          operate in this program -- operate under in  
25          this program. Everybody is under a lot of

1 pressure.

2 But I would welcome this kind of a discussion  
3 that you just mentioned, Dr. Melius, about what  
4 are the critical issues that you heard this  
5 morning that you want pursued farther. I think  
6 that there was a good give-and-take that  
7 happened this morning. I think there was  
8 affirmative -- nods of affirmation around the  
9 table as I watched -- overheard the discussion  
10 and watched the body language at the table.  
11 And there were some issues that, you know,  
12 people were still wrestling with in their mind  
13 -- we were wrestling with in our mind, trying  
14 to understand what the point was being made by  
15 SC&A, perhaps. So I think that would help us a  
16 lot in trying to come to resolution within a  
17 month's time on finalizing a site profile based  
18 upon the comments that we've received. So I  
19 would welcome that. That would serve as good  
20 guidance to us.

21 **DR. WADE:** Denise.

22 **DR. ZIEMER:** Denise.

23 **MS. BROCK:** I second that, Dr. Ziemer, about it  
24 not being anybody's fault. But yes, it did put  
25 the petitioner, myself, in a situation -- such

1 as NIOSH, and obviously it was not SC&A's  
2 fault, nobody's fault, but it does put me at a  
3 -- at a disadvantage, as well as NIOSH. But I  
4 still have to go back to the issue of time and  
5 timeliness, and feasibility has to do with  
6 time, as well. And I have to state again for  
7 the record, these claimants are dying. They  
8 may not have a month. They might not have two  
9 months, three months. And I -- I just want to  
10 make sure that I understand this. Larry, are  
11 you saying that within a month that you will be  
12 able to go through absolutely everything that  
13 SC&A has in their audit review and take all the  
14 corrective actions and begin dose  
15 reconstructions and have those 109 cases  
16 completed by then? And if they are denied, are  
17 those defensible denials?

18 **MR. ELLIOTT:** I didn't say a month. I said it  
19 would take us a month to work through -- in my  
20 view, it would take us a month to work through  
21 the comment resolution aspect on the site  
22 profile. That's why I would appreciate this  
23 kind of discussion on -- and guidance on what  
24 are the most critical elements and issues in  
25 that set of comments that came from SC&A.

1           Then I said we would work very diligently to  
2           finish up those 107 cases in three months' time  
3           post that. I think there are some cases in  
4           that 107 -- I think Jim would agree with me --  
5           that we could work on while we're -- we could  
6           have our health physicists working on certain  
7           types of cases without the benefit of the site  
8           profile resolution comments because they either  
9           have enough monitoring information of record or  
10          they -- the type of cancer is such that we can  
11          work through that and give a definitive dose  
12          estimate that would be a defensible probability  
13          of causation.

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

15         **MR. GIBSON:** Dr. Ziemer? Dr. Ziemer?

16         **DR. ZIEMER:** Yes, Michael. Hang on just a  
17          minute, Mike. Denise has a comment and then  
18          you'll be next.

19         **MR. GIBSON:** All right. Thank you.

20         **MS. BROCK:** Sorry, Mike -- and hello, Mike. I  
21          think I wanted to ask a question -- and I'm  
22          trying to think about how to word this. In  
23          Iowa there was a probability of causation chart  
24          developed. Is that possible that when you come  
25          back in that we can have one so that I can take

1 a look at the types of cancers, similar to what  
2 you did in Iowa?

3 **DR. ZIEMER:** Larry, do you recall what chart is  
4 being referred to?

5 **MR. ELLIOTT:** Yes, we worked up a -- we worked  
6 up a set of cases for Dr. Fuortes and Richard  
7 Miller in that regard, I believe. Could we do  
8 that? We certainly could do that, but we're at  
9 a -- it puts us at competing resources. You  
10 know, we -- we put people on task to do that,  
11 why not just put people on task to do dose  
12 reconstructions? Then from that you could pull  
13 together the dataset that you're seeking. That  
14 would be my thought, but -- Jim has a comment.

15 **DR. ZIEMER:** Yeah. Hang on, Mike. We'll get  
16 to you here. Jim Neton is following up on this  
17 comment.

18 **MR. GIBSON:** That's fine.

19 **DR. NETON:** Just to follow up on what Larry  
20 said, I need to point out that the Iowa dose  
21 reconstruction model was a one-size-fits-all  
22 model, so it was fairly straightforward to come  
23 up with the estimated doses and projected  
24 probabilities of causation. These dose  
25 reconstructions are going to be unique,

1 individual dose reconstructions, scientifically  
2 based. It would be difficult, if -- it would  
3 not be impossible. It would be very difficult  
4 and, like Larry says, ex-- you use a lot of  
5 resources, to the extent where we'd almost have  
6 to do the dose reconstructions to develop the  
7 chart, I think. There's no way to predict  
8 based on the amount of monitoring data -- you  
9 know, the individual monitoring data and then  
10 how much we're going to have to supplement  
11 using, you know, coworker data to come up with  
12 some chart like that. I think it'd be very  
13 hard.

14 **DR. ZIEMER:** Thank you. Mike, your comment?

15 **MR. GIBSON:** Yeah, and I'm -- you know, I --  
16 I'm a little bit -- apologize for not being  
17 there. I'm kind of behind the eight-ball here  
18 and -- and I appreciate the phone hook-up, but  
19 it's -- kind of cuts in and out, but it -- if  
20 what I've -- what I'm going to say is not  
21 correct, you know, someone can correct me. But  
22 it -- it sounds like that there is a lack of  
23 individual bioassay data for some of these  
24 raffinite (sic) workers in Plant 6 and -- and  
25 that somehow NIOSH has determined that they can

1 take some kind of -- these monitoring results  
2 from air monitoring and give it a 100 to one  
3 ratio or whatever it is and therefore verify  
4 the -- therefore reconstruct a dose for each of  
5 these workers, at least in this Plant 6. And I  
6 just -- you know, I -- if I'm hearing all this  
7 correct and if that's all correct, it just  
8 doesn't seem to me that -- again, as I'd  
9 mentioned earlier about the -- the individual  
10 dose reconstructions, I don't see that -- I can  
11 see it being generic, but -- but how can NIOSH  
12 at least stand behind these dose  
13 reconstructions and -- and say that this is an  
14 accurate dose that can be defensible and  
15 feasible for each individual worker?

16 **DR. ZIEMER:** Yes, I think NIOSH has a lot of  
17 urine -- urine analysis data, coupled with the  
18 air data, and would use whichever one gave them  
19 the higher estimate. But Jim Neton can speak  
20 to that.

21 **DR. NETON:** That's --

22 **MR. GIBSON:** No, I'm -- I'm sorry, I thought I  
23 -- I thought I heard that there was no -- no or  
24 very little bioassay data for the raffinite  
25 (sic) workers in Plant 6. Maybe -- maybe I was

1 mis-- maybe I missed something and, like I  
2 said, I don't have all this information in  
3 front of me, but that's what I thought was part  
4 of the case.

5 **DR. NETON:** Mike, this is Jim Neton. I think  
6 what I hear you saying is that you recognize we  
7 have a lot of urine monitoring data, but it's  
8 primarily uranium data and we have no  
9 individual bioassay data for isotopes such as  
10 protactinium-231, actinium-227. That's true.  
11 But what we do have are these dust cards for  
12 1,453 individual workers that were -- that give  
13 -- give job descriptions for their work during  
14 that individual -- by year for 1949 through  
15 '57, the position at different processes. And  
16 we have these 40-something dust studies that  
17 were done that -- that are alpha measurements  
18 that can be used to determine the amount of  
19 upper limit or bounding exposures, given  
20 appropriate geometric standard deviations, for  
21 workers at those individual processes.

22 **MR. GIBSON:** Uh-huh.

23 **DR. NETON:** So that -- they -- they are not  
24 generic. They can be specific, although I  
25 can't swear with 100 percent certainty there

1           aren't some that don't have cards that we would  
2           have to fill in the gaps.  But -- but we do  
3           have individual cards for a large number of  
4           workers.

5           **MR. GRIFFON:**  Jim --

6           **DR. ZIEMER:**  Thank you.

7           **MR. GRIFFON:**  Jim, just a point -- again, a  
8           point of clarification there.  You have 1,453  
9           individual cards --

10          **DR. NETON:**  No, no, we have more cards than  
11          that.  We have 1,453 workers --

12          **MR. GRIFFON:**  Workers --

13          **DR. NETON:**  -- who have cards --

14          **MR. GRIFFON:**  -- cards --

15          **DR. NETON:**  -- multiple years for each --

16          **MR. GRIFFON:**  1,453 individuals, but -- but  
17          there's -- I -- I mean the -- the dust  
18          concentration values assigned, the daily  
19          weighted averages assigned, were not  
20          necessarily each individual worker.  They were  
21          assigned from those dust study data.  Correct?

22          **DR. NETON:**  Right, but -- it's confusing, but  
23          the time-weighted average for the worker is a  
24          composite of where he worked in the plant  
25          during that year.  So for instance, if he were

1 at the feinc -- you know, the filtration press  
2 or whatever, it would say 24 weeks at this  
3 location, 15 weeks at another location, and  
4 those individual air concentrations would then  
5 make up the time-weighted average.

6 **MR. GRIFFON:** But the -- but the -- the  
7 individual ti-- the times are individual-  
8 specific --

9 **DR. NETON:** Right.

10 **MR. GRIFFON:** -- but the -- the dpm per meter  
11 cubed that's plugged into that equation --

12 **DR. NETON:** Are location-specific --

13 **MR. GRIFFON:** -- are from the study.

14 **DR. NETON:** -- right. That's correct.

15 **MR. GRIFFON:** Right, location-specific --

16 **DR. NETON:** Right.

17 **MR. GRIFFON:** -- so I just wanted to be clear  
18 on that.

19 **DR. NETON:** You're right, that's correct.

20 **DR. ZIEMER:** Denise, did you have a follow-up  
21 on that?

22 **MS. BROCK:** I don't really know if it's a  
23 follow-up on that. I apologize. I'm not a  
24 scientist, I keep saying this, and I'm not a  
25 doctor, so it's probably like pro poker players

1 playing with somebody that doesn't know if a  
2 pair beats a full house or whatever -- sorry,  
3 so just kind of bear with me. But I just  
4 wanted to restate a couple of things for the  
5 record, and maybe it is not something that  
6 needs to be said, but the way I understood,  
7 SC&A had stated that the basis for finding  
8 reasonable dose estimates are unlikely -- and  
9 what I heard SC&A say was that this was going  
10 to be a major undertaking, that all of this  
11 corrective action -- we don't know how long it  
12 could take. And at the end of it, we do not  
13 know if in fact it's going to even be workable  
14 or doable. And so I still have to go back to  
15 the FY 2005 where it states that these workers  
16 need to be put in in a prompt manner. This is  
17 not prompt. I filed this SEC petition over a  
18 year ago, or about a year ago. These people  
19 are dying. How long do we have to keep going  
20 through this? If this is this major  
21 undertaking and I'm -- I apologize, Larry, I  
22 think you're great, but I just don't understand  
23 what this 30 days is. Maybe I am dense, but if  
24 it's not going to be done in 30 days, how would  
25 the dose recon-- if everything's not corrected,

1 now in God's name are you going to have these  
2 dose reconstructions done? And if there's not  
3 anything on thorium-230 or actinium-227 or  
4 protactinium on these raffinates, how is this -  
5 - how is this doable?

6 **DR. ZIEMER:** Does someone want to give an  
7 answer or is that a rhetorical question?  
8 Everyone's hoping it's a rhetorical question,  
9 Denise.

10 **DR. NETON:** Yeah, I -- I think we've discussed  
11 this previously that -- that -- the air  
12 monitoring data can be used to support the  
13 inhalation intakes from the raffinate material.  
14 There's also a suggestion -- I think it's a  
15 very good one -- Dr. Makhijani indicated that  
16 if the Fernald waste stream and the silos can  
17 be demonstrated to be predominantly ore from  
18 the process, I think we've got a handle on  
19 that. So there's a number of approaches that  
20 can be used here to bound -- bound these  
21 estimates.

22 **DR. ZIEMER:** Arjun, did you have a comment on  
23 that?

24 **DR. MAKHIJANI:** Yes. I mean we -- we did  
25 suggest approaches, and there isn't just one

1 issue, as I mentioned when I was asked by Mr.  
2 Owens, but there -- there are a number of  
3 issues. And I -- I don't see that we have a  
4 clear idea of how all of them are going to be  
5 resolved. Perhaps we may have -- Jim may have  
6 identified something regarding the radionuclide  
7 ratios, but I think that remains to be  
8 demonstrated, first of all. But assuming that  
9 it is, I -- I don't -- at this stage we can  
10 certainly engage with NIOSH, but I don't know  
11 where we would wind up after 30 days.  
12 Obviously, I mean there's a long list of issues  
13 and we're -- we're willing to engage at the  
14 Board's direction, but I -- I have to say, at  
15 this stage we have a certain conclusion we've  
16 presented before you that a significant number  
17 of issues need to be resolved, and then at the  
18 end of 30 days or whatever you mandate, we'd  
19 have to come back to you and -- and tell you  
20 whether -- NIOSH will tell you whether they  
21 believe they've addressed them satisfactorily  
22 and we'd have to tell you whether we believe  
23 they've been resolved, and there's no guarantee  
24 of an identity of an answer, obviously.

25 **DR. ZIEMER:** Yes, I -- I don't think, as in

1 other cases, that if we did this that we would  
2 mandate a priori that everybody come to an  
3 agreement. It's -- it's the -- it's the issue  
4 of having a chance to sit down and say well,  
5 you've raised this; here's how we've responded  
6 -- and the give-and-take that you've done on  
7 other cases, that's what we're talking about.  
8 I forget the order here, who's next? Mark,  
9 were you next?

10 **MR. GRIFFON:** I think I was.

11 **DR. ZIEMER:** Okay.

12 **MR. GRIFFON:** Jim (unintelligible) of another  
13 comment, though.

14 I -- I was just -- just to speak to Larry's  
15 comment a little, I think that we -- the Board,  
16 along with SC&A and NIOSH, I think -- and we've  
17 done this to some extent on the subcommittee  
18 level -- can sort of identify or prioritize  
19 issues that -- that need to be resolved for  
20 purposes of resolving this SEC petition. So  
21 there -- there are some things in the site  
22 profile that we can kind of -- so me comments  
23 that SC&A has raised that -- that aren't  
24 certainly as critical. So I think we can  
25 prioritize ones that we believe would have a

1 major potential impact on -- on decisions on  
2 this SEC petition.  
3 On top of that, I think a key component that  
4 I'd like to see is -- and I think Jim mentioned  
5 this earlier -- is -- is how -- how are these  
6 going to be applied in doing dose  
7 reconstructions. So I would -- I would like to  
8 -- you know, if we go down that path of -- of  
9 asking you to come back with -- with -- having  
10 some -- some more com-- some more comment  
11 resolution on the site profile, in addition to  
12 that I'd like to see some specific  
13 representative cases. And I'm not just saying  
14 ones that you can do with the data at hand  
15 right now. I'm saying take some of these  
16 assumptions on the raffinates and some of these  
17 other assumptions, once you feel comfortable  
18 enough with them -- because part of what we  
19 have to evaluate is feasibility and -- and --  
20 feasibility, as Denise pointed out, is  
21 timeliness. So if you can say well, we've --  
22 you know, not that we're still looking for some  
23 data to nail this down, but that we have it.  
24 So we need some representative cases and you  
25 can say here's how we're going to apply this,

1 and then we can look at both feasibility and  
2 sufficient accuracy for those representative  
3 cases. We have -- we -- we're going to see how  
4 those values are applied. And I don't -- I  
5 don't -- Jim made, you know, a very good  
6 presentation on how you've got different pieces  
7 of information that can be used to -- to -- to  
8 bound this sit-- situations. I guess there's -  
9 - there's -- you know, what I want to see is  
10 some representative exa-- representative  
11 examples of how that would be carried through,  
12 how -- for a Plant 6 worker, first of all you  
13 have to decide whether he -- he or she does or  
14 does not apply to certain raffinate conditions  
15 on their -- on their intake values and -- and  
16 whether they -- you know, so -- and you're  
17 going to tell me that we can't have that.

18 **MR. ELLIOTT:** Well --

19 **MR. GRIFFON:** Okay.

20 **MR. ELLIOTT:** -- I agree with you 100 percent.  
21 That is exactly what we need to do. But the  
22 issue that -- and reason why we couldn't bring  
23 that to the table today for Dr. Melius's  
24 request from last meeting is that we cannot  
25 bring an example dose reconstruction case to

1           you unless it's an adjudicated case. I'm  
2           sorry, but we're bound by that. We cannot  
3           bring an example dose reconstruction case to  
4           the floor that has not gone through the full  
5           adjudication process, and that will take more  
6           time than what I've proposed in my four-months  
7           commitment to you.

8           **MR. GRIFFON:** Yeah.

9           **DR. ZIEMER:** Okay. I think Wanda's next. No?

10          **MS. MUNN:** I'm not sure.

11          **DR. ZIEMER:** Go ahead, Wanda.

12          **MS. MUNN:** Henry was --

13          **DR. ZIEMER:** Henry was next, okay. Wanda  
14          concedes to you, Henry.

15          **DR. ANDERSON:** I guess I was -- what I'm trying  
16          to do is simplify the -- the process here, that  
17          this is a very complex site and the site  
18          profile is very complex and the site profile  
19          really is a kind of a universal activity and it  
20          has to sort of -- we can pick at it because it  
21          has to be able to address all possibilities.  
22          When you narrow it down to 105 cases, there may  
23          be some of the issues that are raised that  
24          aren't going to come up in some of the cases,  
25          so those -- and I think there are some broad

1 issues that we could sit down and, as we  
2 started out this morning and yesterday, nail  
3 them down. But all of the things that may come  
4 up in the future, if we don't have to deal with  
5 them today, those are still future issues. So  
6 I think we can sort out or separate some of the  
7 uncer-- I think a lot of what was pointed out  
8 are uncertainties in the data. I'm not sure  
9 we're going to resolve the uncertainties. It's  
10 only a matter of how are you going to address  
11 those uncertainties in the dose reconstruction.  
12 So...

13 I mean the other question would be if we wanted  
14 to narrow the numbers even more, how many of  
15 those 107 are SEC-compensable tumors, so that  
16 there may be a smaller number. And if you  
17 start on those, those would give us a -- a --  
18 you know, a better handle on -- on where we --  
19 Yeah, that's why I -- that's why I gave you the  
20 lead yesterday, Larry, to go back and ask.

21 **MR. ELLIOTT:** Let me see if I have that  
22 particular data point for you.

23 **DR. ANDERSON:** I want a (unintelligible).

24 **MR. ELLIOTT:** Well, I -- I don't have that  
25 particular number on how many would be SEC

1 cases. But what we typically see is a 60/40  
2 split, 60 percent of the cases have cancer of  
3 the list of the 22, 40 percent don't. Is that  
4 right -- or is that backwards? No, that's  
5 right. But I can't -- from this -- from this  
6 e-mail I can't tell you what the exact case  
7 number would be.

8 **DR. ZIEMER:** Liz?

9 **MS. HOMOKI-TITUS:** I've just been asked to  
10 clarify on the question of bringing cases  
11 before you that haven't been adjudicated by the  
12 Department of Labor. It has -- the Board has  
13 always followed the policy when you've chosen  
14 your cases for dose reconstruction that you  
15 won't look at cases that haven't been  
16 adjudicated by the Department of Labor because  
17 the Department of Labor process could change  
18 those cases. They could be sent back as  
19 incomplete, they need more research, there's  
20 new cancers. So I just wanted to give an  
21 explanation as to the underlying reason -- not  
22 so much for you all, but for the audience as to  
23 why you wait for cases to be completely  
24 adjudicated and finalized before the Board  
25 reviews them.

1           **DR. MELIUS:** Can I clarify?

2           **DR. ZIEMER:** Sure.

3           **DR. MELIUS:** I mean this was brought up at a  
4 meeting two months ago. There's a subsequent  
5 discussion with Larry Elliott about doing this.  
6 In that discussion I pointed out that we were  
7 not asking for complete data on individual  
8 cases and we didn't want to violate any legal  
9 issues involved. All we're asking to do is to  
10 go through -- through and show that it's going  
11 to be feasible, that the issues -- particular  
12 technical issues raised in a representative  
13 number of cases can be dealt with within the --  
14 based on the information available. We're not  
15 asking to see individual case information. I  
16 think it's very possible for you to be able to  
17 do that and make a presentation to the Board  
18 that does not violate this issue if...

19           **DR. ZIEMER:** For example, could you do a group  
20 of cases and summarize them at --

21           **DR. ANDERSON:** Yeah, I --

22           **DR. ZIEMER:** We've done ten cases and here's  
23 what we found or something like that, without -  
24 -

25           **DR. ANDERSON:** And how -- this is how we

1 addressed this issue, you know.

2 **DR. ZIEMER:** I think right now we're just  
3 asking -- you may not have a -- I don't think  
4 the Board is asking that we look at case so-  
5 and-so that worked there so many years and, you  
6 know, that -- information that would identify  
7 who it is. But perhaps -- give that some  
8 thought, can it be done in a summary form.  
9 Mark, you follow-up on that?

10 **MR. GRIFFON:** Yeah, just -- just to fol--  
11 follow up on that, I mean I was just thinking  
12 back to a meeting probably several years ago  
13 now in Santa Fe where -- where Jim, you  
14 presented some sample DRs for --

15 **MR. ELLIOTT:** De-identified.

16 **MR. GRIFFON:** De-identified, right.

17 **DR. ZIEMER:** Yeah, it was the low-hanging fruit  
18 cases.

19 **MR. GRIFFON:** Right, the Bethlehem Steel and  
20 several others --

21 **MR. ELLIOTT:** But they'd already been  
22 adjudicated.

23 **MR. GRIFFON:** They had been adjudicated?

24 **MR. ELLIOTT:** Yeah, we've been operating under  
25 that direction --

1           **DR. ZIEMER:** I guess that's right.

2           **MR. ELLIOTT:** -- not only from --

3           **MR. GRIFFON:** I thought they were --

4           **MR. ELLIOTT:** -- our general counsel but DOL's  
5           general counsel --

6           **MR. GRIFFON:** All right.

7           **MR. ELLIOTT:** -- from the very start --

8           **DR. ZIEMER:** Right.

9           **MR. ELLIOTT:** -- that when we bring anything in  
10          front of this Board for your audit and your  
11          review, that as a case it has to be an  
12          adjudicated case.

13          **DR. ZIEMER:** Okay.

14          **MR. ELLIOTT:** And we thought long and hard  
15          about this, Dr. Melius. We thought what can we  
16          bring to you that would explain how we would  
17          validate the data, how we would use the data in  
18          dose reconstructions and answer some of the  
19          questions that were on the table from Cedar  
20          Rapids. That's what Jim attempted to do this  
21          morning in his presentation, without violating  
22          this mandate that we have that we cannot bring  
23          example cases that have not been adjudicated.  
24          In two months' time we couldn't have brought  
25          you adjudicated cases for -- as examples.

1           **DR. ZIEMER:** Let's move on. Wanda.

2           **MS. MUNN:** Well, there's a lot to say about  
3           this. Everybody sitting at this table  
4           certainly knows we're not ever going to have  
5           perfect information. There are always going to  
6           be data gaps. Whether or not they're data gaps  
7           that we can live with is another issue, I  
8           guess. But the data gaps that I personally  
9           have heard here are not that egregious.  
10          Quite to the contrary, it seems to me that  
11          there's been an exceptional effort expended to  
12          gather and to analyze as much information as  
13          possible about the exposures of the workers in  
14          this proposed class.  
15          I see the decision that we need to make today  
16          as being a watershed decision, for more reasons  
17          than one, not the least of which is that, based  
18          on recent correspondence that I've seen, it  
19          appears to me that even some Congressional  
20          perception of what has occurred in prior  
21          decisions that we've made is either an  
22          incorrect perception or it, at the very least,  
23          does not match my memory of what transpired in  
24          these meetings. It seems very important that  
25          we be particularly cautious in how we approach

1           this special cohort.

2           It also appears to me that the detail and  
3           availability of the data that we have here  
4           shows very clearly that there was considerable  
5           concern for the workers' safety and welfare by  
6           both the contractor and by the governmental  
7           agency that was overseeing the work at  
8           Mallinckrodt at that time. The fact that we  
9           have separate bases of data on which to rely  
10          when we start attempting to determine  
11          probability of causation is really important, I  
12          believe.

13          If we do not accept that it is possible for our  
14          agencies to do what they say they can do, then  
15          I don't see that we leave ourselves any  
16          options. There's no reason that I can imagine  
17          why our subcommittee cannot give some very  
18          specific direction as to what we consider to be  
19          priorities, and why our -- the Board's  
20          subcontractor and -- and NIOSH cannot come to  
21          some agreement on the major issues that we  
22          would like to see resolved at the same time  
23          that effort is ongoing with respect to  
24          resolution of some of these outstanding cases.  
25          As I understand it, however, nothing can be

1 done on these outstanding cases until we have  
2 made a decision with respect to the SEC. Is  
3 that correct, or am I incorrect?

4 **DR. ZIEMER:** I don't believe there's anything  
5 that requires the dose reconstruction process  
6 to come to a halt while the petition's in  
7 process, unless they do it from a practical  
8 point of view. But there's nothing in the law  
9 that would say that you can't continue to  
10 process, is there?

11 **DR. NETON:** No, there is not, but we would -- I  
12 think we would be limited on the number of  
13 cases we could do until we -- we came to some  
14 conclusion on the SE-- SCA-- SC&A report. I  
15 mean they raised some issue which we believe we  
16 can address -- I mean we just have seen this  
17 report Friday, but a number of their issues,  
18 you know, we need to take into consideration,  
19 but they are not insurmountable, in our  
20 opinion.

21 **DR. WADE:** But there is a sub-set of the 107  
22 that you could begin to work on now.

23 **DR. NETON:** A sub-set of the 107, that's  
24 correct.

25 **DR. ZIEMER:** And let me point out to the Board

1           that a delay has a -- the same effect as  
2           denying the petition --

3           **MS. MUNN:** Yeah.

4           **DR. ZIEMER:** -- from a practical point of view.  
5           It means that -- or -- denying the petition or  
6           supporting the NIOSH recommendation has the  
7           same effect because it -- it says in the  
8           meantime we will proceed with the dose  
9           reconstruction process.

10          **MS. MUNN:** Yes.

11          **DR. ZIEMER:** That is the practical effect of  
12          it. To the extent they can do that and still  
13          address the other issues that the Board is  
14          demanding be done, but -- theoretically, at  
15          least.

16          **MS. MUNN:** So that being the case, and with the  
17          very clear understanding that denying an SEC  
18          petition does not mean denying the claims,  
19          quite to the contrary, the vast majority of the  
20          claims probably -- given what I believe will  
21          occur, on the basis of the information that's  
22          available for these claimants -- will probably  
23          turn out very much the way the percentages have  
24          fallen in other categories, as well.

25          So it seems clear to me that we need to make a

1 decision today. I am prepared to make a motion  
2 if the Board is prepared to receive it.

3 **DR. ZIEMER:** Let me ask if there's additional  
4 discussion, just in general, before we put a  
5 motion on the floor. I'd be glad to --

6 **MR. ESPINOSA:** I have a question.

7 **DR. ZIEMER:** Yeah, a question here and then Jim  
8 has a comment. Okay. Yes.

9 **MR. ESPINOSA:** As far as adjudicated claims, is  
10 there any way that it could be brought to the  
11 Board in an Executive Session rather than -- I  
12 guess the question would be towards Liz or  
13 Larry.

14 **DR. ZIEMER:** Completed claims --

15 **MR. ESPINOSA:** Not --

16 **DR. ZIEMER:** -- individual claims from  
17 Mallinckrodt?

18 **MR. ESPINOSA:** The individual claims from  
19 Mallinckrodt that -- you know, I understand  
20 that none of them are adjudicated yet, but is  
21 there any way that they could be brought to the  
22 Board for examples like Dr. Melius is asking  
23 about to --

24 **MS. HOMOKI-TITUS:** I don't think the problem is  
25 the privacy information. I think the problem

1 is that you're not an appeals board and it  
2 would turn you into an appeals board. You're  
3 an advisory board.

4 **MR. ESPINOSA:** Okay, understood.

5 **MS. HOMOKI-TITUS:** So if you make comments on  
6 an unadjudicated case, it becomes part of the  
7 record. DOL hasn't dealt with it, so it's not  
8 really the privacy that we're protecting 'cause  
9 we would --

10 **MR. ESPINOSA:** Understood.

11 **MS. HOMOKI-TITUS:** -- protect that anyway.

12 **DR. ZIEMER:** Okay. Jim?

13 **DR. MELIUS:** I think we should come back to  
14 that issue later 'cause I think we need to  
15 resolve how we're going to review SEC  
16 evaluations, and I -- I respectfully disagree  
17 with sort of these I think are overly-broad  
18 conclusions that I -- terms of what we're  
19 asking for and what could be done to satisfy  
20 that. However, I think that we still have to  
21 wrestle with issues related to our contractor  
22 doing SEC evaluation -- evaluations, I believe  
23 they're called, and I think that -- best be  
24 done in -- in that context. And whether we set  
25 up a workgroup or work with a subcommittee to

1           resolve this, I -- I just think it's imperative  
2           that we come up with a better way of working --  
3           of eval-- for NIOSH to evaluate SEC petitions  
4           and -- in order for the Board to be able to  
5           deal with these in a -- a better fashion and a  
6           more efficient process, but I think we can put  
7           that off for here.

8           In respect to Wanda's comments, I think there's  
9           one exception, at least in my mind, that's not  
10          been resolved yet in terms of the --  
11          Mallinckrodt, and that is the Building 6  
12          workers and that -- I believe that a resolution  
13          of the SC&A comments on the site profile would  
14          also allow us -- at least it would allow me to  
15          be more comfortable about making a decision  
16          about the S-- about the Building 6 workers and  
17          whether there's adequate information available  
18          to be able to do individual dose  
19          reconstructions on them.

20          Therefore, I would prefer that we postpone a  
21          decision on the Mallinckrodt petition until we  
22          have resolved that particular issue. I don't  
23          believe it's possible to do that at this  
24          meeting. I think we do need time for NIOSH to  
25          evaluate the SC&A report. And frankly, I think

1 we need to give time for the petitioners to  
2 evaluate the SC&A report in order to be fair to  
3 them.

4 **DR. ZIEMER:** Jim, could I ask you for clarity -  
5 - in your -- your comments about the Building 6  
6 workers, are you viewing them, for example, in  
7 the manner in which I talked about earlier, as  
8 a possible sub-set of this cohort that might  
9 have eligibility status on its own right?

10 **DR. MELIUS:** Correct.

11 **DR. ZIEMER:** I this case identified in a much  
12 more clear way than say raffinate workers, per  
13 se.

14 **DR. MELIUS:** Yeah, I'm using Building 6 as a --

15 **DR. ZIEMER:** Building 6 --

16 **DR. MELIUS:** -- as a way to refer -- I guess --  
17 whether you call it a sub-class, I'm not sure  
18 what the right terminology is, but certainly  
19 something the petitioners have raised. I -- at  
20 least I personally still have doubts about the  
21 adequacy -- the information for them. Again, I  
22 believe that once NIOSH has had a chance to  
23 comment, when there's been some resolution on  
24 the SC&A evaluation of the site profile, I  
25 believe we'll be able to come to a conclusion

1 on that.

2 **DR. ZIEMER:** Okay. And then Denise again.

3 **MS. BROCK:** Yes, thank you. I really

4 appreciate that, Dr. Melius, and I would

5 appreciate the time to do that because, as we

6 said, NIOSH nor myself has actually had the

7 opportunity to actually take all of that in.

8 And for the record and for clarification, I

9 want to make sure that I understand. The

10 halting of the decision will not halt the dose

11 reconstructions, and I -- I understand that you

12 call that the low-hanging fruit. I'm assuming

13 that's your underestimate --

14 **DR. ZIEMER:** Well, I don't know if it's still

15 low-hanging fruit. The low-hanging fruit may

16 be gone. They're reaching --

17 **MS. BROCK:** Picked through all those.

18 **DR. ZIEMER:** -- very high these days.

19 **MR. ELLIOTT:** Let me answer that. Yes, it's

20 been pointed out to me that I need to make a

21 point of clarification here. Up until this

22 point in time, from I believe back before

23 February even when we first started the

24 evaluation report on this particular class, we

25 suspended work on Mallinckrodt claims from

1 Destrehan Street only, unless there was a  
2 situation in a particular claim that allowed us  
3 to move forward like one of the efficiency  
4 measures would afford us. So just to make sure  
5 that everybody's working on the same page here,  
6 we have not been doing Mallinckrodt claims  
7 unless they were of the sort or of the type of  
8 claim that could be conducted under the  
9 efficiency process.

10 However, depending upon what the outcome of  
11 this Board's deliberation is today, we're ready  
12 to proceed --

13 **DR. ZIEMER:** Thank you.

14 **MR. ELLIOTT:** -- with dose reconstruction.

15 **DR. MELIUS:** Can I just follow up on that?

16 **DR. ZIEMER:** Sure, Jim and then Denise.

17 **DR. MELIUS:** I think this clarifies Denise's  
18 question, I hope. Say this committee or a  
19 subcommittee, I'm not sure (unintelligible)  
20 subcommittee of the Board, comes up with a list  
21 of whatever it is, six issues, key, priority  
22 issues from the SC&A evaluation of the site  
23 profile that need to be resolved, you need a  
24 chance to comment on those and try to resolve  
25 the issues with S-- SC&A. Work on those

1 particular issues relevant to individual dose  
2 reconstructions would be on hold for 30 days,  
3 until that meeting -- until that resolution  
4 took place.

5 Other aspects of those individual dose  
6 reconstructions you could have dose  
7 reconstructors working on, so those cases would  
8 be moving forward, except for those particular  
9 issues. Once those issues got resolved, then  
10 the -- the dose re-- individual dose  
11 reconstructions would be completed 'cause you'd  
12 have a, you know, pathway for doing that, so to  
13 speak, and -- and you'd be able to do it. So  
14 it wouldn't completely halt all individual dose  
15 reconstructions. You would be able to start  
16 forward -- you wouldn't be able to complete any  
17 that had -- where those issues were relevant to  
18 -- and -- and --

19 **MR. ELLIOTT:** You have accur--

20 **DR. MELIUS:** -- but you'd be making progress.

21 **MR. ELLIOTT:** You have accurately portrayed  
22 what I've been trying to communicate for  
23 several minutes here, but yes, we would -- we  
24 would proceed along those lines. What -- what  
25 has changed? Well, what has changed is we have

1 a set of comments that I'm very appreciative of  
2 from Sanford Cohen & Associates. We had a good  
3 discussion this morning. I wish you all would  
4 have been here because it was a good scientific  
5 dialogue that occurred. I think from that  
6 dialogue we recognized quickly what things do  
7 need to change and we're ready perhaps to make  
8 those changes.

9 The statute calls for individual dose  
10 reconstructions. In the -- in the sense of  
11 Congress, I believe they understood there was  
12 going to be a requirement here for individual  
13 dose reconstructions, given the data at hand or  
14 the lack of data at hand. And in this -- in  
15 this case at Mallinckrodt where we have  
16 specific claims that we could move forward  
17 given what we know now are the comments on the  
18 site profile and the issues that have been  
19 raised about that, we can move forward on those  
20 claims where we can. And those that -- claims  
21 that have remaining issues yet to be resolved,  
22 we'll have to hold those until we get those  
23 resolutions put to -- to bed.

24 **DR. ZIEMER:** Okay. Henry?

25 **DR. ANDERSON:** Yeah, I mean I would agree with

1 Jim that it would be nice to see how the  
2 package is put together for an individual. On  
3 the other hand, what I'd also like to hear, you  
4 know, in the four-month period, is yes, we've  
5 actually constructed these; these are off being  
6 reviewed by DOL as opposed to what they are,  
7 rather than well, we're able to get through ten  
8 of them and we're working on the other ones  
9 still and then --

10 **MR. ELLIOTT:** Well, we can certainly give you  
11 that level --

12 **DR. ANDERSON:** Yeah, I mean that would be --

13 **MR. ELLIOTT:** -- of information. We can't --

14 **DR. ANDERSON:** -- a minimum. I'd rather have  
15 so how did you address this -- you know, how  
16 did -- how did you reconstruct based on -- on a  
17 certain principle --

18 **MR. ELLIOTT:** We can present --

19 **DR. ANDERSON:** -- yeah.

20 **MR. ELLIOTT:** -- like Jim did this morning, we  
21 can present about issues and provide examples  
22 of how we've addressed those issues. We would  
23 send these -- the claims that we're working on,  
24 when I said --

25 **DR. ANDERSON:** Yeah.

1           **MR. ELLIOTT:** -- we'd hold some back 'cause we  
2           have to resolve issues, we would do that, but  
3           we would do that with the intent of working  
4           through those issues and moving those dose  
5           reconstructions out as soon as possible.

6           **DR. ANDERSON:** Yeah.

7           **MR. ELLIOTT:** The ones that we can move out,  
8           the dose reconstructions that we complete given  
9           the information at hand, we would do so. We  
10          would turn those reconstructed doses over to  
11          the claimant and get their input on them so  
12          that they'd -- they're going to know what --

13          **DR. ANDERSON:** Yeah.

14          **MR. ELLIOTT:** -- where they fall. We'll go  
15          through the regular process that we've gone  
16          through with all of our other dose  
17          reconstructions, and then we would --

18          **DR. ANDERSON:** Yeah.

19          **MR. ELLIOTT:** -- we would be ready to come into  
20          the Board room and talk specifically about how  
21          we've handled issues.

22          **DR. ANDERSON:** Yeah.

23          **DR. ZIEMER:** Okay.

24          **DR. ANDERSON:** That's -- that's really -- what  
25          I really want is -- is to get these -- these

1 moving, that if -- one, that we were to deny  
2 this and then a year from now hear that of  
3 these 107, 105 haven't been addressed yet, and  
4 then we're in a much tighter bind than if they  
5 say they're actually able to do it and they've  
6 done it and -- and here's the process. I'd be  
7 much more comfortable then at that point of  
8 saying well, clearly they can do it rather than  
9 we think we can do it.

10 **MS. MUNN:** But Henry, they've already told us  
11 they can do it. They've said we can do it.  
12 There are issues with respect to the TBD that  
13 need to be worked out, but they've already said  
14 they can do these cases. And if they can do  
15 these cases, then there is no reason for a  
16 Special Exposure Cohort.

17 **DR. ANDERSON:** The way I look at it is I can  
18 tell you I can run a four-minute mile. And you  
19 know, you say boy, I don't know if you can run  
20 a four-minute mile. And unless I --

21 **MS. MUNN:** Oh, yeah, I know, you can run a  
22 four-minute mile.

23 **DR. ANDERSON:** Well, I used to run a four-  
24 minute mile. That was a long time --

25 **MS. MUNN:** You're just saying that --

1           **DR. ANDERSON:** Part -- part of the issue is  
2           these are very complex things. And to this  
3           date and after five years, apparently none have  
4           been done. So they can't be an easy task. I  
5           mean 8,000 have been completed elsewhere and  
6           these have not. So not one has gone through  
7           the complete process. So you can say you can  
8           get to the -- we can fly to Mars, but if you  
9           say we want to do it within three years, then  
10          we have to look at the other options. That's -  
11          -

12          **MS. MUNN:** But a part --

13          **DR. ANDERSON:** -- (unintelligible) plan.

14          **MS. MUNN:** Part of the reason they haven't been  
15          done is because we said wait until we look at  
16          this other stuff. You know, we're -- we're a  
17          part of the reason why some of these haven't  
18          been done.

19          **DR. ANDERSON:** I mean I would disagree. I  
20          would say we heard from Jim that there's a lot  
21          of individual data and that in fact the site  
22          profiles may not be that relevant or useful or  
23          needed in order to complete individual dose  
24          reconstructions. And you know, I can  
25          understand if people moved to another facility

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**MS. MUNN:** Well, true.

**DR. ANDERSON:** -- that's another issue. But if you can do the dose reconstruction, why hasn't it occurred? And I --

**DR. ZIEMER:** Okay --

**DR. ANDERSON:** -- you know, you can say it's because of the --

**DR. ZIEMER:** Right.

**DR. ANDERSON:** -- the site profile --

**DR. ZIEMER:** Henry's --

**DR. ANDERSON:** -- but I just don't think, you know, we can wait --

**DR. ZIEMER:** Henry is --

**MS. MUNN:** He asked for more.

**DR. ZIEMER:** Yes, it's back to your -- the old adage about the proof is in the pudding. Right? Denise, you're --

**MS. BROCK:** That would be my comment, exactly. And I'm not saying that anybody's lying or being dishonest. I'm just saying that there are differences of opinions. SC&A was hired to audit this site profile. By Larry's own admission, a lot of these dose reconstructions have been put on hold. I'll tell you what's

1           been dose reconstructed. Lung cancers because  
2           those are easy pays. You can do an  
3           underestimate and those are going to hit. You  
4           do an overestimate on a prostate cancer, it's  
5           done. But other things like non-metabolics and  
6           other cancers that are still sitting there are  
7           still sitting there, and if they couldn't be  
8           done yesterday I don't know why they're going  
9           to be done next week. And what happens when we  
10          come back and -- and I'm still confused on the  
11          month/three month thing. When we come back and  
12          those aren't done or if there are some that are  
13          able to be done now, is there a maximizing dose  
14          being used? And what happens when you have  
15          somebody being denied? I'm just -- I'm  
16          perplexed at this and I agree with Dr.  
17          Anderson.

18          **DR. ZIEMER:** Thank you. Larry.

19          **MR. ELLIOTT:** The proof is in the pudding. It  
20          is. And I could run a four-minute mile when I  
21          was 21, but I can't do it today. And this is -  
22          -

23          **DR. ZIEMER:** Well, I can claim the same thing,  
24          but who's going to --

25          **MR. ELLIOTT:** This is a -- oh, I have a --

1           **MR. GRIFFON:** There's a lot --

2           **MR. ELLIOTT:** -- ribbon that says --

3           **MR. GRIFFON:** There's an awful lot of Jim Ryuns  
4 around this committee.

5           **MR. ELLIOTT:** I have a ribbon that says I did  
6 it, but --

7           **DR. MELIUS:** We're going to have a road race  
8 later tonight. However, the --

9           **MR. ELLIOTT:** As long as Griffon's not in on  
10 it.

11          **DR. ZIEMER:** Okay, I think we're getting punchy  
12 here, let's --

13          **DR. MELIUS:** The results can't be released  
14 until DOL adjudicates those, so --

15          **DR. ZIEMER:** Okay, go ahead, Larry.

16          **MR. ELLIOTT:** Two things -- two things happened  
17 that had us put Mallinckrodt claims on hold  
18 that were not reconstructible -- or not easily  
19 reconstructible for us, they're -- where we --  
20 where we couldn't use our efficiency  
21 approaches. Those two things were we were  
22 awaiting this revision -- this revision of the  
23 site profile to be reviewed and we wanted those  
24 comments so that we could move forward and not  
25 have to redo a bunch of claims.

1           The second thing was this petition. We didn't  
2           want to go through a bunch of dose  
3           reconstructions if this petition was found to  
4           be approved for a class. So we've been  
5           anxiously awaiting for this --

6           **DR. ZIEMER:** Okay.

7           **MR. ELLIOTT:** -- over three meetings wanting to  
8           know which way it's going to fall so that we  
9           can move forward on these claims.

10          **DR. ZIEMER:** Right.

11          **MR. ELLIOTT:** As you know, I have limited  
12          resources and staff to put to bear on these  
13          problems. And unfortunately, until we have a  
14          clear understanding of what's going to happen  
15          with Mallinckrodt Destrehan Street, we devoted  
16          our -- and focused our dose reconstruction  
17          attentions to other sites, except when we got a  
18          claim in that could be done from Mallinckrodt  
19          under an overestimating or an underestimating  
20          approach. Denise is totally accurate.

21          **DR. ZIEMER:** Right.

22          **MR. ELLIOTT:** The only ones we've completed in  
23          those 75 -- you can -- you can look at them,  
24          they're all lung or they're all prostate.

25          **DR. ZIEMER:** Thank you. Now I know that Wanda

1 is anxious to make a motion, and Jim is  
2 wiggling around like he wants to make a motion,  
3 but I think I'm going to have us all make a  
4 motion here. We're going to take a break and  
5 then we'll have time for motions.

6 **MS. MUNN:** Very good.

7 **DR. MELIUS:** It's also why I was wiggling  
8 around.

9 **DR. ZIEMER:** And Mike, we'll be back in about  
10 15 minutes.

11 **MR. GIBSON:** Okay, I'll call back.

12 (Whereupon, a recess was taken from 3:10 p.m.  
13 to 3:30 p.m.)

14 **DR. ZIEMER:** Thank you for your patience,  
15 everyone. We're ready to reconvene. I want to  
16 check and see if Mike Gibson is still with us.  
17 Mike, are you on the line?

18 (No response)

19 **DR. ZIEMER:** Let's see -- Cori, can you check  
20 to see if Mike is on the --

21 **MS. HOMER:** He's not on the line. We're trying  
22 to reach him.

23 **DR. ZIEMER:** Okay, thank you. Mr. Owens has  
24 requested that we be reminded of the  
25 requirements of the SEC legislation, and Dr.

1           Wade is going to read the appropriate parts  
2           from the *Federal Register* for us.

3           **DR. WADE:** Right, I'm reading from 42 CFR Part  
4           83, Procedures for Designating Classes of  
5           Employees as Members of the Special Exposure  
6           Cohort Under the Energy Employees Occupational  
7           Illness Compensation Program Act of 2000, the  
8           Final Rule. I'm reading 83.15, How the Board  
9           will Consider and Advise the Secretary on a  
10          Petition. I'm assuming that's what you would  
11          like read.

12          (Reading) 83.15(a), NIOSH will publish a notice  
13          in the *Federal Register* providing notice of a  
14          Board meeting at which a petition will be  
15          considered and summarizing the petition to be  
16          considered by the Board at the meeting, and the  
17          findings of NIOSH from evaluating the petition.  
18          (b), the Board will consider the petition and  
19          the NIOSH evaluation report at the meeting, to  
20          which petitioners will be invited to present  
21          views and information on the petition and the  
22          NIOSH evaluation findings.

23          In considering the petition both NIOSH and  
24          members of the Board will take all steps  
25          necessary to prevent the disclosure of

1 information of a personal nature concerning the  
2 petitioners or others where disclosure would  
3 constitute a clearly unwarranted invasion of  
4 personal privacy.

5 (c), in considering the petition the Board may  
6 obtain and consider additional information not  
7 addressed in the petition or the initial NIOSH  
8 evaluation report.

9 (d), NIOSH may decide to further evaluate the  
10 petition upon the request of the Board. If  
11 NIOSH conducts further evaluation, it will  
12 report new findings to the Board and the  
13 petitioners.

14 (e), upon the completion of the NIOSH  
15 evaluations and the deliberations of the Board  
16 concerning a petition, the Board will develop  
17 and transmit to the Secretary a report  
18 containing its recommendations. The Board's  
19 report will include the following: (1), the  
20 identification and inclusion of the relevant  
21 petition; (2), the definition of the class of  
22 employees covered by the recommendation; (3), a  
23 recommendation as to whether or not the  
24 Secretary should designate the class as an  
25 addition to the Cohort; and (4), the relevant

1 criteria under 83.13(c), and findings and  
2 information upon which the recommendation is  
3 based, including NIOSH's evaluation reports,  
4 the information provided by the petitioners and  
5 any other information considered by the Board,  
6 and the deliberations of the Board.

7 Let me quickly read from 83.13(c), since it's  
8 referred and I think it's relevant to what you  
9 are asking.

10 And now I'm reading from 83.13(c), (reading)  
11 NIOSH will evaluate records and information  
12 collected to make the following determinations:  
13 (1), it is feasible to estimate the level of  
14 radiation doses of individual members of the  
15 class with sufficient accuracy? (Punctuation  
16 read) (i), radiation doses can be estimated  
17 with sufficient accuracy if NIOSH has  
18 established that it has access to sufficient  
19 information to establish the maximum radiation  
20 dose for every type of cancer for which  
21 radiation doses are reconstructed that could  
22 have been occurred (sic) in plausible  
23 circumstances by any member of the class, or if  
24 NIOSH has established that it has access to  
25 sufficient information to estimate radiation

1 doses of members of the class more precisely  
2 than an estimate of the maximum radiation dose.  
3 NIOSH must also determine that it has  
4 information regarding monitoring source, source  
5 term or process from the site where the  
6 employees worked to serve as the basis for a  
7 dose reconstruction. This basis requirement  
8 does not limit NIOSH to using only or  
9 preliminarily (sic) information from the site  
10 where employees worked, but a dose  
11 reconstruction must, as a starting point, be  
12 based on some information from the site where  
13 the employees worked.

14 I think that covers the relevant portions now.

15 **DR. ZIEMER:** Thank you very much. Counsel has  
16 some additional comments here.

17 **MS. HOMOKI-TITUS:** Did that say "preliminarily"  
18 or "primarily"?

19 **DR. ZIEMER:** I think it was "primarily," but he  
20 may have said "preliminarily."

21 **DR. WADE:** It says "primarily." I misspoke.  
22 Thank you. Primarily.

23 **MS. HOMOKI-TITUS:** I know that too well.

24 **DR. ZIEMER:** A question, Denise?

25 **MS. BROCK:** Yes, just one more, sorry. At the

1 30-day meeting or any other proceedings  
2 relevant to Mallinckrodt, as a petitioner I  
3 would like for the record to be noted that I'd  
4 like to be notified so that I can attend these  
5 meetings.

6 **DR. ZIEMER:** What meetings?

7 **DR. WADE:** Any other meetings that take place  
8 regarding the SEC petition.

9 **DR. ZIEMER:** Thank you. Thank you. The Chair  
10 now recognizes Wanda Munn for purposes of  
11 making a motion.

12 **MS. MUNN:** Based on the information that we  
13 have received during this meeting, and upon the  
14 assurance of NIOSH that it is feasible for them  
15 to complete dose reconstructions on employees  
16 of the Mallinckrodt Chemical -- what is their  
17 correct name -- Mallinckrodt facility --  
18 Mallinckrodt Works, yes -- from the -- let me  
19 start over again.

20 Based on the information that we have received  
21 in this meeting, and on the assurance of NIOSH  
22 that it is possible for them to complete  
23 adequately a dose reconstruction for workers of  
24 the Mallinckrodt -- of the Uranium Division of  
25 Mallinckrodt Chemical Works from the years 1949

1 through 1957, I move that the SEC petition  
2 00012-1 and 2, sections 2, covering all DOE,  
3 DOE contractors or subcontractors, or AWE  
4 facilities who worked in the Uranium Division  
5 at the Mallinckrodt Destrehan Street facility  
6 during the period from 1949 through 1957 be  
7 denied.

8 **DR. ZIEMER:** Okay, you've heard the motion.  
9 The Chair's going to interpret that you have  
10 meant that we would recommend to the Secretary  
11 that it be --

12 **MS. MUNN:** Yes.

13 **DR. ZIEMER:** -- denied.

14 **MS. MUNN:** That was my intent.

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

16 **MR. PRESLEY:** Second.

17 **DR. ZIEMER:** The motion has been seconded. It  
18 is now on the floor for discussion.

19 **MR. GIBSON:** (By telephone) Dr. Ziemer, could  
20 I ask who seconded the motion?

21 **DR. ZIEMER:** Seconded by Mr. Presley.

22 **MR. GIBSON:** Okay.

23 **DR. ZIEMER:** Jim Melius.

24 **DR. MELIUS:** Yeah, based on my earlier  
25 comments, I would move to table the motion.

1           **DR. ZIEMER:** There's a motion to table. Motion  
2 to table is not discussable (sic). Is there a  
3 second, however?

4           **MR. GIBSON:** I would --

5           **DR. ZIEMER:** It's seconded.

6           **MR. GIBSON:** I would second that.

7           **DR. ZIEMER:** It's been seconded. We must vote  
8 immediately on tabling. Tabling requires a  
9 two-thirds vote. All those in favor of tabling  
10 -- and let me -- let me -- this is information.  
11 The motion's not debatable. If the motion  
12 carries, it has the effect of postponing until  
13 the Board removes it from the table, which may  
14 be at a subsequent meeting. It's not been  
15 designated. If the motion carries, the Board -  
16 - or the Chair will entertain a subsequent  
17 motion that would contain, hopefully,  
18 instructions on what NIOSH and the contractor  
19 are to do in the meantime, and that motion  
20 could come later in the meeting.

21 All those who favor tabling this motion, please  
22 raise your right hand. Now I'll call for a  
23 voice vote from Mike -- one, two, three, four,  
24 five, six, seven, eight -- and Mike?

25           **MR. GIBSON:** Table the motion. I vote to table

1 the motion.

2 **DR. ZIEMER:** Vote to table. Then the Chair  
3 declares that the motion has carried, and the -  
4 - the motion to recommend that the petition be  
5 denied has been tabled, which has the effect of  
6 postponing action until the -- until the item  
7 is removed from the table.

8 Okay. In essence, that then completes the  
9 Mallinckrodt action for today. However, the  
10 Chair indicated that we would entertain a  
11 motion that would have some instructions as to  
12 what our contractor and what NIOSH should do.  
13 And I might add that it's not necessary that we  
14 make this motion at this moment if -- if the  
15 Board wishes to give some thought, or even have  
16 the subcommittee itemize some priority items of  
17 the type we said -- talked about before. Now  
18 Jim.

19 **DR. MELIUS:** Yeah, I'd like to first start,  
20 rather than with a motion, with some discussion  
21 as to how we can -- can best proceed, and to  
22 proceed as efficiently as possible I think is  
23 important for the petitioners and also I think  
24 to be cognizant of the amount of time and  
25 resources that have already been spent in -- on

1           -- on this issue and try to resolve it as  
2 readily as possible. And so I -- so I guess  
3 the question is what is -- the first thing I  
4 think we need to do is specify the particular -  
5 - as much as we can, based on what we've heard  
6 from SC&A and from NIOSH on what -- what  
7 particular -- how -- prioritizing SC&A's  
8 comments on the site profile so that NIOSH pays  
9 particular attention to those. And I guess the  
10 question I would raise to the Board is do we  
11 want to do that as part of our subcommittee's  
12 function, since the subcommittee initially  
13 started that this morning and I think that may  
14 be best, or we can do it as the full Board.  
15 But I'm comfortable either way, so -- you know,  
16 frankly, I wasn't at the subcommittee meeting,  
17 so I would -- I had missed out on some of that  
18 discussion, so --

19       **DR. ZIEMER:** Yes, and let me point out that  
20 during the subcommittee meeting there were a  
21 number of items identified -- I think five  
22 perhaps -- that were perhaps the priority  
23 items, but those would need the blessing of the  
24 full Board at some point. But -- and we do  
25 have scheduled a subcommittee meeting this

1 evening, and the Chair's going to propose that  
2 -- that we move to the subcommittee meeting  
3 fairly soon, like by 4:00 o'clock or something,  
4 because we had allowed until 5:00 for work on  
5 the petition, but since we're now ahead of  
6 schedule we could have the subcommittee work on  
7 that yet this afternoon and -- and formulate a  
8 recommendation to the full Board for action  
9 tomorrow.

10 **DR. MELIUS:** And then I would propose, based on  
11 that, report and action from the subcommittee  
12 that we could then introduce a motion tomorrow  
13 as to what needs to be done to resolve this  
14 issue, what would the next steps be and do that  
15 relevant to the petition, also.

16 **DR. ZIEMER:** We may also wish to talk about  
17 when -- when we might meet again. It might be  
18 important for us to have a meeting soon to  
19 learn the status of the 30-day work, if that's  
20 what -- if that's the direction we go. We may  
21 not be ready with the -- the report on how dose  
22 reconstructions are going, but at least -- may-  
23 - maybe a meeting sooner than we would  
24 otherwise have met.

25 **DR. WADE:** Right. I mean in my role as DFO,

1 given what I've heard this morning, I -- I  
2 would think we need to be prepared to meet in  
3 August, very soon after the 30-day clock would  
4 tick down --

5 **DR. ZIEMER:** Mid to late August, perhaps.

6 **DR. WADE:** -- to address this issue. So I'd  
7 ask you to begin to think about that. I do  
8 think it's important that we deal with this in  
9 a -- in a timely way.

10 **DR. MELIUS:** Yeah, could -- could I request  
11 that the subcommittee then, as part of  
12 developing this list of priority issues, then  
13 have discussions with NIOSH and SC&A so we're --  
14 -- we're sure that it is feasible to resolve it,  
15 whether it's 30 days or 40 days or whatever, so  
16 that we don't -- I think it would be a mistake  
17 to have a premature -- a meeting before things  
18 are adequately resolved, but at the same time I  
19 don't think we want to delay --

20 **DR. ZIEMER:** I think it would be appropriate to  
21 do that, and if -- if perhaps someone from SC&A  
22 and from NIOSH could join us for the  
23 subcommittee meeting shortly and -- and we can  
24 identify those things and bring them firmly to  
25 -- to the Board in the morning for formal

1           action, and -- and perhaps a vote of  
2           confidence, as it were, in the action.

3           **DR. MELIUS:**   Okay.

4           **MR. GIBSON:**   Dr. Ziemer?

5           **DR. ZIEMER:**   Yes, Mike?

6           **MR. GIBSON:**   I would like to also add and --  
7           and again, I'm a little behind the 8-ball here  
8           since I wasn't able to attend, but I think we  
9           still have this issue on the table of dealing  
10          with the adequacy, the timeliness and the  
11          thoroughness of the information that is given  
12          to NIOSH to make these dose reconstructions  
13          that we -- we struggled with that caused a  
14          problem with the Iowa petition.  And I think  
15          the subcommittee or the working group needs to  
16          put that on the agenda, also.

17          **DR. ZIEMER:**   Yes.

18          **MR. GIBSON:**   And secondly, if I could, I would  
19          like to make a motion that it's not NIOSH's  
20          fault, it's not SCA's fault, it's not our  
21          fault, but I would also like to make a motion --  
22          -- just as we did in Idaho (sic) -- to draft a  
23          letter of regret to the petitioners and  
24          survivors of St. Louis plant for delaying this  
25          process even further.

1           **DR. ZIEMER:** I will interpret that as a motion.  
2           Are you asking that that be expressed verbally  
3           or that there be a formal letter?

4           **MR. GIBSON:** Yes, I'm asking for a motion from  
5           the Board. I'm asking for a motion and that  
6           the Board would agree to that, same as we did -  
7           - as in Idaho -- or, I'm sorry, Iowa.

8           **DR. ZIEMER:** Iowa? The motion is that there be  
9           a letter from the Board, I believe, to the  
10          petitioners --

11          **MR. GIBSON:** And survivors.

12          **DR. ZIEMER:** -- expressing -- and their -- and  
13          the survivors, expressing our regrets that this  
14          delay has had to occur. I believe that is the  
15          motion. Is there a second to that motion?

16          **MR. OWENS:** I second it, Dr. Ziemer.

17          **DR. ZIEMER:** Yes, Leon Owens has seconded the  
18          motion. Is there discussion on this motion?  
19          Wanda?

20          **MS. MUNN:** I hesitate to do that. I have no  
21          compunction at all about expressing verbally  
22          and in our minutes our -- our concern over  
23          further delay. But I don't know what this  
24          Board could have done to expedite this issue  
25          any further than we have, other than to ignore

1           the precision that we've asked for from our --  
2           from our contractors and from our agencies. I  
3           don't know what else we could have done and I  
4           certainly hesitate -- as a matter of fact, I  
5           would be greatly averse to any move to back off  
6           from our request for thoroughness, and so  
7           therefore I would not support this motion.

8           **DR. ZIEMER:** Thank you. Leon?

9           **MR. GIBSON:** Could I --

10          **MR. OWENS:** I think --

11          **DR. ZIEMER:** Leon, Mike -- Leon is --

12          **MR. GIBSON:** Okay.

13          **MR. OWENS:** I don't think it is a retreat from  
14          any position that the Board has taken, but I do  
15          think that this Board -- since we serve at the  
16          pleasure of the President, and since this Board  
17          was created by the Congress, and since we have  
18          workers who have given their lives for our  
19          freedoms, I think the least that we can do is  
20          to send a letter of regret, as was done before.  
21          These folks that have been sitting here for the  
22          last couple of days, some of them are just as  
23          unfamiliar with this process as if we were to  
24          have a child in here. And they don't fully  
25          understand what's going on. The only thing

1           that they know is that they have been waiting  
2           for years, watching their loved ones die, to  
3           have claims paid. And so I do not feel that it  
4           is in any way an imposition for us to send a  
5           letter of regret.

6           **DR. ZIEMER:** Okay, so you speak for the motion.  
7           Others wish to speak for or against the motion?

8           **MR. GIBSON:** Dr. Ziemer, I'd like --

9           **DR. ZIEMER:** Yes, Mike, thank you.

10          **MR. GIBSON:** -- to respond to my -- with  
11          respect, to my colleague, Wanda. Again, I'm  
12          not blaming anyone, any organization, but you  
13          know, I just -- I think Leon pretty much  
14          represented what I said. We serve at the  
15          pleasure of the President. We have a duty and  
16          this is a cumbersome process. And given the  
17          facts that the issues that have taken place  
18          that are delaying this -- just like Leon said,  
19          there are people that are dying, there are  
20          people that need medical bills paid, and --  
21          again, in Iowa my first motion was a letter of  
22          apology, and I chose -- you know, I chose a  
23          friendly motion to amend that to regret, and  
24          that's why I think we deserve the same for  
25          these people at Mallinckrodt.

1           **DR. ZIEMER:** Okay, thank you. Anyone else wish  
2 to speak? Anyone speaking against the motion?  
3 Anyone speaking for the motion?

4           **MS. MUNN:** I have one more comment.

5           **DR. ZIEMER:** Yes, Wanda.

6           **MS. MUNN:** I am in full accord with the intent  
7 and the sentiment involved here. But I would  
8 respectfully point out that all of the people  
9 who are ill and dying are not former employees  
10 of Mallinckrodt. We have multiple sites with  
11 multiple people who have similar kinds of  
12 concerns and similar kinds of pain. If we are  
13 to apologize, if we are to express our  
14 concerns, then it appears that we owe all  
15 people that apology, not simply the group with  
16 whom we are dealing right now. That's an  
17 unfortunate reality of what we're doing. But  
18 again, I repeat, it's a result of our desire  
19 for efficiency and our desire for as complete  
20 information as we can get.

21           **DR. ZIEMER:** Okay. I think Leon was next and  
22 then Rich.

23           **MR. OWENS:** I think as we go to the different  
24 site and as we're faced with circumstances  
25 similar to what we have now, the Mallinckrodt

1 workers have been waiting a long time for this  
2 Board to consider their SEC petition and there  
3 have been numerous delays. And I think  
4 everyone recognizes that those delays have not  
5 always been on the part of the Board or on  
6 NIOSH or on SC&A. So if we are faced with  
7 similar circumstances at these other sites, I  
8 would think that this Board would also consider  
9 a similar remedy, to send a letter of regret to  
10 those individuals.

11 **DR. ZIEMER:** Thank you. Richard?

12 **MR. ESPINOSA:** I'm in agreement with Leon.  
13 This is our third meeting discussing the SEC as  
14 well as the sixth month. I am in full  
15 agreement with the letter of regret.

16 **DR. ZIEMER:** Okay. Any others? Mike --

17 **MR. GIBSON:** Dr. Ziemer?

18 **DR. ZIEMER:** -- another comment? Yes, go  
19 ahead.

20 **MR. GIBSON:** If -- if my colleague, Ms. Munn,  
21 would agree, I would take her comments as a  
22 friendly motion that we make it a blanket  
23 statement to -- to every site, to -- to all of  
24 these petitions we deal with just -- I mean  
25 just to let them know that we are -- we have a

1           job to do, but we are somewhat limited by the  
2           whole political process. And if -- if she  
3           would be willing, I -- I would take a friendly  
4           amendment just to modify the motion to make it  
5           a blanket letter to each and every site or  
6           petition. Not saying it's, you know, right or  
7           wrong or every petition's going to be granted,  
8           but just that, you know, we regret we have to  
9           delay our decision sometimes based on the  
10          political process and not -- not blaming any  
11          governmental institution.

12         **DR. ZIEMER:** Thank you for that sentiment,  
13         Mike. I think the Chair is going to interpret  
14         that -- and I have this prerogative -- as a  
15         non-friendly amendment, only in the sense that  
16         I'm somewhat reluctant to think about writing  
17         to -- how many sites are we talking about, 900  
18         sites or something. Yes, there are, or more --  
19         I forget, but the number's not critical, Larry.  
20         That's -- there's more than a few sites. I --  
21         I would -- I would hope -- you know, if this  
22         situation occurs, as Leon says, in the future,  
23         we can handle those as they come. I -- I'd  
24         certainly be more comfortable if we simply  
25         acted on this motion for this situation and

1 handle the others as -- if that's agreeable  
2 with you, Mike, I think we'll proceed on that  
3 basis --

4 **MR. GIBSON:** Well --

5 **DR. ZIEMER:** -- if I understand your sentiment.

6 **MR. GIBSON:** -- I'm sorry, I meant as they come  
7 up.

8 **DR. ZIEMER:** Yeah, I -- yeah.

9 **MR. GIBSON:** I didn't --

10 **DR. ZIEMER:** Oh, as they come up, yes. Henry,  
11 your comment?

12 **DR. ANDERSON:** I was only going to say I -- I  
13 think some type of communication would be  
14 useful because obviously the people who are  
15 here have heard it, but there are others that -  
16 - I'm not sure I would send a physical letter  
17 to all of them, but I think to put a letter up  
18 on the web site or something so people --

19 **DR. ZIEMER:** Well --

20 **DR. ANDERSON:** -- would have an explanation --

21 **DR. ZIEMER:** -- if the motion passes, the Chair  
22 will prepare a formal letter similar to what we  
23 did in Iowa and --

24 **DR. ANDERSON:** Yeah.

25 **DR. ZIEMER:** -- it would -- it'd basically go

1 to Denise and I think --

2 **DR. ANDERSON:** Yeah.

3 **DR. ZIEMER:** -- she would share that with --

4 **DR. ANDERSON:** Okay, that's --

5 **DR. ZIEMER:** -- with her colleagues. That  
6 would be what would happen.

7 Are you ready to vote on the motion? Okay, all  
8 in favor, say -- raise your right hand, let's  
9 just get a hand count -- one, two, three --  
10 six.

11 And those opposed to the motion? And then the  
12 motion carries. So ordered and we will -- and  
13 Mike, that -- with your permission, I will word  
14 that somewhat analogous to what we did for the  
15 Iowa situation.

16 **MR. GIBSON:** Okay. Well, I would be willing to  
17 -- to help you with that if -- if you -- if  
18 necessary, but -- and for the record,  
19 obviously, I --

20 **DR. ZIEMER:** Well, you drafted the other one.  
21 I'll use that as a template, with --

22 **MR. GIBSON:** Okay.

23 **DR. ZIEMER:** Thank you. I'm proposing that the  
24 issue called policy issues related to SEC  
25 petitions be postponed until tomorrow so that

1 we can allow the working group to get underway  
2 here shortly. Is that agreeable? And that --  
3 that will be a brief item tomorrow on our  
4 agenda.

5 **MR. ESPINOSA:** (Unintelligible) literature?

6 **MR. GRIFFON:** Can you at least --

7 **DR. MELIUS:** Could someone tell us what it is?

8 **MR. GRIFFON:** Yeah.

9 **DR. ZIEMER:** Well, I'm going to ask Lew to tell  
10 you what that is.

11 **DR. WADE:** Two things I wanted to do under  
12 that. One was to -- you had asked for  
13 information concerning the classified  
14 information issue, and -- and OGC was going to  
15 speak to that.

16 I also wanted to at least put on the table this  
17 issue of what we do about the non-covered  
18 cancers when we -- when we grant an SEC. I  
19 don't think we -- we have to resolve that, but  
20 I think we need to have that issue in front of  
21 us and have some discussion on that. We have  
22 time tomorrow afternoon for Board deliberation.  
23 I just wanted to frame the issue, which I've  
24 done, and I think we need to talk about it  
25 tomorrow afternoon.

1           **DR. MELIUS:** Okay. Mr. Chairman -- and would  
2           it be helpful, before the subcommittee meets,  
3           for us to try to work out a meeting time and --  
4           for this next meeting that we're talking about?  
5           I mean I'm not sure which is -- you know, sort  
6           of which is better --

7           **DR. ZIEMER:** I would suggest we do that  
8           tomorrow, but if you -- if you prefer to do it  
9           today, we can --

10          **DR. MELIUS:** Well, I think we're all here. I'm  
11          just a little hesitant that -- that we start to  
12          lose people tomorrow afternoon and -- and also  
13          it might be sort of easier to...

14          **DR. WADE:** Well, let's take a shot -- last week  
15          in August, last full week in August, week that  
16          starts on the 22nd?

17          **DR. ZIEMER:** Okay, we'll go right around the  
18          table and check calendars here. Last week of  
19          August?

20          **DR. WADE:** Week that starts on the 22nd. I  
21          would propose the middle of that week, let's  
22          say the 23rd/24th.

23          **DR. ZIEMER:** Oh, the week that starts the 22nd?

24          **DR. WADE:** Right.

25          **DR. MELIUS:** That's fine with me.

1           **DR. ZIEMER:** I believe -- let me ask -- there's  
2           a counterpart group of ours that deals with the  
3           veterans, and Melanie, I'm going to ask you to  
4           remind me when your group meets, because I'm  
5           supposed to be there for that meeting. Is it  
6           the 24th of August?

7           **MS. HEISTER:** No, that is the 17th and 18th.

8           **DR. ZIEMER:** 17th of August. All right -- yes.  
9           I thought I hadn't written it down, it is here.  
10          Okay.

11          **DR. WADE:** So the 23rd and 24th, just let's go  
12          around. Wanda?

13          **MS. MUNN:** Yes.

14          **DR. WADE:** Leon?

15          **MR. OWENS:** Yes, sir.

16          **DR. WADE:** Roy?

17          **DR. DEHART:** Edinburgh.

18          **DR. ZIEMER:** He's out.

19          **DR. WADE:** Mark?

20          **DR. ZIEMER:** Roy's out.

21          **MR. GRIFFON:** I'm okay.

22          **DR. WADE:** Robert?

23          **MR. PRESLEY:** (Inaudible)

24          **DR. ZIEMER:** Rich?

25          **MR. ESPINOSA:** I'm having a little bit of

1                   problems with -- is it going to be two days of  
2                   -- two full days of meetings or --

3           **DR. WADE:** No, no, no, just a phone call. Oh,  
4           no, this is --

5           **MR. GRIFFON:** No, this is a --

6           **DR. WADE:** Yet to be determined.

7           **MR. ESPINOSA:** I'm looking at this Board agenda  
8           and it has a -- August for a conference call  
9           and you're -- you're talking about a face-to-  
10          face meeting for a full two days?

11          **DR. WADE:** I am talking about a face-to-face  
12          meeting, the length of which has to be  
13          determined I think by the issues in front of  
14          us, but I would say a minimum a day and a  
15          maximum of two days.

16          **DR. ZIEMER:** Might be a day and a half, though.

17          **DR. WADE:** Right.

18          **MR. GRIFFON:** I -- I would -- I'm clear.

19          **DR. WADE:** Mike?

20          **MR. GIBSON:** You're saying the 22nd or 23rd of  
21          August?

22          **DR. ZIEMER:** 23rd and 4th.

23          **MR. GIBSON:** Yes, I could do it.

24          **DR. ZIEMER:** 23rd and 4th.

25          **DR. WADE:** Yes?

1           **MR. GIBSON:** Yes.

2           **DR. WADE:** Okay, so we have Dr. DeHart not  
3 available and Richard questionable.

4           **MR. ESPINOSA:** I'm questionable. I can make --  
5 the problem is I have something on the 22nd,  
6 which would be my travel day, so it's  
7 questionable I -- if I can make it for the full  
8 two days.

9           **DR. WADE:** Okay. Let's consider that then  
10 tentatively set. We do have to define the  
11 issues and we have to hear from NIOSH and SC&A  
12 as to the feasibility of this, but now we have  
13 -- we've put a mark in the sand for the days of  
14 the 23rd and 24th of August for the Board to  
15 get together to deal with the issues of the  
16 Mallinckrodt site profile.

17           **MR. PRESLEY:** (Off microphone) Do we want to do  
18 that in Cincinnati (unintelligible) everybody?

19           **DR. ZIEMER:** Do what?

20           **MR. PRESLEY:** Do it in Cincinnati where we've  
21 got all their resources.

22           **DR. WADE:** Okay, the proposal is Cincinnati.  
23 It's in -- it's sort of in the middle of the  
24 country.

25           **DR. MELIUS:** So is in St. Louis. I mean I --

1           if we're going to do Mallinckrodt, I mean I --  
2           that's the main focus, I think Mallinckrodt has  
3           some --

4           **DR. WADE:** Well, we have to do some work in  
5           terms of hotels.

6           **DR. MELIUS:** Yeah, I --

7           **DR. WADE:** Let us start that. We have enough  
8           now to begin the process. I think it's  
9           appropriate to move on with the subcommittee  
10          deliberations.

11          **DR. ZIEMER:** Okay.

12          **DR. MELIUS:** Do we have another meeting, I  
13          guess is the -- are we going to try to do  
14          another meeting time after that or are we --

15          **DR. WADE:** Well, we will -- we'll do that  
16          tomorrow.

17          **DR. WADE:** This, in essence, would replace the  
18          telephone meeting we scheduled for August, I  
19          believe.

20          **DR. WADE:** Right, and Cori has calendars on --  
21          no, we're looking at late September, early  
22          October for the next meeting. I think we'll  
23          continue with that.

24          **MR. PRESLEY:** We were asked to hold our dates  
25          in September.

1           **MS. MUNN:** 27th through --

2           **MR. PRESLEY:** Right, we were asked to hold the  
3           27th --

4           **DR. ZIEMER:** Week of the 26th was the --

5           **DR. WADE:** At this point I wouldn't change  
6           that.

7           **MR. GRIFFON:** Yeah, better hang onto those.

8           **DR. WADE:** We have an awful lot to do. We have  
9           SECs coming up that have qualified in a time  
10          that we'll need to get together late September,  
11          early October.

12          **DR. MELIUS:** For the record, I'm not available  
13          then now. I've got a sub-- you sent out a  
14          subsequent correspondence saying the meeting  
15          was going to be moved, and I don't...

16          **DR. WADE:** We'll work on that tomorrow.

17          **DR. ZIEMER:** Thank you. Other comments on  
18          that?

19          Okay, then we're -- we're going to begin the  
20          subcommittee meeting at 4:15. We'll take a  
21          break. Subcommittee then will reconvene at  
22          4:15.

23          **MR. GIBSON:** Dr. Ziemer?

24          **DR. ZIEMER:** Yes, Mike?

25          **MR. GIBSON:** Could I ask Dr. Wade to give me a

1 call at home?

2 **DR. ZIEMER:** Yes.

3 **MR. GIBSON:** (Unintelligible) talk to him just  
4 for a second.

5 **DR. ZIEMER:** So noted.

6 **DR. WADE:** Okay, thank you.

7 **DR. ROESSLER:** Is there a restriction --

8 **MR. GIBSON:** Do you have my number?

9 **DR. ZIEMER:** Question?

10 **DR. ROESSLER:** Is there a restriction on the  
11 number of Board members that can attend the  
12 subcommittee meeting?

13 **DR. ZIEMER:** No. Thank you, we're recessed.  
14 (Whereupon, the full Board concluded its  
15 meeting at 4:00 p.m.)

**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 July 6, 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 6th day of August, 2005.

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**STEVEN RAY GREEN, CCR**

**CERTIFIED MERIT COURT REPORTER****CERTIFICATE NUMBER:   A-2102**