

This transcript of the Advisory Board on Radiation and Worker Health, Linde Ceramics Work Group, has been reviewed for concerns under the Privacy Act (5 U.S.C. § 552a) and personally identifiable information has been redacted as necessary. The transcript, however, has not been reviewed and certified by the Chair of the Linde Ceramics Work Group for accuracy at this time. The reader should be cautioned that this transcript is for information only and is subject to change.

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

+ + + + +

ADVISORY BOARD ON RADIATION AND  
WORKER HEALTH

+ + + + +

WORK GROUP ON LINDE CERAMICS PLANT

+ + + + +

MONDAY  
AUGUST 15, 2011

+ + + + +

The Work Group convened in the London Room of the Cincinnati Airport Marriott, 2395 Progress Drive, Hebron, Kentucky, at 9:00 a.m., Genevieve S. Roessler, Chair, presiding.

PRESENT:

GENEVIEVE S. ROESSLER, Chair  
JOSIE BEACH, Member  
JAMES E. LOCKEY, Member\*

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2

ALSO PRESENT:

TED KATZ, Designated Federal Official\*

ANTOINETTE BONSIGNORE\*

CHRIS CRAWFORD, DCAS

MONICA HARRISON-MAPLES, ORAU Team\*

KARIN JESSEN, ORAU Team\*

STEVE OSTROW, SC&A\*

JENNY LIN, HHS\*

JOHN MAURO, SC&A

JIM NETON, DCAS

MUTTY SHARFI, ORAU Team

JOHN STIVER, SC&A\*

\*Participating via telephone

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Adjourn

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

2 9:15 a.m.

3 MR. KATZ: Thank you, everybody.

4 Good morning, everyone. This is the Advisory  
5 Board on Radiation and Worker Health, Linde  
6 Work Group.

7 We're just getting started 15  
8 minutes late. And we apologize to everyone  
9 who's been holding on the line for that, but  
10 we were missing a principal party for this.

11 So, let's begin with roll call, and  
12 please speak to conflict of interest,  
13 beginning with Board Members.

14 (Roll Call.)

15 MR. KATZ: Very good. The agenda  
16 for the meeting is on the Board website under  
17 the Meetings page. And let me just ask  
18 everyone on the line to please mute your  
19 phone, except when you're addressing the  
20 group. To mute, \*6 if you don't have a mute  
21 button.

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1                   And it's all your agenda, Gen.

2                   CHAIR ROESSLER: Well, this is  
3 another Linde Work Group meeting. If my count  
4 is right, we have had 13 meetings. We started  
5 in 2007, and we finished our last one in  
6 February 2011.

7                   After that meeting, we closed the  
8 petitions. The Board voted on the petitions  
9 January 1st, 1954, through December 31st,  
10 1969. That one was recommended for an SEC.

11                  And then the period from January  
12 1st, 1970, through July 21st, 2006, and that  
13 one the SEC was denied.

14                  Just as a reminder and looking at  
15 the date here, I think it was 2005 the Board  
16 voted the Linde 1942 -- October 1st, 1942,  
17 through October 31st, 1947 period as an SEC.

18                  So, that leaves us now with our  
19 current petition which is SEC-00154 which  
20 covers the period November 1st, 1947 through  
21 December 31st, 1953. So, I give you that as

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1 background so we can keep all these dates in  
2 mind.

3 And so the first thing I'd like to  
4 do in looking at the agenda, is to ask if  
5 there are any additions or changes to the  
6 agenda.

7 DR. MAURO: This is John Mauro. The  
8 only thing I would like to -- that really  
9 makes a nuance to the agenda, is SC&A noticed  
10 that there is a new matrix on the web and came  
11 across it over the weekend while preparing for  
12 this meeting, that basically appears -- I read  
13 it as best I could -- to be a consolidation,  
14 an update, a lot of information that was  
15 compiled and reviewed and discussed and closed  
16 over the past several years on all aspects of  
17 the Linde program from the very beginning in  
18 '42, right up to the end of the third -- I  
19 guess all the way to the '90s, the last SEC  
20 that was voted on.

21 And internal to that is included

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1 the 1947 to '53 time period. I call it the  
2 D&D time period. So, it's all here and it  
3 turns out to be a convenient compendium.

4 I read -- Steve Ostrow and I both  
5 read it as best we could to just make sure  
6 that it reflects the -- historically what we  
7 all discussed.

8 So, I just want to bring that to  
9 the attention -- and the reason I think it's  
10 important is that in reading that, and we'll  
11 get to this, there's only one aspect to it  
12 that seems to me that brings up a technical  
13 question that could be important that needs to  
14 be aired out.

15 I think most other technical issues  
16 that we have been -- we have raised, for  
17 example, that SC&A has raised in our report  
18 that came out last month also, July 2011,  
19 where we've identified what the issues are and  
20 SC&A's position regarding those issues.

21 The only thing that's new, in my

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1 mind, is in my mind, and that has to do with  
2 something I noticed in the latest version of  
3 the matrix that NIOSH put out.

4 So, I guess that sort of sets the  
5 stage for that one additional dimension to the  
6 discussions we will be having today.

7 CHAIR ROESSLER: And I think  
8 probably we should discuss that, we'll let  
9 John bring up his questions first.

10 And, John, I'm wondering since you  
11 and Steve talked about this yesterday, I'm  
12 wondering if Steve has any additional input.  
13 I wonder which one of you would like to go  
14 first on presenting this.

15 DR. MAURO: Steve, when we broke  
16 last night, I know I read what I read and you  
17 and I -- are you on the line, by the way?

18 DR. OSTROW: Yes, I'm here.

19 DR. MAURO: Great. Yes, and you  
20 know my -- the concern I expressed regarding  
21 the raffinate question --

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1 DR. OSTROW: Right.

2 DR. MAURO: -- during the D&D  
3 period and why.

4 Is there anything -- I guess really  
5 there are two questions. Has this raffinate  
6 issue, to your knowledge, come up before and  
7 been closed out? And, really, where are the  
8 records that say, no, it's okay, and here's  
9 why? Or is this an issue that is one that  
10 didn't come up and requires a little  
11 discussion?

12 DR. OSTROW: To my knowledge, it  
13 hasn't come up before.

14 DR. MAURO: Okay.

15 DR. OSTROW: Last night I was  
16 looking through a couple years of our comments  
17 on the Site Profile and the SEC, and I  
18 couldn't find where we brought this up before.

19 DR. MAURO: Okay. I mean, so to the  
20 best of our knowledge, this is an issue that  
21 for better or worse, we overlooked.

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1                   How important it is to be discussed  
2                   today, maybe it's easy to resolve, and so it  
3                   is important that we have this on the agenda.

4                   CHAIR        ROESSLER:        It's        my  
5                   understanding that what you're bringing up  
6                   does apply to this time period.

7                   DR. MAURO:   And it does apply to  
8                   this time period.

9                   CHAIR   ROESSLER:   So, I think we  
10                  should go ahead and present your formal  
11                  question and we'll see what NIOSH has to say  
12                  in response.

13                  DR. MAURO:   Okay.

14                  MR. KATZ:   Gen?

15                  CHAIR ROESSLER:   Yes.

16                  MR. KATZ:   Gen, this is Ted. I'm  
17                  sorry. I just wonder -- I think just for  
18                  orderliness, and I know that I don't know  
19                  about this, but I gather there is another  
20                  matter to discuss.

21                  But, I mean, the agenda as we have

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1 it, has sort of first a presentation regarding  
2 the petition, and then the SC&A review and so  
3 on.

4 I mean, maybe it fits in with the  
5 SC&A review, but it would be good to get the  
6 overall first rather than dive into a detail.

7 CHAIR ROESSLER: Okay. Yes, Ted, we  
8 discussed that before we got started here.  
9 And we thought maybe it would be better to get  
10 this issue out of the way, but we can go  
11 either way.

12 We can jump right into the NIOSH  
13 presentation of the ER if that sounds like a  
14 more logical sequence.

15 MR. KATZ: Thanks.

16 CHAIR ROESSLER: Okay. So, that's  
17 what --

18 MR. KATZ: I just think that's  
19 probably easier for the petitioner and others  
20 to sort of get everything in context rather  
21 than start off with a detail.

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1 CHAIR ROESSLER: And the other  
2 advantage of doing it that way is the people  
3 now who need to look to see what the answer  
4 is, they've got a little bit of time to look  
5 up the answer.

6 So, we'll then jump into NIOSH's  
7 summary of the ER. I assume that's Chris.

8 MR. CRAWFORD: With your permission,  
9 Gen, I'll keep this fairly brief because the  
10 petition has been presented to the Board and I  
11 think the Working Group Members are pretty  
12 familiar with it by this time.

13 What we're dealing with for these  
14 petition dates consist, really, of two parts.  
15 The first being a final production period  
16 called Step III production at Linde that --

17 MR. KATZ: Chris, can you maybe  
18 bring the mic closer to you?

19 CHAIR ROESSLER: It's right there.

20 MR. CRAWFORD: Then during the SEC  
21 period, we're dealing with two different types

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1 of activity on the site. The first is a final  
2 production period called Step III production  
3 which involved taking uranium oxide, which is  
4 a highly-processed material, some of it may  
5 have been made at Linde, but much of it by  
6 that time came from off site, and turning it  
7 into uranium hexafluoride or green salt. That  
8 started November 1st, '47, and finished June  
9 30th, 1949.

10 After that, we're into what we call  
11 the D&D period, the decommissioning,  
12 decontamination, during which the machinery  
13 was all removed and many interior parts of the  
14 building were removed. There were a lot of  
15 wood parts, scaffolding and so forth.

16 And basically, there was a fairly  
17 intensive cleanup period in each building  
18 where various methods were used, mechanical  
19 methods, to remove the existing uranium  
20 contamination in the buildings.

21 We can go into that in detail, but

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1 I think we've done it already. So, let me  
2 skip over that.

3 NIOSH found that we could estimate  
4 both internal and external dose during this  
5 SEC period. And that was based on two things.

6 Particularly during the production  
7 period, the workers who were most exposed,  
8 that is the workers who were working on the  
9 Step III process, were in fact monitored for  
10 external and internal dose with -- we have  
11 over 500 urinalyses, maybe 700. And we also  
12 have external dose readings, I think, up to  
13 6,000 over the period.

14 During the D&D period, we have  
15 measurements of airborne activity, that is,  
16 while the cleanup was in process.

17 And I should explain, by the way,  
18 most people may not be aware of it, that the  
19 cleanup while we show it formerly going from  
20 July 1st, '49, right through December 31st,  
21 '53, these buildings typically took about two

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1 weeks to process.

2 We know that Building 30, which was  
3 the most contaminated building, was about a  
4 two-week process. So, it isn't as if we had  
5 workers in there eight hours a day for years  
6 doing this work.

7 When they weren't being  
8 decontaminated, the buildings were in use, for  
9 the most part, as warehouses.

10 That about sums up where we are, I  
11 believe. The tables can be found in the TBD,  
12 and to a certain extent in the 154 ER. So, I  
13 think the exact details -- the basic point is  
14 that we feel we can limit or bound both  
15 external and internal dose due to the  
16 dosimetry results that we have.

17 Anything else?

18 DR. MAURO: I could add in that  
19 historically we -- and, Steve, please do also  
20 jump in. The statements you made, I agree  
21 completely with regard to the

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1 completeness/adequacy of airborne and bioassay  
2 data related to uranium. And also I agree  
3 with regard to the radon.

4 And the numbers are here, the  
5 number of measurements. They include both  
6 bioassay and air sampling and breathing zone  
7 for the uranium.

8 And the -- so, the way we see it is  
9 you have good information upon which to build  
10 your coworker models above ground for uranium.

11 Now for radon, we again looked at  
12 the radon. Now, you don't actually have radon  
13 measurements above ground, as I understand it.

14 But you make a very nice case of why the  
15 radon measurements collected during the '42 to  
16 '50 -- to '47 time period for those time  
17 periods and locations, where African ore was  
18 not being handled.

19 And it turns out where you did have  
20 high radon, the numbers are all there and they  
21 are pretty high, but you do have a lot of

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1 radon measurements in those other areas and  
2 locations where the African ore wasn't there.

3 And, therefore, what you're looking  
4 at is -- and its associated raffinates, and  
5 you pick 10 picocuries per liter as being your  
6 default value.

7 So in a way, the radon levels as we  
8 understand it that were selected for the time  
9 period eventually, so we'll call it the D&D  
10 period, it's really the Step III/D&D period,  
11 we are comfortable with the 10 picocurie per  
12 liter as your default value even though it's  
13 somewhat surrogate data.

14 Certainly, there's nothing in here  
15 that errs -- it's not served in its  
16 conventional sense, because it does come from  
17 the same facility, just for a different time  
18 period.

19 So, right now with regard to the  
20 matters you just mentioned, namely uranium  
21 inhalation and radon inhalation above ground,

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1 we concur. And that's actually written up in  
2 our report that came out in July.

3 Maybe it's a good time to move on.

4 I mean, certainly there's questions. Maybe  
5 we're really setting the stage now where we  
6 seem to be okay and where we may have some  
7 questions.

8 And all I can say is right now the  
9 two pieces you addressed, the radon and the  
10 radium above ground for those time periods, we  
11 believe you've got sufficient data and argue  
12 its case that it's scientifically sound and  
13 claimant favorable.

14 Now, we can talk about that some  
15 more.

16 DR. NETON: I think we can put this  
17 other issue to bed pretty quickly. I've had a  
18 chance since --

19 DR. MAURO: Okay.

20 DR. NETON: -- since you raised  
21 this question, to look at the Site Profile.

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1 And Mutty can supplement me here, but your  
2 question was how do we know what the progeny  
3 ratios were in the post-operations period.

4 DR. MAURO: Right.

5 DR. NETON: And I'm looking at the  
6 TBD Section 3.4 that deals with the uranium  
7 progeny, specifically the subheading Ceramics  
8 Plant 1947 to '49 Step III Productions.

9 And I can just paraphrase. There's  
10 a table. None of the uranium progeny would  
11 have been present in significant quantities in  
12 the fine uranium materials, which will account  
13 for uranium progeny potentially present from  
14 past activities and resuspended during  
15 decontamination/decommissioning activities.  
16 Data from the post-operations period was  
17 reviewed to determine bounding activity  
18 ratios. Table 3-3 presents bounding indoor  
19 uranium progeny ratios for use in dose  
20 reconstructions for the period '47 through  
21 '53. The values in this table are the highest

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1 observed values from the indoor and storm  
2 sewer sampling locations.

3 So, that's what it says. I don't  
4 know whether you need to go back and look at  
5 how comfortable you are with that bounding  
6 values, but we use measurements that were  
7 taken.

8 DR. MAURO: I did see that. But at  
9 the same time, I saw that other section where  
10 you talked about the 0.1 MAC. There was  
11 another place in the --

12 DR. NETON: Yes, well --

13 DR. MAURO: And that threw me for a  
14 loop a little bit because it didn't seem to be  
15 compatible.

16 DR. NETON: Okay. Mutty, can you  
17 fill in that hole there?

18 MR. SHARFI: John, is there a  
19 specific part where you're talking about where  
20 it says 0.1 MAC?

21 DR. MAURO: Yes, yes. Let me go to

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1 it.

2 CHAIR ROESSLER: While he's looking  
3 that up, it appears Table 3.3 is a little out  
4 of place.

5 MR. SHARFI: Yes, it should be  
6 moved up.

7 CHAIR ROESSLER: Should be moved up  
8 into -- if we do that, then -- okay, go on.

9 DR. MAURO: No, I agree. When I saw  
10 this table, I was encouraged, the 3.3.

11 DR. NETON: It seems to me it said  
12 0.1 MAC, but we said that we could have --  
13 does that equate at 7 dpm alpha per cubic  
14 meter.

15 DR. MAURO: Yes.

16 DR. NETON: My presumption here is  
17 that we would have portioned the alpha based  
18 on the ratios that are shown in Table 3-3.

19 DR. MAURO: Okay.

20 DR. NETON: Is that not right,  
21 Mutty?

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1 MR. SHARFI: That is correct.

2 DR. MAURO: Okay. So, right now I'm  
3 looking at Page 38. And there is the third  
4 paragraph down. You've got a "for example."  
5 And I was left with the impression that the  
6 assumption was being made that there was a  
7 knowledge of the relative abundance.

8 And I immediately, when I saw 0.1  
9 MAC, assumed that the relative abundance was a  
10 natural relative abundance, but that's not the  
11 case.

12 The relative abundance is the one  
13 you're seeing here.

14 DR. NETON: In 3-3.

15 MR. SHARFI: Right.

16 DR. MAURO: Okay.

17 MR. SHARFI: The very last sentence  
18 in that section says that you still use the  
19 progeny from the alpha from above.

20 DR. MAURO: Okay.

21 DR. NETON: 7 dpm.

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1                   MR. SHARFI: That's just giving you  
2 the uranium part. And then the progeny stuff  
3 comes from the previous section.

4                   DR. MAURO: Okay. So, let me see if  
5 I -- so, they're married. The uranium is  
6 married to the raffinates. Let's call them  
7 raffinates.

8                   Based on -- now, I know you have a  
9 lot of good measurements on uranium. And now  
10 the measurements you have for the thorium-230  
11 and the radium-226 during that same time  
12 period, how was that done?

13                   In other words, they're basically  
14 saying we're going to hang our hat on those  
15 numbers that were made at that time. I guess  
16 I didn't know you actually had thorium-230 and  
17 radium measurements whether air sampling  
18 measurements or swipe samples, that would let  
19 you know what that ratio is.

20                   MR. SHARFI: There's some storm  
21 sewer -- I mean, I think some of this is post-

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1 D&D. I'd have to actually find the raw data  
2 to verify that, but I would believe that most  
3 of it would probably be not during the D&D,  
4 but probably post-D&D.

5 DR. NETON: So, the indoor and storm  
6 sewer sampling locations, is what it says.

7 MR. SHARFI: Yes.

8 DR. NETON: And it references  
9 Attachment E. However, I went to Attachment E  
10 --

11 MR. SHARFI: I believe that should  
12 be Attachment C.

13 DR. NETON: C, okay. So, if we go  
14 down to Attachment C --

15 MR. SHARFI: Page 96.

16 DR. MAURO: Okay. So, the  
17 presumption is that whatever the ratios were,  
18 and they seem to be pretty consistent, 0.2,  
19 that you observed in the stormwater system  
20 post-D&D, which would put us at 1953, that  
21 that would be a ratio that would be more or

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1 less reasonably applied to the D&D period.

2 DR. NETON: Indoor and in the storm  
3 sewer.

4 DR. MAURO: Right.

5 DR. NETON: The highest bounding  
6 value --

7 DR. MAURO: Okay.

8 DR. NETON: I'm looking here.  
9 Attachment C is the table.

10 MR. SHARFI: The table also has  
11 sediment values and all this other stuff too,  
12 but the basis was off the storm sewer and the  
13 indoor air information.

14 DR. MAURO: Just for my edification  
15 if you have 20 percent by activity, I'm  
16 assuming, of, let's say, thorium-230 to  
17 uranium as your ratio, and you know your  
18 uranium based on all the good data you have,  
19 and you say we're going to add in whatever  
20 that intake rate is, whatever that picocurie  
21 per day -- or becquerel per day is for the D&D

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1 period for uranium, you're going to say 20  
2 percent of that is going to be the number of  
3 becquerels per day that you're inhaling the  
4 thorium-230.

5 I suspect that adds quite a bit of  
6 dose to at least bone and lung. So, it's not  
7 a small contribution.

8 MR. SHARFI: Yes, these are pretty  
9 big ratios.

10 DR. MAURO: Yes, they are.

11 CHAIR ROESSLER: So, you're saying,  
12 John, that it's a conservative approach  
13 towards --

14 DR. MAURO: Well, it is an important  
15 -- sometimes when you talk about residue and  
16 you say there's always residue, but this  
17 residue could be important.

18 And the fact that -- I don't know  
19 how many measurements they have. And as  
20 clearly we heard, it's not actually taken  
21 systematically during the D&D period. It's an

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1       extrapolation.

2                       We have to have some numbers -

3                       DR. NETON: Well, there are some  
4 values from Building 30 air samples during  
5 D&D. There's actually one set here.

6                       DR. MAURO: Okay.

7                       DR. NETON: But there are also soil  
8 sediments, Building 14 samples of the actual  
9 materials. So, I mean, that's the -

10                      DR. MAURO: And they ring true,  
11 they're all hanging around this 0.2 number.  
12 It's not that they have a big spread.

13                      DR. NETON: I'd have to go back and  
14 re-look at this table.

15                      DR. MAURO: I mean, I look at it  
16 from common sense. If you got -- if you're  
17 scattering your data during the D&D period,  
18 post-D&D period whether it's sediment, soil,  
19 air samples or whatever and you did your  
20 analysis -- by the way, when you're saying  
21 you're doing your thorium-230 analysis, how do

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1 you do that?

2 DR. NETON: How do you do that?

3 DR. MAURO: Yes, how do you -- I  
4 mean, thorium-230 is always annoying, isn't  
5 it?

6 DR. NETON: These are reported  
7 values. I mean, I assume these are isotopic  
8 analyses.

9 DR. MAURO: And do some chemical  
10 separation?

11 DR. NETON: There would have to. I  
12 mean, otherwise you couldn't determine that.

13 DR. MAURO: Well, to get back to my  
14 question is, when I look at something like  
15 this, we say, okay, that number certainly  
16 seems plausible given that there were no  
17 raffinates there and they got rid of the  
18 African ore. The only reason you have any  
19 thorium-230 and radium-226, it happened to be  
20 residual from the early 1940s. And this is  
21 what's sort of left over that's there during

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1 the D&D period.

2 And if it turns out that there's a  
3 number of locations and times when these  
4 samples were collected, the data are analyzed  
5 and you consistently get a number that's on  
6 the order of -- the ratio on the order of 0.2,  
7 well, now you got a nice robust data set you  
8 can hang your hat on.

9 But if some places you have numbers  
10 where the ratio is ten to one thorium, other  
11 places it's 0.1 and they're scattered all over  
12 the place, if you don't have that -

13 DR. NETON: Well, if you look at  
14 Attachment C, it provides the ratio thorium-  
15 230 to uranium for all these locations.

16 DR. MAURO: Yes, let me take a quick  
17 look.

18 DR. NETON: And if you look at  
19 Building 14 and Building 30 where the air  
20 sample was taken, I would argue the average  
21 there is 0.2 or less.

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1 DR. MAURO: You're good.

2 DR. NETON: Okay.

3 DR. MAURO: The numbers are 0.3 to  
4 0.1.

5 DR. NETON: Right. And the actual  
6 measured value in the air sample in Building  
7 30 during D&D, was 0.11.

8 DR. MAURO: I mean, this subject, I  
9 guess, wasn't delved in very deeply before. I  
10 don't recall. It goes back a ways.

11 Steve, I think your recollection is  
12 we didn't talk too much about this?

13 DR. OSTROW: That's correct. We  
14 never really brought this up before.

15 DR. MAURO: All I can say right now  
16 from reading what I read last night and from  
17 looking at the table that Jim just showed me,  
18 it certainly appears reasonable. The look of  
19 Table 3-3 in their new --

20 CHAIR ROESSLER: It's actually  
21 Attachment C.

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1 DR. NETON: Well, Attachment C is  
2 the data that were used --

3 DR. MAURO: The raw data.

4 DR. NETON: -- to develop Table 3-  
5 3.

6 DR. MAURO: And I didn't look at  
7 that until now.

8 CHAIR ROESSLER: Yes, I think maybe  
9 it's because it was listed as Attachment E in  
10 the text and maybe you didn't get to -

11 DR. MAURO: Oh, I didn't miss it. I  
12 looked at E, because E was the --

13 CHAIR ROESSLER: Yes, so I think -

14 DR. MAURO: I was thrown by that.

15 CHAIR ROESSLER: It's an error in  
16 the --

17 DR. MAURO: It's actually in this  
18 report?

19 CHAIR ROESSLER: Yes, look on Page  
20 96.

21 DR. MAURO: Okay.

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1                   CHAIR ROESSLER: We've actually  
2 jumped to what we had said would be the last  
3 item on our agenda, but maybe we've almost  
4 finished.

5                   DR. NETON: Yes, I think.

6                   CHAIR ROESSLER: So, if you go to  
7 Page 96 and take a look at that table, why  
8 don't you do that and we'll come -- I would  
9 suggest we come back to this.

10                  DR. NETON: Well, I'd just like to  
11 make one point here though.

12                  CHAIR ROESSLER: If you think you  
13 can wrap it up.

14                  DR. NETON: The fact is we base it  
15 on data that were measured at the site, and  
16 then one can argue or discuss what the  
17 relevant ratios might be. But the fact is we  
18 have data, and then that becomes an  
19 interpretation issue, not a showstopper, in my  
20 opinion.

21                  It's like how are these data best

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1 used to establish that bounding ratio? And I  
2 think there is sufficient data there to allow  
3 us to do that.

4 DR. MAURO: There's no doubt that  
5 the numbers in Attachment C are looking good.

6 They were collected in '80, '78, '81, '90,  
7 '81, which separates it pretty nicely from '47  
8 to '53.

9 You say what does that mean? I'm  
10 not sure.

11 MEMBER BEACH: We'll come back to  
12 that.

13 CHAIR ROESSLER: Yes, let's -- Josie  
14 suggested and I think it's a good idea to come  
15 back to that. Maybe give you and Steve a  
16 little bit of time as you can to look at it.

17 However, I think what we have done  
18 is John preempted a little bit Steve's -- I  
19 assume Steve is going to do his review of the  
20 NIOSH ER. And he came out with, as usual, a  
21 very complete, concise and easy to read

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1 document.

2 So, Steve, would you like to  
3 summarize that?

4 (No response.)

5 CHAIR ROESSLER: Steve?

6 DR. OSTROW: Oh, okay. I had the  
7 phone on mute.

8 (Laughter.)

9 DR. OSTROW: I end up talking to  
10 myself.

11 All right. As usual, we first went  
12 through the petitioner's --

13 CHAIR ROESSLER: Steve, it's hard to  
14 hear you. Can you get -- are you on a speaker  
15 phone?

16 DR. OSTROW: Okay. I'm off the  
17 speaker phone.

18 CHAIR ROESSLER: Oh, that's better.  
19 Thank you.

20 DR. OSTROW: Okay. Great. First  
21 thing we did, we looked at the actual petition

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1     itself from the petitioners, to try to  
2     identify what issues that they were bringing  
3     up, technical issues.

4                     And we had found three of them that  
5     we put in Table 1 of our report. And we took  
6     a look -- the first one was worker Class that  
7     the petitioners brought up that NIOSH can't,  
8     with any certainty, define whether employees  
9     were limited to work in specific buildings at  
10    the Linde Ceramic site. That means the Class  
11    should consist of all workers.

12                    And NIOSH agreed when they did  
13    define the Class, they accepted the  
14    petitioner's definition. So, there's no  
15    further issue to consider. The definition is  
16    all workers, all employees at that time  
17    period.

18                    Secondly, the petitioners brought  
19    up a question, an issue about pertaining to  
20    records and data. And to do this, they  
21    actually attached to the petition an entire

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1 SC&A report that we had done two years ago.

2 At that time, the Work Group may  
3 remember we had looked at the Site Profile --  
4 I forgot the time -- and thought that the Site  
5 Profile addressed all of the petitioner's  
6 concerns. This is for an earlier petition.

7 And we concluded at the time, they  
8 did. This was for the earlier one, the SEC-  
9 00107.

10 And the petitioners for the new  
11 petition, 154, brought up two issues of air  
12 concentration data and data on exposure and  
13 concentration.

14 We looked at the two issues again  
15 and we had concluded that, as I think John was  
16 summarizing before, that NIOSH does have  
17 sufficient information to estimate airborne  
18 and radon in particular concentrations.

19 The third issue that the  
20 petitioners had brought up that we identified,  
21 that workers who should have been monitored

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1 were not. Not everyone was monitored as they  
2 were supposed to.

3 And then they attached to the  
4 petition several worker statements that they  
5 had taken to say that not everyone was  
6 monitored.

7 We had either these exact same  
8 worker statements or similar worker statements  
9 before when we were looking at the earlier SEC  
10 petition, 00107. In fact, we interviewed  
11 several of the workers.

12 And we concur with the workers'  
13 statements that we had looked at it before,  
14 that they had claimed they weren't monitored.

15 But we believe that the NIOSH coworker model  
16 that they're using is adequate to cover the --  
17 to estimate the doses to workers who weren't --  
18 -- may not have been monitored during the  
19 period in question.

20 So, those are the three worker  
21 concerns that we identified -- the three

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1 petitioner concerns we identified from the  
2 petition.

3 In addition, SC&A identified three  
4 issues of its own, which we -- so, the worker  
5 issues were Issues 1, 2 and 3. And we came up  
6 with 4, 5 and 6 which are ours.

7 Number 4, utility tunnel timeline,  
8 and we have -- there's been a lot of  
9 discussion of this over the past couple of  
10 Work Group sessions that we've had. And this  
11 may be more of a dose reconstruction issue  
12 than an SEC issue, but SC&A is not -- I'm not  
13 totally clear which tunnels were actually in  
14 place at any given time period.

15 There were some questions and  
16 there's a lot of correspondence back and forth  
17 which tunnel was where and which.

18 I looked last night after John  
19 alerted me that there was a new version of the  
20 Site Profile, and this might have been in the  
21 older version too, but I didn't pay that much

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1 attention to it, there was a good timeline on  
2 the tunnel section, on which tunnel was first  
3 and which was second and what the time periods  
4 were.

5 So, I'm not sure if this is really  
6 an issue anymore because it seems that NIOSH  
7 is pretty clear in the new Site Profile of the  
8 Rev 2 on the timeline for the tunnels.

9 Issue Number 5, which was our  
10 second issue --

11 MEMBER BEACH: So, can we stop and  
12 discuss these, or do you want to go through  
13 them all? Because I have issues with Number  
14 4, too.

15 DR. OSTROW: Okay.

16 MEMBER BEACH: Gen, which would you  
17 prefer?

18 CHAIR ROESSLER: I think we ought to  
19 -- I think Chris has some input on this. So,  
20 I think we ought to stop here and try to clear  
21 up the tunnel issue.

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1 DR. OSTROW: Okay.

2 MR. CRAWFORD: Does anyone at the  
3 table need --

4 MEMBER BEACH: No, we have that.

5 So, this is Josie. I just have a  
6 couple of questions.

7 Some of the documents I have is a -  
8 - this was sent out SRDB 083626. It was  
9 titled Utility Tunnel Plots Number 1.

10 If you look through this on Slide  
11 11 of 16, the earliest day or the date is 1953  
12 and it shows all the tunnels in question  
13 around Building 56, 31, 30, 70, 14. They're  
14 all here listed in 1953.

15 There's also worker statements of  
16 November 15th, 2010, that state that the  
17 workers worked in those tunnels during those  
18 early years.

19 So, I guess I'm not convinced that  
20 those tunnels didn't exist back when these  
21 buildings were built.

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1                   When I look through the ER, I know  
2                   that these buildings were built in '47. And  
3                   why they wouldn't put utility tunnels between  
4                   the buildings at that time period -- so, I  
5                   guess I need more proof of why this 1953 map  
6                   is not correct, which would be a radon issue  
7                   for the workers, in my opinion.

8                   So, that's it for me. And I do  
9                   have your map. I have looked at it, but I'm  
10                  afraid I don't agree with it based on this  
11                  map.

12                 CHAIR ROESSLER: Josie, the map  
13                 you're looking at, what document is that in?

14                 MEMBER BEACH: This is the SRDB  
15                 right here. And it was one that Antoinette  
16                 sent out in 2010. The document's on the front  
17                 there, Gen.

18                 CHAIR ROESSLER: Yes.

19                 MEMBER BEACH: But it's two pages.  
20                 I wasn't able -- I was trying to blow up the  
21                 big ones, but -- so, I got the one that showed

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1 the tunnels and then the one that showed the  
2 date.

3 And not to mention, there's several  
4 workers -- I think there's three workers that  
5 testified that they used tunnels back in those  
6 early days.

7 MR. CRAWFORD: I'm going to reply.  
8 I don't of course have that particular SRDB  
9 document, but I do remember looking at it.  
10 And I think on close inspection, you will see  
11 that it was -- the original may have been '53,  
12 but there are many updates to it.

13 MEMBER BEACH: There are updates to  
14 it. That is true.

15 MR. CRAWFORD: So, we don't know -

16 MEMBER BEACH: But the updates are  
17 not -- didn't have anything to do with the  
18 tunnels. I looked at that very closely also.

19 MR. CRAWFORD: But if you were  
20 trying to use that document from much later  
21 and you were updating that document, you would

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1 probably put the tunnels in.

2 MEMBER BEACH: Even the tunnels in  
3 several of the maps in '47, had the tunnels  
4 in. So, what I'm saying is I need more proof.

5 I need to know for sure that those tunnels  
6 didn't exist.

7 And based on those maps and my  
8 understanding of how to read them, the tunnels  
9 were there when the buildings were built. So,  
10 you're going to have to show me something that  
11 -- other than what you came up with, because  
12 it's not -- it's not clear.

13 MR. CRAWFORD: Well, I also looked  
14 through the worker interviews and there's  
15 contradictory testimony.

16 MEMBER BEACH: That's true. That's  
17 true. There's one that says they went through  
18 tunnels around eight (8). I looked through  
19 those as well. But there's three that said  
20 they did, so how do you --

21 DR. NETON: I haven't looked at

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1 these drawing in a while. But, Chris, isn't  
2 it true that when you look at those drawings,  
3 they are design drawings to add additional  
4 sections of tunnels?

5 Is that not the way that you  
6 interpret those?

7 MR. CRAWFORD: Yes.

8 MEMBER BEACH: Some of them are.  
9 The 16 have different utilities. There's  
10 different reasons why they --

11 DR. NETON: Right, but the ones that  
12 we have show clearly what date they were drawn  
13 and the intention of adding the tunnel  
14 sections. I mean, that's sort of the way --  
15 if you look at the drawing and it says add  
16 this tunnel here, and the date is X, then it's  
17 a design drawing.

18 MEMBER BEACH: See, I don't have  
19 those drawings. These drawings are different  
20 drawings.

21 MR. CRAWFORD: They're on the

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1 Board's site. They have been for quite some  
2 time.

3 DR. NETON: They're all there.

4 CHAIR ROESSLER: Well, I think  
5 you've got this with the report that Chris  
6 came out with around -

7 MEMBER BEACH: Yes.

8 CHAIR ROESSLER: And I think they're  
9 referring to these figures.

10 MEMBER BEACH: Well, I'd like to see  
11 the actual drawings that that was made from.

12 DR. NETON: Well, they're all there.  
13 I mean, they're all on the site --

14 MEMBER BEACH: I can show you what I  
15 have, at break. And maybe if somebody wants  
16 to help me interpret it --

17 DR. NETON: Yes, I understand.

18 MEMBER BEACH: But right now --

19 DR. NETON: What you have is a  
20 composite drawing that shows it's been updated  
21 to add all the tunnels.

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1                   MEMBER BEACH: That's not what I  
2 have, I don't believe.

3                   DR. NETON: Well, okay.

4                   MEMBER BEACH: But I'm not sure.

5                   CHAIR ROESSLER: Perhaps this is an  
6 item that, like Josie suggested, that we may  
7 look at, at break if that's okay to --

8                   DR. MAURO: Could I just add a  
9 perspective on it stepping back?

10                  I know the tunnel issue was very  
11 important during the last SEC review, '53 on.

12                  And it was agreed that rather than going to  
13 10 picocurie per liter presumed with the  
14 concentration after quite a bit of discussion  
15 working with Dr. Field, your folks came up  
16 with 98 picocurie per liter at least for that  
17 time period.

18                  DR. NETON: Right.

19                  DR. MAURO: And that's been  
20 resolved. And that is not the basis for the  
21 SEC. So, it was agreed that --

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1 DR. NETON: Right.

2 DR. MAURO: -- we could reconstruct  
3 it.

4 DR. NETON: That's a good point,  
5 John.

6 DR. MAURO: Now, let's go back in  
7 time now. Now, we go back to '47 to '53.  
8 Let's presume for a moment, yes, there is some  
9 uncertainty regarding what tunnels were there  
10 in those years, which are possibly very  
11 different than the tunnels in the later years,  
12 but let's assume there were some tunnels  
13 there. Maybe not all of them, but some, or  
14 all of them.

15 And then you ask yourself the  
16 question, is there any reason to believe that  
17 the radon levels that we agreed upon post-'53  
18 don't have applicability under worst case  
19 conditions from '47 to '53.

20 Now, you could say, hey, that -- I  
21 could almost -- now, and I recall the reason

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1 for the 98, had to do with knowing what the  
2 radon levels were in basements in that county  
3 as adjusted for the residual contamination  
4 that would sort of bring the average levels a  
5 little higher.

6 Now, whether those average levels  
7 actually existed in '47 to '53, we don't know.

8 So, what I'm heading at is that there's some  
9 factual information that maybe things will be  
10 worked out, maybe not related to two matters.

11 One, what tunnels were there in '47  
12 to '53? And, two, what residual levels of MAC  
13 manmade radium was in the soil in the vicinity  
14 of those tunnels at that time?

15 Under worst case conditions if,  
16 yes, there was residual radium that was  
17 comparable to what was observed post-'53, and  
18 if the tunnels were in fact there, don't you  
19 simply default to the 98 picocurie per liter  
20 as you approach the D&D dose calculations?

21 MEMBER BEACH: There's one other

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1 issue with the tunnels besides the radon.  
2 It's the overflowing of the contaminated  
3 wells, which the workers stated overflowed  
4 into the tunnels also. So, there's another  
5 issue. That's based on the worker interviews  
6 that I read.

7 DR. OSTROW: This is Steve. I'm  
8 trying to follow up with what John was saying.

9 We had settled with NIOSH that they  
10 would use the 99.31 picocuries per liter as a  
11 plausible upper bound estimate for radon  
12 exposure. And on Page 76 of their new Site  
13 Profile, the Rev 2, and they said this before  
14 also, this is -- they're going to use this  
15 value of 99.31 picocuries per liter for all  
16 years -- for all the utility tunnels for all  
17 years at the Linde site beginning from first  
18 MED production through the present.

19 So, the 99.31 applies to the period  
20 that we're looking at, the SEC period we're  
21 looking at. And we're happy with that,

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1 because we worked this out.

2 The only question remaining is not  
3 the value of 99.31, it's which tunnels were  
4 actually there at the time. That seems to be  
5 the issue. It's not the 99.31. It's the --  
6 which tunnels does it actually apply to? What  
7 was there?

8 And as far as the business about  
9 the injection wells and radioactive waste  
10 overflowing every now and then, that was  
11 actually -- and NIOSH can chime in here and  
12 correct me if I'm wrong, but that was actually  
13 captured by the measurements that were taken  
14 inside the utility tunnel walls.

15 Anything that had seeped into the  
16 tunnels from the soil surrounding, including  
17 from injection well overflows, would have been  
18 captured in the measurements that were taken  
19 on the inside walls of the utility tunnels.

20 That's not like a new issue that  
21 has to be added to what was already done. Am

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1 I correct about that?

2 MR. CRAWFORD: Well, the  
3 contamination inside the tunnel, yes. We  
4 based that on actual measurements.

5 DR. OSTROW: It looks like captured  
6 in the measurements that were taken from the  
7 utility tunnel wall.

8 MR. CRAWFORD: Right. I would like  
9 to return to the construction of the tunnels.

10 Ms. Beach, did you read the  
11 document I sent out last week?

12 MEMBER BEACH: Yes.

13 MR. CRAWFORD: Good, because I think  
14 we need to go through that point by point.

15 Also, it's very easy to cherry-pick  
16 worker testimony. I have workers who said,  
17 what tunnels? These are workers who have been  
18 there since '53. Didn't even know there were  
19 tunnels.

20 I have workers who said, yes, there  
21 were tunnels. I never went into a tunnel.

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1 And these are tradespeople.

2 MEMBER BEACH: Sure.

3 MR. CRAWFORD: When you talk about  
4 an office worker, so the idea that people used  
5 them frequently to go to lunch. Maybe. But  
6 to get more specific, the people with the most  
7 specific testimony say something else.

8 This is a trades worker who worked  
9 there form '53 on into the '70s, and his  
10 statement is there were three primary tunnels.

11 The east-west tunnel went from the power  
12 house that's Building 8 -

13 MEMBER BEACH: Right.

14 MR. CRAWFORD: He didn't remember  
15 the number. Across the whole length of the  
16 site to the office area in Buildings 1, 2 and  
17 10. And to the operations in Buildings 2A and  
18 2B. This tunnel was built prior to '53, which  
19 is when he started. In fact, it was built in  
20 '37.

21 The north-south tunnel, I'm quoting

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1 the worker again, went the whole length of the  
2 site to Buildings 30, 31 and 57 on the  
3 northeast border of the site. There was a  
4 branch off this tunnel that went to the west  
5 to Building 70.

6 I skipped a word here. There are  
7 other junctions off this tunnel, and one went  
8 to the north end of the property to Building  
9 31. These tunnels were built after 1956.  
10 Now, that's pretty specific. Not hand waving.  
11 He was there. He witnessed it.

12 Also, then we have in my paper as  
13 you will see, we asked Praxair to send us the  
14 tunnel construction drawings. They sent us  
15 five drawings. One from '37, one from '57 and  
16 then the other three I believe are -- one from  
17 '61, and the other two from '90.

18 MEMBER BEACH: Is there an SRDB for  
19 that -- those drawings you're talking about?

20 MR. CRAWFORD: Yes. They're also,  
21 however, on the Board's website under tunnel

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1 drawings. They have been specifically picked  
2 out and put there to be available to the  
3 Board.

4 I'll be happy to send you the SRDB  
5 numbers.

6 MEMBER BEACH: No, I can find it if  
7 it's listed like that.

8 MR. CRAWFORD: Right. We also have  
9 internal evidence, again which I tried to lay  
10 out at some length, on the tunnel drawings  
11 themselves.

12 You will see that if you look at  
13 it, the tunnels seem to be the focus of the  
14 drawing. After all, if you're going to  
15 construct a building and the tunnel isn't  
16 going under the building, why show the tunnel  
17 at all, is one logical thing to say.

18 But you will also see that utility  
19 lines that intersect the tunnels are all  
20 marked to be abandoned, to be abandoned, to be  
21 abandoned, one after another. Wherever they

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1 hit the tunnel, to be abandoned, because they  
2 were being dug up at the time.

3 Also, there were surface structures  
4 that explain why there weren't tunnels there  
5 in the '40s and '50s, the early '50s.

6 There were trestles. They carried  
7 the utility, the steam, gas and so forth, the  
8 waterlines on trestles from the power house,  
9 apparently. They're marked on the building.

10 And in the '61 drawing -- they  
11 appeared on the '57 and the '61 drawings. In  
12 the '61 drawing, you will see that there's  
13 even a construction note, trestles to remain  
14 in place until all utility line connections  
15 have been made through the tunnel, basically.

16 So, we have lots of evidence, not a  
17 little evidence, about when these tunnels are  
18 made.

19 This is also -- I think we should  
20 realize and as I point out, this is not an SEC  
21 issue. As John points out, we have bounding

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1 dose for radon. We have bounding dose for  
2 particulates in the tunnels. Even if the  
3 tunnels did exist, it wouldn't be an SEC  
4 issue.

5 So, this is really a TBD issue.  
6 When do we give dose for people who may have  
7 worked in the tunnels? And we're, I think,  
8 being very claimant favorable.

9 We're basically giving the highest  
10 possible dose to all trades workers and  
11 laborers. And then we're giving a much  
12 smaller dose, so many minutes per day, to  
13 every other worker on the plant site. This is  
14 in the TBD for dose reconstruction purposes.

15 So, we've looked at this fairly  
16 carefully. We think it's unlikely that the  
17 northern set of tunnels were used very much by  
18 non-trades workers who were going from place  
19 to place.

20 There are several reasons for this.  
21 The primary reasons are the entrances for the

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1 tunnels are not inside the buildings. So, you  
2 have to go outside the building, go to a  
3 junction box, climb down a vertical ladder  
4 into the tunnel, and then you can walk.

5 The southern sections of the tunnel  
6 that was built in '37, is different. There,  
7 the entrances are all in the buildings. It's  
8 a simple stairway down to the tunnel. And you  
9 could easily go from the power house right  
10 down to the administrative buildings.

11 So for that section of tunnel, it  
12 would have made sense for workers to go during  
13 the winter back and forth. However, that  
14 section of the tunnel was not exposed to  
15 enhanced radium, because the ore that was  
16 processed there was pre-processed ore, which  
17 we know from documentary evidence.

18 We also know, because we have soil  
19 samples from the area which don't show any  
20 radium enhancement. Whereas the soil samples  
21 up in the Building 30-31 area, we find fairly

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1 high radium values just as you might expect  
2 from having handled many thousands of tons of  
3 African ore.

4           So, we have to look at the gestalt  
5 here, the whole picture. And I think we have  
6 enough documentary evidence, I think we have  
7 enough worker interview evidence and  
8 structural drawing evidence to say when these  
9 tunnels were in place, and that it's a TBD  
10 issue.

11           So, I think that sums up what I had  
12 said in my report for the most part.

13           CHAIR ROESSLER: Seems to me, too,  
14 this is what John and Steve were also saying  
15 is that they have -- there are bounding doses  
16 that NIOSH has come up with that SC&A has  
17 agreed are okay.

18           MR. CRAWFORD: Right.

19           CHAIR ROESSLER: So, and then I  
20 think that says, too, it's not an SEC issue.  
21 So, I'm not quite sure where we --

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1 DR. MAURO: That's SC&A's position.

2 The one you just described.

3 CHAIR ROESSLER: Yes, it seems to me  
4 we've covered this issue if John and Steve  
5 agree.

6 I'm not quite sure, Josie, where I  
7 would like to -- I would like to have you  
8 satisfied about the timing on the tunnels just  
9 for general purposes, but --

10 MEMBER BEACH: Well, I just need  
11 someone to look at the documents that I have  
12 and the reading of them. And then I want to  
13 look at -- because I have not looked at the  
14 documents.

15 I was just going on the tunnel  
16 drawings that I have.

17 CHAIR ROESSLER: But do you agree at  
18 this point, it's not an SEC issue?

19 MEMBER BEACH: Yes.

20 MR. CRAWFORD: Could you give me  
21 that SRDB number again, Josie, so I can -

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1 DR. NETON: Well, maybe during the  
2 break we can get with Josie and show her --

3 CHAIR ROESSLER: Let's plan on a  
4 break at about 10:30 and we can do that.

5 MEMBER BEACH: That's fine.

6 CHAIR ROESSLER: Meanwhile, I think  
7 we can -- Steve, do you have anything else  
8 then to say on your Item 4?

9 DR. OSTROW: That's it for the Item  
10 4. We just -- I heard NIOSH's arguments now  
11 and I've read all this stuff about tunnels,  
12 and I understand Josie's concern also.

13 And we're not totally clear on when  
14 the tunnels were built, but we don't see this  
15 as an SEC issue though because it -- NIOSH is  
16 not relying on -- when they're calculating the  
17 exposures to personnel, they're not looking at  
18 which person was in which tunnel, when.  
19 They're just applying the 99.31 picocuries per  
20 liter in general.

21 DR. MAURO: Steve, if I might -

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1 DR. OSTROW: Yes.

2 DR. MAURO: SC&A agrees that NIOSH  
3 always defaults to the 99 picocurie per liter  
4 if they so judge that that would make sense in  
5 this application. It's not apparent right now  
6 whether or not that's your plan.

7 In light of the information you  
8 provided, which is very -- the story is, well,  
9 wait a minute, there wasn't any elevated  
10 radium or African ore residuals in the  
11 vicinity of the tunnels that existed in this  
12 time period.

13 DR. OSTROW: Right.

14 DR. MAURO: Under those  
15 circumstances, there would be no reason to  
16 assign a radon dose to anyone in the tunnels.

17 Because the only reason you assign radon dose  
18 -- really, most of that radon dose that we've  
19 calculated for the post-'53 period, was from  
20 naturally-occurring radon, if you recall.

21 And the only reason it was in the

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1 game was because, yes, there was a little bit  
2 of contribution from the -- there was some  
3 stuff sitting around. There was no other  
4 exposure, right? I mean, that was my  
5 understanding.

6 In other words, the radon that the  
7 person was exposed to in the tunnels post-'53  
8 was a combination. Oh, and it was also the  
9 stuff that was inside the tunnel, yes. So, it  
10 would still be at play.

11 DR. OSTROW: Yes.

12 DR. MAURO: So, this is  
13 conceptually. So, let's say you had a limited  
14 number of tunnels in the earlier years, the  
15 kinds that you just described. And there was  
16 reason to believe, and there's evidence, that  
17 there's no residual radium manmade in the  
18 immediate vicinity of those tunnels. And  
19 there's no reason to believe that in the  
20 interior of the tunnel, there's residual  
21 contamination from flooding.

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1                   Then the only radon that anyone  
2 would be exposed to, would be radon that might  
3 enter the tunnel naturally from -- now, I  
4 guess I'm not too sure of this, but I would  
5 assume that that would be off the table.

6                   DR. NETON: That's per IG-003 that  
7 describes how we handle radon, DOE or AEC  
8 radon versus natural radon. That would not be  
9 covered because the tunnel was not put there  
10 for the benefit of the AEC project.

11                   For instance, radon in the Nevada  
12 Test Site mine shafts would be covered,  
13 because the mine shaft was specifically built  
14 to support a DOE activity. The Gravel Gerties  
15 is another example where we cover radon.

16                   But if it's just an ancillary  
17 facility building structure that happens to be  
18 there --

19                   DR. MAURO: For Linde's --

20                   DR. NETON: -- for Linde's own  
21 purposes, it wouldn't be covered.

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1 DR. MAURO: Do you know at this  
2 time, what position -- now, this is a Site  
3 Profile issue. But for the sake of doing your  
4 cases that show up, do you assign or not  
5 assign this dose, do you take the position --  
6 because it was my understanding from what  
7 Steve said, he read something that sounds like  
8 you are going to give the 99 --

9 DR. NETON: Yes, that confused me a  
10 little bit, and maybe I should be a little  
11 more familiar with -- Mutty, are you still on?

12 MR. SHARFI: Yes, I am.

13 DR. NETON: What is the current  
14 position in the TBD on radon and tunnels  
15 during the D&D period, 1947 to '53?

16 MR. SHARFI: I believe it starts in  
17 '57 when the second set of tunnels are built.  
18 So, the pre-'57 would not cover radon, I  
19 believe.

20 DR. NETON: Exactly. I thought that  
21 was our position. I think Steve might have

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1 misunderstood what we were saying.

2 But at the current time, our  
3 position is that the tunnel that would have  
4 been contaminated wasn't there in that period.

5 And, therefore, there would be no radon  
6 assigned during that period.

7 DR. MAURO: Well, would it be fair  
8 to say then this is a Site Profile issue that  
9 might still be on the table in light of the  
10 questions that are being raised by -

11 DR. NETON: Yes, that's fair enough.  
12 I mean, sure. Okay.

13 MR. CRAWFORD: If I could chime in,  
14 I just had occasion to look at the document  
15 that Josie handed me here.

16 There are two things on it, Josie,  
17 that make me quite certain that this is a  
18 redrawn document. This is not a 1953  
19 document.

20 And those two things are Building  
21 70 is here. We know Building 70 was built

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1 after 1961. In the 1961 drawing, it's shown  
2 as a proposed building.

3 Also, Building 30 is shown as, in  
4 parentheses, "pad." That means it's been torn  
5 down. That didn't happen until the '90s.

6 MEMBER BEACH: Now, the biggest  
7 problem with that is I know the second page  
8 isn't very big.

9 MR. CRAWFORD: Right.

10 MEMBER BEACH: It shows the drawing  
11 was updated in a certain year, but it doesn't  
12 say what was updated, which is very hard to --  
13 unless they just updated it for the utility  
14 tunnels, which is -- or not the utility  
15 tunnels. The overheads.

16 MR. CRAWFORD: Precisely. It's hard  
17 to tell what's updated and what isn't, but I  
18 can assure you that at least two of the things  
19 on here didn't happen until after '61. In one  
20 case, after 1990.

21 So, it's hard to use it as evidence

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1 that anything else was in place in 1953.

2 DR. NETON: So, I think that's where  
3 we're at is our position is that we have  
4 documentary evidence that the contaminated  
5 tunnel was not there prior to '57 and that we  
6 would not assign a radon exposure during that  
7 period.

8 But if it was established or we had  
9 decided that it was there, we do have a way to  
10 bound the exposure. So that, in my opinion,  
11 then, and I think we tend to agree here, that  
12 that would be a Site Profile discussion.

13 It's not can we do it, but what  
14 would be used, which bound is more  
15 appropriate.

16 CHAIR ROESSLER: It seems we've  
17 closed that issue for the purposes of the SEC  
18 determination.

19 Josie, do you have any further  
20 concerns on that?

21 MEMBER BEACH: I'm still not a

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1 hundred percent convinced. I want to look  
2 through these drawings a little bit more  
3 closely.

4 CHAIR ROESSLER: Okay.

5 MEMBER BEACH: Because if it's not  
6 an SEC, then it is still the workers aren't  
7 being given the correct dose for that time  
8 period for those visits.

9 CHAIR ROESSLER: Okay. We'll do  
10 that at break.

11 MEMBER BEACH: So, we can do that  
12 later.

13 CHAIR ROESSLER: As best we can,  
14 yes.

15 DR. NETON: But we would like to get  
16 some resolution on the SEC piece of that,  
17 because that's --

18 MEMBER BEACH: Right, right, right.

19 DR. NETON: That's important.

20 CHAIR ROESSLER: So then, let's see,  
21 Steve, have we closed Issue 5?

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1 DR. OSTROW: Yes, we were discussing  
2 4 and 5 together. That from what I hear, that  
3 we're all in agreement to apply 99.31  
4 picocuries per liter for the tunnel radon  
5 dose. And the only -- seems a little bit  
6 uncertainty, is exactly when to apply it.

7 I'm not totally clear from  
8 listening to the discussion, when NIOSH is  
9 actually applying it and when you're not  
10 applying that number, and have you decided  
11 it's actually a Site Profile issue?

12 So, as far as our comments to the  
13 SEC, I'm satisfied with that.

14 CHAIR ROESSLER: So, then carry on  
15 to your next item.

16 DR. OSTROW: Yes, the last item.  
17 Okay, we made the observation based on -- this  
18 is the workers' written/oral statements. We  
19 had spoken to the workers, we read a lot of  
20 their petition. That it's not really  
21 appropriate in most cases, to assign workers

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1 to a particular job category or task.

2 The workers told us that because of  
3 the work conditions, that their job  
4 assignments were very fluid. I mean, somebody  
5 may be assigned to one job one week. And then  
6 the next week he's doing something else or  
7 just basically doing whatever work needed to  
8 be done.

9 So, we think that a claimant-  
10 favorable approach would be to assign the  
11 unmonitored or partially monitored workers  
12 with the highest external exposures  
13 experienced in any given time period, but  
14 didn't know really what jobs they were doing  
15 at any particular time.

16 MR. CRAWFORD: Again, a TBD issue.  
17 We defined -- it also is a little bit  
18 dependant on what period we're discussing.

19 For instance, during the  
20 decontamination period, we identify workers on  
21 the basis of whether they were likely D&D

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1 workers or not.

2 Basically, we've been, I think,  
3 very claimant favorable by assuming that all  
4 tradespeople, all blue collar workers,  
5 essentially, will be getting that maximum  
6 dose.

7 We would only be excluding  
8 secretarial, administrative workers and some  
9 management from that category.

10 After the D&D period, then of  
11 course it's a little complicated because we  
12 have an SEC now in place through '69, which  
13 makes the exposures only for non-scheduled  
14 cancers.

15 Again, for internal exposures, we  
16 assigned, again, I think, a very claimant-  
17 favorable 4.2 MAC exposure continuously  
18 through the '69 period.

19 After that, we do a depletion and  
20 go down to levels that were found in '76, '77,  
21 the FUSRAP numbers, and continue.

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1                   And perhaps, Steve, it will help to  
2 say that the tunnel exposures go to the full  
3 99.31 picocurie level beginning in March of  
4 '57 and from then on.

5                   And then, again, any trades worker  
6 is assumed to have been working in the tunnel  
7 for two months a year. And non-trades workers  
8 were given, I think, ten minutes a day,  
9 something like that, but every day all year.  
10 So, I hope that helps a little bit with  
11 exposure model.

12                   Is this a little clearer, or is  
13 there a specific issue here that -

14                   DR. OSTROW: That's, I think,  
15 clearer to me.

16                   CHAIR ROESSLER: So, do you still  
17 have issue with -- is there still a question  
18 about Issue 6?

19                   DR. OSTROW: Not really. It's  
20 interesting that I had more of an issue with  
21 it before I sort of reread it last night -- or

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1 I read last night for the first time, the Rev  
2 2 of the Site Profile on what doses were  
3 assigned when.

4 And it might have been in the  
5 earlier revision, I don't know, I didn't  
6 compare one to the other, but at least it  
7 became a little bit clearer to me last night  
8 how the job categories were handled.

9 And I think NIOSH did do a  
10 claimant-favorable assignment.

11 DR. MAURO: The way I look at these  
12 kinds of questions is when you set up a Site  
13 Profile, that's what we're talking right now,  
14 you're going to lay out the ground rules for  
15 use by your dose reconstructors, the  
16 philosophy makes sense.

17 I mean, in essence, you're arguing  
18 that there are certain values that reasonably  
19 could be made. And ultimately, though, that  
20 judgment is made by the dose reconstructor and  
21 he reads the person's history.

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1                   And then, unfortunately, the  
2 reality is SC&A can't really make a statement,  
3 was that judgment applied reasonably, until we  
4 review the DR.

5                   So, it almost becomes as -- the  
6 issue goes; one, do we have an SEC issue? No.  
7 Do we have a Site Profile issue? Not really,  
8 because what you're really saying is certain  
9 statements that who could argue with?

10                   In other words, it seems reasonable  
11 that you would make these kinds of  
12 distinctions to the extent you can. And you  
13 admit that to the extent you can.

14                   And when we can't, you default to  
15 the worst. I mean, how could you argue with  
16 that?

17                   Then in the end, the last line of  
18 defense is, okay, now we've got a real person  
19 and we're going to do it, and judgments are  
20 being made and of course there's protocol.

21                   And then that's when we get into

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1 the DR review. And on many, many occasions we  
2 disagree on a case where we say, well, you  
3 know, I think, blah, blah, blah, you know, you  
4 should have assigned this to a higher  
5 category.

6 I actually had a case where I said  
7 I think you should assign it to a lower  
8 category. It was a nurse.

9 So, I guess I think we've reached a  
10 boundary of what can be handled in this venue  
11 on this matter, because really -- unless you  
12 don't feel that way.

13 I mean, this is how I see the  
14 world.

15 CHAIR ROESSLER: Well, it seems that  
16 we have -- I think what you just said and what  
17 Steve says, we have no -- or you have no  
18 issues that relate to the SEC.

19 We do have two TBD issues of the  
20 one uranium progeny question, and then Josie's  
21 question about when the tunnels were built.

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1                   So, Ted, if you're still there and  
2 listening, do you have any advice for us as to  
3 where we should go from here?

4                   I think we have time left today for  
5 the group while it's assembled, to address the  
6 two TBD issues, but maybe we should close the  
7 SEC discussion first.

8                   DR. MAURO: I would say this to the  
9 one SEC issue that's still in my mind in  
10 looking at your table and the dates. I agree  
11 with your numbers. Your numbers are  
12 beautiful, but they are taken from the '80s  
13 and '70s and we're going to say those numbers,  
14 those ratios apply to the 1950s. That was  
15 that table we looked at in the back.

16                   DR. NETON: Yes, I agree with you,  
17 but I think the indoor numbers, I'd be hard  
18 pressed to see why those ratios would change  
19 inside a building.

20                   DR. MAURO: Yes, and I guess a  
21 little -- I mean, we don't want to leave

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1 anything left in the gray area. And that's  
2 the one area right now that says let's talk a  
3 little bit about that.

4 Why would we all be comfortable  
5 with using the 0.2 ratio of the, you know, 20  
6 percent of the activity. And in fact what  
7 we're saying is the default approach is we  
8 know what the uranium intake is. We're going  
9 to assume whatever becquerels per day is.  
10 We're going to assume that for every becquerel  
11 we have 0.2 becquerels per day coming in that  
12 has radium-226 and thorium-230.

13 And that's based on these ratios  
14 that were observed in various locations in the  
15 dates as indicated, '95, '78, '81, '80, '90  
16 and '81 again.

17 Now, only reasonable to ask is  
18 there anything about that could have happened  
19 between 1953 and those dates, where that ratio  
20 won't hold up?

21 That's really -- is there a good

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1 reason to know that ratio is going to hold up.

2 And I think that is the question in my mind.

3 If we can put that to bed, we have done our  
4 job.

5 DR. NETON: And I would just point  
6 out that the indoor building ones I --  
7 outdoors I can understand there may be some  
8 concern about creek samples and that sort of  
9 thing.

10 But if you have an air sample that  
11 was taken during D&D inside the building, you  
12 have dry valve dust, you have corridor  
13 overhead dust, you have corridor wall dust.

14 I mean, these are inside the  
15 building. And unless the building was flooded  
16 somehow and leached and stuff, I don't see why  
17 that ratio would be different.

18 DR. MAURO: So, you're saying if  
19 we're in this room 20 years ago and -

20 DR. NETON: 20 years later --

21 DR. MAURO: -- some dust was

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1 deposited on the table and the rafters and  
2 everything 20 years ago, and you came in and  
3 took a sample, there's no reason to believe  
4 the ratio there would be any different than --

5 DR. NETON: I'd be pretty  
6 comfortable with that.

7 DR. MAURO: There's nothing  
8 operating on it that would separate it.

9 DR. NETON: There's no chemical  
10 separation process, yes.

11 MEMBER BEACH: What about Building  
12 38? I didn't notice that in your list of  
13 buildings.

14 Building 38 was Process 3, wasn't  
15 it? If I remember correctly.

16 MR. CRAWFORD: That's correct.

17 And the specific question is?

18 MEMBER BEACH: Why it didn't make  
19 your attachment on this table.

20 DR. NETON: Was it purified by then?

21 MR. CRAWFORD: Pardon?

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1 DR. NETON: We're talking about  
2 buildings that processed the ores.

3 MR. CRAWFORD: Right. Building 38  
4 didn't process ore.

5 DR. NETON: Right.

6 MR. CRAWFORD: It was just uranium  
7 oxide.

8 MEMBER BEACH: Okay.

9 DR. NETON: So, you wouldn't have --

10 MR. CRAWFORD: Also, we based  
11 everything on the dirtiest building, which was  
12 Building 30.

13 MEMBER BEACH: 30.

14 MR. CRAWFORD: Figuring that was  
15 claimant favorable.

16 CHAIR ROESSLER: So, John, are you -  
17 -

18 DR. MAURO: Well, Jim's arguments  
19 are compelling. I mean, they're common sense  
20 arguments.

21 CHAIR ROESSLER: So, the ratios

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1 wouldn't change the --

2 DR. MAURO: Yes, the argument -- I  
3 mean, I'm sitting here thinking what would  
4 cause the radium to go away or to stay a lot  
5 differently. What mechanical operations would  
6 be taking place inside the building?

7 I could see weathering and the  
8 environment where there's rain when you got  
9 different solubilities, but you don't really  
10 have that inside the building.

11 I mean, I can't find fault with  
12 that.

13 CHAIR ROESSLER: So, again, I think  
14 we were addressing Attachment C, Page 96 of  
15 the TBD. And if I understand it right, then,  
16 John, we have cleared up that issue?

17 DR. MAURO: Yes.

18 CHAIR ROESSLER: Okay. Anything  
19 else?

20 (No response.)

21 CHAIR ROESSLER: Then I think we're

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1 back to my question of Ted.

2 Are you there?

3 MR. KATZ: Yes, I'm here.

4 So, it sounds like there aren't any  
5 TBD issues on the table either anymore? Is  
6 that what --

7 CHAIR ROESSLER: No, I think we have  
8 cleared up, if I understand it correctly, we  
9 have cleared up the SEC issues.

10 I think SC&A has agreed with the  
11 resolution and everything NIOSH has proposed  
12 with regard to SEC.

13 However, we have a couple TBD  
14 issues to talk about, and my suggestion is  
15 that we keep the group here and on the phone  
16 and try and clear those up as best as  
17 possible.

18 MR. KATZ: Right. No, I agree with  
19 that. And you can do things in whatever  
20 order. I mean, you can either -- if you're  
21 done with the SEC, and I understand that

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1 there's still, for example, with the tunnels,  
2 Josie wants to look at something at a break  
3 and so on, and I would encourage you to do  
4 that, yes.

5 And I would encourage you to finish  
6 the TBD issues. And then whether you want the  
7 petitioner to have an opportunity to have  
8 questions and comments after this SEC  
9 discussion, or after you also address the TBD  
10 issues, you know, you can do it either way.

11 CHAIR ROESSLER: I think we should  
12 have the petitioner go first. Why don't we do  
13 it this way?

14 I would like to take a vote on the  
15 SEC issues. Then I'd like to have a break.  
16 And then let the petitioner come on and then  
17 address the TBD issues.

18 How does that sound?

19 MR. KATZ: Josie, can you hear me?

20 MEMBER BEACH: Yes.

21 MR. KATZ: I guess I would suggest,

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1     though, before you make your final decision  
2     about the SEC issues, she hasn't had a chance  
3     to speak to you about the SEC issues, and it  
4     seems like you should hear her first.

5                   CHAIR ROESSLER: Okay. That sounds  
6     good.

7                   MR. KATZ: Before you make a  
8     decision about that.

9                   CHAIR ROESSLER: Well, I suggested a  
10    break about 10:30, and I assume it's  
11    Antoinette who's going to be speaking.

12                   And I'm wondering, Antoinette, do  
13    you want to speak and then we'll take a break,  
14    or do you feel you need more than about five  
15    minutes to present your discussion?

16                   MS. BONSIGNORE: Gen, can everyone  
17    hear me?

18                   CHAIR ROESSLER: Yes.

19                   MS. BONSIGNORE: Okay. Actually, I  
20    was not planning on making any comments right  
21    now. I was just going to preserve my

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1 presentation and comments for the full Board  
2 when the petition is presented again to the  
3 Board for the final vote.

4 MR. KATZ: That's fine then,  
5 Antoinette. That's certainly your  
6 prerogative.

7 MS. BONSIGNORE: Okay.

8 MR. KATZ: Then it seems like we can  
9 have you a break, Josie, and come back --

10 CHAIR ROESSLER: Well, unless are  
11 there any other petitioners? I don't think we  
12 heard anyone was on the line.

13 MS. BONSIGNORE: I'm the only  
14 petitioner, Gen.

15 CHAIR ROESSLER: Okay.

16 MS. BONSIGNORE: I'm the  
17 representative for the Class.

18 CHAIR ROESSLER: Then I suggest we  
19 break until quarter til 11:00 our time, and  
20 then we'll come back and pick up from there.

21 MR. KATZ: Sounds good. Thank you.

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1 Quarter of 11:00 eastern time.

2 CHAIR ROESSLER: Eastern time.

3 (Whereupon, the above-entitled  
4 matter went off the record at 10:28 a.m. and  
5 resumed at 10:43 a.m.)

6 MR. KATZ: Thanks, Josie. I'm here.

7 So, you can get going.

8 CHAIR ROESSLER: Okay. This is Gen.

9 During the break, we had a few discussions  
10 here. And those of us on the Work Group in  
11 the room, which is me and Josie, decided that  
12 we really need more time to talk about some  
13 things before we try to resolve the SEC  
14 issues.

15 In view of the fact that the TBD  
16 came out fairly recently and SC&A hasn't  
17 really had a chance to look at some of the  
18 background material, what we're proposing is  
19 that we ask SC&A to do some more review. In  
20 particular, the two things we've been  
21 discussing; the uranium progeny ratios and

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1 where do the numbers come from, and are they  
2 really -- is the proposal really appropriate,  
3 and then we really want to get more resolution  
4 on the tunnel data.

5 So, Josie has suggested that SC&A  
6 also along with Josie, look at the background  
7 data there.

8 The other thing is we do have a  
9 Work Group Member, Jim Lockey, on the phone,  
10 but we haven't had Mike Gibson involved in  
11 this discussion at all.

12 So, our proposal at this point, or  
13 my proposal, is that we try and get some of  
14 these issues taken care of by SC&A, allow Work  
15 Group Members more time to look at things, and  
16 that we have a teleconference sometime in the  
17 next couple months to go over this again.

18 There's silence on the phone, but,  
19 Ted, does that sound like a reasonable  
20 approach?

21 MR. KATZ: That's fine with me, but

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1 you're saying a teleconference to further  
2 discuss the SEC issues; is that correct?

3 CHAIR ROESSLER: Yes, just to make  
4 sure that we have covered everything. We're  
5 thinking that a lot of the issues are TBD, but  
6 I think there's enough uncertainty here that I  
7 think it would be good to just take more time,  
8 get more background information and allow SC&A  
9 to look in more detail at some of the issues  
10 that could relate to the SEC.

11 MR. KATZ: And that's fine. This  
12 upcoming Board meeting does not have a place  
13 on the agenda for Linde. So, you can report  
14 on your progress, but you weren't going to be  
15 reporting out for Board action at this Board  
16 meeting anyway.

17 CHAIR ROESSLER: That's exactly the  
18 thing.

19 MR. KATZ: You do have time.

20 CHAIR ROESSLER: We feel we do have  
21 more time and that we ought to just do as good

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1 a job as we can on these issues.

2 MR. KATZ: That sounds good to me.

3 Thank you.

4 CHAIR ROESSLER: And, in fact, it  
5 appears that I had suggested that the group  
6 stay around and stay on the phone, but I think  
7 at this point that's not even really  
8 necessary, that what needs to be done is for  
9 SC&A to have some time to look at some of  
10 these documents we have discussed.

11 MR. KATZ: So, let me just ask,  
12 though, you had TBD issues you wanted to put  
13 to bed, though, the tunnels, or is that  
14 something -- are those issues, the TBD issues  
15 that you are not ready to further discuss now?

16 CHAIR ROESSLER: I think they're  
17 interrelated, but John has something he'd like  
18 to say.

19 DR. MAURO: Yes, I'd like to  
20 crystallize the action items just to make sure  
21 that we understand what it is we need to do.

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1                   What I have here is that there are  
2 two action items for SC&A. One is to read the  
3 new July 2011 exposure matrix that was issued  
4 by NIOSH last month.

5                   I'm going to read it cover to cover  
6 basically from the point of view that it  
7 represents consolidation of everything that  
8 has transpired in the past. It has captured  
9 that story, because that's what it is.

10                  And, but in doing so, there are two  
11 particular areas that we are referring to as  
12 Site Profile issues that could possibly have  
13 some SEC issues related to it, but right now  
14 they don't appear to be, as best we can tell.

15                  One has to do with the tunnels.  
16 What tunnels were where, when, during the time  
17 period of interest to this Work Group, namely  
18 1947 to '53.

19                  And the second one which I  
20 considered to be perhaps a little more  
21 strongly a possible TBD issue, but unlikely

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1 for the reasons discussed during this meeting,  
2 is the ratios of radium-226 and thorium-230 to  
3 uranium that were adopted as the methodology  
4 that would be employed to reconstruct the  
5 internal doses from radium-226 and thorium-  
6 230, I believe, as specified in Table 3-3 in  
7 the NIOSH matrix, July 2011 matrix, and to  
8 take a look mainly at the amount of data, its  
9 richness as to establish a sound basis for  
10 that strategy as a coworker model. And those  
11 are the two areas that we will emphasize.

12 So, the only thing I would like to  
13 add is I know that Ms. Bonsignore has some  
14 concern. And the extent to which I understand  
15 those concerns will be expressed at the full  
16 Board meeting coming up in -- soon. Next  
17 week? Next week.

18 And I'd just like to ask the Work  
19 Group that if there are any technical concerns  
20 that she raises, that they be considered by  
21 the Work Group and the Board to add to that

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1 explanation of what SC&A's action items are.

2 This way we don't -- we make sure  
3 we hit the items that need to be hit, but  
4 right now our action is limited to the two I  
5 just mentioned.

6 CHAIR ROESSLER: So, Antoinette, is  
7 it your -- you are presenting at the Board  
8 meeting in Richland, Washington; is that  
9 correct?

10 MS. BONSIGNORE: I'm sorry, Gen. I  
11 didn't think that the Linde petition was being  
12 voted on in Richland.

13 CHAIR ROESSLER: Okay. So, then I  
14 think we maybe misunderstood. You're planning  
15 to present when the SEC vote is presented to  
16 the Board.

17 MS. BONSIGNORE: That's correct,  
18 yes.

19 CHAIR ROESSLER: So, could we then,  
20 following up on what John said, if you have  
21 any issues that you'd like the Work Group to

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1 consider, we are going to propose having a  
2 teleconference after SC&A has looked further  
3 at the new TBD, and try and resolve anything  
4 that's related to SEC.

5 Is there anything that before we  
6 have that teleconference, you'd like to have  
7 us address?

8 MS. BONSIGNORE: Well, there are  
9 actually two issues. The first is the issue  
10 that Josie touched on with regard to the  
11 tunnels.

12 I just -- during the break, I just  
13 spoke with one of the workers who was  
14 interviewed by SC&A at the Niagara Falls Board  
15 meeting last year. And he said that he stands  
16 by his statements that the tunnels in question  
17 existed during the operational time period  
18 during the '50s when he was working there.  
19 And he stands by those statements. And so, he  
20 wanted me to reiterate that point.

21 And I would just also like to say

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1 with respect to the tunnels, that I don't  
2 believe that NIOSH has proved beyond any doubt  
3 that their theory about when the tunnels were  
4 constructed is accurate.

5 They've never provided any building  
6 permits. All they have are sketches and  
7 drawings that are, in my opinion, of limited  
8 value when workers are contradicting their  
9 theory of when those tunnels were constructed.

10 The second point that I'd like to  
11 raise is something in the revised TBD. There  
12 is a part in the -- how the tunnel exposures  
13 are being calculated where it says something  
14 to the effect that maintenance workers will be  
15 given two months maximum.

16 And that was a statement that was  
17 misconstrued from one worker by -- during an  
18 ORAU interview. And we had a discussion about  
19 this, I think it was a few months before the  
20 Niagara Falls Board meeting, where one worker  
21 was interviewed by ORAU.

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1                   ORAU never verified the statements  
2                   that that worker made. And once that worker  
3                   reviewed ORAU's summary of the interview, he  
4                   said that he had been misquoted.

5                   As a result, SC&A re-interviewed  
6                   that worker at the Niagara Falls Board  
7                   meeting, where he said that he never said that  
8                   the maximum amount of time that any of the  
9                   maintenance workers had spent in the tunnel  
10                  was two months. Yet, that statement is in the  
11                  revised TBD.

12                  And actually, Stu Hinnefeld even  
13                  apologized to that worker for that error. But  
14                  for some reason, that statement is in the  
15                  revised TBD. So, that's the second issue.

16                  CHAIR ROESSLER: Okay. And John was  
17                  taking notes as you spoke there. So, he'll  
18                  look at those things.

19                  And also, I think Josie will take  
20                  into consideration your concern about the  
21                  tunnels and the time of construction as she

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1 works with NIOSH on looking at those  
2 documents.

3 MS. BONSIGNORE: And one last thing.

4 I'm just realizing that Mike is not with us,  
5 Mike Gibson.

6 CHAIR ROESSLER: Right, he's not.  
7 And, Antoinette, that's one of the reasons we  
8 want to delay all this consideration and have  
9 another teleconference. And we'll get with  
10 Mike to make sure that he's able to be  
11 present.

12 MS. BONSIGNORE: Okay. And, Ted,  
13 can you tell me when you think the next Board  
14 meeting will be after Richland?

15 MR. KATZ: Yes. The next Board  
16 meeting is in December. It's the -- I think  
17 the end of the -- for the first full week in  
18 December. And I believe it's something like  
19 the 7th, 8th and 9th of December.

20 MS. BONSIGNORE: Okay.

21 MR. KATZ: Whatever would make

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1 sense. It's a Wednesday, Thursday, Friday, I  
2 believe.

3 DR. NETON: The 7th, 8th and 9th in  
4 Tampa.

5 MS. BONSIGNORE: In Tampa?

6 DR. NETON: Yes.

7 MS. BONSIGNORE: Okay. All right.  
8 So, I would just like to suggest to the  
9 Working Group that that Board meeting would be  
10 a goal for a final vote on this petition if at  
11 all possible.

12 CHAIR ROESSLER: That's what we're  
13 thinking too, Antoinette. Josie and I talked  
14 about it, and we think that we can get the  
15 SC&A review and take care of all these issues  
16 that are still hanging.

17 So, we'll try and get with Mike,  
18 find out what his schedule is, get another  
19 Work Group meeting most likely by  
20 teleconference before that December meeting.

21 MS. BONSIGNORE: Okay. That sounds

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1 good. Thank you, Gen.

2 DR. MAURO: Ted, this is John. Just  
3 by way of clarification, I know we like to  
4 nail down these scope items. So, I have  
5 previously identified two action items for  
6 SC&A. I have a third one now in light of Ms.  
7 Bonsignore's concern regarding the two months  
8 per year issue.

9 I guess what we --

10 DR. NETON: No.

11 DR. MAURO: No?

12 DR. NETON: Well, I would just point  
13 out that if the tunnel issue is resolved and  
14 it is decided that those tunnels weren't  
15 there, this issue is only relevant to the  
16 already granted SEC, which all of the non-  
17 presumptive cancers in that period now are  
18 being given two months of exposure to radon  
19 even though all the lung cancers are being  
20 paid under the presumptive status, which is  
21 kind of interesting.

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1                   So, I think you're right. That  
2 issue if it becomes relevant in this period,  
3 is an issue. But the tunnel issue needs to be  
4 resolved first, I think.

5                   MR. SHARFI: Jim, this is Mutty.  
6 Can I clarify one thing?

7                   The two months is only at an eight-  
8 hour per day. We still give transient time  
9 the rest of the year.

10                  So, it's not just two months that  
11 we're addressing the tunnel exposure. It's  
12 two months at eight hours a day, and then ten  
13 minutes per day for the rest of the year.

14                  DR. NETON: Right, but, Mutty,  
15 that's being given in the already granted SEC  
16 Class for presumptive cancers. For right now,  
17 we do not assign any radon dose in this period  
18 that's under discussion right now.

19                  MR. SHARFI: Correct.

20                  MS. BONSIGNORE: This is Antoinette  
21 again. My point about the two-month issue is

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1 that that number, two months, was taken from  
2 an ORAU interview with one worker who said  
3 that he had been misquoted. He never said  
4 that.

5 And there is actually an SC&A  
6 report that came out of the Niagara Falls  
7 Board meeting where that worker provided a  
8 statement to SC&A saying he never said that.

9 DR. NETON: I understand, Ms.  
10 Bonsignore.

11 MR. SHARFI: Well, actually I'll  
12 clarify. The two months actually came from  
13 the Army Corps of Engineers report when they  
14 did their analysis on how long a given worker  
15 may stay in a tunnel for maintenance work.

16 MS. BONSIGNORE: Okay. Well, what  
17 I'm saying here is that this worker made that  
18 same statement, and he said he was misquoted.

19 And he specifically stated that the idea that  
20 two months would be the maximum amount of time  
21 that maintenance workers would have spent

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1 working in those tunnels, is a ridiculous  
2 number. That's what he said.

3 MR. CRAWFORD: Ms. Bonsignore -

4 MS. BONSIGNORE: And with all due  
5 respect to the Army Corps of Engineers, we're  
6 talking about a worker that actually was a  
7 maintenance worker who actually worked in the  
8 tunnels.

9 The Army Corps of Engineers are not  
10 maintenance workers who worked in those  
11 tunnels.

12 MR. CRAWFORD: Ms. Bonsignore, one  
13 comment on that. I'm aware of that worker and  
14 the subsequent interview.

15 That worker said that there was one  
16 job in the tunnel that took six months, but he  
17 was only in the tunnel for one month during  
18 that. That is, it was an intermittent kind of  
19 exposure in the tunnel for a six-month  
20 duration period.

21 We also have to keep in mind that

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1 the two months is granted for every year of  
2 work. This is an average number. It's not an  
3 exact number.

4 So, if he spent one month one year,  
5 and then three months the next year, it will  
6 average out over time. And that's what we're  
7 looking for. What's a reasonable, maximum  
8 number?

9 So, the fact that there was one  
10 six-month job during which this one worker had  
11 only one month of exposure, it is interesting,  
12 but I don't think it overturns the TBD  
13 presumption.

14 MS. BONSIGNORE: Well, I'm glad you  
15 think it's interesting, but the -- I think you  
16 probably need to review the statements that  
17 that worker made.

18 They are very specific. They're  
19 not about one job. They are about the history  
20 of all the maintenance workers that he worked  
21 with. He wasn't speaking about one specific

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1 job.

2 And he was interviewed very  
3 carefully about this issue by SC&A. So, I  
4 would recommend that you take a look at those  
5 statements again and take a look at that SC&A  
6 report that came out of that Niagara Falls  
7 Board meeting that had a very specific written  
8 statement in addition to his interview.

9 DR. NETON: We'll do that. This is  
10 Jim Neton.

11 CHAIR ROESSLER: And also,  
12 Antoinette, SC&A will look at the same  
13 documents.

14 MS. BONSIGNORE: Thank you, Gen.

15 DR. MAURO: Quick question, Ms.  
16 Bonsignore. This is John Mauro.

17 Were there any workers that had a  
18 sense of what would be a reasonable upper  
19 bound in any given year that one worker might  
20 actually have been in the tunnel? Was it full  
21 time?

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1 MS. BONSIGNORE: What would be --  
2 I'm sorry, John. I'm not understanding the  
3 question.

4 DR. MAURO: In other words, right  
5 now what we're hearing is that for the purpose  
6 of reconstructing doses to workers inside  
7 tunnels, clearly there is some concern that  
8 two months per year, plus this ten minutes, is  
9 probably not sufficiently conservative.

10 Did any of the interviewees make a  
11 statement of what would be a more plausible or  
12 reasonable or bounded bounding -- maybe that's  
13 the word -- bounding duration that any given  
14 maintenance worker or worker would spend in a  
15 tunnel in a given year?

16 MS. BONSIGNORE: I'm not sure that  
17 this worker who was interviewed by Steve,  
18 actually, and Arjun, I'm not sure he was  
19 actually asked that specific question. I'd  
20 have to go back and take a look.

21 DR. MAURO: That would be a great

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1 question.

2 DR. OSTROW: This is Steve. We  
3 never asked that question. And none of the  
4 workers that we spoke to actually gave us a  
5 number. If two months isn't good enough,  
6 what's a better number?

7 We didn't hear that from anyone,  
8 but we didn't ask either.

9 MS. BONSIGNORE: Well, I can speak  
10 to that worker again and try to get another  
11 written statement from him, if that would be  
12 helpful.

13 CHAIR ROESSLER: Would you do that,  
14 Antoinette?

15 MS. BONSIGNORE: Sure.

16 CHAIR ROESSLER: And make sure that  
17 SC&A gets it.

18 MS. BONSIGNORE: Of course.

19 CHAIR ROESSLER: And NIOSH too.

20 MS. BONSIGNORE: Absolutely.

21 CHAIR ROESSLER: Okay. Are there

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1 any other items that we need to discuss?

2 (No response.)

3 CHAIR ROESSLER: As I see it then,  
4 Ted, our Work Group needs to schedule a  
5 teleconference before the meeting in Tampa.  
6 We can't really do that today, except I'd ask  
7 Jim Lockey who's on the phone. I forgot to do  
8 this.

9 Jim, do you have any -- as a Member  
10 of the Work Group, any comments to add to the  
11 discussion today?

12 MEMBER LOCKEY: No. No, I don't.  
13 I've been listening to the conversation and  
14 I've reviewed the documents that are  
15 available, and I think we can decide this  
16 through the next teleconference call.

17 CHAIR ROESSLER: So, I think what  
18 the Work Group needs to do is let Ted know  
19 what our available dates are, and we need to  
20 get in touch with Mike Gibson, and then try  
21 and set up a teleconference Work Group

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1 meeting.

2 MR. KATZ: Right, this is -- I  
3 gather from what -- it doesn't sound like  
4 there's a lot of work for SC&A to do at all.  
5 Quite the contrary. It seems like it's  
6 relatively expedient business for SC&A and for  
7 DCAS to review materials.

8 So, I think we can shoot for some  
9 date in October. I think that would probably  
10 be reasonable and leave us plenty of time  
11 should we end up with some loose ends at that  
12 meeting. And put things to bed after that  
13 meeting then, again, if we need to.

14 Does that sound reasonable to  
15 everyone on the phone?

16 MEMBER LOCKEY: Sounds reasonable,  
17 yes.

18 DR. MAURO: This is for SC&A.  
19 October seems to be a good date. I'm just  
20 presuming that this does not need to go  
21 through DOE review. There's nothing about it

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1 that -- because that always ties us up for a  
2 couple of weeks, but there's nothing here that  
3 I think is new.

4 In other words, what we're going to  
5 do is basically look at information that's  
6 already in the public record. However, if  
7 there is information that's here, if we go  
8 back -- I'll give you an example what triggers  
9 this.

10 If we go back to Attachment C  
11 whereby you provide your ratio, the 0.2  
12 numbers, the data, and we need to go into SRDB  
13 data and then look at that, compile it, say,  
14 okay, here's some good numbers and present it,  
15 what we would be doing at that point in time  
16 is bringing forth something out of the SRDB  
17 into the public domain that wasn't there  
18 before. That would trigger a DOE review.  
19 Just keep that in mind.

20 MR. KATZ: Yes, thanks, John, but it  
21 sounds like it's a relatively skimpy amount of

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1 information that needs to be reviewed compared  
2 to what we do typically earlier on in the  
3 process with an SEC review or whatever.

4 But I would think it would be a  
5 relatively quick DOE review, too, should there  
6 need to be a DOE review.

7 DR. MAURO: I agree.

8 MR. KATZ: Okay. So, anyway, I will  
9 work on scheduling something in October for  
10 the Work Group.

11 CHAIR ROESSLER: Maybe late October  
12 would work best.

13 MR. KATZ: That's fine, yes. So,  
14 I'll shoot for the last couple weeks in  
15 October, I guess, with some date options that  
16 I'll send out to everybody.

17 CHAIR ROESSLER: Okay. That sounds  
18 good.

19 So, is there anything else on our  
20 agenda today that anyone wants to bring up?

21 (No response.)

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1                   CHAIR ROESSLER: Then I think we're  
2 ready to adjourn. Thank you all for all your  
3 help.

4                   MR. KATZ: Thank you, everyone, and  
5 Antoinette as well. Take care. Have a good  
6 day.

7                   (Whereupon, the above-entitled  
8 matter went off the record at 11:05 a.m.)

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This transcript of the Advisory Board on Radiation and Worker Health, Linde Ceramics Work Group, has been reviewed for concerns under the Privacy Act (5 U.S.C. § 552a) and personally identifiable information has been redacted as necessary. The transcript, however, has not been reviewed and certified by the Chair of the Linde Ceramics Work Group for accuracy at this time. The reader should be cautioned that this transcript is for information only and is subject to change.

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