

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

WORKGROUP TELECONFERENCE

ADVISORY BOARD ON  
RADIATION AND WORKER HEALTH

The verbatim transcript of the Meeting of the  
Advisory Board on Radiation and Worker Health  
Workgroup held telephonically, on Jul. 26, 2005.

C O N T E N T S

Jul. 26, 2005

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### TRANSCRIPT LEGEND

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-- "\*" denotes a spelling based on phonetics, without reference available.

-- (inaudible)/ (unintelligible) signifies speaker failure, usually failure to use a microphone.

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BLOOM, CINDY, MJW  
BROCK, DENISE, UNWW  
CHANG, CHA CHA, NIOSH  
DEVANNY, JOHN  
ELLIOTT, LARRY, NIOSH/OCAS  
ERLICH, DAVE, GAO  
GUIDO, JOSEPH, MJW  
HOMOKI-TITUS, LIZ, HHS/OGC  
HOWELL, EMILY, HHS/OGC  
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KOTSCH, JEFF, DOL  
MACIEVIC, GREG, NIOSH  
MAKHIJANI, ARJUN, SC&A  
MAURO, JOHN, SC&A  
MCKEEL, DAN  
NETON, JIM, NIOSH  
NUGENT, MARY, GAO  
SAMSON, BOB, GAO  
SHEFFITS, SANDRA, GAO  
SKALSKI, TED  
SUNDIN, DAVE, NIOSH  
TAULBEE, TIM, NIOSH  
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JONICA MUELLER, Certified Court Reporter

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

(11:00 a.m.)

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(NOTE: Intermittently throughout the progress of the teleconference the telephone connection became less clear and quite fractured, making portions of some comments unintelligible.

Those areas are noted as such.)

**DR. WADE:** I was going to make some introductory comments, Mark, and then really turn it over to you as the Chair of the working group, if that's okay.

**MR. GRIFFON:** That's fine.

**DR. WADE:** We're waiting just maybe another 15 or 20 seconds. Is Denise Brock on the call?

**MS. BROCK:** Yes, I'm here.

**DR. WADE:** Oh, okay. Welcome, Denise. Thank you for -- thank you for joining us.

**MS. BROCK:** And thank you for having me.

**DR. WADE:** It's our pleasure.

**MS. MUNN:** Hi, Denise.

**MS. BROCK:** Hi, Wanda.

**DR. WADE:** Okay. Well, let me begin again. My name is Lew Wade and I have the privilege of serving as the Designated Federal Official for the Advisory Board on Radiation and Worker Health. By way of an overview, what we're

1           engaging here is a telephone meeting of a  
2           working group that has been established by that  
3           Advisory Board.

4           I'd like to provide you with a little bit of  
5           context for the working group, just to keep  
6           roles and terminologies straight. The Advisory  
7           Board is currently working on two things -- on  
8           a number of things, but two as it relates to  
9           this call. The Advisory Board has before it  
10          an SEC petition on workers at Mallinckrodt and  
11          is deliberating on that.

12          Simultaneously, the Advisory Board is looking  
13          at the review of a site profile for  
14          Mallinckrodt. This Advis-- this working group  
15          is really looking at issues surrounding the  
16          site profile and its review and a give-and-take  
17          that's going on between the Board, the Board's  
18          contractor SC&A, and NIOSH. There is no  
19          question that in the Board's mind these  
20          deliberations as they relate to the site  
21          profile will relate directly to issues related  
22          to the SEC petition. But I think it is  
23          important that we understand that the  
24          discussion, at least as it's framed going in,  
25          is looking at the issue and the technical

1                   questions related to the site profile.

2                   The working group was -- was designated by the

3                   Board and it includes Mark and Wanda, Mike and

4                   Jim, with Richard acting as an alternate. Mark

5                   was asked and graciously agreed to chair that

6                   working group, and it's the first call of that

7                   working group that we're here conducting today.

8                   I will take the roll in a minute of Board

9                   members present. Again, it is important that

10                  we not have a quorum of the Board itself. If

11                  we do have a quorum then we're conducting Board

12                  business, and this has not been advertised as a

13                  Board call. So I will be taking a roll of

14                  Board members in a moment. If we have a

15                  quorum, which is six or more, then I would have

16                  to respectfully ask some of the Board members

17                  on the call who are not members of the working

18                  group to leave us, and I do that with respect

19                  and apologies.

20                  We have decided -- the Board has advised and we

21                  all have decided that we would conduct this

22                  working group in a public forum. That is that

23                  the calls and meetings that the working group

24                  would conduct will be public meetings. We have

25                  allowed for no public comment period on this

1 call, although I would say respectfully if --  
2 if a member of the public has a burning comment  
3 to be made, please feel free, although there is  
4 no public comment period scheduled and we're  
5 not -- we've allowed a couple of hours. We  
6 don't have time for long public comments, but  
7 certainly we don't want to stifle anyone. But  
8 I would ask that you be respectful of that  
9 situation.

10 We did announce this working group call in the  
11 *Federal Register* notice. We put it out on the  
12 NIOSH web site. We sent announcement to  
13 friends and those involved in this process.  
14 The Board in its deliberations also said that  
15 the SEC petitioners would be invited to this  
16 call and invited to fully participate, so it's  
17 important that those petitioners feel  
18 completely unconstrained in their  
19 participation, their questioning as it relates  
20 to this process as it unfolds.

21 Now by way of materials that I know the working  
22 group has as background, at the last Board  
23 meeting the Board did put together a document  
24 that's pertinent to this call. That document  
25 is entitled "Priority Issues for Demonstrating

1 Feasibility of Dose Reconstruction for MCW  
2 Destrehan Street Workers for the Time Period of  
3 1949 to '57, List of Tasks Developed by the  
4 ABRWH", and that is dated July 6th, 2005. I'm  
5 under the assumption that all members of the  
6 working group have access to those materials.  
7 Let me read briefly from the beginning of that  
8 memo, and I -- I read now, quote (reading) The  
9 following is a list of tasks to be completed by  
10 NIOSH and delivered to the ABRWH workgroup and  
11 SC&A, Inc. for resolution. To allow for an  
12 adequate amount of time for SC&A/NIOSH/Board to  
13 complete comment resolution by August 23rd, the  
14 following schedule is set forth:  
15 Item: Working group conference call for status  
16 report and clarification of task by July 26th.  
17 I add parenthetically that that's this call.  
18 Next item: NIOSH will provide a draft report  
19 on the following tasks in consultation with  
20 SC&A by July 31.  
21 Item: Workgroup meeting between July 31 and  
22 August 8. Again I add parenthetically, it's  
23 terribly important we schedule that  
24 specifically on this call so that we can  
25 announce that meeting in the *Federal Register*

1 and the other mechanisms we've talked about.  
2 Item: SC&A to review the NIOSH response to the  
3 tasks and issue a report to Board by August 16  
4 (one week before Board meeting).  
5 And item: Workgroup conference call for  
6 comment resolution between August 16 and August  
7 22.  
8 I'll stop reading at this point because I think  
9 it's important to set the context for what the  
10 Board was asking this working group to do and  
11 the time frames, and much of this call is,  
12 again, for clarifying of issues and procedures  
13 and steps that we'll take specifically.  
14 So again, those conclude my introductory  
15 comments. Before I turn it over to the Chair,  
16 I would ask, though, at this point that members  
17 of the Board on this call identify themselves  
18 and just in any order you wish, please.  
19 **MR. GRIFFON:** I'm Mark Griffon.  
20 **DR. WADE:** Okay, Mark. Next?  
21 **DR. ROESSLER:** Gen Roessler.  
22 **DR. WADE:** Gen. Next?  
23 **MR. GIBSON:** Mike Gibson.  
24 **DR. WADE:** Next?  
25 **DR. MELIUS:** Jim Melius.

1           **DR. WADE:** Next?

2           **MS. MUNN:** Wanda Munn.

3           **DR. WADE:** Next?

4                               (No responses)

5           **DR. WADE:** Thank you. That's five, that is not  
6 a quorum. Again, if I hear another Board  
7 member join, I will take that role again and --  
8 and will make the appropriate adjustments.  
9 Might I ask the NIOSH or CDC or Department of  
10 Labor representatives on this call to identify  
11 themselves? Again, this is Lew Wade. I work  
12 for NIOSH.

13           **DR. NETON:** This is Jim Neton from OCAS.

14           **MR. ELLIOTT:** Larry Elliott.

15           **MR. MACIEVIC:** Greg Macievic.

16           **MR. SUNDIN:** Dave Sundin.

17           **MR. KOTSCH:** Jeff Kotsch with --

18           **MR. TAULBEE:** Tim Taulbee.

19           **MR. ALLEN:** And Dave Allen.

20           **MR. KOTSCH:** I'm sorry, Jeff Kotsch with the  
21 Department of Labor in Washington.

22           **DR. WADE:** Thank you.

23           **MS. HOMOKI-TITUS:** Liz Homoki-Titus with the  
24 Department of Health and Human Services.

25           **MS. CHANG:** Cha Cha Chang with NIOSH.

1           **MS. HOWELL:** Emily Howell with Department of  
2           Health and Human Services.

3           **DR. WADE:** Okay. What about members of the  
4           Board's contractor, SC&A?

5           **DR. MAURO:** John Mauro.

6           **DR. MAKHIJANI:** Arjun Makhijani.

7           **DR. ANIGSTEIN:** Bob -- Robert Anigstein.

8           **UNIDENTIFIED:** (Unintelligible)

9           **DR. THORNE:** And Mike Thorne.

10          **DR. WADE:** Okay. Petitioners involved in the -  
11          - the Mallinckrodt petition that's before the  
12          Board, if they would identify themselves,  
13          please.

14          **MS. BROCK:** Denise Brock, petitioner.

15          **DR. WADE:** Okay. Now if any other member of  
16          the public would like to identify themselves --  
17          it is not required, but if you would like to  
18          identify yourself, please do.

19          **DR. MCKEEL:** This is Dan McKeel in St. Louis.

20          **DR. WADE:** Welcome, Doctor.

21          **MS. BERRY:** Mary Berry of (unintelligible).

22          **MR. SAMSON:** This is Bob Samson from GAO, and  
23          I'm joined with Mary Nugent and Sandra  
24          Sheffits.

25          **DR. WADE:** Welcome.

1           **MR. ERLICH:** This is Dave Erlich from GAO in  
2 Chicago.

3           **DR. WADE:** Welcome. Okay, Mark, that's the  
4 business that I felt compelled to do. It's all  
5 yours.

6           **MR. GRIFFON:** Okay.

7           **MR. KENOYER:** This is Judson Kenoyer. There  
8 are other contractors to NIOSH that are on this  
9 call.

10          **DR. WADE:** I'm sorry, please identify yourself.

11          **MR. KENOYER:** Judson Kenoyer.

12          **MR. SKALSKI:** Ted Skalski.

13          **MR. DEVANNY:** John Devanny.

14          **MS. BLOOM:** Cindy Bloom.

15          **MR. GUIDO:** Joseph Guido.

16          **DR. WADE:** I apologize to you.

17          **MS. WESTBROOK:** Janet Westbrook.

18          **DR. WADE:** Okay, Mark. Please.

19          **MR. GRIFFON:** Okay. Lew, you set this up  
20 nicely. This is a large workgroup. Anyway, I  
21 think mainly the reason we wanted this  
22 conference call was to touch base early on in  
23 the process to see whether the list of tasks  
24 laid out in this memo that Lew mention need any  
25 clarification or -- or there's -- there's

1 technical issues surrounding those tasks before  
2 -- we don't want to find out too late in the  
3 game, right before the advisory meeting, so  
4 that was the main reason for this -- this call,  
5 and also to look at a time line. And I think  
6 as Lew said, to select a specific date and time  
7 for that end-phase workgroup meeting, which  
8 will be next week some time.

9 So I guess to start on the scope -- I mean I  
10 really think that it -- it -- I'll -- I'll turn  
11 the question over to -- to NIOSH, I guess Jim  
12 Neton, and ask if there's any questions on --  
13 on the scope that -- that need to be addressed  
14 on this call.

15 **DR. NETON:** Yeah, this is -- this is Jim Neton.  
16 I don't have any specific questions. I think  
17 that we -- we delineated the scope fairly well  
18 at the Board meeting. So really I don't have  
19 any significant questions to ask. I am  
20 prepared to do a report --

21 **MR. GRIFFON:** Oh, okay.

22 **DR. NETON:** -- a brief report on -- on some of  
23 the progress we've made, which I think is  
24 significant, although -- you know, I recognize  
25 we're under a tight time line so this -- what

1 I'm reporting is -- is fairly new, even to me  
2 as of this morning, but if you'd like me to do  
3 that, I can -- I can --

4 **MR. GRIFFON:** Yeah, definitely.

5 **DR. NETON:** -- at least (unintelligible) where  
6 we're at.

7 **MS. MUNN:** Yeah, I'd certainly like that.

8 **MR. GRIFFON:** That would be good, yeah.

9 **DR. NETON:** Okay. I'll just start from the top  
10 down, item one -- number one, which is the  
11 handling of the raffinate -- and by the way,  
12 anyone from -- from NIOSH and -- and/or ORAU  
13 team that's on here that, you know, can --  
14 hears me say something incorrect or can flesh  
15 out a little more detail what I'm saying,  
16 please feel free. I -- I'm aware of what's  
17 going on, but some of the finer details are  
18 handled by -- by others who are on this call.  
19 Regarding the raffinate exposures, we have  
20 researched to some extent trying to come up  
21 with ratios for -- for the -- the raffinate in  
22 greater detail than what we had in the profile.  
23 And it was suggested, and we agreed, at the  
24 Board meeting that the use of the Fernald  
25 ratios for the raffinate may be a good -- good

1           -- good point to look at -- a starting point,  
2           and we did that. It turns out that much of the  
3           raffinate that was in the Silo One at Fernald,  
4           if not all of it -- we're not exactly certain  
5           on this yet, but I'll -- most, if not all,  
6           originated from Mallinckrodt. And we have  
7           Remedial Investigation and Feasibility Study  
8           Analyses that were core samples taken  
9           throughout the silos, and we have those ratios.

10          **MS. BLOOM:** Jim, can I jump in there for a  
11          minute? We --

12          **DR. NETON:** Cindy Bloom.

13          **MS. BLOOM:** -- do have information that  
14          indicates that 75 percent of the waste came  
15          directly from Mallinckrodt from Fernald, and  
16          the other 25 percent we believe went to Lake  
17          Ontario Ordnance Works, and then went back to  
18          Fernald. And indications are that it is, if  
19          not all K-65 -- or all from Mallinckrodt, it --  
20          certainly most of it is.

21          **DR. NETON:** Thanks, Cindy. We also did -- that  
22          reminded me. We looked at the Lake Ontario  
23          Ordnance core data and we did not find any  
24          detailed isotopic information, but we did find  
25          ratio of radium to uranium -- or, you know, the

1 weight content of uranium. I think it was .05  
2 percent or something of that nature.  
3 The Fernald data, being fairly recent, are --  
4 are, we believe, quite good. There are  
5 isotopic analyses for the majority of the  
6 dosimetric contributors in the decay chain, and  
7 so we -- we propose -- or we will be proposing  
8 that we use those ratios for what's known as  
9 the K-65 or the gang cake or the lead sulfate  
10 cake -- whatever that precipitate was when they  
11 -- the first precipitate when they -- they  
12 pulled out the radium (unintelligible) barium  
13 (unintelligible) in the process.  
14 We have been looking high and wide for any  
15 information to support the Sperry cake --  
16 **DR. MAKHIJANI:** Before you -- Jim, could I ask  
17 a question?  
18 **DR. NETON:** Sure.  
19 **DR. MAKHIJANI:** This is Arjun. You will  
20 propose that Fernald ratios from Silo One be  
21 used?  
22 **DR. NETON:** Yes.  
23 **DR. MAKHIJANI:** Okay. Thank you.  
24 **DR. NETON:** And -- and we're still -- we're  
25 still in discussion about which value -- there

1           are -- there are median values, there are 95th  
2           percentile values, and of course we're not  
3           using the absolute activity content of those --  
4           of those wastes, we're just using the -- the  
5           (unintelligible) of the isotopic contents  
6           themselves, the isotopes themselves.  
7           Sperry cake issue from that waste stream, we've  
8           been looking far and wide and we -- we have not  
9           yet been able to come up with any definitive  
10          data that would tie a uranium measurement in  
11          urine to a Sperry cake intake. It turns out  
12          that Sperry cake -- as we all know, 20 tons of  
13          it or so went to Mound. We've researched --  
14          I've personally gone back and looked through  
15          all the Mound -- as many Mound records as I  
16          could and found very detailed radiochemical  
17          procedures that they published in peer review  
18          journals on the protactinium analytical  
19          techniques for that Sperry cake, but nothing  
20          that would flesh out the uranium amount.  
21          We do find a lot of evidence that the Sperry  
22          cake itself was a very wet -- pasty, to use  
23          their terms -- material, about 50 percent  
24          (unintelligible) and the rest is wet type  
25          waste, so it still indicates to us that this

1 material was not particularly prone to become  
2 airborne during the processing of it. But we  
3 still have some work to do there. I'd like --  
4 I (unintelligible) locate some papers on  
5 isotopic analysis of protactinium  
6 (unintelligible) published (unintelligible) of  
7 *Chemistry*, so there's a few other sources to  
8 uncover there.

9 The -- the (unintelligible) intake when we have  
10 these combinations of data -- and -- and Cindy  
11 Bloom could probably speak to this a little  
12 better, but I think -- like I said, I know at  
13 the Board meeting we indicated we would -- we  
14 would calculate -- if we had urine data, use  
15 the urine data to estimate intake, and then  
16 look at the air -- the corresponding air  
17 concentration data and pick whichever is the  
18 higher value for the intakes. In discussion  
19 among ourselves, we now believe that a more  
20 appropriate approach is -- when we have good  
21 urine data is to rely on the urine data itself  
22 for the intake, and then apply the ratios that  
23 were observed in the K-65 silos to come up with  
24 intakes, at least for what we would call K-65 -  
25 - people who were exposed potentially to K-65

1 materials.

2 **MS. BLOOM:** I would take a small step back  
3 there for a minute, Jim. I think what we  
4 talked about was using the uranium urinalysis  
5 data and the radon breath analysis results if  
6 we have both of those. If we don't, we're --  
7 we're looking at using the Fernald ratios, but  
8 we're also looking at the available coworker  
9 data and we've done some preliminary results --  
10 analyses that indicate that the Fernald ratios  
11 are really at the very, very high end of what  
12 might be an exposure, somebody who only worked  
13 with K-65. Based on the data we've seen so  
14 far, it looks like there is no such thing as a  
15 pure K-65 source term, that it's really a mixed  
16 source -- you know, people were exposed to  
17 uranium, that that was forever in the  
18 background, or that job rotation resulted in --  
19 in changing those ratios significantly by the  
20 time you get to the worker.

21 **DR. NETON:** Right. Thanks for that  
22 clarification, Cindy. I was going to -- going  
23 to mention that, but interesting analyses are -  
24 - and honestly, for -- if Joe Guido's on the  
25 phone, I know he's been trying to pull out

1 raffinate workers. He's having difficulty  
2 finding what we consider raffinate workers  
3 without ra-- corresponding radon breath data.  
4 There's a fair amount of that available. It  
5 turns out, as Cindy said, that the radon breath  
6 data do -- do bound the radium intakes for  
7 these workers considerably, much -- much -- not  
8 much low-- well, a fair amount lower than what  
9 you would infer from using the K-65 ratios, so  
10 that --

11 **MS. BLOOM:** By a factor of 20.

12 **DR. NETON:** Yeah, it's -- it's lower, and I  
13 think we feel pretty good that at a minimum the  
14 K-65 ratios will bound the intakes, and at best  
15 we may be able to use these radon intakes -- or  
16 the radon breath analyses to -- to actually  
17 define the intake for radon -- radium. But we  
18 need -- we need to demonstrate that and prove  
19 that a little more conclusively if we're going  
20 to go down that path.

21 Did I hear someone want to make a comment on  
22 that or...

23 (No responses)

24 **DR. NETON:** Okay. So we -- we've made very  
25 good progress in those areas. Related to

1           sufficient data available for radon dosimetry -  
2           - radon exposure estimates, we have looked at  
3           the radon -- the 5000 plus radon points that we  
4           have in the CER database, and I don't know if I  
5           reported on this at the Board meeting or not,  
6           but these data, by year, fit a fairly decent  
7           lognormal distribution, as well. And more  
8           importantly, if one goes into the description  
9           of where the samples were taken, we do have  
10          pretty good descriptions of where they were. I  
11          mean they're -- they're identified by feinc  
12          filter press or a digester area or a furnace.  
13          So in effect, it seems to me that most of the  
14          samples in those 5000 sets were taken in or  
15          near Plant 6, which makes some sense. This is  
16          where the radium source term was present.  
17          So we've done some -- some more detailed  
18          analyses by job category or work location in  
19          the plant as to what the distributions are at  
20          the higher -- higher potential exposure  
21          locations, so the -- the story, though, remains  
22          to be seen as to how -- how much detail we can  
23          assign to these radon exposures. At this point  
24          we're at -- at best only be able to propose  
25          that we would assign a distribution of radon --

1 assign a distribution of exposures between  
2 people who worked in the plants and people who  
3 most likely did not frequent the plants, such  
4 as administrative folks. We're still working  
5 on trying to make a determination if we can  
6 refine the in-plant exposures to radon into  
7 what we would call a high and low exposure  
8 groupings.

9 In any case, all these groupings would be by a  
10 distribution, not a specific value. For  
11 example, we would propose the 95th percentile  
12 radon distribution for the higher exposure  
13 category if that's indeed where they fell out.  
14 So we have plenty of data to do this. One  
15 would think that this would result in really  
16 large radon exposure, and it turns out that the  
17 radon exposures were very significant in the  
18 first several years, the '49-'50 time frame,  
19 and dropped off quite precipitously after that.  
20 So you know, you don't run into the situation  
21 of having these huge, massive exposures over  
22 the entire duration of the cohort. I guess  
23 that's probably neither here nor there, but I  
24 do want to point out that we do have very large  
25 exposures in the early days, which -- which

1 makes sense. And as controls got better and  
2 some of the pitchblende content was reduced in  
3 radium, the exposures went down.  
4 That leads me into the other area of the radon  
5 dosimetry issue which had to do with the  
6 calculation of internal exposures, non-lung-  
7 related exposures from inhalation of radon and  
8 progeny. We've taken a look at the SC&A  
9 calculations and, while they're correct in what  
10 they have done, the approach of using this dose  
11 conversion factor -- we believe that at least  
12 in ICRP-71 where they provide these factors  
13 there's some specific guidance that says that  
14 these should not be applied to use of radon  
15 daughters, or radon progeny. And in fact we --  
16 we've researched this a little further and have  
17 found some -- a publication by, I think I  
18 mentioned this at the Board meeting, Marshall  
19 and Burchell -- Alan Burchell of course is a  
20 well-recognized expert in the radon dosimetry  
21 arena -- where they have determined the half-  
22 life of lead and bismuth in the lung to be  
23 somewhere -- ten and 13 years, respectively --  
24 hours, I'm sorry. Not years, hours. That is a  
25 huge difference in the amount of dose delivered

1 to the systemic organs.  
2 I believe that the type F, the intake  
3 calculations that were in the SC&A proposal,  
4 would -- would essentially inject ten --  
5 material -- almost all the material went into  
6 the bloodstream with a ten-minute half-life or  
7 something like that. And we -- we -- we've  
8 redone all these calculations and -- and  
9 modeled -- we specifically modeled the ICRP  
10 calculations, which is using the ICRP lung  
11 model using the method proposed by Burchell,  
12 and have concluded that the doses to the organs  
13 -- the systemic organs are -- are much lower  
14 than those proposed at least by SC&A using our  
15 approach.  
16 Now that said, there's still a couple of organs  
17 that are higher than the -- the radon gas model  
18 that we had proposed at the Board meeting.  
19 There's a number of publications out there, and  
20 it's pretty well recognized that a major source  
21 to systemic organs from radon exposure -- the --  
22 - the major source would be from the deposi--  
23 or the -- the absorption of radon gas in the  
24 soft tissues and the ultimate decay of the gas  
25 through the progeny chain in the -- in the

1 organs themselves. There's some solubility  
2 coefficients that can be applied and -- there's  
3 a couple of really excellent papers out there.  
4 Naomi Harley has one and there's another paper,  
5 I forget the person's name right now, but it's  
6 a pretty good -- what they call a dynamic  
7 model.

8 In almost all organs that we modeled using the  
9 radon gas deposition model, I think the doses  
10 for the particulate using the method that I  
11 just described are about two percent of the --  
12 two to three percent of the radon gas doses,  
13 the notable exceptions being the kidney and the  
14 gastrointestinal tract. I think  
15 (unintelligible) still proposing to use the  
16 radon gas model to estimate doses. In fact,  
17 the doses are not super-significant. I think  
18 they -- I wouldn't be quoted on this. Of  
19 course this is probably recorded, but it's  
20 somewhere around a couple millirem to the organ  
21 per picocurie per liter from the radon gas. Is  
22 that right, Dave? I -- I'm just -- just to  
23 give you a sense of what these doses might be.  
24 **MR. ALLEN:** (Unintelligible) millirem per year  
25 for gas.

1           **DR. NETON:** All right, I'm sorry. It's less --  
2           it's about .6 of a pic-- of a millirem per year  
3           per picocurie per liter of the gas. Of course  
4           that's -- in -- that's -- that's irrespective  
5           of equilibrium ratios because we're just  
6           talking about the gas. And then the -- the  
7           progeny doses are around .02 to .03 millirem  
8           per year. But the kidney values are -- are  
9           larger. You could get about 1.2 millirem per  
10          year to the kidney from the -- actually the  
11          progeny dissolving in the lung and becoming  
12          systemic.

13          So we -- we're going to -- we'll have a model  
14          to -- to address this and -- and how we will --  
15          you know, we'll propose the model and put this  
16          forward and it -- we propose to add these doses  
17          to -- to the -- to the dose reconstruction as  
18          appropriate based on the radon exposure  
19          distributions we'll apply in the plants. We  
20          don't expect those still to be tremendously  
21          high doses, though, compared to the intakes  
22          that would result from the raffinate materials.

23          **MR. GRIFFON:** Okay.

24          **MS. BLOOM:** I don't know if it's appropriate to  
25          weigh in here, but I know that one concern that

1 I -- or one -- one -- not a concern, but I -- I  
2 think that this is excellent work, and  
3 certainly those numbers are of interest. But I  
4 think when we're finding they're so low and we  
5 have so much -- we're pretty convinced that our  
6 ratios that we're applying to the other  
7 radionuclides are pretty large, the question  
8 comes up, do we really need to take this extra  
9 step in dose reconstruction on every case to  
10 add in these essentially trivial doses, for the  
11 most part. And so that's -- that's one  
12 question that I think needs to be out there, as  
13 well.

14 **DR. NETON:** That's a good point, Cindy. I  
15 don't think we'll (unintelligible) probably  
16 address this and then solve this in this call,  
17 but --

18 **MR. GRIFFON:** Right. Right, and my sense is if  
19 this -- you know, we come to some agreement on  
20 the model, then -- then we can have that  
21 discussion --

22 **DR. NETON:** Right.

23 **MS. BLOOM:** That it's (unintelligible).

24 **MR. GRIFFON:** -- (unintelligible) and whether  
25 it's appropriate or not, yeah.

1           **DR. NETON:** Right. I mean if you look -- if  
2           you have .6 picocuries per liter -- you know,  
3           if you have 100 picocuries per liter assigned  
4           year -- you know, 24 --

5           **MR. GRIFFON:** Yeah.

6           **DR. NETON:** -- year round, your 66 picocur-- 66  
7           millirem is not a huge dose when some of these  
8           raffinate doses, even to non-systemic organs,  
9           are going to end up being probably on the order  
10          of -- of below rem ranges, even the non-- even  
11          the non-metabolic organs.

12          **MR. GRIFFON:** Right.

13          **DR. NETON:** So -- but we -- we can deal with  
14          that, but we -- we'd like to get our approach  
15          in writing and out there for folks to -- to  
16          evaluate it.

17          **MR. GRIFFON:** Okay.

18          **DR. MAKHIJANI:** Could I make a request? This  
19          is Arjun.

20          **DR. NETON:** Sure.

21          **DR. MAKHIJANI:** For the references that you're  
22          using to develop this approach so we can also  
23          get them and be looking at them in parallel as  
24          you're doing this and --

25          **DR. NETON:** Sure.

1           **MR. GRIFFON:** (Unintelligible)

2           **DR. MAKHIJANI:** -- (unintelligible)

3           **DR. NETON:** Do you want them right now, or...

4           **DR. MAKHIJANI:** Well, if you can just send them  
5           in an e-mail --

6           **DR. NETON:** Okay, I will send them --

7           **DR. MAKHIJANI:** -- to the working group and --  
8           and to us, that would be -- that would be  
9           useful.

10          **DR. NETON:** Absolutely.

11          **DR. MAKHIJANI:** Thank you.

12          **DR. NETON:** This is actually very cutting edge  
13          material. I mean there -- there's a lot of --  
14          not a lot of work has been going -- done in  
15          this area, and -- and most of it's been done to  
16          refine the dose to the lung using the ICRP-66  
17          (unintelligible) model.

18          **MR. GRIFFON:** Right.

19          **DR. NETON:** We're using it for the -- for the  
20          systemics. It's applicable, and I think that  
21          we got a -- a fairly decent handle on it.

22          Okay, item number three, which is the  
23          application of correction factors for external  
24          doses to organs, Tim Taulbee and Greg Macievic  
25          -- Greg is the one -- I presented the

1 information at the last Board meeting -- who  
2 used the Attila code to estimate relative  
3 photon fluxes between a lapel badge and the  
4 lower torso in specific response to different  
5 geometries. Tim has worked closely with Greg  
6 and they've put together what we call a  
7 Technical Information Bulletin, a TIB. That's  
8 in draft form now. And we are proposing, based  
9 on their analysis, that doses for -- external  
10 doses for specific categories of workers at  
11 Mallinckrodt be multiplied by a correction  
12 factor of 2.1 for organs that are below the  
13 lung. That is organs residing in the lower  
14 torso area, and we've very specifically  
15 delineated which those might be.  
16 The trickier part then is to determine which  
17 workers this correction factor would apply to.  
18 Tim has gone through the claims that we have  
19 in-house to process and has determined that the  
20 individual job categories we have are -- how  
21 would you say it, Tim? -- are too -- too narrow  
22 in focus or narrow in scope to be able to make  
23 a determination on an individual job category  
24 (unintelligible) category.

25 **MR. TAULBEE:** Right.

1           **DR. NETON:** And maybe you could explain what  
2 you've done.

3           **MR. TAULBEE:** Sure. In going through the  
4 worker -- work history information, as well as  
5 their dust concentration cards, you get a feel  
6 for what individual workers were doing.  
7 However, it's pretty clear that some of their  
8 jobs were near -- what we would call near-hand  
9 exposure fields, and other jobs were not. So  
10 you've got a mixture within a particular worker  
11 over their time period where sometimes they  
12 were close-handling materials, other times they  
13 were not. And so it's really not possible to  
14 break out in more detail which of those near-  
15 hand exposure fields had contributed to their  
16 lapel dose more than other exposures did. So  
17 what we're proposing is, just based upon  
18 general worker categories such as operators or  
19 the crafts, that we would assign this  
20 correction factor to. And this makes up a  
21 population of about 57 percent of the current  
22 claims that we have and we wouldn't be applying  
23 this type of correction factor to any  
24 administrative personnel -- accountants,  
25 secretaries, cafeteria workers (unintelligible)

1 sort of thing. So this would only be applied  
2 to those people who worked in the plants, the  
3 chemical production operators, material  
4 handlers, and then each of the crafts -- the  
5 pipe fitters, the carpenters, the sheet metal  
6 workers, et cetera.

7 **MS. WESTBROOK:** This is Janet Westbrook. Did  
8 you look in the AEC and Mallinckrodt dust study  
9 reports where they in fact break down what the  
10 workers were doing, and even sometimes tell you  
11 how far away they were?

12 **MR. TAULBEE:** Yes, I did, Janet. I had looked  
13 at that. The problem that you end up with is  
14 that in some cases, even though it was a short  
15 duration type of an exposure, you don't know  
16 what the external dose rate coming off of the  
17 object was at that time period without going  
18 through the survey data -- the individual  
19 survey data and trying to marry that up with  
20 that particular time (unintelligible) just be  
21 very cumbersome.

22 **DR. NETON:** It becomes a very practical  
23 limiting factor at that point.  
24 (Unintelligible) that's our proposal. Again,  
25 this is -- this is not a finalized -- it's a

1 draft proposal, but this is where we are.  
2 Again, this is all works in progress here.  
3 (Unintelligible) any of this represents our  
4 final -- final solution to any of these issues.

5 **MR. GRIFFON:** Jim, just a -- a process question  
6 here. The -- the TIB that you just mentioned  
7 and the proposal --

8 **DR. NETON:** Right.

9 **MR. GRIFFON:** -- is there any way that could be  
10 provided in draft form before the face-to-face  
11 meeting next week?

12 **DR. NETON:** I think so.

13 **MR. GRIFFON:** Okay. I think that would be  
14 good, so people can look at it and digest it a  
15 little further and --

16 **MS. MUNN:** That would be very helpful.

17 **DR. NETON:** Right, yeah, I -- I'm struggling, I  
18 didn't -- a lot of this stuff is being  
19 developed, you know, as we speak, so I don't  
20 want to send out too draft material. But I  
21 think we're at the point where with this TIB I  
22 feel comfortable sharing it. And we could talk  
23 about how widely (unintelligible) they need to  
24 do that and -- you know, like I said, we can  
25 just refine the process after we go through our

1 -- our process here.

2 **MR. GRIFFON:** That's fine.

3 **DR. NETON:** In the area of intermittent  
4 exposures and incidents, we're still working on  
5 that and Dave's gone through some examples. We  
6 know what we need to do. We just need to find  
7 the right -- the right bracketing examples to --  
8 -- to make the case, you know, for ourselves.  
9 So it -- we -- we're comfortable and confident  
10 that we will have this done in fairly short  
11 order, but it's just not -- not something right  
12 now that we're prepared to -- nor would it  
13 actually be conducive to discussion on a  
14 telephone call.

15 **MR. GRIFFON:** Yeah.

16 **DR. NETON:** So I will -- we -- we will have  
17 some examples to -- to (unintelligible) show.  
18 This number five -- let me just look at four  
19 again to make sure I didn't miss something.  
20 Yeah, that's -- that's essentially --

21 **MR. GRIFFON:** Jim, for four, I think that would  
22 be good. When we're in Cincinnati that would  
23 be something that you could (unintelligible)  
24 there for us.

25 **DR. NETON:** Yeah.

1           **MR. GRIFFON:** Yeah, okay.

2           **DR. NETON:** Yeah, we'll have graphs and  
3 pictures.

4           **MR. GRIFFON:** Yeah.

5           **DR. NETON:** Pictures are the best descriptors.  
6 I've got four or five examples, but I'm working  
7 with Dave trying to come up with the best --  
8 best possible examples to elucidate this.  
9 Number five, specification of dose  
10 reconstruction for unmonitored workers, we  
11 looked through every single page of the --  
12 actually Tim Taulbee -- I'll give credit where  
13 it's due -- looked through every single pages  
14 of the six boxes and really could only find I  
15 think one or two pages of documents that talked  
16 about environmental exposures at Mallinckrodt.  
17 I believe that they were just -- not just, but  
18 stack emission reports. I -- I was hoping that  
19 we would find something a little more of  
20 substance like, you know, area monitoring data  
21 around the site or something like that. But  
22 there's very little that we'll be able to do  
23 with stack emission reports, unless we missed  
24 something and there's additional data out  
25 there.

1           Absent any additional information, we're going  
2           to propose to use the -- the coworker -- the  
3           worker distributions at Mallinckrodt for people  
4           who were unmonitored and we have no other way  
5           to -- to assess their exposures. If we can  
6           determine, for example, that they were more  
7           administrative type or had lower exposure job  
8           categories than the monitored workers, we would  
9           propose to apply the full distribution of the  
10          coworker data. As our know, our -- our  
11          approach lately has been when the worker is --  
12          is more heavily exposed or -- or was -- should  
13          have been monitored, we would apply the 95th  
14          percentile distribution. For this particular  
15          instance we would apply -- we would apply the -  
16          - the distribution of the coworker data and  
17          assume that that person falls somewhere in that  
18          distribution. That's as fine -- finely tuned  
19          as we can make this at this time.

20          **MR. GRIFFON:** Can I ask, Jim --

21          **DR. NETON:** Yeah.

22          **MR. GRIFFON:** This is Mark Griffon. Arjun had  
23          raised this -- this -- Arjun had mentioned that  
24          you -- he found some additional data. Arjun, I  
25          mean if you -- if you have the references or

1 the specific pages out of those six boxes, I  
2 think you said that some of it was in there,  
3 maybe you can --

4 **DR. NETON:** Right.

5 **MR. GRIFFON:** -- share that with NIOSH so that  
6 -- we're not -- at least consider it, you know.  
7 Maybe it's still that you'll use that same  
8 approach that you mentioned, but at least so  
9 that everyone's on the same page here.

10 **MR. TAULBEE:** I guess -- this is -- this is Tim  
11 Taulbee. I have a question I guess for Arjun.  
12 Is there -- what you were talking about at the  
13 Advisory Board, is it anything other than these  
14 stack emission estimates of the pounds of  
15 uranium within those boxes?

16 **DR. MAKHIJANI:** No, Tim, I did not find  
17 anything other than -- I gave the reference to  
18 the document --

19 **MR. TAULBEE:** Okay.

20 **DR. MAKHIJANI:** -- in -- in the report, and --  
21 and I don't -- and I haven't gone through --  
22 I'm sure NIOSH has gone through the boxes a lot  
23 more thoroughly than I did. I did not find  
24 anything else. And emissions estimate is a  
25 partial emissions estimate.

1           And my other observation that I'd just like to  
2           make, which I think I made at the Board  
3           meeting, is generally whenever these estimates  
4           have been gone over in more recent times,  
5           they've always been found to be underestimates.  
6           And so it -- it's -- the emissions are  
7           indicated to be pretty significant from the  
8           stacks and would, you know, affect outside  
9           workers. And I don't -- so my question really  
10          relates to (unintelligible) you calculate the  
11          outside doses on the people who were moving  
12          things around and loading and unloading and who  
13          may not have been monitored and so on.

14         **MR. TAULBEE:** Okay.

15         **MR. GRIFFON:** It sounds like we're talking  
16          about the same data, anyway.

17         **DR. NETON:** Again, I think that there's very  
18          little that we're going to be able to do with  
19          stack emission data like that. I think  
20          proposing -- you know, our proposal to use the  
21          50th -- the full distribution of the coworker  
22          data that we have I think is a reasonable  
23          approach.

24          We -- we have gone through, by the way, and  
25          developed coworker (unintelligible)

1 distributions by year (unintelligible) workers  
2 and Cindy and Joe and others at ORAU are  
3 working through those things now and developing  
4 our approaches somewhat. We've elucidated a  
5 little bit, to the extent we're doing that  
6 using the radon breath data to bound some of  
7 these intakes for uranium and -- we actually  
8 are also going to propose, I believe, that if  
9 we do not have bioassay data for workers -- if  
10 you remember, I reported at the Board meeting  
11 that we had at least one bioassay sample for I  
12 think it was around 80 percent of the claims  
13 that we have to process. Those -- those cases  
14 where we have no bioassay data, we will -- we  
15 propose now that we would use the coworker  
16 urine distributions to estimate intakes rather  
17 than to default to the air sample data.  
18 A couple of reasons for that. One is this --  
19 the radon breath bounding analysis indicates  
20 that the air data are probably largely  
21 overestimates of the intakes, and we just  
22 believe that sticking closer to bioassay data  
23 is a more prudent thing to do. It's -- it  
24 gives you a better picture as to what the  
25 actual intakes were since you're measuring what

1 -- what the people actually breathed. And  
2 that's -- that's a proposal that we have out  
3 there.

4 Okay. One other thing on number five is  
5 there's a issue related to SLAPS workers. We -  
6 - we've talked among ourselves about this a  
7 fair amount and it's our opinion that the  
8 workers who were at the SLAPS facility --

9 **UNIDENTIFIED:** I have a question.

10 **DR. NETON:** Yes?

11 (NOTE: The ensuing conversation had no  
12 relation to the teleconference but resulted  
13 from malfunctioning telephone lines allowing  
14 other parties to become included on the subject  
15 call.)

16 **MS. MUNN:** We can hardly hear you.

17 **DR. WADE:** I think -- is this related to the --  
18 to our call on the radiation board?

19 **DR. NETON:** It almost sounds like we have two  
20 calls going on at the same time.

21 **DR. WADE:** Yeah, why don't -- I'm sorry about  
22 that. Why don't you continue, Jim.

23 **DR. NETON:** The SLAPS workers we -- we believe  
24 were not assigned there full time. In fact,  
25 they spent a large, if not the majority of

1           their time working in a plant. So if that's  
2           the case, then we believe assigning the plant  
3           distributions or the -- the monitoring data to  
4           them would be a reasonable approach.

5           Okay, getting down to number six, the example  
6           dose reconstructions, ORAU has pulled a number  
7           of cases. I don't -- I've forgotten the number  
8           now, but Joe, help me out here --

9           **MR. GUIDO:** Yeah.

10          **DR. NETON:** -- is it eight?

11          **MR. GUIDO:** There's nine raffinate workers and  
12          eight thorium workers that I identified that  
13          are currently claimants that fit some criteria  
14          that -- basically they're definitely either  
15          raffinate or thorium workers, either because  
16          they had very high external exposure and breath  
17          radon monitoring, and had descriptors with  
18          their bioassay data which definitely -- folks  
19          handling those materials. Or, for the thorium  
20          workers, those were a little easier. There's  
21          some ionium bioassay chain of custody forms  
22          that we've located, and so those clearly  
23          indicate people handling the thorium materials,  
24          or people who had uranium samples with  
25          descriptors that said ME process or Plant 7E,

1           so --

2           **DR. NETON:** Right. I'm sorry, go ahead.

3           **MS. MUNN:** This is Wanda. I was just  
4           commenting that was good news to have that kind  
5           of data.

6           **DR. NETON:** Right. So the thorium bioassay  
7           data we have at least for seven workers from --  
8           seven or eight, I forgot what Joe said --

9           **MR. GUIDO:** It's seven workers with ionium  
10          bioassay. There -- there's a couple other  
11          workers that were identified as Plant 7E on  
12          other -- through other means that did not have  
13          bioassay, but -- and these are claimants. I  
14          mean I'm not talk-- there's probably more that  
15          were on the sheets, but I'm talking about  
16          actual claimants, current claimants.

17          **DR. NETON:** Okay, so we -- we pulled those and  
18          Joe's been working diligently to -- to start  
19          the dose reconstructions using the data we  
20          have, and I -- I believe I would characterize  
21          these as fairly well-monitored workers, if I  
22          could use that term. And Joe's going to  
23          develop the distribution, the uranium intakes  
24          and then the radium intakes based on the  
25          activity ratios that we propose using the

1           Fernald silos, and then come -- came up also  
2           with radium intakes based on the radon breath  
3           analyses that we have for these folks. And  
4           then I think we can go and pull away parts of  
5           the data and then demonstrate what we would do  
6           if those data points were not there, which I  
7           think is one of the, you know, concerns and --  
8           and how that would change the picture and the  
9           relative magnitude of the intakes.

10          I think since we're now going with coworker  
11          urine data to a large extent, I don't suspect  
12          that things are going to change too much. It  
13          keeps us from having to use some of these very  
14          large air concentration results which, even  
15          when I talked at the Board meeting last time, I  
16          demonstrated to a large extent the air  
17          concentration data were -- were somewhat  
18          higher, that they were general area samples  
19          that had not really intended to indicate worker  
20          intakes. But --

21          **MR. GUIDO:** Jim, this is Joe Guido. I wanted  
22          to interject something here --

23          **DR. NETON:** Sure.

24          **MR. GUIDO:** -- too. It's my intention also in  
25          doing the dose reconstructions, the radon

1           breath monitoring data -- not only does it  
2           bound the -- the radium intake that's  
3           associated through those ratios, but it -- but  
4           it also -- my intention is also to use it to  
5           bound the -- the thorium -- you know, the other  
6           progeny that in the ratios, like the thorium --

7           **DR. NETON:** Right, yeah, I --

8           **MR. GUIDO:** -- (unintelligible) even actinium.  
9           I just wanted to make sure -- you know, get  
10          that out there, make sure that --

11          **DR. NETON:** Good point, Joe. I think it's  
12          reasonable -- it's a reasonable approximation  
13          to say that once we know what the bounding  
14          radium intake was and scale the progeny in  
15          relation to the radium based on what we see in  
16          the silo material. By the way, there --  
17          there's a fair amount of thorium-230 -- I was  
18          surprised -- in the airport -- in the K-65  
19          material.

20          **MS. WESTBROOK:** Could I interject something?  
21          This is Janet Westbrook. With regard to the  
22          yard, you know they did take some dust samples  
23          (unintelligible) workers (unintelligible) there  
24          in the yard, in the guard tower and so forth,  
25          so that they could calculate those exposures

1           for those particular job categories, so we do  
2           have some yard air data. And not only that --  
3           oh, I forget, Neton just said something and I  
4           wanted to speak to that a little bit, but I --  
5           the moment passed. Sorry about that. But  
6           anyway, we -- we do have a little yard data,  
7           but we don't -- have no environmental  
8           (unintelligible).

9           **DR. NETON:** Right, I appreciate that, Janet.  
10          We'll have to take a look at that and see if  
11          it's -- gives us enough robustness to  
12          extrapolate to workers throughout the site and  
13          by year and such. It might give us some -- a  
14          good feel for bracketing, you know, values.  
15          Let's see, where was I with -- I think I've  
16          covered pretty much where we are, so I -- I  
17          hope you feel we've made -- we've made a lot of  
18          progress. I mean we've been -- folks -- and I  
19          give credit to all the folks at ORAU and NIOSH  
20          that have really been burning the midnight oil  
21          to -- to bring this to completion, and we look  
22          forward to resolution of these issues.

23          **MR. GRIFFON:** That -- that -- that sounds good,  
24          Jim. I -- I was going to ask -- 'cause I think  
25          I'm going to have to pull off this call in

1           about ten minutes, but one thing I wanted to do  
2           before I left the call was to talk about the  
3           next -- the face-to-face meeting when I think  
4           we'll see some of your -- your final products  
5           here, or -- or near final products, anyway.

6           **DR. NETON:** Sure.

7           **MR. GRIFFON:** And I wondered if we can finalize  
8           a date on that. I was hoping for August 3rd or  
9           4th. I don't know how that times works for the  
10          other workgroup members or NIOSH.

11          **DR. WADE:** Well, I would ask for the 4th.

12          **MR. GRIFFON:** The 4th, yeah.

13          **DR. WADE:** Could I poll the workgroup members  
14          and -- and get a sense -- Mike a meeting on the  
15          4th in Cincinnati?

16          **MR. GIBSON:** Yeah, the (unintelligible) --  
17          yeah, the 4th looks okay.

18          **DR. WADE:** Okay. Wanda?

19          **MS. MUNN:** The 4th is fine.

20          **DR. WADE:** Jim?

21          **DR. MELIUS:** Yeah, I can do the 4th.

22          **DR. WADE:** Okay. And Mark, obviously you can  
23          do the 4th. Okay --

24          **MR. GRIFFON:** And I was thinking we could start  
25          it, you know, late enough that people can

1 travel in that morning -- at least myself.

2 **MS. MUNN:** With one exception.

3 **MR. GRIFFON:** With one exception, right.

4 **DR. WADE:** What time were you aiming for, Mark?

5 **MR. GRIFFON:** I -- I -- I think 9:00, 9:30,  
6 10:00, you know -- probably -- maybe 9:30.

7 **DR. WADE:** Okay, let's say 9:30 a.m. on the  
8 4th. That's next Thursday. Again --

9 **DR. NETON:** Mark, do we -- do we feel this will  
10 be a full -- full day meeting or...

11 **MS. MUNN:** I suspect it'll be close to it --  
12 this is Wanda. That's just my guess.

13 **MR. GRIFFON:** Yeah, my sense is I think it may  
14 take some ti-- you know, by the time you --

15 **DR. NETON:** I don't want to shorten it, I just  
16 want to plan for, you know, what my schedule  
17 might be.

18 **MR. GRIFFON:** Yeah, I believe it will be -- I'm  
19 assuming it will be close to a full day, yeah.

20 **DR. WADE:** Is LaShawn on this call?

21 **MS. SHIELDS:** Yes, sir, I'm here.

22 **DR. WADE:** And we're -- we're sure we have  
23 coverage in terms of having a reporter there to  
24 take the transcript.

25 **MS. SHIELDS:** Yes, we'll -- we'll make sure we

1           have it.

2           **DR. WADE:**   Okay, thank you.

3           **MS. SHIELDS:**   Sure.

4           **DR. NETON:**   I guess I didn't hear anybody from  
5           ORAU, the significant people that might  
6           participate.

7           **DR. WADE:**   SC&A?

8           **DR. MAURO:**   It's John Mauro.   I can make it.  
9           Arjun, are you available?

10          **DR. MAKHIJANI:**   Yes, yes, I can be there.

11          **DR. WADE:**   Okay.   We'll have to work out  
12          location, but let's assume it will be 9:30 next  
13          Wednesday, the 4th of August, in Cincinnati.  
14          And we'll get back to you with location.

15          **UNIDENTIFIED:**   (Unintelligible) that's a  
16          Thursday.

17          **DR. WADE:**   I'm sorry, Thursday the 4th.

18          **UNIDENTIFIED:**   Yes, correct.

19          **DR. WADE:**   I'm sorry if I misspoke, Thursday  
20          the 4th at 9:30 a.m.

21          **MS. BROCK:**   And this is Denise Brock.   I'm  
22          hoping someone can get back with me, as well,  
23          so I know where it's located at.

24          **DR. WADE:**   Okay.   We shall, Denise.   Does that  
25          time work for you, as well?

1           **MS. BROCK:** That's fine, certainly.

2           **DR. WADE:** Okay, thank you.

3           **MR. GRIFFON:** Okay.

4           **DR. WADE:** Are there other time frames we need  
5 to work out, Mark, while we have you on?

6           **MR. GRIFFON:** Yeah, I -- I -- the only other  
7 thing I -- I -- looking at your e-mail, Lew,  
8 that the discussion of the first time line that  
9 you went through sort of, I'm -- I'm assuming  
10 that -- that we're still -- that's still going  
11 to work with everyone? We sort of have that  
12 one deadline, anyway, of the -- of the Board  
13 meeting itself --

14          **DR. WADE:** Right.

15          **MR. GRIFFON:** -- so there's not a lot of  
16 flexibility in there. But I think everybody's  
17 still on line with those time frames. It  
18 sounds like -- Jim, it does sound like you've  
19 made a lot of progress on this.

20          **DR. NETON:** Yeah, I recognize -- I'd like to  
21 get these work products out as soon as possible  
22 so that people can have at least some heads-up  
23 before the Board -- before the meeting on the  
24 3rd -- or the 4th, I'm sorry. And if it's  
25 okay, these are going to maybe come out, you

1 know, as I can issue them.

2 **MR. GRIFFON:** That -- that's fi-- I mean --

3 **DR. NETON:** (Unintelligible) I've got a way to  
4 do that.

5 **MR. GRIFFON:** -- understandable, you know,  
6 yeah. Yeah.

7 **DR. NETON:** So -- and some of them will be --  
8 be in draft form -- again, subject to change,  
9 but at least you'll -- you'll get our -- a  
10 sense of our line of thinking on this and be  
11 better prepared to discuss the issues.

12 **DR. MAKHIJANI:** Generally by July 31st, Jim?  
13 This is Arjun?

14 **DR. NETON:** Yeah, I'll -- Arjun, that was our -  
15 - our deliverable date to you guys and I will  
16 get as many, if not all, of them to you by --  
17 out by -- by then. I assume I (unintelligible)  
18 those to the Board members.

19 **DR. MAKHIJANI:** I had one question on radon  
20 breath that was -- will -- will there be  
21 included some assessment of the validity of  
22 this data since there were questions about at  
23 least a part of it?

24 **MS. BLOOM:** In terms of questions, could you --

25 **DR. MAKHIJANI:** Well --

1           **MS. BLOOM:** -- (unintelligible) of what that  
2 means?

3           **DR. MAKHIJANI:** -- I -- I referred to some of  
4 it in the -- we referred to some of it in the -  
5 - in the report that we filed. It  
6 (unintelligible) reference (unintelligible).

7           **DR. NETON:** Yeah, I'm familiar with what you're  
8 speaking of, Arjun --

9           **DR. MAKHIJANI:** Yeah, great.

10          **DR. NETON:** -- and I know of at least --  
11 there's two issues. There's -- one is --  
12 there's the zero issue and then the other issue  
13 was that -- the data came into question, but  
14 everything that I've read thus far only  
15 indicates that it would -- (unintelligible) the  
16 inclusion of background radon in the results  
17 which would lead to higher estimates than lower  
18 estimates.

19          **DR. MAKHIJANI:** Okay. But you have something  
20 there on it.

21          **UNIDENTIFIED:** But it was only in the early  
22 years, the years as a SEC class. Right?

23          **DR. NETON:** I'm not sure. We'll address it,  
24 though. We'll -- we'll take a look at that.  
25 And you're right, Arjun, we need to -- we need

1 to close that loop.

2 **DR. MAKHIJANI:** Thank you.

3 **DR. NETON:** You're welcome.

4 **DR. MAURO:** This is John Mauro. Lew, could you  
5 confirm the full Board meeting location and  
6 dates? Has that been published?

7 **DR. WADE:** Yeah, I mean the location is St.  
8 Louis, Missouri and the dates are -- although  
9 they haven't been announced, it's our intent of  
10 the 25th and 26th of August.

11 **DR. MAURO:** Thank you.

12 **DR. WADE:** Mark, anything else you think we  
13 need to --

14 **MR. GRIFFON:** No, I -- I -- you know, I think  
15 we've covered most of it. I mean really with -  
16 - that's exactly what we wanted was kind of a  
17 status report, and I think everybody knows what  
18 we need to bring to next week's meeting, so  
19 that's -- it sounds like we're on a pretty good  
20 schedule here.

21 **DR. ZIEMER:** Mark?

22 **MR. GRIFFON:** Do any other workgroup members  
23 have anything to add?

24 **DR. ZIEMER:** Mark?

25 **MR. GRIFFON:** Yeah.

1           **DR. ZIEMER:** Yeah, Paul Ziemer here. I -- I  
2 was only able to get on sort of at the tail end  
3 of the discussion, but I just wanted to make  
4 sure that the workgroup has everything and  
5 you're satisfied with where we are on the  
6 schedule. This was more of a status report  
7 meeting, really.

8           **MR. GRIFFON:** That's right, and I think -- I  
9 think Jim -- Jim's just committed to getting  
10 these deliverables to us before the --

11           **DR. ZIEMER:** Right.

12           **MR. GRIFFON:** -- the face-to-face meeting next  
13 week.

14           **DR. WADE:** I think with -- Paul, on the call,  
15 though, we do have a quorum of the Board, so I  
16 think we need to --

17           **DR. ROESSLER:** Lew, I'm going to hang up.

18           **DR. WADE:** Thank you. Okay, sorry about that.  
19 I just -- they -- they pay me to watch that.

20           **MR. GRIFFON:** I (unintelligible) thinking of  
21 that.

22           **DR. WADE:** Okay. Paul, did you get your  
23 question answered?

24           **DR. ZIEMER:** Yeah, I just wanted to make sure  
25 that the -- that things were on schedule for

1 the face-to-face meeting coming up of the  
2 workgroup.

3 **DR. WADE:** Okay.

4 **MR. GRIFFON:** It sounds like we are on  
5 schedule.

6 **MS. MUNN:** And this is Wanda. I want to thank  
7 both the NIOSH and the SC&A people who have put  
8 in so much work on this. It's obvious there's  
9 been an awful lot of work since the last  
10 meeting and thank you. I know how tight that  
11 time schedule is on it.

12 **DR. WADE:** Thank you, Wanda.

13 **MR. GRIFFON:** Yeah, I think that goes for all  
14 of us. We appreciate your effort to get -- you  
15 know, to meet these tight time frames.

16 **DR. WADE:** Does anyone else wish to make a  
17 comment?

18 **MS. WESTBROOK:** I -- this is Janet Westbrook.  
19 I did remember what I -- earlier. Dr. Neton  
20 said something about all these samples were GA,  
21 but some of them in this -- were particularly  
22 high dose levels, they were breathing zone  
23 samples.

24 **DR. NETON:** You're right, Janet. I stand  
25 corrected.

1           **DR. WADE:** Okay, thank you. Okay, Mark, with  
2 your permission, I think we will conclude our  
3 business here. Again, there will be a  
4 transcript of this available. I can't promise  
5 the time frame, but you will hear from us  
6 within the next day or so as to the precise  
7 arrangements for the meeting next week in  
8 Cincinnati. I think --

9           **MR. GRIFFON:** Unless any of the workgroup  
10 members have anything to add, that's -- that's  
11 fine, Lew. Does anyone else have any comments?

12           **MR. GIBSON:** No, I don't. I think we're --

13           **MS. MUNN:** Sounds like we're done.

14           **DR. WADE:** Thank you all very much.

15           **MR. GRIFFON:** All right. Thanks a lot.

16           (Whereupon, the meeting was concluded.)

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

I, Steven Ray Green, Certified Merit Court Reporter, do hereby certify that I transcribed the above and foregoing from the day of Jul. 26, 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 29th day of August, 2005.

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**STEVEN RAY GREEN, CCR**

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