

This transcript of the Advisory Board on Radiation and Worker Health, Work Group on Gaseous Diffusion Plants/GDP, 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 Work Group on Gaseous Diffusion Plants/GDP for accuracy at this time. The reader should be cautioned that this transcript is for information only and is subject to change.

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 GASEOUS DIFFUSION PLANTS/GDP

+ + + + +

WEDNESDAY  
DECEMBER 1, 2010

+ + + + +

The Work Group convened in the Zurich Room of the Cincinnati Airport Marriott, 2395 Progress Drive, Hebron, Kentucky, at 9:00 a.m., Phillip Schofield, Chairman, presiding.

PRESENT:

PHILLIP SCHOFIELD, Chairman  
HENRY ANDERSON, Member\*  
JOSIE BEACH, Member

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ALSO PRESENT:

TED KATZ, Designated Federal Official

HANS BEHLING, SC&A\*

ELIZABETH BRACKETT, ORAU Team\*

GRADY CALHOUN, DCAS

JOSEPH FITZGERALD, SC&A

JACK FIX, ORAU Team\*

EMILY HOWELL, HHS

JENNY LIN, HHS\*

CHUCK NELSON, DCAS

JIM NETON, DCAS

SUSAN WINSLOW, ORAU Team\*

\*Participating via telephone

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

2 9:08 a.m.

3 MR. KATZ: All right. Good morning,  
4 everyone in the room and on the line. This is  
5 the Advisory Board on Radiation and Worker  
6 Health. This is the, for shorthand, Gaseous  
7 Diffusion Plants Work Group, and we're  
8 beginning with roll call, and we'll begin with  
9 Board Members in the room. And please speak to  
10 conflicts of interest as well as saying you're  
11 here, beginning with the Chair.

12 CHAIRMAN SCHOFIELD: Phil  
13 Schofield, Board Member. Chair -- I am Chair  
14 of the Work Group. No conflicts.

15 MEMBER BEACH: Josie Beach, Board  
16 Member. No conflict.

17 MR. KATZ: And on the line, do we  
18 have Andy Anderson? Dr. Anderson?

19 (No response.)

20 MR. KATZ: Okay. Not at this time.  
21 NIOSH ORAU team, in the room?

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1 MR. NELSON: Okay, my name is Chuck  
2 Nelson. I'm a health physicist. I have no  
3 conflicts. I'm with DCAS.

4 MR. CALHOUN: Okay. Grady Calhoun,  
5 NIOSH team leader. No conflicts.

6 DR. NETON: Jim Neton, NIOSH. No  
7 conflict.

8 MR. KATZ: NIOSH ORAU team on the  
9 line?

10 MS. WINSLOW: This is Susan Winslow  
11 with the ORAU team. No conflict.

12 MR. KATZ: Welcome, Susan.

13 MS. WINSLOW: Thank you.

14 MR. FIX: This is Jack Fix, ORAU  
15 team. No conflicts.

16 MR. KATZ: Okay. SC&A, in the room?

17 MR. FITZGERALD: Joe Fitzgerald. No  
18 conflict.

19 MR. KATZ: And, SC&A on the line?

20 DR. BEHLING: Hans Behling. No  
21 conflict.

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1 MR. KATZ: Welcome, Hans. Anyone  
2 else from SC&A? You were expecting --

3 MR. FITZGERALD: John may or may  
4 not, but --

5 MR. KATZ: Oh, okay.

6 MR. FITZGERALD: -- I know, I knew  
7 Hans would be here.

8 MR. KATZ: Okay. And then, HHS or  
9 other government officials or contractors to  
10 the feds in the room?

11 MS. HOWELL: Emily Howell, HHS.

12 MS. LIN: Jenny Lin, HHS.

13 MR. KATZ: I'm sorry, can you say  
14 that again, whoever's on the line?

15 MS. LIN: This is Jenny. I just  
16 have, have a cold.

17 MR. KATZ: Okay, Jenny. Welcome,  
18 Jenny. Anyone else? Okay, and then members of  
19 the public? Are there -- there are none in the  
20 room. Are there any on the line? Well, then.  
21 Okay, that's it. Then, let me just remind

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1 folks on the line to mute your phones when  
2 you're not speaking to the group, and if you  
3 don't have a mute button, use \*6, and then \*6  
4 again to take yourself off mute. And Phil,  
5 it's your agenda.

6 CHAIRMAN SCHOFIELD: This is the  
7 first Work Group meeting on the gaseous  
8 diffusion plants. That covers Paducah, Oak  
9 Ridge, K-25, and Portsmouth. They were granted  
10 SEC under the original legislation.

11 The last review of the TBD for  
12 Paducah was done, by SC&A, was done in October  
13 2006. There are a number of revised sections  
14 of the TBD for Paducah released by DCAS in  
15 April and May and June of 2007.

16 So it's now been four years. This  
17 is one of the first times the Board has had a  
18 Work Group go back and actually look at the  
19 site revisions that have been done to assess  
20 what has or has not been done in these site  
21 revisions. Okay, Joe?

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1                   MR.    FITZGERALD:    Okay,    thanks,  
2                   Phil.  In terms of the review, these, you know,  
3                   these,    certainly,    these    three    gaseous  
4                   diffusion    plants    have    a    number    of  
5                   commonalities    as    far    as    source    term    and  
6                   history,    so    that's    certainly    the    reason    why  
7                   they    were    put    together    as    a    group    to    be  
8                   reviewed.

9                   And,    of    course,    as    Phil    mentioned,  
10                  they    were    included    in    the    original    legislation  
11                  in    terms    of    the    SEC    --    inclusion    in    the    SEC.  
12                  When    we    were    asked    to    support    the    Work    Group  
13                  by    reviewing    the    three    sites,    what    we    did    was,  
14                  we    went    back    to    the    2006    and    2007    reviews    that  
15                  we    did,    and    that's    sort    of    the    time    frame  
16                  where    we    did    look    at    Portsmouth,    Paducah,    and  
17                  the    Oak    Ridge    gaseous    diffusion    plant,    also  
18                  called    K-25.

19                  And,    looked    at    the    findings    that  
20                  were    made,    looked    at    the    TBDs    that    were  
21                  reviewed    as    well    as    any    revisions    that    took

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1 place. And, by and large, with maybe only one  
2 exception, the timing of our review either  
3 coincided or just slightly preceded the  
4 issuance of the most recent TBD.

5 So, to a large extent, a lot of  
6 the findings, it would not have been easy to  
7 include them in the issuance that took place.  
8 Again, we did predate Portsmouth by about  
9 seven or eight months, and certainly are -- is  
10 some reflection of the findings in the  
11 Portsmouth document.

12 But again, I think it, by and  
13 large, for the three gaseous diffusion plants,  
14 the reviews were closely aligned, schedule-  
15 wise, with the most recent issuance of those  
16 Site Profiles. So a lot of what will be  
17 discussed, I think, is to understand what  
18 maybe the NIOSH staff position on a number of  
19 the issues that were raised in these original  
20 Site Profile reviews from three or four years  
21 ago.

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1                   And to get some sense of what the  
2                   likely reflection of those findings will be in  
3                   the next issuance of the TBDs. Now, we went  
4                   through the findings, you know, we recognize  
5                   that, you know, a Site Profile is a lot  
6                   different than the SEC reviews that we've  
7                   done, and we wanted to distinguish what we  
8                   felt were the more significant Site Profile  
9                   findings, i.e., the ones that would perhaps  
10                  influence, in our judgment, dose  
11                  reconstruction more than others.

12                  And, the others being findings of,  
13                  you know, factual accuracy, perhaps an  
14                  equation wasn't quite right. Things that I  
15                  think will be pretty patently obvious and  
16                  available to NIOSH in any case, so it wouldn't  
17                  require a lot of explanation.

18                  So, we try to make that  
19                  distinction, and what we put in the matrices  
20                  that we circulated, what we thought were the,  
21                  the higher priority issues for discussion. We

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1 did include the others in the last page or two  
2 of the matrix just for completeness sake, and  
3 we called them secondary issues.

4 Now, the Work Group may want to  
5 probe those as well, and decide if they agreed  
6 with how we split that up. Certainly, there  
7 may be some there that would bear some further  
8 discussion, but that's kind of how we did it.

9 A couple weeks ago, we did receive  
10 an initial, you know, response from NIOSH to  
11 this listing of the priority issues for  
12 Paducah. So, the focus today is really on the  
13 Paducah Site Profile and the status of that  
14 set of TBDs relative to the findings that were  
15 made in the 2006, October 2006 Site Profile  
16 review.

17 And, if you want, we can just sort  
18 of jump in unless there's some questions about  
19 how we approached it. That's pretty much it.  
20 The matrices is a summary of what was in the  
21 Site Profile. Of course, all the details are,

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1 you know, available in the review itself, but  
2 they were reiterated in summary fashion, here.

3 Any questions on how that was done?

4 Okay. This is, in terms of  
5 Paducah, the first issue that we focused on  
6 was on TBD 19-2, which was the site  
7 description. And, there, the question that we  
8 raised is whether or not the specific activity  
9 that was attributed to U-235 and U-234 were  
10 appropriate given the information that was  
11 provided in the TBD at that time regarding the  
12 enrichment levels.

13 And, at the time the enrichment  
14 levels were given, at levels that in fact  
15 could be higher than 2 percent. I'm not going  
16 to, you know, perhaps, paraphrase the NIOSH  
17 response. But, we did note that, I guess,  
18 NIOSH indicated that the reference for the  
19 higher end of that range, which is the 3 and 5  
20 percent, could not be located, per se, in the,  
21 has since been, or will be deleted, I guess it

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1 was --

2 MR. NELSON: Yes, it will be  
3 deleted.

4 MR. FITZGERALD: -- will be  
5 deleted. And, you're going to, in a sense,  
6 default to the 2 percent nominal level as the  
7 one that has the attribution available.

8 MR. NELSON: Right. That's correct.  
9 What we think is that the 3 to 5 percent  
10 statement that was made probably came from --  
11 when the material left Paducah, it went to  
12 Portsmouth, and they nominally enriched it  
13 from 3 to 5 percent.

14 I think that typo made its way  
15 into the site description, so we think that's  
16 where it came from. But we feel that, you  
17 know, we looked at some other references. You  
18 had recycled uranium mass report, and it said  
19 that the enrichment of UF6 varied roughly  
20 from, the material there, from .7 to 2 percent  
21 at the end.

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1                   So, we felt that was in the bounds  
2                   of what we were looking at, we saw some  
3                   different references, such as the PACE report.  
4                   It assumed, in all their calculations, they  
5                   actually used normal uranium, so we felt that  
6                   the 2 percent that we're using is a nice,  
7                   conservative value and should be a claimant-  
8                   favorable value.

9                   MR. FITZGERALD: Now, that again  
10                  was the source of our observation, and I think  
11                  this would, in a sense, make it moot since  
12                  you're talking about a -- ascribing a lower  
13                  enrichment level.

14                 I don't know if the Work Group  
15                 wants to talk about anything relative to  
16                 recycle and isotopes, or -- we were focused  
17                 on, I think, the U-235, U-234 in this  
18                 particular comment. And it's more of a factual  
19                 accuracy issue, it relates to the enrichment,  
20                 so. If, you know, if that enrichment citation  
21                 is not correct, and it's supposed to be lower,

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1       then I think this goes away.

2                       CHAIRMAN SCHOFIELD: Do we know how  
3 much material -- recycled uranium is brought  
4 back into the facility?

5                       MR. NELSON: Well, there is a  
6 uranium -- there is a recycle report, that  
7 gives quite a bit of detail on how much  
8 recycled material was processed through the  
9 plant, and we have looked at that and it's, in  
10 the internal TBD, in the coworker TBD, to  
11 where it shows -- what we did, is we tie those  
12 different recycle components to a uranium  
13 level and we assigned internal dose based on  
14 those concentrations.

15                      So, we are aware of, you know,  
16 obviously, that recycled material was used in  
17 there quite a bit and it's within our reports.

18                      MR. FITZGERALD: Now, is that upper  
19 bound by time period relative to when certain  
20 campaigns were cycled through Paducah?

21                      MR. NELSON: Somebody can correct

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1 me if I'm wrong, but I believe they're taking  
2 a worst case concentration amount when there  
3 was certain campaigns and the percentages were  
4 higher, and we're tying in the recycled  
5 components to the uranium numbers and we're  
6 directly ratio-ing those. So, it's based on a  
7 worst case assumption.

8 MR. FITZGERALD: Of -- not your  
9 specific --

10 MR. NELSON: Excuse me?

11 MR. FITZGERALD: Not time specific,  
12 time period specific?

13 MR. NELSON: No. Just an overall --  
14 correct.

15 MR. FITZGERALD: Okay.

16 MR. NELSON: So it's a claimant-  
17 favorable in that it's taking a worst case  
18 situation.

19 MEMBER BEACH: Is that captured  
20 anywhere else, the recycled uranium?

21 MR. NELSON: It's contained --

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1                   MEMBER BEACH: I was trying to  
2 think back of what I was reading here.

3                   MR. NELSON: It's contained within  
4 the internal TBD, as well as the internal  
5 coworker TBD. And there'll be some discussion  
6 in environmental TBD as well. There was also a  
7 Program Evaluation Report where we actually  
8 ended up having to perform dose  
9 reconstructions over.

10                   This was back in 2007, because it  
11 was, we realized that we didn't take proper  
12 account of the recycled material, so we  
13 actually re-performed several dose  
14 reconstructions, based on that.

15                   MR. FITZGERALD: That PER, that,  
16 did that come out of the Fernald discussion?  
17 I'm trying to remember, I recall that  
18 recycling --

19                   MR. NELSON: I read it -- I don't,  
20 honestly, I don't remember it. I think it's in  
21 the preface to that PER, if I looked it up - -

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1 MR. FITZGERALD: Okay.

2 MR. NELSON: You might be correct  
3 on that, though.

4 MR. FITZGERALD: I think it was  
5 sort of identified and then applied to --

6 MR. NELSON: Seemed like there was  
7 --

8 MR. FITZGERALD: -- all the  
9 recipients of the recycle.

10 MR. NELSON: Seemed like there were  
11 several sites at the time and it kind of fed  
12 that. I think you're correct.

13 DR. NETON: There was a finding,  
14 eleven is related to recycle and that has to  
15 do with the isotopes in addition to the  
16 neptunium and the plutonium. I don't know why,  
17 we deal with that at the time. But it looks  
18 like it's been taken care of.

19 MR. FITZGERALD: Josie was just  
20 pointing out a reference, this is --

21 MEMBER BEACH: Worker interviews.

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1                   MR. FITZGERALD: Yes, this is in  
2                   the worker interviews, page 91, it came from  
3                   the worker interviews about building X330,  
4                   having a higher enrichment level. This was  
5                   cited in the safety analysis report for that  
6                   facility.

7                   MEMBER BEACH: That was at 15  
8                   percent.

9                   MR. NELSON: Well, I think, if you  
10                  look at the majority of where the work took  
11                  place, the feed plants and everything leads  
12                  all the way up to enrichment, obviously the  
13                  enrichment's going to be well less than 2  
14                  percent.

15                  I think the fact that, if we use 2  
16                  percent, which is a good nominal claimant-  
17                  favorable value, and we assign all the dose as  
18                  U234, like we always do, we take a claimant-  
19                  favorable solubility like we always do. I  
20                  think, overall, that's going to overwhelm and  
21                  be claimant-favorable to the claimants when

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1 you do a internal dose reconstruction.

2 I mean, like I said, it's one  
3 example of a high enrichment. I can't say I'm  
4 necessarily aware of that particular issue.

5 MR. FITZGERALD: You might want to  
6 check that. I know Portsmouth had a high end,  
7 because they were, you know, doing naval fuel.

8 MR. NELSON: Right.

9 MR. FITZGERALD: But, Paducah, I  
10 can't recall in terms of application and, now  
11 it's been three or four years. So, to be  
12 honest, I think you'd probably have to go back  
13 and reeducate a little bit. But you might want  
14 to check and see if, that one reference, that  
15 one facility would be useful just to pin that  
16 down.

17 I think in general, you're right,  
18 I think in terms of Paducah I think it was,  
19 you know, pretty much, unlike Portsmouth,  
20 didn't have a high end. It was pretty much an  
21 average. But, it would be helpful to know that

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1 was an exception and to what effect, where if  
2 it did affect some workers, then that might be  
3 a reason to qualify, I guess, the statement in  
4 the Site Profile.

5 MR. NELSON: What building was  
6 that?

7 MEMBER BEACH: This one was  
8 actually X330. But then I was actually looking  
9 at the front page, which I didn't highlight.  
10 Talked about Portsmouth--

11 MR. FITZGERALD: Yes, are you  
12 looking at Portsmouth or Paducah?

13 MEMBER BEACH: Yes, that's what I'm  
14 wondering, if --

15 MR. FITZGERALD: If you're looking  
16 at Portsmouth, I agree, there's a high end at  
17 Portsmouth --

18 MS. WINSLOW: This is Susan  
19 Winslow. X330 is a Portsmouth facility.

20 MEMBER BEACH: It is, it's a  
21 Portsmouth.

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1                   MR. FITZGERALD: Yes, okay. Yes, I  
2 know the high end on Portsmouth, but Paducah,  
3 I think there isn't. So. Okay.

4                   MR. CALHOUN: Isn't most of a  
5 bioassay an activity rather than --

6                   MR. NELSON: Yes. Concentrations.

7                   MR. CALHOUN: Okay. So when we  
8 have, when we have bioassay, the enrichment  
9 really shouldn't matter.

10                  MR. NELSON: No. Because we assume  
11 that all U234 --

12                  MR. FITZGERALD: Yes, I'm just, I'm  
13 just going to this first issue, which does  
14 deal with the site description and the  
15 enrichment levels, blah blah blah. Sort of  
16 characterization. But, I agree --

17                  MR. NELSON: We're familiar with  
18 Portsmouth having a high end, so this makes  
19 sense. And what we took out of that is we do  
20 have a typo in there --

21                  MR. FITZGERALD: Right.

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1                   MR. NELSON: -- and we do agree  
2                   that needs to be clarified.

3                   MR. FITZGERALD: Okay.

4                   MR. NELSON: So. But we still think  
5                   2 percent is a good claimant-favorable number.

6                   MR. FITZGERALD: Yes, when I look  
7                   back over, I think this jibes with, you know,  
8                   we thought it was 50 percent too low, but that  
9                   was because it was 50 percent higher in terms  
10                  of the reference. So, it kind of really levels  
11                  out.

12                  DR. NETON: I guess I have a  
13                  process question before we go much further.  
14                  This, with the matrix here, we have our  
15                  responses, who is going to -- is SC&A going to  
16                  then update, you know, the matrix with your --

17                  MR. FITZGERALD: I'd be willing to  
18                  send that to the Work Group and to you and  
19                  just say, you know, here's our, you know,  
20                  administrative checking of it, and do you  
21                  agree with --

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1 DR. NETON: Right.

2 MR. FITZGERALD: -- you know, that.

3 DR. NETON: That would be fine, I  
4 just want to make sure --

5 MR. FITZGERALD: Pretty much the  
6 same as we've done in the past.

7 DR. NETON: Yes, that's fine.

8 MR. FITZGERALD: Because I would  
9 recommend, unless the Work Group has any  
10 exceptions or any questions, that we would  
11 close this particular one and give him the  
12 response.

13 CHAIRMAN SCHOFIELD: Anybody have  
14 an objection to that?

15 MEMBER BEACH: No.

16 CHAIRMAN SCHOFIELD: Okay.

17 MR. FITZGERALD: Okay, so other  
18 issues. We go on to issue two, which is also  
19 on the site description, again. And, this  
20 deals with the numbers of workers assigned to  
21 zero dose, and really gets down to a couple of

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1 tables that were in the 2004 TBD which has  
2 been superceded since.

3 But, these tables used average  
4 values and there is in fact a footnote that  
5 does indicate that, that that would affect the  
6 average, obviously. And my reading of the  
7 NIOSH response is that, you know, that the two  
8 tables in question really aren't relevant to  
9 dose reconstruction per se, and would be  
10 removed in the next revision.

11 And that OTIB-31, which has been  
12 out for, certainly a few years, is going to be  
13 the source of information in this regard  
14 anyway. So, I don't know.

15 MR. NELSON: I think it's an  
16 accurate statement. I mean, there is a  
17 footnote down there that says the zeroes  
18 definitely lower the average recorded dose  
19 rates for these individuals, and really, this  
20 being the site description, I think initially  
21 this was placed in there to give people

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1 information.

2 MR. FITZGERALD: Right.

3 MR. NELSON: But it can be somewhat  
4 misleading because if you do look at the  
5 external coworker TBD, you'll see values that  
6 we assigned for the different percentiles to  
7 be higher than these levels, and it's  
8 basically because the coworker TIB, as in the  
9 missed dose.

10 Which, you know, it's noted at the  
11 bottom of this table, but I agree, that can be  
12 misleading and we felt we would do it, just  
13 take that out of the site description and it  
14 is covered adequately in the external coworker  
15 Technical Information Bulletin.

16 MR. FITZGERALD: And we would tend  
17 to agree with that. I think the only comment  
18 we had was this question of, since it's in the  
19 site description, whether it would be somewhat  
20 misleading --

21 MR. NELSON: I agree with that.

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1                   MR. FITZGERALD: -- it would, you  
2 know, certainly footnote what is in fact, or  
3 was in fact there. That's the only comment.

4                   MEMBER BEACH: Does it fully answer  
5 the question, the number of zeroes being  
6 disclosed?

7                   MR. NELSON: Let me read that,  
8 then, let's see.

9                   DR. NETON: It seems that that's  
10 not used, is what we're --

11                   MR. NELSON: Yes, well--

12                   MEMBER BEACH: Oh, you're not using  
13 it at all, okay.

14                   MR. FITZGERALD: I think we accept  
15 the context that 2.2 and 2.3 were provided as  
16 information, background information for the  
17 reader, and it could be seen as misleading  
18 even though it did have a footnote. It's going  
19 to be taken out in that context and we're fine  
20 --

21                   MEMBER BEACH: So then, okay, we're

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1 not going to--

2 MR. FITZGERALD: I mean, I think 31  
3 is a good place--

4 MR. NELSON: I think what happened  
5 is this, this, these tables went in here  
6 straight out of the PACE report, it was a  
7 report done in 2000. And they basically put  
8 them in there to try to give the reader a feel  
9 for what type of doses they had in the earlier  
10 and later days.

11 And they didn't include zeroes at  
12 the time. The coworker Technical Information  
13 Bulletin that we have now does account for the  
14 zeroes. So, we agree, that would, can be  
15 misleading, so we, it doesn't add any value to  
16 this part of the site description document, so  
17 we'll just take it out.

18 MR. FITZGERALD: That's fine.

19 CHAIRMAN SCHOFIELD: Any  
20 objections?

21 MR. FITZGERALD: Okay.

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1                   CHAIRMAN   SCHOFIELD:   Close   out  
2   number two.

3                   DR.   NETON:   Close?  I don't want to  
4   complicate the issue, but is, do you want to  
5   close it, or you want to like, what do you  
6   call it --

7                   MEMBER BEACH:  Put it in abeyance.

8                   DR.   NETON:   --  in  abeyance,  or  
9   something like that.

10                  MEMBER BEACH:  Abeyance.

11                  MR.   FITZGERALD:  Well no, I think  
12   31 is picked up later. I think in the context  
13   of site description, I don't think, I mean,  
14   this is the first time we've ever even gone  
15   through a Site Profile, so -- yes, process-  
16   wise, I just figured we'd go through, you  
17   know, the site description, go through each of  
18   the TBDs and of course, later on, you know --

19                  DR.   NETON:  I'm not against closing  
20   it, trust me. I just want to make sure  
21   something doesn't come back later and say,

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1 well, we inappropriately, you know, acted on  
2 that.

3 MR. FITZGERALD: No, I think  
4 there's some question on the, on the coworker,  
5 OTIB-31. But not in this context of these two  
6 tables, and the question of whether it  
7 misleads or not, I think, you know, this  
8 sounds like a good solution to that issue.

9 DR. NETON: I mean, we can close  
10 it, pending NIOSH's revision of the Site  
11 Profile or something like that, and -- I don't  
12 know how you want to --

13 MR. KATZ: If it's not a concern  
14 here, you just close it.

15 DR. NETON: Okay.

16 MR. KATZ: I mean, and, like Joe  
17 says, you'll get to the --

18 DR. NETON: Okay.

19 MR. NELSON: Because if you look at  
20 it, there is a note down there that makes the  
21 statement that the zero values were not

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1 included, but, I think from a confusion  
2 standpoint we ought to delete it.

3 MR. FITZGERALD: Yes, yes. One  
4 thing, I guess, Phil and I were discussing  
5 before the meeting, is, since this is a  
6 different beast than an SEC in terms of  
7 closure, you're right. I mean, it's closed in  
8 terms of an issue, but in terms of actual  
9 revision of the TBD, that's going to be at  
10 some point later.

11 I don't know if the Work Group  
12 will want to review whatever the draft is of  
13 that, but that's a different issue. That's not  
14 this.

15 DR. NETON: We would probably just  
16 revise it, and the issue --

17 MR. KATZ: I mean normally you  
18 would put an item in abeyance if there's some  
19 uncertainty about how it's actually going to  
20 be resolved in a revision so that the Work  
21 Group would want to see it. In these cases, it

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1 is pretty cut and dried, so there's no real --

2 MEMBER BEACH: It would be nice to  
3 review the changes, though. Is that a  
4 possibility before it gets put out?

5 DR. NETON: Well, we don't like to  
6 do that, so we like to -- you know, we'll  
7 issue it, I mean, we don't want to get in this  
8 position of sort of appearing that, you're  
9 approving our, sort of, documents, you know  
10 what I'm saying? You certainly have a right  
11 to review everything we do, but we don't want  
12 to get in sort of an approval --

13 MEMBER BEACH: Right.

14 CHAIRMAN SCHOFIELD: So ultimately,  
15 what we're doing here today is not going to  
16 apply to -- those people are covered under the  
17 SEC. This is for the people who do not have  
18 presumptive cancer, who are having to have  
19 partial dose reconstructions done.

20 MR. NELSON: Actually I have some  
21 numbers for that which might be helpful. I

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1 actually called in and got the, out of those  
2 nonpresumptive cancers that you mentioned,  
3 there are 1,679 of them. Out of that, 1,237 --  
4 well, let me just say first, there are, out of  
5 those, 108 are active. So they haven't been  
6 completed.

7 1,237 were less than 50 percent,  
8 whereas 442 were greater than 50 percent,  
9 probability of causation. So that just gives  
10 you an idea of the number, which are the  
11 nonpresumptive cancers.

12 MR. FITZGERALD: Before we leave  
13 the subject, is there any sense about, or is  
14 this disclosed as something that's coming,  
15 what the pathway is for a revision of the 2007  
16 TBD? Is that --

17 DR. NETON: Just a time frame --

18 MR. FITZGERALD: I mean, is that --  
19 yes, is that likely soon, or likely --

20 MR. NELSON: I think what would  
21 make sense is that we get through these issues

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1 and, obviously, we're going to uncover some  
2 more things that we're maybe seeing that need  
3 to be changed, and we might come to an  
4 agreement within the Working Group that other  
5 things need to be changed.

6 So, it would make no sense to me  
7 to try to do them before that time, but I  
8 think soon after we close these issues, I  
9 think that would be the right timing to revise  
10 it.

11 MR. FITZGERALD: Okay --

12 CHAIRMAN SCHOFIELD: Does anybody  
13 have a problem with going that route?

14 MR. FITZGERALD: Okay. Proceeding  
15 to issue three, if I can. Still on site  
16 description, and this one, again, gets into  
17 the background information for the site, and  
18 one facility, which is the smelting facility,  
19 746B, was one that the review team felt was a  
20 fairly significant thing that didn't seem to  
21 be mentioned in the Site Profile.

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1                   And, I think your response was,  
2                   you know, it was a general description and  
3                   certainly you have no objections to  
4                   highlighting it in the next revision, which I  
5                   think is a perfectly diplomatic answer. So,  
6                   you know, not going to certainly fall on that  
7                   sword.

8                   But, you know, in fairness to the  
9                   reviewers, I think that was one facility that  
10                  they thought was a -- one where there was  
11                  certainly an exposure potential. Phil, Josie,  
12                  do you have any --

13                  CHAIRMAN SCHOFIELD: I don't have  
14                  anything to add on that. Do you, Josie?

15                  MEMBER BEACH: No.

16                  MR. FITZGERALD: Of course, these  
17                  are the easy ones --

18                  MR. KATZ: Close.

19                  (Simultaneous speaking.)

20                  MR. FITZGERALD: All right. Moving  
21                  right along to the Occ Med, the Occupational

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1 Medical Dose TBD, 19-3. This is issue number  
2 four that we're on in the matrix. This one had  
3 more to do with a particular reference that we  
4 have found in other TBDs of the same time  
5 frame that we felt was pretty important, which  
6 is the, this Kathren, Ron Kathren piece.

7 And I looked at the Occ Med TBD,  
8 compared it, this is the one that was issued I  
9 guess, six months after the Site Profile  
10 review. And, did in fact find the most recent  
11 version, rev 3, of OTIB-06, which includes the  
12 Kathren-Shockley reference, included.

13 So that's, in my view, directly  
14 responsive to the issue that we had, that  
15 seemed to be missing in the 2004 TBD but was  
16 caught in the 2007 version of the TBD. So, I  
17 think that satisfies us and really was an  
18 updating of what I think was NIOSH's thinking  
19 as far as what was pertinent to the Occ Med  
20 issue, that particular Occ Med issue on X-  
21 rays.

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1                   Now, you had an additional  
2 response. Maybe you can explain that --

3                   MR. NELSON: Yes, we just wanted to  
4 -- I felt that it would be important, because  
5 there were a lot of secondary issues with this  
6 one. Just to give everybody an idea of how we  
7 do dose reconstruction from a medical  
8 standpoint.

9                   Because one of the issues that was  
10 brought up was PFGs, X-ray exams. So, we  
11 looked at 1,224 Paducah non-compensable claims  
12 to date, and we didn't find any PFG exams.  
13 Typically, when we do assign X-rays, we assign  
14 them in an overestimating fashion.

15                  Unless, of course, they have the  
16 actual X-ray records in their occupational  
17 records, in which case we'll assign them that  
18 way. If you get to the case where you need to  
19 do a best estimate on an individual, we'll  
20 assign them X-rays of every two years after  
21 1985, and every three years before 1986.

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1                   Our review of the records indicate  
2                   that X-rays were less frequent than every two  
3                   to three years. So that will just give you an  
4                   idea of how we assign X-rays for that  
5                   facility.

6                   We saw that SC&A pretty much was  
7                   okay with our response, or that, you know,  
8                   with the revision -- but we just wanted to  
9                   provide that extra information.

10                  MR. FITZGERALD: Yes, and this,  
11                  again, this is issue of completeness. I think  
12                  the Kathren reference plus this reference  
13                  provides what we would see as a complete  
14                  picture of the frequency and scope of the  
15                  medical X-ray program at the site.

16                  We thought that might have been a  
17                  little lacking in the previous version, or at  
18                  least wasn't clear on the previous version,  
19                  whether or not the Kathren document was, was  
20                  included.

21                  MEMBER BEACH: So, by your response

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1 up at the top, you're actually going to  
2 include the Kathren document?

3 MR. NELSON: It's already  
4 referenced.

5 MEMBER BEACH: It's already  
6 referenced, okay.

7 MR. FITZGERALD: It's referenced. I  
8 mean, we, we were very explicit. We said  
9 revision three of ORAU OTIB-006 seemed to be  
10 missing from the TBD and they since have added  
11 it --

12 MEMBER BEACH: Added it.

13 MR. FITZGERALD: -- and again, keep  
14 in mind that the TBD for Occ Med was updated  
15 about six, seven months after this Site  
16 Profile came out, so put them side by side.  
17 That was the change, which was a response --

18 MEMBER BEACH: And I think that, I  
19 was just a tad bit confused on the dates when,  
20 every two years is assumed after '85 but  
21 before '86, it was every three years, so those

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1 dates kind of --

2 MR. NELSON: Well, they overlap a  
3 little bit.

4 MEMBER BEACH: They overlap, well,  
5 so I was kind of wondering about that.

6 MR. NELSON: I think `85 is the key  
7 here.

8 MEMBER BEACH: `85. Okay.

9 MR. NELSON: So that, the last one  
10 probably should say `85 instead of `86. That's  
11 laid out in the Technical Basis Document.

12 MR. FITZGERALD: Yes, it just gets  
13 down to asbestos -- the only differential note  
14 is that asbestos -- this is from our review --  
15 is that asbestos workers after `86 had a chest  
16 exam performed every two years. It says only  
17 smokers are documented in table 3.1 of the  
18 2004 TBD as having received an exam every  
19 three years. So there is some distinction  
20 between the asbestos workers.

21 MEMBER BEACH: 35?

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1                   MR. FITZGERALD: Yes, it's on page  
2                   35 of the SC&A review. Those -- this certainly  
3                   is a little history as far as the frequency  
4                   goes. Again, I would recommend closure on this  
5                   issue, unless there's any other questions on  
6                   it. Okay. Issue--I'm sorry?

7                   CHAIRMAN SCHOFIELD: I was going to  
8                   ask if DCAS has any further comments on the--

9                   MR. NELSON: No. No.

10                  CHAIRMAN SCHOFIELD: Okay.

11                  MR. FITZGERALD: Now, if you want  
12                  to go into some of the perspectives in the  
13                  review, you have our review. And, on some of  
14                  these, it probably, you know, these are kind  
15                  of accuracy issues. I didn't want to go  
16                  through and, go through all the explanations,  
17                  since clearly there's no disagreement. On  
18                  issue five, and this one actually applies to  
19                  all the TBDs, and I think in -- generally, the  
20                  Site Profile review team shared a concern over  
21                  how contamination control and the skin and

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1 extremity dose was handled in the 2004 Site  
2 Profile.

3 And the issue is that there just  
4 didn't seem to be a lot of information, you  
5 know, first off, characterization information  
6 in the site description, and perhaps a dose  
7 estimation approach provided in the other TBDs  
8 on how skin contamination would be addressed  
9 in the context of how that would contribute.

10 And -- Grady's earlier comment  
11 that you were just dealing with intakes anyway  
12 certainly applies to that, which is inhaler  
13 adjusted. I think in terms of actual skin  
14 exposure, and if I'm not wrong on non-  
15 presumptive that might actually have some  
16 bearing.

17 It would seem to be, and this is  
18 not just for Paducah. I guess this would be  
19 one of these generic issues across the three  
20 gaseous diffusion plants--

21 MR. NELSON: -- many other sites --

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1                   MR. FITZGERALD: -- and I can't  
2 recall if there's an OTIB on this now or not,  
3 but certainly the issue of skin contamination  
4 has come up a number of times before.

5                   MR. NELSON: And we do have an OCAS  
6 OTIB 10, which is for geometry issues, when  
7 you have a whole body dosimeter on you and  
8 you're working with extremities, it does give  
9 you some correction factors, but typically  
10 that's for glove boxes. But you can also use  
11 that as well.

12                  DR. NETON: Right, but we -- I  
13 think we have -- I thought we had a TIB that  
14 just, that dealt with how to use VARSKIN to do  
15 skin dose calculations.

16                               (Simultaneous speaking.)

17                  DR. NETON: -- I think we do -- but  
18 that's not really, I mean, even if that's in  
19 place, I think the larger question here is  
20 what -- how do you deal with skin  
21 contaminations on a generic basis, and our

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1 answer previously has been, and I think it's  
2 reiterated here, unless we know something  
3 about a skin contamination event that occurred  
4 and was on a specific location, there's not  
5 much else we can do.

6 You know, you can't sort of  
7 speculate that everyone had so much skin  
8 contamination over their entire work history.  
9 It just doesn't, it's just not a practical way  
10 to approach this.

11 MR. FITZGERALD: Yes. This being a  
12 Site Profile, I think the context of this  
13 comment was just, there didn't seem to be much  
14 perspective, background information, guidance.  
15 I mean, I think this is a -- this is  
16 instructive, but I think that was the, basic  
17 finding of the team that when they looked at  
18 this, understanding that, historically, at the  
19 diffusion plants, contamination was a, was --

20 MEMBER BEACH: Frequent occurrence.

21 MR. FITZGERALD: -- pretty big

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1 deal. I mean, it was certainly a source term  
2 to be concerned about. The issue was simply  
3 more characterization of, well, how  
4 significant of a -- exposure source was skin  
5 contamination, extremity exposure, at the --  
6 not just Paducah, at -- really at all the  
7 gaseous diffusion plants.

8           And in terms of incident data, you  
9 know, information on incidents, is there a  
10 likelihood that you'd be able to use incident  
11 information to assign a contribution from  
12 contamination or not. I - I didn't do Paducah  
13 per se. However, having spent weeks at  
14 Portsmouth, leading that Tiger Team, I know  
15 Portsmouth backwards and forward.

16           And I think the contamination  
17 issue is worth looking at, and, you know,  
18 deciding in the final analysis it may be what  
19 Jim has just said, that, you know, really, it  
20 -- worker by worker issue. And you can't do  
21 much beyond that.

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1                   But, I -- certainly the Site  
2                   Profile doesn't give you a whole lot to go by  
3                   on that regard, as to whether there's a --  
4                   sufficient incident information, sufficient  
5                   information relative to significance of  
6                   extremity and contamination as a source, and  
7                   whether that's -- going to be worth -- and to  
8                   my way of thinking, it's also a -- an issue of  
9                   how much effort would be necessary.

10                   But certainly it's a question I  
11                   would have, is how's that play into this. And  
12                   if I were to take one issue amongst all these  
13                   issues at Paducah I think that would be the  
14                   one that would be of concern to me in terms  
15                   of, in a Site Profile context, that if this is  
16                   a road map for a dose reconstructor, it seems  
17                   to be a gap as far as the -- the background  
18                   information on how you would actually deal  
19                   with that.

20                   I mean, I -- I understand the  
21                   default, which is to go to this position, but

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1 I -- I'd be uneasy about just going to the  
2 default in every case without knowing what the  
3 circumstances were.

4 DR. NETON: I'm looking through our  
5 TIBS and I don't recall, I --

6 MR. FITZGERALD: I thought there  
7 was one, and -- maybe I'm --

8 DR. NETON: -- I thought there was  
9 one, I distinctly remember --

10 MR. CALHOUN: I can't remember,  
11 maybe the IG, maybe it's in the IG --

12 DR. NETON: -- it might be in the  
13 implementation guide, but I think we should  
14 take the action item, go back and look at what  
15 TIBs we have out there, whether it's in the  
16 TIB or the IG to discuss external exposure  
17 contamination. And sort of reiterate this  
18 guidance as if we just put in the response --

19 MR. FITZGERALD: And how that is  
20 sufficient in these circumstances.

21 DR. NETON: And to what extent you

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1 need to -- goes into the Site Profile itself  
2 or we reference some other document that we  
3 might need to write because it, like you say,  
4 it is a somewhat generic issue.

5 MR. NELSON: One thing the TBD was  
6 responsive to was technetium-99, and it  
7 discusses if individuals were to get  
8 contaminated how to deal with that  
9 contamination and how to assign dose. And it  
10 also -- there was some discussion regarding if  
11 you look in some of the reference IDs for this  
12 particular site of technetium, you know, you  
13 don't have to get very far away from it before  
14 the dose drops off. It's pretty low energy.

15 But it gave you some thumb rules  
16 on, if you have protective clothing,  
17 essentially it shields it all the way, whereas  
18 you have to be within, I think it's like, 15  
19 centimeters, and the dose even drops off then,  
20 but it's, you know, it gave some description  
21 of how many -- if you were exposed at this

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1 frequency, what type of exposure rates you  
2 would get on a monthly basis.

3 MEMBER BEACH: Well, then --

4 MR. NELSON: You will find some  
5 discussion in the TBD on how to deal with  
6 technetium contamination.

7 MEMBER BEACH: And that's in 10?

8 MR. NELSON: That's in the external  
9 dosimetry TBD. Let's see if I have it written  
10 down --

11 MEMBER BEACH: Well, and then this  
12 -- you also reference VARSKIN and Microshield.  
13 How --

14 MR. NELSON: Yes, those are just  
15 some programs that we can use to assess  
16 extremity doses, and they're often used, if  
17 you, if you do have an individual that's  
18 contaminated, you enter the information in  
19 those programs, and it helps you determine  
20 what the dose to the skin is.

21 CHAIRMAN SCHOFIELD: Do those

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1 programs differentiate between, say, skin  
2 contamination that's an oxide versus an  
3 aqueous solution?

4 MR. NELSON: Grady probably knows;  
5 he's probably used them--

6 DR. NETON: Not usually. I mean,  
7 there's not much difference, if it's such a  
8 thin layer, there's not going to be much self  
9 absorption, unless it's something like a  
10 tritium. That wouldn't even penetrate the  
11 skin. But, in general, it's for fairly  
12 energetic betas that you wouldn't make much  
13 difference.

14 I think VARSKIN does allow for  
15 thickness -- there's a thickness --

16 MR. CALHOUN: Source thickness?

17 DR. NETON: -- source thickness  
18 within VARSKIN.

19 MR. CALHOUN: I think so, too.

20 DR. NETON: But if it's sort of not  
21 visible on the skin, but measurable, usually

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1 it's so thin that the self absorption of the,  
2 of the matrix is not that important in the  
3 calculation.

4 MR. FITZGERALD: Well, you're  
5 mentioning the non-presumptives, and the  
6 claims that were, were provided, 442. Do you  
7 recall what extent skin played into that?

8 MR. NELSON: No, I don't know that  
9 one. I would imagine it's a pretty good  
10 number.

11 DR. NETON: Yes, because if it --  
12 pretty much what you have left is the, is the  
13 skin, skin cancers, and then the other non-  
14 presumptives like prostate and -- I can't  
15 think of the others -- non-Hodgkins lymphomas  
16 and those types, would not get much internal  
17 dose, and it's in likely a place like Paducah,  
18 you would get a lot of penetrating deep dose  
19 sufficient to get over 50 percent, so --

20 MR. FITZGERALD: No, that's why I  
21 was a little curious, because --

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1 DR. NETON: Most of those are going  
2 to be skin cancer.

3 MR. FITZGERALD: -- would be skin,  
4 and you would need to, I guess, come up with a  
5 source term to, or some kind of assumed --

6 DR. NETON: Yes, well, it's  
7 probably mostly modeled based on a uranium  
8 source term, a U-238 source term with  
9 protactinium 234m, that sort of thing. And you  
10 get a couple hundred mR per hour around a  
11 fairly sizable chunk of uranium.

12 MR. FITZGERALD: But you'd have to  
13 assume sort of a bounding assumption for  
14 exposure, you know, for the average worker  
15 exposure.

16 DR. NETON: Yes.

17 MR. FITZGERALD: And that's kind of  
18 what, I think, you get right down to it,  
19 that's kind of where this comes from, in a  
20 way. That's, you know, what is, you know, what  
21 is the, what is the data you're using to come

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1 up with that, and --

2 DR. NETON: Right.

3 MR. FITZGERALD: -- how do you  
4 apply it, and maybe that's not appropriate for  
5 a Site Profile, but somehow there's that  
6 algorithm that exists because you're certainly  
7 compensating on the non-presumptive, and  
8 that's what's curious on skin, if skin's being  
9 compensated, there has to be some middle  
10 ground as to what gives you that probability  
11 of causation.

12 DR. NETON: I don't want to put  
13 Jack Fix on the spot, but I heard he was on  
14 the phone. Jack, do you -- do you recall what  
15 we're using for skin dose estimates for  
16 workers? At Paducah?

17 (No response.)

18 DR. NETON: Jack's not on.

19 MS. WINSLOW: This is Susan  
20 Winslow. I'm not sure if -- I know Jack was  
21 going to be on and off a little bit--

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1 DR. NETON: Okay.

2 MS. WINSLOW: I know during dose  
3 reconstruction, if we do have evidence of a  
4 skin cancer, we have used VARSKIN and  
5 Microshield depending on the situation and  
6 then that particular case, what's necessary,  
7 what gives us the best estimate.

8 DR. NETON: Right, but don't we  
9 have some coworker shallow dose estimates or -  
10 -

11 MR. NELSON: Yes, we do--

12 MS. WINSLOW: Well-

13 MR. NELSON: It's in the coworker,  
14 so we do have skin dose there.

15 DR. NETON: Okay, and that's  
16 probably, we picked some very, probably, for  
17 an unmonitored worker, we'd take something  
18 like the 50th percentile, I suspect, which --

19 MR. NELSON: Right, it really comes  
20 down to, I think, the issue here is dealing  
21 with the extremity dose. Because we do have

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1       coworker data that shows you for skin dose,  
2       but extremity dose, like a lot of sizes.  
3       Sometimes difficult to determine exactly what  
4       it is.

5                       But one thing to look at, I know  
6       we did this for Portsmouth, Susan, but --did  
7       we get the number of extremity skin cancers  
8       for this particular facility?

9                       MS. WINSLOW: No, I'm sorry. I  
10       don't have it.

11                      DR. NETON: See, I'm wondering if  
12       it may be that the doses we're assigning for  
13       shallow dose for the coworker model is so high  
14       that you could have fairly large number of  
15       skin contaminations, of minor -- of short term  
16       duration that would be trivial compared to  
17       what we're assigning based on a -- on the  
18       coworker model.

19                      MR. NELSON: Yes, and you got to  
20       remember, coworker dose almost always includes  
21       missed dose --

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1 DR. NETON: Exactly, that's what  
2 I'm saying --

3 MR. NELSON: -- maximizing the  
4 number of zeroes, it's --

5 DR. NETON: Especially for a  
6 uranium type facility. You don't, you don't  
7 get a lot of dose per hour to the skin. It's  
8 not as high as you would think. And, you know,  
9 if you compare it to what we're assigning  
10 based on the external shallow dose delivered  
11 from the coworker model, probably be a very  
12 small percentage.

13 MR. NELSON: Well, when you look at  
14 the coworker model, I got the page open right  
15 now, and what you'll see is, for the -- the  
16 facility started in 1953, and they worked,  
17 obviously, until present. But, in 1960 and  
18 '61, that's -- initially they had just the  
19 most highly exposed workers monitored.

20 DR. NETON: Right.

21 MR. NELSON: So what you're going

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1 to see in this table is that the doses are  
2 much higher for the first, I guess that's  
3 seven or eight years. And then when they start  
4 monitoring everybody, the dose actually falls  
5 --

6 DR. NETON: Right.

7 MR. NELSON: -- off to a much  
8 smaller --

9 DR. NETON: Do you have a feel for  
10 what levels they are there?

11 MR. NELSON: Well, like, in the --  
12 let's pick 1955 because that's a couple years  
13 after they started. We go to the 95th  
14 percentile for gamma dose, it's 2.7 rem, and  
15 the shallow dose, or non-penetrating, is 4.8  
16 rem.

17 DR. NETON: Yes. See, that's a  
18 fairly high number --

19 MR. CALHOUN: For someone who's not  
20 monitored, that's, --

21 DR. NETON: We're kind of getting

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1 away from the original question, which is how  
2 do we deal with external skin contamination.  
3 And I do think that we probably ought to put  
4 some kind of brief discussion, a blurb, about,  
5 pay attention to it, and if you do find --

6 MR. CALHOUN: It's in -- it's in  
7 the external IG.

8 DR. NETON: Is it in the external  
9 IG?

10 MR. CALHOUN: Yes, it is.

11 DR. NETON: Okay.

12 MR. CALHOUN: There's a whole  
13 section about skin contamination--

14 DR. NETON: I thought there was.

15 MR. CALHOUN: -- how to do dose  
16 calculations using VARSKIN.

17 DR. NETON: All right, I remember  
18 that distinctly. Okay, so then, maybe just  
19 something like a reference to the external IG  
20 in the Site Profile, description.

21 MR. FITZGERALD: I suspect that --

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1 what's the date on the IG?

2 MR. CALHOUN: Let me get up to the  
3 top, here.

4 MR. FITZGERALD: One problem too,  
5 is our comments are almost four years old --

6 MR. CALHOUN: The IG should be --  
7 is, you know, I don't know what -- but it's  
8 been around --

9 MR. NELSON: It's been around --

10 DR. NETON: I have a recollection  
11 that it might have been modified to  
12 incorporate that --

13 MR. CALHOUN: Effective date is  
14 November of '07, and I don't know if the  
15 record of Revision will tell me anything --

16 MR. FITZGERALD: Yes, see, that,  
17 that followed the Site Profile comments so it  
18 would not have been referenceable at that  
19 time.

20 MR. CALHOUN: But that was Rev. 3,  
21 though. So this --

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1 MR. FITZGERALD: Okay.

2 MR. CALHOUN: -- has been around  
3 for a long time.

4 MR. FITZGERALD: Okay. Well I think  
5 these --

6 MR. CALHOUN: These were -- these  
7 were our first two documents --

8 DR. NETON: But see, Rev. 3, I  
9 think, probably if you looked at it,  
10 incorporated this VARSKIN business because  
11 this is fairly fresh in my mind, and I'm  
12 pretty sure it wasn't in the original revision  
13 of the external implementation guide.

14 MR. CALHOUN: I don't see that, but  
15 --

16 DR. NETON: Anyway, so --

17 MEMBER BEACH: And it wasn't part  
18 of the answer, either, which is interesting.

19 DR. NETON: So I think what you  
20 should do is, you know -- in the Site Profile,  
21 discuss briefly about, you know, precautionary

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1 note about external contamination, look for  
2 that in the record, if it's found, and then  
3 reference the implementation guide for  
4 guidance as to how to -- how to proceed.

5 MR. CALHOUN: And any time there is  
6 a skin contamination identified and there's a  
7 skin cancer and the contamination is even  
8 remotely close to that cancer location, a  
9 separate calculation is done. That happens.  
10 I've seen it.

11 MR. FITZGERALD: Okay. So, I think  
12 that sounds like a reasonable approach.

13 DR. NETON: Chuck, you're recording  
14 our action?

15 MR. NELSON: Yes, I am.

16 DR. NETON: I'm sensitive about  
17 that because Ted's a tough taskmaster.

18 MR. KATZ: Is that item closed?

19 MEMBER BEACH: No, it's not closed.

20 DR. NETON: We have an action item  
21 to modify, you know, see if there's some

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1 language in the TBD --

2 MR. KATZ: No, I know you have that  
3 action item, but it sounded like there was  
4 concurrence that that was the appropriate  
5 thing to do, and no uncertainty about the  
6 nature of that revision, right?

7 MR. FITZGERALD: Yes, in that  
8 context, that would be closure in that  
9 context.

10 MR. CALHOUN: One thing we need to  
11 think about, though, is that, you know, this  
12 isn't it -- the IG was out there to be an  
13 overarching document, and we don't have a  
14 statement in every external section of every  
15 TBD and coworker model that says, look at --  
16 look at skin contamination.

17 I mean, it's just something that  
18 we do. So, you know, unless we plan on  
19 changing every TBD, that way --

20 DR. NETON: That's -- you got a  
21 good point there.

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1                   MR. FITZGERALD: I think, well, I  
2 think, again, I think the intent on the  
3 finding was just that there was -- I've seen  
4 the different Site Profiles and have reviewed  
5 different Site Profiles, so this one seemed to  
6 be rather scant on an approach, referenceable  
7 approach to the -- to coming up with a  
8 bounding. And I realize the reference would be  
9 to the IG, but, again, discussion of what  
10 available information there is on extremity  
11 exposure, on contamination --

12                   DR. NETON: Yes --

13                   MR. FITZGERALD: I mean, it just  
14 seemed like there wasn't much there, and I, I,  
15 the handoff to the IG, I think, is perfectly  
16 good, but I think there's got to be something  
17 on the front end as well.

18                   DR. NETON: We'll take a look at it  
19 and --

20                   MR. CALHOUN: Yes -- my guess is, I  
21 think ever DR actually references the IG. I

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1 think. I'd have to look at that, but --

2 DR. NETON: Yes, I think it  
3 probably does.

4 MR. FITZGERALD: Maybe that's  
5 something that, in addition to agreeing to  
6 agree, also ask that, you know, maybe we can  
7 get a -- some feedback for the next session,  
8 the next Work Group meeting.

9 DR. NETON: And Joe -- Joe made a  
10 good point. I mean, this is a -- these are  
11 non-presumptive chances we're dealing with,  
12 and -- largely, skin cancers, in general. So  
13 we -- it might behoove us to be a little more  
14 -- we should always be careful, but in this  
15 case, be a little more specific. Because  
16 that's -- that's the bulk of the cancers that  
17 we -- get. A large percent.

18 MR. FITZGERALD: Okay. Issue six,  
19 and jump in if you want a break, but issue six  
20 is moving to the Occupational Environmental  
21 Dose TBD, 19-4. And I think, again, the

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1 question here was, you know, the basis for  
2 applying the site boundary measurements.

3 It wasn't clear how that would be  
4 the basis for an on-site ambient number, and I  
5 thought the response was very informative. I  
6 wish it was in the Site Profile. So, actually,  
7 I don't, you know, my only comment is that,  
8 just lift what you have here, basically,  
9 provide that basis in the next revision and  
10 you've got it.

11 MR. NELSON: I agree -- we worked  
12 on that one a bit, and I think it --

13 MR. FITZGERALD: Yes.

14 MR. NELSON: -- some clarifying  
15 information and --

16 MR. FITZGERALD: This -- this nails  
17 it pretty clearly as to where that basis is,  
18 where that comes from. I didn't see it in the  
19 description of the Site Profile, so if that's  
20 satisfactory to the worker, I would just  
21 recommend that, since you've done all the

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1 heavy lifting already, just use some of this  
2 language.

3 MR. KATZ: Phil, is that good?

4 CHAIRMAN SCHOFIELD: I don't have a  
5 problem with that. You're going to modify the  
6 TBD with the --

7 MR. NELSON: Yes, I think it, it  
8 would be, and Susan, do you agree with that? I  
9 mean, we spent some time on that, trying to  
10 nail this down and get it straight in our own  
11 heads. And I think that meant, at least to me,  
12 that maybe that section was lacking some.

13 And I think we can put some  
14 clarifying information there so that the dose  
15 reconstructor can extract that out there. I  
16 know they get used to doing a certain thing,  
17 but, you know, if you have a new dose  
18 reconstructor, he can go to the TBD and, and  
19 pull that information out of there more  
20 readily. So I think it warrants a --  
21 clarifying that the TBD. Do you agree?

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1                   MR. FITZGERALD: She said -- she  
2                   said --

3                   MS. WINSLOW: Yes, I agree.

4                   MR. KATZ: Okay. Closed.

5                   MR. FITZGERALD: I don't know if  
6                   anyone wants -- I don't want to be too oblique  
7                   for somebody that's on the phone. If anyone  
8                   wants additional perspective on what this  
9                   issue is, we're kind of cutting to the quick,  
10                  I guess you might say.

11                  But            certainly        the        lengthy  
12                  information, the basis provided in the matrix  
13                  response, we think, is pretty much, clarifies  
14                  the question that we had in the original  
15                  review. Okay. Moving to issue seven.

16                  Occupational Internal Dose, this  
17                  is TBD 19-5. And this really comes down to the  
18                  information that was provided in two, two  
19                  particular sources. One was the PACE report in  
20                  2000, the PACE Utah report in 2000.

21                  And the Bechtel Jacobs report in

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1 2001, two -- which are two sort of salutary  
2 evaluations that were done at Paducah. And I  
3 think, and I'm speaking in general, because  
4 some of the issues that follow kind of are the  
5 same -- of the same ilk. We just felt that the  
6 2004 version of the internal TBD did not  
7 borrow enough from those two references.

8           And, we felt that there was  
9 information in those two references which were  
10 particularly important. And, in our  
11 evaluation, sort of comparing side by side the  
12 2004 with the 2007 TBD, we found that both  
13 references, again, the 2007 came up, came out  
14 seven or eight months after the -- our review  
15 did.

16           We found that the -- both  
17 references were in fact cited and included and  
18 information drawn from both of them in the  
19 TBD. So to make a long story short, while the  
20 source term concerns that we had in terms of  
21 missing information are not missing in that

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1 sense anymore.

2 So in this regard, the two  
3 references are included in the 2007 version.  
4 Now, keep in mind, again, the Site Profile  
5 review was looking at the existing TBDs that  
6 were there, and those were the 2004 versions,  
7 so in this particular case, I think NIOSH had  
8 the advantage of being able to see our  
9 findings for six or seven months before the  
10 issuance of the next version. And, to their  
11 credit, I think they made these changes. So  
12 this one, again, I think could be closed.

13 CHAIRMAN SCHOFIELD: Anybody have  
14 any objection to it being closed? Objections  
15 or comments.

16 MR. FITZGERALD: Okay. And, again,  
17 go to issue number eight, which deals with  
18 table 5-2. And this subject is isotopic  
19 fractions for the various enrichments. We felt  
20 that there wasn't enough characterization on  
21 those fractions that were provided in that

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1 table.

2 And the specific example was the,  
3 for example, the specific activity, U-235 at  
4 93 percent feed, which appears to be a factor  
5 of ten too low. Some of this gets back to the  
6 enrichment levels soon, but in general, and I  
7 guess I would want you to explain how that was  
8 done.

9 But you chose to replace 5-2,  
10 which I guess was an earlier approach, with a  
11 new table of isotopic concentrations, and  
12 these were tied to the specific Paducah  
13 operations themselves, which I think is a  
14 superior approach.

15 But certainly that's much  
16 different than the isotopic fraction table,  
17 and use of that table in the 2004 TBD. So I'll  
18 leave it to you to explain that. But I think,  
19 you know, that kind of makes our comment a bit  
20 moot because it's a different approach  
21 entirely.

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1                   MR. NELSON: Actually, I -- these  
2                   ones that you guys agreed with, I didn't spend  
3                   a whole lot of time on them. So I can't  
4                   elaborate too much -- I can tell you, for  
5                   table 5-2, the -- actually it comes out in  
6                   another comment a little later because Walt  
7                   took an objective -- objection to one of the  
8                   mass concentrations we were using.

9                   MR. FITZGERALD: Right.

10                  MR. NELSON: And, but basically  
11                  this table came from a Bechtel Jacobs 1991  
12                  document. It was actually cited incorrectly on  
13                  table 5-2 in the current TBD. And, on note A,  
14                  we actually need to make a change to that, and  
15                  we found the correct reference.

16                  But what they did is they assumed  
17                  2 percent enriched uranium, then they tied the  
18                  other contaminants, transuranics and  
19                  technetium fission products and all the things  
20                  from recycled uranium, as I had mentioned  
21                  earlier. They tied those to the uranium

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1 concentrations in this particular case. But  
2 it's all based on 2 percent enriched uranium.

3 MR. FITZGERALD: And that's based  
4 on the -- what year --

5 MR. NELSON: This is a 1991 Bechtel  
6 Jacobs internal dosimetry Technical Basis  
7 Document. So we pulled these activity  
8 concentrations --

9 MR. FITZGERALD: That was the  
10 original table 5-2.

11 MR. NELSON: Okay. What, I was,  
12 thought you were referring to the one in the  
13 current --

14 MR. FITZGERALD: No, I was just  
15 saying, the -- that's -- the Bechtel Jacobs  
16 '91 is the -- is the basis for the new table--

17 MR. NELSON: Right.

18 MR. FITZGERALD: The isotopic  
19 fractions, where did that -- I mean, I -- was  
20 derived from an earlier source of information  
21 --

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1                   MR. NELSON: I'm not sure on that  
2                   one, quite honestly.

3                   MR. CALHOUN: I think, now, that  
4                   this, you know, this goes back a long ways,  
5                   but I don't know if you remember but there was  
6                   a -- quite a bit of attention placed on the  
7                   Paducah internal isotopic fractions. And I  
8                   want to say that that PACE report was involved  
9                   with this, and we had a significant review of  
10                  this by even folks outside of DCAS.

11                  And that's where we ended up with  
12                  a change in the neptunium ratios, and I want  
13                  to say that the neptunium ratios went up and  
14                  this -- in a converter room that was a really  
15                  high       sample       found       from       historical  
16                  documentation and so that caused us to raise  
17                  neptunium concentrations.

18                  I believe that that's where these  
19                  came from, but I can't say for sure because,  
20                  I mean, it was a long time ago, and--

21                  MR. FITZGERALD: That makes more

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1 sense to me because the `91 -- the PACE  
2 analysis and the -- those were early two -- I  
3 guess it was late `99, 2000. And that  
4 information was, you know, they spent a lot of  
5 time digging through Paducah, that was a big  
6 flap in `98.

7 So I can understand why that  
8 information now would be more conservative,  
9 more complete. But the original table, I  
10 think, must have been based on something.

11 MR. NELSON: Okay.

12 MR. FITZGERALD: You're saying  
13 Bechtel `91, that just --

14 MR. NELSON: No, I was referring to  
15 the activity concentration for uranium itself.

16 MR. FITZGERALD: Okay.

17 MR. NELSON: And, I mean, if you --  
18 that would be the last four entries in the  
19 table 5-2. That only came from Bechtel Jacobs  
20 1991. Then the other constituents are the  
21 contaminants from recycled uranium. Those were

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1 accounted for via the PACE and other documents

2 --

3 MR. FITZGERALD: Okay, which is  
4 what you're --

5 MR. CALHOUN: And I believe that's  
6 what spurred the PER that he was speaking of  
7 because we ended up raising the concentrations  
8 of neptunium in some of those locations.

9 MR. FITZGERALD: But, anyway. I, I  
10 think, in some, the new isotopic table  
11 obviously is up to date, and a better approach  
12 than -- I think we just had some problems with  
13 the use of the isotopic fractions, some of the  
14 fractions raise a questions. But I think,  
15 again, this makes it moot, so I would  
16 recommend it -- close it --

17 MEMBER BEACH: So you don't think  
18 you need to go back and look at that in your  
19 table, and --

20 MR. FITZGERALD: No, we've looked  
21 at the table, and the references. The problem

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1 was the approached used isotopic fractions and  
2 the information was, I think, outdated. But,  
3 again, the TBD in 2004 would have been  
4 developed in probably 2003, so some of this  
5 more recent information probably didn't find  
6 its way into it. That's kind of the concern  
7 when we were going through it.

8 MEMBER BEACH: And I think the one  
9 I see in here is 2006. Rev. 1.

10 MR. NELSON: We're on 00 let's see,  
11 2007, Rev. 2 right now.

12 MEMBER BEACH: Rev. 2? Okay, so I  
13 haven't got to ---

14 MR. NELSON: For internal.

15 MR. FITZGERALD: For internal,  
16 right. And the biggest distinction, again, is  
17 this more current information because they  
18 did, after the '98 '99 flap, it, they did  
19 spend a lot of time digging though, through  
20 the PACE review as well as the Bechtel Jacobs  
21 internal review, going through that, the

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1 source term information.

2 MEMBER BEACH: Okay.

3 MR. FITZGERALD: Okay.

4 MR. KATZ: Phil? Closed?

5 CHAIRMAN SCHOFIELD: Yes.

6 MR. FITZGERALD: Item nine, which  
7 is table 5-4, which I think is again going to  
8 be a similar -- this is the pre and post BJC  
9 and Bechtel Jacobs and PACE report because the  
10 prior version of TBD, I think, seemed to leave  
11 out a number of the recycled uranium isotopes.

12 You're talking about neptunium,  
13 you know, the Bechtel Jacobs report 2001 they  
14 have a table which includes maximum  
15 concentration, technetium, neptunium, MPU for  
16 eleven specific operations at Paducah --- I  
17 don't know, Grady, if this was what you were  
18 referring to, but, you know, the -- that  
19 information didn't seem to be reflected in the  
20 version that we looked at four years ago.

21 You might want to take a look at

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1 that and just --

2 MR. CALHOUN: I just don't know; it  
3 was too long ago --

4 MR. FITZGERALD: Right, right. That  
5 particular, and we actually cite the table  
6 from the 2001 reference --

7 MR. CALHOUN: I can't imagine that  
8 it's not in there --

9 MR. FITZGERALD: Yes, I can't  
10 either, but just to verify that. That would  
11 close this issue out. That's all we're saying,  
12 is that reference, that table from Bechtel  
13 Jacobs provides the maximum concentrations for  
14 different -- for the eleven different  
15 operations at Paducah, it came out --

16 MR. NELSON: It's listed as  
17 reference B, down there, and it's --

18 MR. FITZGERALD: In 2007.

19 MR. NELSON: Correct. It says PACE  
20 and University of Utah, 2000.

21 MR. FITZGERALD: Okay. So the --

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1 but the -- I guess the validation would be if  
2 those values -- how those values were actually  
3 applied. Because our response was we found the  
4 reference. That was our response. We found the  
5 reference in the 2007 TBD.

6 So I would say closed pending  
7 verification that the maximum concentrations  
8 were reflected for the isotopes -- R -- the  
9 recycled uranium isotopes.

10 MR. KATZ: Okay, then, in our  
11 parlance, it's in abeyance.

12 MEMBER BEACH: Yes.

13 MR. FITZGERALD: But I, like I  
14 said, I think from our standpoint, we found  
15 the reference and the, you know, the  
16 presumption is that the, it would have been  
17 done, but we haven't gone through and --

18 MEMBER BEACH: So it's a NIOSH --  
19 action?

20 MR. FITZGERALD: Just to verify  
21 that those maximum values are reflected.

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1                   CHAIRMAN   SCHOFIELD:   Okay.   Then  
2                   let's move on to number ten unless anybody has  
3                   objections.   Anybody on the phone?

4                   MR.   FITZGERALD:   Okay.   Number ten,  
5                   I think the original TBD cited the standard  
6                   five micron AMAD for assumed particle size,  
7                   and I think we found in the 2007 version that  
8                   the table that included the particle sizes was  
9                   deleted, this is 5-5. And that's pretty much  
10                  just a statement of fact, that, you know, it's  
11                  not there.

12                  And I guess the question would be,  
13                  given the variety of and range of particle  
14                  size at Paducah from fume level up to, you  
15                  know, five or six micron, what would -- what  
16                  would be the -- what would be assumed particle  
17                  size for dose reconstruction?

18                  MR.   NELSON:   I'm not 100 percent. I  
19                  would think it's five, though.

20                  MR.   FITZGERALD:   Well, five is sort  
21                  of the --

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1 MR. NELSON: Default.

2 MR. FITZGERALD: -- default, but  
3 I'd be curious in specific operations where  
4 you had, maybe .5, which is sort of fume  
5 level, how that would be addressed.

6 MR. NELSON: Well, typically we  
7 base all our internal dose on urine levels  
8 anyways, so that's typically how we're  
9 reconstructing dose for monitored employees.

10 DR. NETON: Well, but the particle  
11 size would affect the urine output. I guess  
12 the question is do we have a lot of  
13 information -- it seems like this comment says  
14 that there are -- there's information contrary  
15 to particle size, distribution is not five --

16 MR. FITZGERALD: Yes, in the Site  
17 Profile review, we cite some of the documents  
18 that point out the fume -- size particles all  
19 the way up to, fairly -- I think in, in  
20 general five would probably work for most of  
21 the plant. There's some operations involved

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1 that were much less than five.

2 DR. NETON: Well, I think, I  
3 haven't read these, but if there are  
4 references that are cited that support a  
5 different particle size then we probably need  
6 to look at them and address them in some  
7 fashion.

8 MR. NELSON: Like I said, I didn't  
9 spend much time on these ones that you all  
10 agree, but --

11 MR. FITZGERALD: Well, yes. When we  
12 did a comparison, we noted, you know, if table  
13 5.5 had an issue and it disappeared, it sort  
14 of raised the question, I was just going to  
15 put that as a placeholder that it was deleted,  
16 but to raise it as a, as sort of a question as  
17 to what you're --

18 DR. NETON: It seems to me just  
19 taking out the particle size references  
20 doesn't -- doesn't address the --

21 MEMBER ANDERSON: Hi, this is Andy.

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1 I just signed on. I'm going to be in and out  
2 most of today but I just called in.

3 MR. KATZ: Okay, thanks, Andy.

4 MR. FITZGERALD: I guess, Ted, just  
5 leave that one open or --

6 MR. KATZ: Yes.

7 DR. NETON: I guess, mostly, it  
8 would be affected in the gaseous phase that  
9 we're talking about, versus -- most  
10 particulate operations that I'm aware of are -  
11 - five is pretty reasonable.

12 MR. FITZGERALD: I think so.  
13 There's some specific operating --

14 DR. NETON: You have gaseous stuff  
15 running around, you got bigger problems than  
16 particle size.

17 MR. CALHOUN: But, you know,  
18 reality would be a little gaseous, it would be  
19 --

20 DR. NETON: That was from a  
21 different, yes, so--

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1 MR. CALHOUN: -- and we're going to  
2 be a -- we never assign F unless it's--

3 DR. NETON: Yes, but let's not --  
4 we'd have to look at that and then address  
5 why, you know, particle size is -- I think we  
6 can do that. We need to close that loop, I  
7 think. Otherwise you end up with hydrochloric  
8 acid inhalation issues and all kinds of other  
9 stuff. Those would be -- those would be  
10 incidents.

11 MR. CALHOUN: Yes. For the most  
12 part, the dose is going to be higher using  
13 MRS.

14 DR. NETON: Well --

15 MR. KATZ: -- have a response.  
16 Okay.

17 MR. FITZGERALD: I'm trying to find  
18 the references, but they're in here.

19 DR. NETON: Yes, I, you know, I  
20 have looked at them, but that's -- we need to  
21 at least address them in some --

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1                   MR. FITZGERALD: Okay. That's item  
2                   ten. Item eleven. This is list and quantities  
3                   of transuranics addressed but not completed,  
4                   from a claimant favorability standpoint. And  
5                   this is, again, table 5.5. And I think in this  
6                   case it was the scope of TRU cited, only  
7                   neptunium and plutonium were cited.

8                   But recycled contained more than  
9                   those two, i.e., 238, 240, and 241. And,  
10                  again, same issue. The table was deleted, and  
11                  going back to the BJC reference, I would  
12                  assume that -- this can hang on the  
13                  resolution, I think it was, what, issue number  
14                  nine. To what extent the 2001 Bechtel Jacobs  
15                  report was reflected for maximum  
16                  concentrations of trace materials and recycled  
17                  -- I mean, it's the same issue.

18                  Table 5.5 only cites those two  
19                  transuranics, not the other ones. So I would,  
20                  Phil, just recommend that this one sort of be  
21                  combined with -- make sure I get the right

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1 one.

2 MEMBER BEACH: Nine.

3 MR. FITZGERALD: Number nine. And,  
4 in terms of just verifying, essentially, that  
5 the maximum concentrations of constituents and  
6 recycled feed were from a Bechtel Jacobs  
7 document was reflected in the -- in the new  
8 version of the -- the existing version of the  
9 TBD. The reference is there, but the question  
10 is whether it was fully reflected, and this  
11 would answer this one, too.

12 CHAIRMAN SCHOFIELD: When was table  
13 5.5 last updated, by any chance?

14 MR. NELSON: To what, 5.2?

15 CHAIRMAN SCHOFIELD: Yes.

16 MR. NELSON: It was updated on  
17 4/4/07. That was after the SC&A comment, so --

18 MR. FITZGERALD: Yes --

19 MR. NELSON: -- a lot of these were  
20 taken into account --

21 MR. FITZGERALD: These tables that

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1 we're citing, 5.2, 5.5, they were deleted in  
2 the 2007 version and replaced by either  
3 another table or just not, you know, not used  
4 in the latest version, so.

5 CHAIRMAN SCHOFIELD: My thinking  
6 here is I'm just wondering if they've actually  
7 come back and looked at the particle size and  
8 stuff. Are you comfortable with what you  
9 found?

10 MR. NELSON: I think --

11 CHAIRMAN SCHOFIELD: And the  
12 constituents of the recycled tailings.

13 MR. NELSON: I think the answer to  
14 the particle size is that we need to look at  
15 it more closely and see if there's any  
16 particular facilities we need to call out, and  
17 I think the best documents are the PACE report  
18 and Bechtel Jacobs 2000, 2001 reports.

19 So I think that action being  
20 number ten for the particle size and the  
21 different radionuclides to make sure we have

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1 the most limiting radionuclide in the  
2 particular table is 9 and 11. So I don't know,  
3 I don't think we're going to find any more up  
4 to date information than those PACE documents  
5 and Bechtel Jacobs documents. I think that's -  
6 -

7 MR. FITZGERALD: Yes, that's the  
8 common theme, I think, to this section, is  
9 that those two documents are critical  
10 documents and -- the references in the 2007  
11 TBDs but there is still some question, and we  
12 noted that and gave credit to that, but  
13 there's still some question about how they  
14 were applied on these specific issues. And  
15 that's what we're talking about.

16 MR. NELSON: We go, we go through  
17 the exercise and look through the numbers and  
18 verify that these in fact are most limiting  
19 which we expected they are. Should be able to  
20 say that, but I didn't spend a whole lot of  
21 time on that.

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1 MR. FITZGERALD: So we agree.

2 MR. KATZ: So this is in abeyance.

3 And, Andy, just to bring you up to date, so  
4 far we've gone through issues, if you look at  
5 the matrix that DCAS sent out maybe two weeks  
6 ago, we're -- they -- we've closed issues one  
7 through eight, so everybody is in agreement.

8 And it basically is reflected by  
9 the responses in the DCAS column of that, so  
10 that's where we are. Nine, ten, and eleven,  
11 nine and eleven are in abeyance for the  
12 discussion you've just heard, and ten is open.  
13 DCAS is going to respond -- respond to that.

14 MEMBER ANDERSON: Yes. Okay. Great.

15 MR. KATZ: So that brings you up to  
16 date, anyway.

17 MEMBER ANDERSON: Yes.

18 MR. FITZGERALD: Yes, that, so that  
19 would be coupled with issue number nine and  
20 held in abeyance.

21 MR. KATZ: Right.

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1                   MR. FITZGERALD: Number twelve.  
2                   This goes to the same table, and, again, that  
3                   table's been deleted, but we still have some  
4                   questions. This is on absorption type. My  
5                   question on the replacement table, this is  
6                   table 5-1 of the 2007 TBD, the internal TBD,  
7                   is -- it seems -- I don't have this in front  
8                   of me, but it seems like certain facilities  
9                   were dropped from what I could tell.

10                  C710, which is the analytic lab,  
11                  C410, C420, which is feed plants. Basically  
12                  the C400-series facility, I mean, this is  
13                  facility by facility in terms of absorption  
14                  types, right, this replacement table.

15                  And I just looked at the facility  
16                  list in the original TBD and compared it with  
17                  the table here, and it seems like there's a  
18                  series of facilities that got dropped and I'm  
19                  just, maybe you can help me verify that. But I  
20                  couldn't find some of the 400-series  
21                  buildings.

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1                   And they seem like pretty relevant  
2 buildings, 360, 400, 409, 420, 410, C710 --

3                   MR. NELSON: I've seen all those so  
4 far.

5                   MR. FITZGERALD: Okay. I'll have to  
6 take another look.

7                   MR. NELSON: Yes. Every one of  
8 those have been there, maybe in a different  
9 location --

10                  MR. FITZGERALD: Okay.

11                  MR. NELSON: They're there.

12                  MR. FITZGERALD: That was one  
13 question. Just making sure that it was  
14 complete list. And in terms of the actual  
15 absorption class that would be assigned that  
16 would be, and, you have, for some of them, you  
17 have all three classes listed. That would be a  
18 function of the dose reconstructor making a  
19 judgment call.

20                  MR. CALHOUN: Actually, they'll run  
21 them all, and whatever one that --

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1 MR. FITZGERALD: -- thought it was  
2 approaching that. Okay. With that  
3 qualification and that confirmation, then I  
4 think we're fine on issue twelve. Phil? Josie?  
5 Do you have any questions on that?

6 CHAIRMAN SCHOFIELD: No.

7 MR. FITZGERALD: Okay.

8 MR. KATZ: Andy?

9 MEMBER ANDERSON: No, no questions.

10 MR. FITZGERALD: Okay.

11 MR. KATZ: Closed.

12 DR. NETON: Can we take a short  
13 break?

14 MR. KATZ: Want a break?

15 DR. NETON: Yes. Short comfort  
16 break.

17 MR. KATZ: Comfort break. So sorry,  
18 Andy, you just joined us, but --

19 MEMBER ANDERSON: Yes, I'm on break  
20 here. Making great progress.

21 MR. KATZ: Okay, okay, so we'll

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1 break until -- how much time do you need,  
2 folks? Ten minutes? Okay, so about -- about 25  
3 of, 35 after. Whatever.

4 MEMBER ANDERSON: Okay, I'll call  
5 back in then.

6 MR. KATZ: Okay, thanks.

7 (Whereupon, the above entitled  
8 matter went off the record at 10:27 a.m. and  
9 resumed at 10:40 a.m.)

10 MR. KATZ: Andy, are you back with  
11 us?

12 (No response.)

13 MR. KATZ: Okay. Well, we can carry  
14 on, I think, anyway. We're on item thirteen.

15 MR. FITZGERALD: Yes, this is Joe  
16 Fitzgerald. Item thirteen deals with, again,  
17 the occupational internal dose TBD for  
18 Paducah, and focuses on table 5-6, where there  
19 are intakes based on the bioassay data needed,  
20 in terms of frequency of sample collection.

21 Our -- I guess our concern there

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1 was the default frequency which was provided  
2 in that original 2004 TBD which provides for a  
3 four week interval as the default frequency.  
4 And we pointed out in our review that the  
5 intervals on some individuals could be as long  
6 as a year, and I think the NIOSH response as I  
7 read it was, you know, these default  
8 frequencies were not used when assessing  
9 individual's dose in any case, that the actual  
10 sample dates would obviously be applied.

11 But I would say if they were  
12 available. And the reason for the default, you  
13 didn't have the actual dates. And my question  
14 is on the -- so what would you do on the  
15 defaults for the -- where the -- that  
16 information is missing.

17 MR. NELSON: Well, if an individual  
18 didn't have bioassay, then we would use a  
19 coworker TIB and assign dose that way.

20 MR. FITZGERALD: Now would it be  
21 assumed from this that you always have the

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1 sample dates if you had the data? I --

2 MR. NELSON: Yes.

3 MR. FITZGERALD: -- I think that's  
4 the presumption here.

5 MR. NELSON: Yes.

6 MR. FITZGERALD: So then that  
7 raises the obvious question why would you have  
8 default frequencies in the first place.

9 MR. NELSON: That's a good obvious  
10 question.

11 DR. NETON: I was thinking that  
12 myself. I don't know why -- why we have a --

13 MR. FITZGERALD: You know, again, I  
14 didn't do this review myself, but I --

15 DR. NETON: Right, it doesn't make  
16 sense that we would take the default frequency  
17 --

18 MR. FITZGERALD: Right. So I  
19 thought there might be some data that didn't  
20 have --

21 DR. NETON: We should probably

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1 remove that language.

2 MR. FITZGERALD: With that instant  
3 realization, can we dispatch that?

4 MR. NELSON: Yes.

5 MR. FITZGERALD: Okay.

6 MR. KATZ: Closed?

7 MR. FITZGERALD: Yes.

8 MEMBER BEACH: So let me  
9 understand. We're going to take out the table,  
10 or the -- just the language?

11 MR. FITZGERALD: Well, there's some  
12 confusion cause by the default --

13 MEMBER BEACH: Language.

14 MR. FITZGERALD: -- frequencies  
15 that were provided -- and the default one  
16 seemed to be relatively short compared with  
17 what we knew for some of the frequencies. And  
18 I think the realization is that, you'd, if in  
19 fact you get the sampling dates with the data,  
20 in all cases, then you don't need a default  
21 frequency.

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1                   MEMBER BEACH: Then you don't need  
2 the default, okay. I just wanted to make sure  
3 --

4                   MR. FITZGERALD: But, you know --

5                   MEMBER BEACH: -- I was clear on --

6                   MR. NELSON: We'll strike the  
7 default frequency.

8                   MR. FITZGERALD: I mean, I don't  
9 know, is there any -- I can't think of any  
10 reason --

11                  DR. NETON: There's no reason for  
12 that.

13                  MR. FITZGERALD: Moving to item  
14 fourteen. This deals with table 5-7 in terms  
15 of MDC, minimum detectable concentration's not  
16 clearly defined. This was a case of just, you  
17 know, I think, in terms of due diligence to  
18 reviewers, we're walking down the MDCs in  
19 terms of the actual reference documents behind  
20 the MDCs.

21                                   And they found some discrepancies.

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1 Not all the MDCs were tied to a reference. And  
2 our -- when I went back and compared the 2007  
3 to 2004, again, I think because of NIOSH's  
4 response to these findings that were provided  
5 in October of 2006, the additional reference  
6 were --references had been added and -- more  
7 specificity in the reports.

8 So, again, I think, clearly the  
9 authors of the 2007 version didn't look at the  
10 finding and did reflect that -- those  
11 references. So I would recommend that be  
12 closed.

13 MR. KATZ: Closed.

14 MR. FITZGERALD: Issue fifteen.  
15 This issue has come up in the past. This is a  
16 question of -- of the -- the day of sample  
17 collection, you know, whether it's over a  
18 weekend, you know, I think you addressed this  
19 almost at every site as to how you actually  
20 handle that.

21 And I think your comment is a good

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1 one. I mean, I think the reviewers at the time  
2 had a -- certainly a legitimate concern. But  
3 this is a programmatic issue that has come up  
4 in all the sites, as far as sampling date. And  
5 I guess the only question is this -- isn't  
6 this referenced in a OTIB now, this whole  
7 sampling --

8 DR. NETON: No --

9 MR. FITZGERALD: -- day thing?

10 DR. NETON: -- I don't think so.  
11 This is a -- still a point of contention, I  
12 think, at Y-12 --

13 MR. FITZGERALD: It was Y-12 or  
14 someplace --

15 DR. NETON: It was Y-12 --

16 MR. FITZGERALD: Y-12 --

17 DR. NETON: Y-12, Monday morning  
18 samples, and especially for soluble materials.  
19 And even though this response says it's a  
20 programmatic issue, it really -- well it can  
21 be a programmatic issue, but it has to be

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1 evaluated on a site by site basis, because if  
2 in fact the coworker model is based on samples  
3 that were taken on Monday morning after two  
4 days away from the work place -- I agree, it  
5 could affect the values of the coworker  
6 models.

7                   So I think this needs to be  
8 evaluated against what we know about the data.  
9 You know, I don't think it's -- it's not going  
10 to solve anything by saying it's a  
11 programmatic issue and pigeonhole somewhere  
12 else because it is programmatic in the sense  
13 that it happened at a number of places, but it  
14 also needs to be evaluated on a site by site  
15 basis.

16                   MR. FITZGERALD: Well, remember the  
17 Y-12 example as a matter of establishing, you  
18 know, the fact that there was a varying  
19 frequency in -- Y-12 was over a weekend, and -  
20 -

21                   DR. NETON: Yes, and I think that's

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1 what the implication is here. See, that Y-12  
2 is still open. We -- I think we had a response  
3 that said it was not necessarily the case that  
4 they were always taken on Monday. There were  
5 some instances --

6 MR. FITZGERALD: Right.

7 DR. NETON: -- and in fact, the  
8 instances that did occur didn't necessarily  
9 bias the data terribly. This is a new one to  
10 me, so -- we'd have to go back and look at the  
11 data to see if there's any justification or  
12 rationale behind this, and make some sense --

13 MEMBER ANDERSON: Hi, this is Andy.  
14 I'm back on.

15 MR. KATZ: Hi, Andy. Welcome back.

16 MEMBER ANDERSON: You're up to  
17 number 20 now?

18 MR. KATZ: No, no -- only on 15.

19 MEMBER ANDERSON: Okay.

20 DR. NETON: Well, I think it's 20,  
21 isn't it? Oh, 21.

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1 MEMBER BEACH: 21.

2 MEMBER ANDERSON: Okay.

3 DR. NETON: Well. The day of the  
4 sample collection would certainly be taken  
5 into account if it was an individual dose  
6 reconstruction. That's not really a problem. I  
7 think the only place this really becomes a  
8 problem is if we've established a coworker  
9 model that assumes certain things, like the  
10 worker left a urine sample right after he was  
11 done working that day, and it was a very  
12 soluble material.

13 And he was off -- off for work for  
14 48 hours, it would bias low his -- the Class's  
15 exposure model. So in that context, I think we  
16 need to go back and see what we've done for  
17 the chronic exposure model for Paducah. I  
18 really don't know.

19 MR. FITZGERALD: But I guess the  
20 assumption is that the modeling would be  
21 somewhat analogous to Y-12, as far as what the

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1 approach would be.

2 DR. NETON: Right, and I, you know,  
3 I don't know, this suggested there were some  
4 workers that would collect samples one or two  
5 days off from work. I don't know how  
6 frequently, or maybe there's a certain type of  
7 workers who were in the more soluble -- forces  
8 the plant to have more soluble material,  
9 should maybe they be segregated -- I really  
10 don't know.

11 MR. FITZGERALD: Okay.

12 DR. NETON: I think this needs to  
13 be looked at from that perspective.

14 MR. FITZGERALD: So you would --

15 DR. NETON: It would make no  
16 difference in my opinion on -- individual dose  
17 reconstructions using -- because you know the  
18 day it was taken --

19 MR. FITZGERALD: Right.

20 DR. NETON: So we need to go back  
21 and look and see how it would affect the --

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1 MR. FITZGERALD: Coworker --

2 DR. NETON: -- assuming a chronic  
3 coworker internal model.

4 MR. NELSON: Yes, we do.

5 DR. NETON: We need to go back and  
6 see if this one to two days off issue would  
7 have any --

8 MR. FITZGERALD: Okay.

9 DR. NETON: -- real significant  
10 affect on the values in that model.

11 MR. KATZ: Okay. So this is in  
12 progress --

13 DR. NETON: Yes.

14 MR. KATZ: -- this issue.

15 DR. NETON: Yes.

16 MEMBER BEACH: NIOSH doesn't  
17 actually --

18 MR. KATZ: And DCAS has an action  
19 item.

20 MR. FITZGERALD: Phil, Josie,  
21 anything on that?

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1                   CHAIRMAN SCHOFIELD: All right. I  
2                   just got one question on this. I know this  
3                   question is going to come up among people who  
4                   have claims, and they're going to say, well,  
5                   you know, if I got it on January 3<sup>rd</sup>, and my  
6                   last sample I gave was, you know, December  
7                   29<sup>th</sup>, and the next one is six months down the  
8                   road, how are you going to deal with that. Is  
9                   that going to be just on a case by case basis,  
10                  or is that going to be --

11                  MR. NELSON: Typically, it's done  
12                  on a case by case basis. They look at the  
13                  records that are, the -- the bioassay records  
14                  that they have, then they have to fill in the  
15                  gaps. If there's no information there, they  
16                  have to assume worst case, and develop a -- an  
17                  intake based on the missing data, and do it in  
18                  the claimant favorable manner.

19                  DR. NETON: We would assume that  
20                  there was some chronic intake that occurred --  
21                  what could have been a chronic intake to

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1 result in this bioassay sample on day x,  
2 barring any known incidents that occurred,  
3 that would have happened.

4 And we've been gone this path  
5 several times, demonstrate typically that ends  
6 up being claimaint favorable to assign this  
7 chronic intake over an extended period of time  
8 with, yes, you could have had an intake way  
9 back here, but, you know, we're still  
10 assigning all of this chronic dose that --

11 CHAIRMAN SCHOFIELD: Okay. That  
12 seems like a reasonable approach.

13 MEMBER BEACH: And then does that  
14 go back to the coworker model again?

15 DR. NETON: The coworker model is a  
16 different issue. The coworker model would only  
17 be applied if a person had absolutely zero  
18 bioassay data.

19 MR. FITZGERALD: Yes.

20 DR. NETON: And in the absence of  
21 any bioassay data at all, they were not

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1 monitored workers, then you would take the 50  
2 percentile -- depends on the site, but more  
3 often than not it would be the 50th percentile  
4 of all the monitoring data for the monitored  
5 workers, and you'd develop a model for that.  
6 Depends on how much data we have, whether it  
7 would be year specific or a decade specific  
8 number, but that's how we would approach it.

9 MR. NELSON: Many times, you would  
10 see it being assigned environmental levels, it  
11 depends on the individual's job function.

12 CHAIRMAN SCHOFIELD: Okay. I guess,  
13 unless anybody else has another question, we  
14 can move on.

15 MR. FITZGERALD: Yes. Number  
16 sixteen really deals with an issue that comes  
17 up a lot with the Site Profiles is the degree  
18 to which significant incidents are cited or  
19 listed or referenced as far as history at the  
20 site. And I think, again, the finding was --  
21 there wasn't very much information on the --

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1 what would be the significant instance that  
2 would contribute to internal dose.

3 And sort of a corollary to that  
4 was -- and I'm just reading from our finding,  
5 is that this whole question about, you know,  
6 when the actual event-driven bioassay was  
7 taken and how that might actually affect the  
8 dose estimation.

9 And I think the answer on that  
10 particular issue, which is provide a NIOSH  
11 response, I'll let Chuck go through that. I  
12 think it sounds reasonable. But I think the  
13 overall question of the treatment of major  
14 historic incidents that would, you know, guide  
15 dose reconstructors is something that I guess  
16 I'm still a little concerned about.

17 DR. NETON: Yes. This is sort of an  
18 old issue that we've been through --

19 MR. FITZGERALD: Yes.

20 DR. NETON: -- and our position has  
21 been that if we're -- we rely very heavily on

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1 routine monitoring program, so workers who  
2 have -- routine samples, whether they be  
3 annual, monthly, quarterly samples, are  
4 indicators of past exposures.

5 And, again, we would assume that  
6 the chronic exposure would have occurred --  
7 what kind of chronic exposure, day in, day  
8 out, could have occurred to have all the  
9 bioassay samples available for that person be  
10 below a certain value? And that's the way we  
11 would approach it.

12 So if in fact there were an  
13 incident in there, that incident would be  
14 included in this sort of exposure that we're  
15 providing. So our opinion is that the chronic  
16 exposure model is a bounding value that would  
17 address any of these minor incidents that  
18 occurred.

19 You could say, well, there's a lot  
20 of incidents. Well, then, a series of very  
21 acute short incidents ends up being a chronic

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1 exposure at some point, so that's been our  
2 position. You can argue that maybe for  
3 unmonitored workers, but then you'd have to  
4 look at what class of workers that represents.

5 And typically, if the highest  
6 exposed workers were monitored, the  
7 unmonitored workers had a lower exposure  
8 potential. Thus the chance for these incidents  
9 would have been lower, and in fact the  
10 coworker model that's developed would have  
11 included incident samples, as well, in that  
12 model, so.

13 MR. FITZGERALD: Yes, it sort of  
14 comes down to whether the coworker --coworker  
15 model would include --

16 DR. NETON: Well, we make no --

17 MR. FITZGERALD: -- a definition.

18 DR. NETON: -- differentiation,  
19 unless there's some very obvious outliers, I  
20 mean, we would include all data in the  
21 coworker model, but it would tend to bias it

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1 somewhat high because we're --

2 MR. FITZGERALD: Right.

3 DR. NETON: -- assuming some  
4 chronic exposure.

5 MR. FITZGERALD: Because that would  
6 include missing -- missing data.

7 DR. NETON: So, you know, this was,  
8 we've been down this path in a few different  
9 sites, and I suspect that this review was done  
10 before we maybe hashed out some of these other  
11 sites.

12 MR. FITZGERALD: Yes. So I guess my  
13 comment that the response on the thirty minute  
14 issue, which is the sampling time, I think,  
15 was addressed, and I agree that we've been  
16 down this path on the question of incidents,  
17 but this is some variety in the Site Profile.  
18 Some Site Profiles do go through some effort  
19 to provide a historic list of the more  
20 significant incidents, and some don't. I think  
21 this is more in the vein of there doesn't seem

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1 to be much in the way of perspective provide  
2 on that.

3 MEMBER ANDERSON: And -- this is  
4 Andy. The -- I mean, these incidents tend to  
5 be what a lot of the workers focus on, or at  
6 least the workers' families -- minor and  
7 didn't cause any real upsets, and they didn't  
8 even know about it. But you just have to be  
9 sure when you look at the Site Profile that  
10 does provide some recognition that these  
11 occurred.

12 DR. NETON: Yes.

13 MR. FITZGERALD: I guess you can go  
14 back to what you said earlier, Jim, it's just  
15 sort of a question of are we talking about the  
16 likelihood of a lot of, you know, you know,  
17 relatively minor instances involving  
18 additional exposures that would by and large  
19 be picked up by the routine bioassay, where  
20 there were some major incidents that would  
21 figure.

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1                   But almost without exception, the  
2 workers would have been monitored, you know,  
3 because I think the only implication is that  
4 whether or not they would have been not  
5 monitored and would have to be picked up in  
6 the coworker approach.

7                   DR. NETON: Yes.

8                   MR. FITZGERALD: I can't imagine  
9 there's anything else that would be a gap.

10                  DR. NETON: Right, because I mean,  
11 the coworker model incorporates these minor  
12 incidents --

13                  MR. FITZGERALD: Right.

14                  DR. NETON: -- and we're assuming  
15 they're chronic exposures. You know, I think  
16 there are some scenarios that we've -- that  
17 we've gone through, where you can --if the  
18 incident occur -- it was an annual sampling  
19 frequency, and the incident occurred the day  
20 after he left -- you could come up  
21 theoretically with a slightly higher exposure

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1 based on --

2 MR. FITZGERALD: Right.

3 DR. NETON: -- but the, you know,  
4 you've got to go into the likelihood of this,  
5 the likelihood of that occurring, you know --  
6 day in, day out. And, again, I think, you look  
7 at the, the people who were not monitored at  
8 the site, and it, if we, if we do make the  
9 case that the highest exposed workers were  
10 monitored, then you're looking at a class of  
11 workers with much lower potential for  
12 exposure.

13 And you're assigning at least the  
14 50th percentile of the chronic urinary output  
15 of the monitored workers, who were typically  
16 the ones that were in the processing areas  
17 doing things, you know, the real process  
18 operations, chemical operators and such.

19 So we believe that that's a fairly  
20 claimant favorable assignment of an internal  
21 dose if the person was in the workplace. That

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1 would include people such as security guards,  
2 crafts folks, those that have no monitoring,  
3 and in fact there are crafts folks that would  
4 have monitoring, obviously, but the ones that  
5 weren't, because, typically a reason, and  
6 usually that's because they weren't routinely  
7 in the areas working with loose materials.  
8 That's been our position pretty consistently  
9 from the beginning of this program.

10 CHAIRMAN SCHOFIELD: One quick  
11 question. May -- hopefully you'll know the  
12 answer to this one. We talked about the thirty  
13 minute interval for taking urinalysis. Did  
14 they use nasal smears?

15 DR. NETON: In Paducah? I --

16 CHAIRMAN SCHOFIELD: Yes.

17 DR. NETON: -- don't know if they  
18 did or not. They might have.

19 MR. NELSON: Let's see. I'm not  
20 sure, but I can look and see.

21 CHAIRMAN SCHOFIELD: Because I

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1 don't remember seeing it in the --

2 MR. NELSON: I think urines --other  
3 than urines.

4 MS. WINSLOW: This is Susan. I  
5 don't believe there's any indication of nasal  
6 smears --

7 MEMBER BEACH: I haven't been --

8 MR. KATZ: Who was that speaking?

9 MS. WINSLOW: This is Susan  
10 Winslow.

11 MR. KATZ: Thanks, Susan.

12 MS. WINSLOW: Yes. In the records,  
13 we haven't seen any indication of any nasal  
14 samples.

15 CHAIRMAN SCHOFIELD: Okay.

16 MEMBER BEACH: I guess the question  
17 would be do some of these incidents need to be  
18 recorded in the Site Profiles? You said that  
19 there's been a lot of discussion back and  
20 forth -- what's the conclusion -- what have  
21 the conclusions been?

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1 DR. NETON: Our opinion is that if  
2 you have a person who is on a routine bioassay  
3 sample, that will capture any incidents that  
4 have occurred because, you know, the body is  
5 sort of a long-term integrator of exposure. If  
6 you had an incident in May, and you leave a  
7 urine sample in June or July, that June or  
8 July sample is going to reflect what's in your  
9 body from that, or what could possibly have  
10 been there.

11 And even if it is negative, or not  
12 negative, but non-detectable, we'll assume  
13 that it's at some level that could have been  
14 there and not been detected. So, you know,  
15 it's -- a long-term integrator of your  
16 exposure. That's one of the nice things about  
17 bioassay samples. Long-term integrator of  
18 exposure. So --

19 MR. NELSON: And we do make  
20 reference to these PACE documents and others,  
21 and actually they go into pretty good detail

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1 on incidents that occur, they have some nice  
2 tables and --

3 MR. FITZGERALD: None of which  
4 would change this position.

5 MR. NELSON: Right.

6 DR. NETON: This is very much --  
7 this is exactly like what we do at almost  
8 every other site. Paducah is no different than  
9 we would do at Fernald or Rocky Flats or  
10 Savannah River or any site that has a routine  
11 bioassay.

12 MR. FITZGERALD: But with the  
13 reference to the PACE document, I just think  
14 that provides a backdrop on the history, at  
15 least on the incident history that I think the  
16 original reviewer found a bit wanting.

17 MR. NELSON: There is a table here,  
18 and I'm not sure if it was there before, it's  
19 table 5-8. And it references PACE but it also  
20 calls out some incidents. Fires, explosions,  
21 cascade improvement -- program.

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1                   MEMBER BEACH: Doesn't really give  
2 a lot of information, you know?

3                   MR. FITZGERALD: It's illustrative  
4 examples of different types of incidents. I'll  
5 take a look at the PACE document and just  
6 confirm that that's, you know, that would be  
7 responsive, so SC&A will take the action of  
8 looking at the PACE document, going back on  
9 that particular issue and just reporting back  
10 to the Work Group.

11                   But I think the overall  
12 explanation is fine. I do think we can just  
13 validate that that provides what the Site  
14 Profile may not have provided back in 2004.  
15 Maybe a reference on that table 5-8 to the  
16 PACE document, would, I guess it's drawn from,  
17 to some extent, from the -- from the PACE  
18 document, is that right, Chuck?

19                   MR. NELSON: Yes.

20                   MR. FITZGERALD: Okay, so --

21                   MR. NELSON: It cites it

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1 specifically.

2 MEMBER BEACH: Yes, as a source  
3 document.

4 MR. FITZGERALD: Right, and maybe  
5 expanded footnote to say that more complete  
6 listing is available in that document or  
7 something like that, you know, would help.  
8 Okay, so SC&A will take the action to look at  
9 the PACE report and if NIOSH can maybe expand  
10 that footnote a little bit -- reference to  
11 kind of point the dose reconstructor or  
12 somebody to that more complete listing of  
13 incidents.

14 MR. KATZ: This sounds like in  
15 abeyance?

16 MR. FITZGERALD: Yes, I'll go back  
17 and take a look at the PACE document.

18 MR. KATZ: An action item.

19 MR. FITZGERALD: Okay. Is that --  
20 Phil?

21 CHAIRMAN SCHOFIELD: Yes, I think

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1 we're ready to move on there, so.

2 MR. FITZGERALD: Going to item 17.

3 This gets to the coworker model for applying  
4 the bioassay data, and I think this is a  
5 somewhat meaty issue in the sense that,  
6 looking at the way this was treated in the  
7 previous documents, there was some concern  
8 that, you know, that without having the  
9 workers, and this is not necessarily a new  
10 issue, this has come up at other sites as  
11 well.

12 Not having the workers classified  
13 by their jobs or by the building location  
14 would make it difficult to apply the model in  
15 a conservative way, and I'll let you, you had  
16 a pretty detailed response, maybe go through  
17 that.

18 DR. NETON: Can I ask a question  
19 before Chuck responds?

20 MR. FITZGERALD: Yes.

21 DR. NETON: Is there a coworker

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1 model actually in the Site Profile in the  
2 internal dosimetry section? Or do we have a  
3 standalone TIB --

4 MR. NELSON: We have a standalone  
5 TIB. It is --

6 DR. NETON: So is this -- I guess  
7 that's my question. Is this comment referring  
8 to the coworker model as a standalone TIB or -  
9 -

10 MR. FITZGERALD: Well, I guess the  
11 timing of the TIB --

12 MR. NELSON: Actually, the TIB  
13 existed in 9/20/05.

14 MR. FITZGERALD: That's a good  
15 question because the findings in the TBD --

16 DR. NETON: Yes, see, that's what's  
17 confusing me a little bit.

18 MR. FITZGERALD: Let me just go  
19 back and just make sure on that.

20 DR. NETON: I think that's number  
21 five, let me see --

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1 MR. FITZGERALD: Now this is issue  
2 ten, page 43 of the Site Profile.

3 DR. NETON: Okay.

4 MR. FITZGERALD: According to a  
5 more general guidance document on the use of  
6 coworker bioassay data, Brackett, 2005. Is  
7 that the OTIB?

8 MR. NELSON: That's Ikenberry,  
9 2005. Brackett 2005 is probably internal --  
10 actually, I don't -- the latest one wouldn't  
11 be Brackett. Yes, the latest one's Mantooth  
12 Barton.

13 MR. FITZGERALD: Well, the  
14 references is to Brackett, 2005--

15 MR. NELSON: Which might be the  
16 previous one.

17 MR. FITZGERALD: Yes. Yes, one  
18 thing is the baseline of what is used in the  
19 review, and I think in this particular finding  
20 it is the -- if you go back we actually list  
21 the Brackett, 2005 reference.

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1 DR. NETON: See, I'm not sure why -  
2 - see, I was -- what I'm thinking is normally  
3 we have been using coworker models for quite  
4 some time, and we -- it's very often use the  
5 entire workforce and pick a percentile of the  
6 distribution to bound unmonitored workers.

7 And SC&A has in the past raised  
8 some issues around the suitability of using  
9 all workers. But my sense in this comment is  
10 that SC&A didn't go back and find some  
11 evidence that there was an issue, as they  
12 would -- like at Fernald, they would go back  
13 and look and pull out representative samples  
14 of people who may have had higher exposure.

15 Sort of a general critique of the  
16 concept. And I'm not sure where we would go  
17 with that. I mean, lacking any evidence that -  
18 -

19 MR. FITZGERALD: I guess it's just  
20 a question that would be useful to answer  
21 because I think this particular finding of

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1 going generic versus going facility specific  
2 or job specific. One, the question is what is  
3 the basis for that. And the reviewer raises  
4 some questions about the lack of a statistical  
5 or quantitative basis for the hypothesis, as  
6 it's called, that Brackett provides in that  
7 reference.

8           And it goes on to talk about  
9 Ikenberry, not identifying the jobs that  
10 would, had led to a higher probability of  
11 intake and the differences in the  
12 concentrations in different buildings. So I  
13 think the concern that's being raised, and  
14 you're right, it's being raised in an  
15 overarching sense that it's not clear, you  
16 know, whether -- what the basis for going in a  
17 more generic way, applying a coworker upper  
18 bound would be for Paducah, given that there's  
19 some questions about the exposures in  
20 different facilities.

21           So I think it is the same issue,

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1 the older issue, that's been raised before --

2 DR. NETON: Right, but it's -- I  
3 don't see any substance behind it other than --  
4 - well, let me -- I'm trying to find the --

5 MR. FITZGERALD: This is page 43 of  
6 the Site Profile.

7 DR. NETON: Yes, that's a summaries  
8 issue though. I don't see where it talks about  
9 the specific section that we've -- I mean,  
10 there's 153 pages here -- somewhere in here  
11 there would be a more --

12 MR. NELSON: See, I put what pages  
13 the -- it's either on 15, 43, and possibly 46,  
14 is what I got --

15 DR. NETON: 43 and 46 are just the  
16 summary --

17 MR. NELSON: Summaries.

18 DR. NETON: -- of all the issues.

19 MR. NELSON: Other than that, I --

20 DR. NETON: It would somewhere be  
21 in -- embedded in the --

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1                   MR. NELSON: Yes, I had to put  
2 specific pages for issues because it does, you  
3 know, it mentions it then it discusses it  
4 more, maybe later in the document --

5                   DR. NETON: That's what I was  
6 looking for, where --

7                   MR. FITZGERALD: If you look at  
8 page 46, I tend to agree that there's more  
9 details provided in 46 as far as the model as  
10 applied.

11                  DR. NETON: Well, see, I don't know  
12 that there's a coworker model in -- bear with  
13 me just one second here -- the internal dose.  
14 It's only a 25 page document. I can't believe  
15 there's a coworker model.

16                  MR. FITZGERALD: Certainly OTIB-31  
17 provides an upper bound for the entire plant.  
18 Doesn't get into specific facilities.

19                  DR. NETON: See, there's nothing  
20 in the TIB that talks about a coworker model  
21 that I can see. Because it's got -- detection

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1 limit, isotopic concentrations, methods. Maybe  
2 page 16, let me look at that real quick.

3 MEMBER BEACH: There's a external  
4 coworker data, but that was 2005.

5 MR. NELSON: Well, if you look on  
6 page 6, they're -- they cited where they got  
7 their source of information. Some historical  
8 files. The one of them called Historical  
9 Urinalysis Data, which is 107,000 urines, and  
10 there's another one called Paducah Historical  
11 Urine which is 52,568 urine samples.

12 DR. NETON: Is this just the review  
13 of a TIB, or is this also got, I mean, Site  
14 Profile or a TIB as well? Because there's not  
15 any coworker information in the Site Profile  
16 that I can find, not --

17 MR. CALHOUN: There used to be, I  
18 think.

19 DR. NETON: That's probably it --

20 MR. NELSON: They might have pulled  
21 it out when they revised the 2007 --

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1 DR. NETON: See, that would be my -

2 -

3 MR. CALHOUN: I believe that the  
4 GDPs had coworker tables in them. I'm fairly  
5 certain that they did.

6 DR. NETON: Now, there's a -- not  
7 only the standalone TIB, and that's, I guess,  
8 I'd rather address a review of TIB-31 --

9 MR. CALHOUN: Right.

10 DR. NETON: -- than to be  
11 commenting on something that used to be in --  
12 this is one of those disconnects because --

13 MR. FITZGERALD: Well, yes, it's  
14 the time frame. My comment, actually, I didn't  
15 finish it, but basically it's, you know, the  
16 issue of non specific work location for  
17 coworker dose data, table A1 of 31, still has  
18 not been resolved. So, you know, we did look  
19 at 31 to see if that would provide a answer to  
20 the original issue that was raised in the TBD.

21 And it's not clear to us, you

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1 know, if it's been answered. I mean, there  
2 isn't a job and or facility specific approach  
3 in 31. That may be perfectly fine, and it may  
4 just be an upper bound -- well, you know,  
5 based on the worst case or whatever.

6 DR. NETON: Well, one way that  
7 we've addressed this issue in the past is that  
8 if you have -- and we have, there's a  
9 procedure out there that sort of lists job  
10 categories that you would view as being, you  
11 know, more heavily exposed -- operators --  
12 more intermittently exposed versus  
13 administratively exposed.

14 And we would typically take the  
15 50th percentile for the unmonitored workers  
16 who were actually in the plant but not working  
17 directly with processed material. However, we  
18 do allow for a possibility that, and I think  
19 you make a suggestion in there that what if  
20 it's a chemical operator and his information  
21 is just lost? Then we would use the 95th

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1 percentile on the distribution to reconstruct  
2 the exposure.

3 MR. NELSON: In this case, it's  
4 84th percentile.

5 DR. NETON: 84th? Okay.

6 MR. NELSON: And this is OTIB-37.

7 DR. NETON: Right.

8 MR. NELSON: 31 is the external.

9 DR. NETON: Okay. So 37. The only  
10 way to resolve this is for -- if we went back  
11 and tried to find every possible job category  
12 and demonstrate this equivalence. I don't know  
13 --

14 MR. FITZGERALD: No, I guess the  
15 question is that, you know, this sort of goes  
16 back to the original basis for the coworker  
17 model. I mean, obviously there's a strong -- a  
18 guiding assumption that there's no unmonitored  
19 workers that would have necessarily had doses  
20 that exceeded monitored workers. As a job  
21 category or as a facility.

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1                   And that's -- one can make that  
2                   transparent that going in, you know, finding  
3                   or assumption. That clearly was the guiding  
4                   assumption, not going -- you know, picking out  
5                   facilities or job categories.

6                   DR. NETON: Typically, I think  
7                   that's true that in internal dosimetry  
8                   program, workers with the highest potential  
9                   for exposure were monitored. I'm not saying  
10                  the highest in the plant --

11                  MR. FITZGERALD: Right.

12                  DR. NETON: -- but worker with a  
13                  demonstrable possibility of exposure.

14                  MR. FITZGERALD: Right.

15                  DR. NETON: And so, therefore, that  
16                  leaves the unmonitored workers, who have no  
17                  monitoring data, a lower potential level of  
18                  exposure, and we believe we can use the  
19                  monitored workforce to bound the unmonitored  
20                  workforce.

21                  MR. FITZGERALD: Right.

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1 DR. NETON: That doesn't mean  
2 though that there aren't some people that had  
3 higher exposures and could have had their  
4 records lost or such. And we typically would,  
5 during the dose reconstruction, look at that  
6 and take that into consideration.

7 MR. FITZGERALD: Yes, we just, we  
8 did look at 31 for the reason that you're  
9 citing because that's clearly where it is now,  
10 that approach is laid out. That wasn't -- that  
11 did not jump out. I mean -- and maybe it's  
12 because, you know, the model is the model and  
13 the basis and the assumptions that went into  
14 the model are not necessarily going to be  
15 included and laid out in the OTIB itself.

16 But, you know, the basis for the  
17 coworker approach I think is what we're  
18 talking about here in the overarching, and  
19 really is a higher level question of how 31  
20 was derived and whether it satisfies this sort  
21 of question that came out of the TBD review

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1 that says, you know, the basis isn't too  
2 clear.

3 DR. NETON: I mean, we could  
4 restate what we're saying here is that we  
5 believe that those with the higher potential  
6 for exposure were monitored and that use of  
7 that distribution unmonitored workers would be  
8 claimant favorable. Sort of the underlying  
9 tenet of the --

10 MR. FITZGERALD: Well, that was  
11 kind of what was in the Brackett reference  
12 that was cited, that, you know, participation  
13 in bioassay protocols workers have the largest  
14 potential of exposure, and our finding was,  
15 however, there isn't any, you know, there  
16 doesn't seem to be any hard basis behind that  
17 hypothesis.

18 DR. NETON: Well, the only way that  
19 I think that this could be invalidated or --  
20 would be, remember, with external, we've gone  
21 down this path where we have the, I think Hans

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1 called it the cohort model or cohort  
2 monitoring program, or whatever it was, where  
3 you would sample representative portions of  
4 the workforce and not all people.

5 And I think in this case at  
6 Paducah we don't feel that's the case. This  
7 would be all workers -- if you were a chemical  
8 operator and you're working in a plant, all  
9 chemical operators were leaving urine samples.

10 It wasn't that they sampled 10  
11 percent of all chemical operators to make sure  
12 that the workplace controls were in place.  
13 They sampled everybody. And so that -- in that  
14 sense, then, we believe the coworker approach  
15 is valid for us addressing unmonitored  
16 workers' exposures.

17 MR. FITZGERALD: And then the  
18 supposition at the bottom of 43, which is the  
19 design of the program, whether you can make  
20 the assumption--I think, again, this is going  
21 back a bit in time and the actual reviewer is

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1 no longer available to us.

2 But, you know, that question of  
3 whether there's some evidence that the  
4 unmonitored workers would necessarily have  
5 lower probabilities of exposure.

6 DR. NETON: Well, I think they did  
7 because when they say all workers, I don't  
8 really think they mean all workers. They mean  
9 all workers who entered areas where there was  
10 a potential for exposure.

11 MR. FITZGERALD: For rad control  
12 areas.

13 DR. NETON: Yes. That's my opinion.  
14 I mean, we can verify that, but --

15 MR. FITZGERALD: I think, as far as  
16 a path forward, you know, since clearly, 31  
17 wasn't reviewed back in 2004, and I guess  
18 there's a couple different pathways. We could  
19 evaluate more for the Work Group the coworker  
20 model, but I would say maybe the best way to  
21 approach the coworker model is just to maybe

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1 understand from NIOSH the going in premise for  
2 the approach that's laid out, and just have  
3 that down as a statement before going into it  
4 because I -- I'm not so sure we have a  
5 technical issue with the coworker model.  
6 Certainly don't propose you go through all the  
7 data and do what we do on SECs, for example.  
8 But I think this original issue was just the  
9 premise and the justification for the approach  
10 more than that, which I think is a more of a  
11 overarching question rather than a technical  
12 question.

13 And what's laid out here is some,  
14 you know, the same arguments were raised but  
15 not, you know, no basis beyond the statement  
16 that's provided right there. I mean, it's  
17 unlikely that an unmonitored worker would have  
18 received a larger dose than the most highly  
19 exposed monitored worker. I think that's a  
20 reasonable -- that's a reasonable statement.

21 MR. NELSON: -- doing the coworker

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1 document, I don't know what else we would do  
2 besides that because I think that's going to  
3 be --

4 DR. NETON: Well, maybe we can  
5 expand and clarify on this, where they talk  
6 about all workers being monitored --

7 MR. NELSON: Where exactly is that?

8 DR. NETON: It's at the bottom of -  
9 -

10 MR. FITZGERALD: Bottom of 43.

11 DR. NETON: -- 43. They're saying,  
12 well, all workers were monitored, therefore --

13 MR. NELSON: In the SC&A document?

14 MR. FITZGERALD: SC&A review.

15 DR. NETON: -- Site Profile review.  
16 And I think we can clarify what that really  
17 means by all workers, you know, I think that's  
18 all workers who frequent the radiological  
19 areas more, in my opinion, we need to verify  
20 that. And sort of beef that up a little bit.

21 But, short of, I don't know what

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1 else we would do --

2 MR. FITZGERALD: I guess sort of  
3 the -- and this may be a general rationale for  
4 not basing coworker, you know, a coworker  
5 assignment to a more specific facility or a  
6 job categorization. I think the assumption is  
7 you can do that site wide. And it would be  
8 worth trying to slice and dice it, right?

9 DR. NETON: Well, if it is true  
10 that the highest exposed workers were  
11 monitored, then a coworker model to apply the  
12 unmonitored workers would bound, it would just  
13 --

14 MR. FITZGERALD: I'm just saying,  
15 one would bound all.

16 DR. NETON: I would -- that's my  
17 opinion. You know, one can slice the salami  
18 pretty thin where you're going to find some  
19 areas where you might not be able to prove  
20 that. But I just feel in general, that's been  
21 our position for quite some time that -- I'd

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1 be hard pressed to show me a worker who was  
2 unmonitored, think, a security guard who --

3 MR. FITZGERALD: That wouldn't be  
4 bound by --

5 DR. NETON: Wouldn't be bounded by  
6 a worker who was working with a process  
7 material day in, day out, in the plant and on  
8 a routine bioassay program. I just find that  
9 implausible circumstances --

10 MR. CALHOUN: Well, you got to  
11 figure what would you do anyway at that point.  
12 How would you figure that out? We could make  
13 it an SEC.

14 DR. BEHLING: This is Hans Behling.  
15 Can I make a comment here?

16 DR. NETON: Sure.

17 DR. BEHLING: When I reviewed the  
18 data, it came to my attention that when I  
19 looked at some of the documents that I  
20 included as exhibits, that in fact there truly  
21 was in the days prior to 1960 a process that

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1 we referred to as cohort badging, where on a  
2 rolling basis, you had people who were being  
3 monitored, not consistently for every  
4 monitoring period, but maybe once in a year  
5 you were assessed and then, and the next group  
6 would be monitored and so forth.

7           And I think the attempts during  
8 those periods of time when you look at the  
9 numbers who were monitored and I think I go  
10 through a fairly extensive explanation based  
11 on the data that was identified in the  
12 original tables about how many people in any  
13 given year. And when you add up and when you  
14 look at the exhibits, in any given period of  
15 monitoring there were only like, maybe, 20,  
16 30, 40 people monitored, and yet in a year  
17 there were 226 for 1953.

18           And you realize that the 220-some  
19 odd people who were monitored were not  
20 monitored for every -- for every wear period.  
21 In other words, you may have records that

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1 represent 200 and some odd people for that  
2 year, but, in truth, not all of those people  
3 were monitored for each and every wear period.

4           And what I uncovered, what looks  
5 like, to be a cohort badging program, which is  
6 probably justified given the fact that  
7 everyone would like to at least know that if  
8 I'm working here but I'm not monitored that  
9 the guy next to me was monitored and if his  
10 exposure was within the limits than I can be  
11 reasonably sure that I'm also within limits.

12           But what it really means is that  
13 when you have that group of data or that data  
14 phase that represents a large group of  
15 individuals of different assignments in the  
16 plant, you will end up with a coworker model  
17 that will possibly not be favorable to select  
18 people who were at the high end who may not  
19 have any monitoring records because of the  
20 cohorts badging program that was in place.

21           And I think I was fairly detailed

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1 in looking at the sequence of numbers of  
2 people who were monitored by year. For  
3 instance, the difference between '59 and '60  
4 and '61, you -- all of sudden, there's an  
5 increment of 1100 and some odd people who were  
6 added, and this in fact increased these years  
7 when there were fewer numbers, only the  
8 maximum in the exposed individual monitored  
9 you wouldn't expect a shift in the  
10 distribution which I've clearly showed was the  
11 case.

12 In other words, you were not  
13 necessarily monitoring the most exposed  
14 individuals in early years when there was a  
15 limited fraction of workers being monitored.  
16 And so, as I've said, you can solve this  
17 problem by saying, okay, in days past, and  
18 I've seen Jim Neton mention it previously,  
19 that a coworker model is a reasonable  
20 surrogate for assigning doses to unmonitored  
21 workers.

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1                   But if you can conclude that not  
2 necessarily all of the highest exposed people  
3 were part of the database that represents the  
4 coworker model, were in fact monitored, then  
5 you have to maybe perhaps back away and say,  
6 okay, who is this person for whom we have no  
7 data?

8                   Was he perhaps a member of a  
9 higher exposed group for whom there is no  
10 information in terms of his exposure? And then  
11 maybe not necessarily assign the geometric  
12 mean. This is where I think SC&A has been very  
13 vocal about the use of perhaps the 95th  
14 percentile value in those instances where you  
15 suspect that it is not necessarily a case  
16 where maximum individuals represent the  
17 coworker model.

18                  DR. NETON: Yes, I agree with all  
19 you just said, Hans, but in this particular  
20 case on finding 17, we're talking about  
21 internal bioassay data. And I don't know that

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1 -- did you do a similar analysis of the  
2 bioassay data?

3 DR. BEHLING: No, I didn't. In  
4 fact, I'm probably jumping ahead to item 19 --

5 DR. NETON: Right, yes, I think you  
6 are --

7 DR. BEHLING: But it may be  
8 possible that the internal exposure sampling  
9 was followed, it's in the protocol again,  
10 saying that you need to monitor everybody  
11 regardless of what your job classification is  
12 and perhaps that the same philosophy applies  
13 to internal monitoring as well.

14 DR. NETON: Right, and I agree that  
15 if cohort badging or monitoring were in a  
16 place, then, you know, I also agree that we --  
17 need to be careful in what percentage of  
18 distribution we assign. I think we're okay  
19 with that.

20 MS. BRACKETT: This is Elizabeth  
21 Brackett.

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1 DR. NETON: Yes.

2 MS. BRACKETT: I have information  
3 about the internal dosimetry --

4 DR. NETON: Okay, good.

5 MS. BRACKETT: -- coworker study.  
6 First, I should mention that I am conflicted  
7 with Paducah. But I have the spreadsheet of  
8 the number of samples and, in fact, 1960 and  
9 earlier, it looks like the largest numbers of  
10 people were sampled on a quarterly basis we  
11 have between 600 and 1000 individuals sampled  
12 each quarter for Paducah.

13 There's more than 120,000 bioassay  
14 results for the time frame of which the  
15 coworker study covers, but starting in 1953,  
16 there's at least 600 employees each quarter  
17 submitting samples. And more than double that  
18 number of samples per quarter.

19 DR. NETON: Okay, thanks, Liz. I  
20 think that's helpful, and maybe that's part of  
21 our response to this -- this issue is that we

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1 looked at the data, the distribution of the  
2 number of samples taken. We believe that it  
3 somehow we can make the case that the highest  
4 exposed workers were indeed monitored based on  
5 numbers and such. And just move on.

6 MR. FITZGERALD: Yes, I think the  
7 original review didn't really question the  
8 number of samples --

9 DR. NETON: Right, and that's what  
10 I was expecting --

11 MS. BRACKETT: And that actually,  
12 unfortunately there's no numbers included in  
13 the coworker study. I thought that at a  
14 minimum we usually included the total number  
15 of samples, but that doesn't seem to have been  
16 addressed in the actual document of the  
17 coworker study. So you wouldn't have been, you  
18 wouldn't have known that anyway in looking at  
19 it.

20 DR. NETON: Okay.

21 MR. FITZGERALD: Which, I think,

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1 the -- they are looking -- I think the issue  
2 was looking for something that was harder, and  
3 I think that's what you're providing, which is  
4 the statistical basis which is what was kind  
5 of called out in that finding. So I think that  
6 would help provide that information that was  
7 seen as lacking.

8 MR. NELSON: If you look in the  
9 coworker study, it does call out the files  
10 where it came from, but it doesn't -- I  
11 actually had to look it up to see how many --

12 MR. FITZGERALD: This is 31 --

13 MR. NELSON: -- urine samples it  
14 was. This is 37.

15 MR. FITZGERALD: 37.

16 MR. NELSON: 37. Yes.

17 MR. FITZGERALD: Okay. So. Okay,  
18 37.

19 MR. NELSON: There is reference to  
20 the document from which it came from. However,  
21 the numbers of urines are a distribution of,

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1 you know, per year. That's not provided.

2 MR. FITZGERALD: Okay, well, I tend  
3 to agree. I think that's probably the path  
4 forward, then, to respond to this issue. This  
5 is really looking for a basis, something that  
6 would be more than the admonition or a  
7 statement, I think that would help.

8 MR. NELSON: So you're looking for  
9 some information placed in the coworker  
10 document that justifies where the numbers came  
11 from --

12 MR. FITZGERALD: Yes, recognizing  
13 again that the context of this finding is  
14 going back to the TBD, not the OTIB -- not the  
15 coworker OTIBs. So, to some extent, I think  
16 this is providing a response based on the new,  
17 newer OTIB, internal coworker model 37.

18 MR. NELSON: Okay.

19 MR. FITZGERALD: My recommendation  
20 is with that response for, based on OTIB-37,  
21 which really wasn't focused in on the 2006

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1 review that we did, that would, that would  
2 respond to the issue here of not having  
3 something harder on the coworker --

4 MEMBER BEACH: And what's the  
5 revision date on 37?

6 MR. NELSON: It is 9/20/05. I know  
7 you wrote the report in '06, I'm not sure when  
8 you started it, the review.

9 MR. FITZGERALD: Yes, it's not --

10 MR. NELSON: So it might have  
11 happened in the middle of your review, I don't  
12 know.

13 MR. FITZGERALD: Yes, Ikenberry is  
14 cited, but it's basically Brackett, 2005, and  
15 Ikenberry is the -- is what's referenced.

16 MR. NELSON: Well, Ikenberry is, is  
17 -- the TIB-37.

18 MR. FITZGERALD: Well, again,  
19 Ikenberry it cited, the model described by  
20 Ikenberry did not--

21 MR. NELSON: Okay.

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1                   MR. FITZGERALD: So that issue in  
2 terms of jobs, the specificity on jobs in  
3 facilities is based on that review. But this  
4 question of a statistical basis to this  
5 question of unmonitored workers not having  
6 higher exposures, that issue I think would be  
7 responded to by what Jim's talking about,  
8 which is a, and what Liz brought up, which is  
9 --

10                   MR. NELSON: Okay.

11                   MR. FITZGERALD: -- you know, some  
12 of the actual measures, so.

13                   CHAIRMAN SCHOFIELD: So you guys  
14 are going to go back over OTIB-37 and -- give  
15 it a little more explanation?

16                   MR. NELSON: I think that's what we  
17 agreed to.

18                   MR. FITZGERALD: Well, I think the  
19 data itself is referenced but it's not laid  
20 out and--

21                   MR. NELSON: We could provide some

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1 more detail to give some depth to what was  
2 actually done --

3 MR. FITZGERALD: So we may, you  
4 know, the original reviewers in terms of SC&A  
5 may not have burrowed into the actual data,  
6 the data wasn't available for the Site Profile  
7 review. I think some of that would have, would  
8 have fell out of that, but it didn't, so --

9 MEMBER BEACH: What about 31?  
10 Anything going to happen with 31?

11 MR. FITZGERALD: Well, I think  
12 we're going to get into 31 with Hans, and we  
13 haven't gotten --

14 MEMBER BEACH: In 19. Okay.

15 MR. FITZGERALD: -- we haven't  
16 gotten into the external yet.

17 MEMBER BEACH: Okay.

18 MR. FITZGERALD: Okay. We're still  
19 on internal.

20 MEMBER BEACH: Thank you.

21 MR. KATZ: Okay. So this is in

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1 abeyance, and --

2 MR. FITZGERALD: And more on -- a  
3 clarification. I -- my sense is that the  
4 original review did not burrow into the OTIB-  
5 37 in a way which got to the data, which would  
6 have answered some of these issues. This is  
7 what Liz brought up --

8 MR. KATZ: But are you happy with  
9 what you've heard --

10 MR. FITZGERALD: Yes.

11 MR. KATZ: -- to note, be  
12 comfortable that the solution is already --

13 MR. FITZGERALD: Yes, I, you know,  
14 the major, key concern here would be just the  
15 scope and availability of the data itself, and  
16 on the bioassay side, I don't think that's a  
17 question. I think there is a lot of data, and  
18 I think Liz reminded us of that, but I think  
19 that data itself would be the basis for  
20 answering the question, why is there a comfort  
21 level in terms of --

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1                   MR. KATZ: So that we can close  
2 this, and --

3                   MR. FITZGERALD: Pending, you know  
4 --

5                   MR. KATZ: And they'll provide that  
6 --

7                   MR. FITZGERALD: Yes.

8                   MR. KATZ: -- response.

9                   MR. FITZGERALD: Yes, I wouldn't, I  
10 wouldn't propose for the workers that we  
11 would, you know, start doing a classic  
12 evaluation of the coworker model itself. I  
13 don't think there's any issue stemming from  
14 the Site Profile based on that.

15                   CHAIRMAN SCHOFIELD: Close that?

16                   MR. FITZGERALD: 18 deals with the  
17 method of converting mass concentrations of  
18 uranium 24 hour secretions of activity -- this  
19 is very specific technical question, and if  
20 I'm not mistaken, I think this is also tied to  
21 the assumed enrichment level.

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1 MR. NELSON: Yes.

2 MR. FITZGERALD: And we addressed  
3 that earlier, as a question, so that flows  
4 down and influences this, these values as  
5 well. So if one goes with the 2 percent, then  
6 I would assume this issue pretty much goes  
7 away. Because, again, this issue comes from  
8 the 5 percent value that I think the original  
9 reviewers had. Okay, so close that.

10 MR. KATZ: Closed.

11 MR. FITZGERALD: Hans, since you  
12 were the, reviewer on the external, do you  
13 want to walk through the remaining issues on  
14 the external side?

15 DR. BEHLING: Yes. I guess issue  
16 number 19 was the concern about the ability to  
17 monitor for shallow dose. And I guess, given  
18 the fact that this facility has already  
19 received an SEC, the issue of skin cancer has  
20 to be looked at a little more carefully.

21 And in the original TBD, we coded

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1 in my writeup that there was a time when the  
2 dosimeter had an 80 milligram per centimeter  
3 square absorber that separated the open window  
4 from exposure to non-penetrating radiation,  
5 principally betas. And the statement says that  
6 the radiation was routinely treated as a 1.7  
7 MEB beta particle from uranium which are about  
8 40 percent absorbed in 80 milligram per  
9 centimeter square, the determination of beta  
10 dose was not specific to uranium 238.

11 And that's not an unreasonable  
12 assessment for trying to correct or compensate  
13 for the 80 milligrams. However, the  
14 protactinium 234 is not the only beta that is  
15 potentially going to give rise to a skin dose.  
16 Obviously, you have several other betas that  
17 are of lesser energy, and I cited those  
18 inclusive of technetium and U-238 and 235 that  
19 have potential exposure value to the shallow  
20 dose, which would not obviously register on an  
21 open window that is covered by an 80 milligram

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1 per centimeter square absorber thickness. So  
2 that was the issue in issue number 19.

3 MR. NELSON: When we read the  
4 issue, our understanding of it was -- let's  
5 see -- is that you said a film badge appears  
6 to have been calibrated with a uranium slab  
7 without the absorber?

8 DR. BEHLING: Yes.

9 MR. NELSON: And we have reviewed  
10 documents, and we cited the reference IDs  
11 where they specifically say that the absorber  
12 was in place when they calibrated the film  
13 badges. So that would be contrary to the  
14 allegation that it was not in place.

15 DR. BEHLING: How do you  
16 accommodate the lower energy data that,  
17 obviously, now, does not register on the badge  
18 that is being worn by an individual, if you  
19 really accommodate that by what you're saying  
20 is -- was the calibration method?

21 MR. NELSON: Well, I --

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1 DR. NETON: That's a different  
2 issue, though, isn't it, Hans? I mean, unless  
3 the issue is not correctly captured in this  
4 matrix -- you know, what -- the issue that I  
5 read it says that the badge was not calibrated  
6 with an 80 milligram per square centimeter  
7 absorber.

8 And the fact is it looks like  
9 they're citing references that say it was. Now  
10 you're talking about something different which  
11 is these other nuclides, I think.

12 DR. BEHLING: Yes.

13 DR. NETON: That could have been  
14 there, and I don't see that appearing anywhere  
15 here, so we obviously didn't address it.

16 DR. BEHLING: Well, obviously, you  
17 have technetium-99, which would not be a part  
18 of it, or thorium, that may not be part of  
19 that uranium slab.

20 DR. NETON: Well, right, and I  
21 don't see that appearing anywhere in the

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1 findings. So I guess --

2 MR. FITZGERALD: This is a one line  
3 summary of three pages in the Site Profile  
4 reviews, it wasn't meant to replace it.

5 DR. NETON: Well, but the one line  
6 summary doesn't even indicate about other  
7 nuclides. That's what I'm saying.

8 DR. BEHLING: No, no it doesn't,  
9 and, again, this is one of the weakness if you  
10 have a matrix that tried to capture sometimes  
11 things that are elaborate in write up over a  
12 period of several pages, and it's difficult to  
13 capture all of the things that are potentially  
14 relevant to the finding -- and left out.

15 DR. NETON: That's fine, but I  
16 guess we would deal with the first, the one  
17 that appears here, and then we could talk  
18 about -- maybe think through the other issue  
19 of the other radionuclides. But if it is true  
20 that they were calibrated using the 80  
21 milligram per square centimeter absorber, I

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1 think this issue at least seems to be  
2 resolved, in my opinion.

3 But if we could talk about the  
4 other nuclides, I guess just thinking on the  
5 fly, these are typically minor contaminants in  
6 the source stream. I don't know off the top of  
7 my head to what extent they would contribute  
8 to the shallow dose any more than you would  
9 from the beta coming off of a uranium source  
10 term, which is by far and away the largest  
11 potential source term, so.

12 MR. NELSON: They also place the --  
13 directly on the uranium slab, and they use  
14 calibration factors to equate what the --

15 DR. NETON: Well, then, that's  
16 fine. I think no one would be arguing now the  
17 fact that the uranium was not appropriately  
18 calibrated, but what about the, essentially  
19 the transuranic and other contaminants in the  
20 process stream that existed? And my gut  
21 reaction, just thinking about it, it would be

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1 pretty small and minor but I can't -- I  
2 couldn't hold any quantitative evidence, you  
3 know, just sitting here, so.

4 MR. FIX: This is Jack Fix.

5 DR. NETON: Yes.

6 MR. FIX: Can I make a comment?

7 DR. NETON: Sure.

8 MR. FIX: I --

9 MR. KATZ: Jack? We lost you.

10 DR. NETON: Hello, Jack?

11 MR. CALHOUN: Boy, that was going  
12 to be a good comment.

13 MR. KATZ: Jack? Did you cut  
14 yourself off?

15 MR. FIX: I'm here now. I'm sorry.

16 MR. KATZ: Okay.

17 MR. FIX: Basically, the site had  
18 the same concern that Hans is expressing, and  
19 so they did, particularly Paducah where they -  
20 - a parallel study, field study, with the old  
21 and the new badges, 1960, that has been

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1 introduced with those 80 milligrams per  
2 centimeter squared filtration. And at the end  
3 of the -- at the end of that period, and  
4 that's in SRDB reference 30645, where they do  
5 -- evaluation of the new combination  
6 identification radiation emergency monitoring  
7 badge.

8 This is the badge that was  
9 introduced at Paducah, Portsmouth, X-10, K-25,  
10 et cetera. And --

11 MR. KATZ: Jack? We just lost you  
12 again.

13 MR. FIX: -- so it is a concern  
14 that --

15 MR. KATZ: Jack --

16 MR. FIX: -- was shared, that was -  
17 -

18 MR. KATZ: Jack, Jack, Jack, Jack -  
19 - Jack, this is Ted. We lost, whatever you  
20 said for the last thirty seconds, maybe, we  
21 couldn't hear it.

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1                   MR. FIX: Okay, Ted. I'm sorry. Can  
2 you hear me now?

3                   MR. KATZ: Yes, we can hear you  
4 now. You just might want to run, run back over  
5 --

6                   MR. NELSON: Yes, he start -- start  
7 with the study that was done in 1960. That's  
8 where we lost you.

9                   MR. FIX: Okay. Well, the SRDB  
10 references 30645, and I just -- the site  
11 shares the -- shared the concern -- Paducah,  
12 in particular, shared the concern that was  
13 raised by Hans, and they ran a several month  
14 field comparison between the old and the new  
15 dosimeter and concluded that it was  
16 appropriate for use, that they -- and they  
17 went ahead and implemented this new dosimeter  
18 based on this field study.

19                   MEMBER BEACH: What was that  
20 reference number?

21                   MR. FIX: That's 1960.

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1 MR. FITZGERALD: 30645.

2 MR. FIX: Okay.

3 DR. NETON: So, Jack, what you're  
4 saying is that the old badge did miss the low  
5 energy betas from these other sources, or did  
6 not?

7 MR. FIX: I would say that it's  
8 consistent with what you said before, that it  
9 probably missed some but they were not  
10 significant contributors to dose. So they  
11 would conclude that it was acceptable for them  
12 to introduce this new dosimeter in 1960, which  
13 is the same dosimeter used at X-10,  
14 Portsmouth, K -- Y-12, et cetera.

15 DR. NETON: Okay. Well, since we  
16 didn't address that in here, maybe we should  
17 write that up as a response and get it on the  
18 -- in the matrix as a -- for the record.

19 MR. KATZ: Okay.

20 MR. NELSON: Also, we have OTIB-46,  
21 which also deals with this for Y-12, so this

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1 issue's been brought up before, and there's  
2 discussion in OTIB-46 about it.

3 DR. NETON: Okay. But since, maybe,  
4 I don't know who adds it to the matrix. Maybe  
5 SC&A can go back and add that --

6 MR. FITZGERALD: I'll go back and  
7 add it. That was my omission. That's the  
8 second half of this issue, actually. I just  
9 missed it --

10 DR. NETON: Okay. And then we'll  
11 provide a response to it. Sounds like we've  
12 got good technical discussion to provide for  
13 that.

14 MEMBER BEACH: Well, how much does  
15 OTIB-19.6 play in this?

16 DR. NETON: 19.6 --

17 MR. NELSON: That's the external?

18 MEMBER BEACH: -- external.

19 MR. NELSON: Well, that TIB,  
20 there's table in there, and let me -- let me  
21 go to that particular page because it -- it's

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1 an error which we said we needed to fix it.

2 Let's see.

3 MEMBER BEACH: I know I found it,  
4 it was listed in SC&A's review, but I don't  
5 know if it was current --

6 MR. NELSON: It was talking about  
7 the type of dosimetry we used and what years  
8 the film badges, and it said four element film  
9 badges up to 1960, and they were actually two  
10 element until 1960, and then in 1960, I  
11 believe it was, was when they added the  
12 security credential, like Hans was mentioning.

13 He gave it a total thickness of 80  
14 milligrams, square centimeter. So one of the -  
15 - part of the response that we had is that we  
16 would fix table 6.1, where it said four  
17 element to say that it was two element through  
18 7 of 1960. Then, so that was part of our  
19 response is that we did reference incorrectly  
20 that it was a four element prior to 1960. That  
21 was just a side note.

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1                   MEMBER BEACH: Okay.

2                   MR. NELSON: And that study, what  
3 Jack was talking about, that was a five month  
4 study performed on site. And their conclusion,  
5 it says that it was recommended that Paducah  
6 utilize a new combination badge for official  
7 dose determinations effective January 1, 1961.  
8 And the intention of the study was to evaluate  
9 the combination badge under "in service  
10 conditions."

11                  MR. FITZGERALD: Okay, well, in  
12 sum, then, we will -- or I will add the second  
13 piece to this particular issue on the SC&A  
14 column, and accordingly, I guess, you all will  
15 provide that background as a response to that.

16                  MR. NELSON: We have -- I have it  
17 all in my notes, but we didn't put it in a  
18 response based on the --

19                  MR. FITZGERALD: Yes, I mean, that  
20 was an artifact of my truncating that a little  
21 bit. Sorry, Hans.

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1 DR. BEHLING: Not a problem.

2 MR. FITZGERALD: Is that -- does  
3 that sound like a satisfactory path?

4 DR. BEHLING: Yes, I mean, if Jack  
5 Fix has already mentioned that the additional  
6 or incremental dose associated with  
7 radionuclides that are not part of the uranium  
8 slab contribute a very minor level of dose,  
9 then I think that's the answer.

10 MR. KATZ: Okay. So, then, we have  
11 this action item, but it sounds like there's  
12 no uncertainty about the response --

13 MR. FITZGERALD: It sounds like  
14 it's in the -- certainly a reasonable  
15 response.

16 MR. KATZ: Okay.

17 MR. FITZGERALD: Thank you, Jack.

18 MR. KATZ: Yes, thank you. Up to  
19 20.

20 DR. BEHLING: The 20, I think, was  
21 probably resolved. I think it's been discussed

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1 earlier when we discussed TBD 2 of Paducah,  
2 and that relates to what do those tables  
3 really represent. And one of the things that I  
4 did in reviewing some of the data that reflect  
5 that table, that is, I came to the conclusion,  
6 I mentioned under, I guess, finding number 17  
7 that was internal that there appears to be  
8 evidence of cohort monitoring.

9 And I showed, obviously, a  
10 document that says for any given wear period  
11 the number of people that were monitored were  
12 a small fraction of those that are identified  
13 in table 6.6 as having been monitored for any  
14 given year. According to this in the first  
15 year, 1953, table 6.5 identifies 223 people,  
16 different people, were monitored.

17 But when you go through some of  
18 the specifics that I include in my write up,  
19 you find that in any given wear period, there  
20 were as few as 32 badges from -- in the  
21 January time frame of 1953. And that to me

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1 suggests that there were basically monitoring  
2 different people for each wear period, and  
3 that would suggest that perhaps, again, there  
4 were 22 cover all bases, all people who are  
5 potentially exposed to radiation and get some  
6 kind of an assessment list of what the  
7 exposures is.

8 An this conflicts with the  
9 assumption that only the maximally exposed  
10 individuals would have been monitored. And I  
11 really come to that conclusion in my writeup  
12 when I identified in table 3 the quantum jump  
13 between 1960 and '61 in numbers of people  
14 totally monitored.

15 In 1960, there were a total of 527  
16 people monitored. In 1961, that number  
17 increased more than threefold to 1689 people.  
18 Now if in 1960 when only 527 people were  
19 monitored and then you look at the dose  
20 distribution, and I have -- I supplied a table  
21 with people who fell in that various

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1 categories of 0 to 1 rem for the year, 1 to 2  
2 rem, 2 to 3 rem.

3 The incremental numbers of people  
4 that were added to the 527 monitored in 1960  
5 to the 1689, in other words, more than 1100  
6 people were added. If in fact in 1960 we had  
7 monitored only the most exposed individual,  
8 then the additional people that you add to the  
9 1100 and some odd new people monitored in 1961  
10 would surely have been those involved in the  
11 lowest exposure category and that -- to be the  
12 case.

13 So my conclusion, just looking at  
14 those numbers, which suggest that cohort  
15 badging was in fact the approach used earlier  
16 on, at least early years of the Paducah, and  
17 when you do that you have to be mindful that  
18 when you have an individual for whom there is  
19 no monitoring data available, you cannot  
20 conclude that he was probably among the lesser  
21 exposed individuals where the geometric mean

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1 would necessarily satisfy your assignment of  
2 the dose that should have been a dose had he  
3 been monitored, where perhaps maybe in certain  
4 categories of workers the higher dose for a  
5 coworker model would apply. Now, I, I believe  
6 that that was to large extent addressed in  
7 OTIB-0031.

8 DR. NETON: Okay.

9 DR. BEHLING: I can continue  
10 because I did review OTIB-31, and I compared  
11 the dose for, by the year, -- for 1953 to 1960  
12 and there was a significant increase in the  
13 assigned doses that are identified in OTIB-31.  
14 For instance, in the case of 1953, the  
15 original TBD had identified the dose of 139  
16 millirem and that increased to 1.128 rem. So  
17 there was nearly a ninefold or more  
18 difference. And I can only conclude that  
19 perhaps my concerns were addressed in this  
20 rewrite of OTIB-31.

21 MR. NELSON: I think you're

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1 correct.

2 MR. FITZGERALD: Was OTIB-31  
3 rewritten?

4 MR. NELSON: No, it was -- let me  
5 look --

6 MEMBER BEACH: They just added a  
7 tab, didn't they?

8 MR. NELSON: Yes, it was added --  
9 well, let's see. It was originally written on  
10 5/19/05, then there was a revision in 8/05  
11 then a change 11/7/06. Which included  
12 construction workers.

13 MR. FITZGERALD: For the issue that  
14 Hans was talking about --

15 MR. NELSON: I remember  
16 specifically, the numbers going up. I think  
17 Hans is correct. It was probably responsive to  
18 the findings.

19 DR. BEHLING: Yes, as I said, if  
20 you have the original writeup, which I include  
21 in my review of OTIB-31, there is a dramatic

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1 increase in assigned dose by year for the  
2 years `53 through `60. As I said, there was a  
3 ninefold increase in dose for `53 and in 1960  
4 there was still more than a threefold increase  
5 in the assigned dose.

6 MEMBER BEACH: But I found that  
7 chart in 19.6, not in 31. So. It's a little  
8 confusing.

9 MR. NELSON: Well, the one in 19.6  
10 was all the dose for individuals that didn't  
11 include missed dose. That was part of what was  
12 added was missed dose because the frequency of  
13 the monitoring was probably much higher back  
14 then.

15 MR. FITZGERALD: But to sum it up,  
16 Hans, with this latest review, you feel more  
17 comfortable with the version of 31?

18 DR. BEHLING: Well, it certainly  
19 raises the, the assigned dose for people who  
20 were perhaps not monitored and for whom  
21 coworker monitoring data is applied to their

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1 dose. I'm not sure it addresses everything,  
2 but it certainly -- in raising the dose to  
3 unmonitored workers.

4 MR. FITZGERALD: Let me turn it  
5 around. Is there any remaining issues that we  
6 should -- we should press? I don't want to  
7 keep, keep at this.

8 DR. BEHLING: Well, I get, if there  
9 was a -- if they want it to be very claimant  
10 favorable you might still want to look at the  
11 fact that cohort badging may have existed for  
12 those years, and perhaps based on the  
13 different categories of workers and their  
14 distribution of dose among the coworkers, you  
15 might for a worker who fell into the higher  
16 category of exposures, you may want to assign  
17 the dose that is perhaps more than the  
18 geometric mean and assign --

19 DR. NETON: Yes, I was going to  
20 say, we typically do that. I don't know  
21 exactly where that's written, but, you know,

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1 we do examine job category and make allowances

2 --

3 MR. NELSON: There's a TIB for  
4 that. I can't think of which one it is --

5 DR. NETON: We can find it, we can  
6 locate where that's documented and provide  
7 that.

8 MR. CALHOUN: Somehow that's  
9 referenced in TIB-52. But --

10 DR. NETON: Okay. Let me --

11 MR. CALHOUN: Maybe something else.  
12 It's a reference to 52, I believe.

13 MR. FITZGERALD: Just taking that  
14 last question and the response to that last  
15 question could -- probably would be sufficient  
16 on this one.

17 DR. NETON: Okay.

18 MEMBER BEACH: So the action is  
19 just a --

20 MR. FITZGERALD: Just to find --

21 MEMBER BEACH: -- where it is --

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1                   MR.     FITZGERALD:     --     find     a  
2     reference and just, you know, I think the  
3     question that Hans is raising may be treated  
4     in one of these other OTIBs.

5                   DR.     NETON:     Where     we     made     a  
6     conscious effort to look at the job title and  
7     not just blindly apply the 50th percentile.  
8     We've done that in many instances. I -- we  
9     have to figure out where that's documented.

10                  MEMBER BEACH: And this just comes  
11     back to new folks, you know where it's at,  
12     Grady, but if I was just coming in and new to  
13     the program would I know where to find all  
14     that?

15                  DR.     NETON: I think that's Grady --

16                  MEMBER BEACH: But that's what's in  
17     the back of my mind is this is where you're  
18     confusing just trying to find it all. I can --  
19     a new dose reconstructor --

20                  DR.     NETON: I wasn't trying to be -

21     -

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1                   MEMBER BEACH: No, I didn't think  
2 that, thank you, but it does strike --

3                   CHAIRMAN SCHOFIELD: We're just  
4 trying to give Grady job security here.

5                   DR. NETON: We'll document --

6                   MR. CALHOUN: Thanks.

7                   DR. BEHLING: Are we ready to go to  
8 21?

9                   MR. NELSON: No, we're not ready to  
10 go. Back it up. OTIB-31 references the correct  
11 use of coworker which is OTIB-20.

12                  DR. NETON: Okay.

13                  MR. NELSON: Use of coworker  
14 dosimetry for external dose assessment.

15                  DR. NETON: Okay.

16                  MR. NELSON: So it's right there on  
17 the purpose, third paragraph down.

18                  MR. CALHOUN: So it's in the actual  
19 coworker TIB?

20                  MR. NELSON: Yes, it's in OTIB-20.

21                  MR. CALHOUN: Cool.

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1                   MR. NELSON: So we don't owe you  
2 anything now.

3                   MR. KATZ: Okay, it's closed. 21?

4                   DR. BEHLING: 21, that's kind of a  
5 head scratcher because when I wrote mine -- my  
6 review up, I didn't really see a firm problem  
7 because I sort of looked at the study by  
8 Meiners a 1999 study, and concluded that the  
9 one to five neutron photon ratio was probably  
10 correct.

11                   The only potential issue here is  
12 the one of obviously assigning the neutron  
13 photon ratio for people whose exposure was not  
14 in documented form, meaning, once again, we go  
15 back to issue 20, where we have an issue of  
16 what do we do with people who were not  
17 necessarily monitored.

18                   And I think we sort of have to go  
19 back again to say if -- once we clarify the  
20 issue of the unmonitored photon dose for  
21 people under issue 20, then I think the issue

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1 of assigning a neutron -- potential neutron  
2 exposure would perhaps be then appropriate.  
3 And I agree with the one to five ratio. So  
4 it's related to issue 20, to some extent.

5 MR. FITZGERALD: So the response to  
6 20 would take care of this one, too?

7 DR. BEHLING: Yes, it would.  
8 Because what I conclude in my concluding  
9 statement when I reviewed this is that I  
10 agreed with the one to five neutron photon  
11 ratio, but I also said, however, a potential  
12 difficulty may arise for deriving unmonitored  
13 neutron doses for workers prior to 61 who were  
14 unmonitored for photons as well.

15 MR. FITZGERALD: So the two are  
16 actually related findings --

17 DR. BEHLING: Yes, they are.

18 MR. FITZGERALD: Okay. Okay. Those  
19 are the primary issues that we had in the  
20 matrix. The ones that we have deemed secondary  
21 are listed on page 11 of the matrix that was

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1 provided back in June. And I would propose we  
2 go through those. I think those are kind of  
3 self explanatory, self evident, and, you know,  
4 typical of a Site Profile review where we'd  
5 present issues.

6 But the Work Group may want to,  
7 you know, maybe after lunch, I don't know what  
8 you want to do, but whether you want to take  
9 these up or not, or just leave them stand as  
10 they are. Again, it was our judgment that  
11 these were, you know, the findings of  
12 specific, and we might raise a question on an  
13 equation or clarification, whatever, and I'd  
14 deem those as more secondary.

15 CHAIRMAN SCHOFIELD: Well, unless  
16 we've got a --

17 MR. FITZGERALD: You may not agree.  
18 And there's about -- there's 19 of them back  
19 here on the list of secondary issues for  
20 Paducah.

21 CHAIRMAN SCHOFIELD: Why don't we

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1 try to see if we can get through those, and so  
2 we don't have to go over these again later?

3 DR. NETON: There's what, 19 of  
4 them?

5 CHAIRMAN SCHOFIELD: Yes.

6 MEMBER BEACH: What about quickly  
7 after lunch going through the other matrix  
8 items also, or are we just totally not ready  
9 to look at any of those?

10 MR. FITZGERALD: So we don't have a  
11 response for the other --

12 CHAIRMAN SCHOFIELD: Right.

13 MR. FITZGERALD: -- sites, just  
14 Paducah.

15 MEMBER BEACH: Well, there seems to  
16 be one response, I noticed, for --

17 MR. FITZGERALD: No, those are --  
18 those are situations where we have annotated  
19 that matrix and said that we found some  
20 responsiveness. That's not a NIOSH response,  
21 per se.

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1 MEMBER BEACH: Right.

2 MR. FITZGERALD: Yes. So there's no  
3 NIOSH response for Portsmouth and K-25. So  
4 it's up to the Work Group. We can, after  
5 lunch, if you want to just go through the  
6 secondary issues, just for clarification sake  
7 --

8 CHAIRMAN SCHOFIELD: Yes.

9 MR. FITZGERALD: -- and they were  
10 in the Site Profile. We didn't think it has  
11 much influence in -- but you may want to ask  
12 some questions while we have everybody here.

13 CHAIRMAN SCHOFIELD: Everybody's  
14 agreeable?

15 MEMBER BEACH: Yes.

16 CHAIRMAN SCHOFIELD: Unless you  
17 guys want to go to the beach or something.  
18 Well?

19 MR. KATZ: Okay, so --

20 CHAIRMAN SCHOFIELD: Why don't we  
21 break for lunch?

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1 MR. KATZ: You want to break for  
2 lunch?

3 CHAIRMAN SCHOFIELD: Yes.

4 MR. KATZ: Okay. It's 12 --

5 CHAIRMAN SCHOFIELD: Well, wait --  
6 do you have to leave now?

7 DR. NETON: I'm going to leave  
8 after a while.

9 MEMBER BEACH: After a while.

10 DR. NETON: I have an appointment.  
11 I have to leave around 1, but I -- that'd be  
12 great; that's fine. I mean, Grady's sitting  
13 here representing -- me.

14 MR. KATZ: Okay. So we'll break  
15 until one?

16 MR. FITZGERALD: I might add, some  
17 of these issues, like the site map, and, you  
18 know --

19 DR. NETON: They'll go fast.

20 MR. FITZGERALD: They're going to  
21 go fast.

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1 CHAIRMAN SCHOFIELD: Yes.

2 MR. FITZGERALD: So, again.

3 CHAIRMAN SCHOFIELD: Since we're  
4 already here all together, just seems, makes  
5 more sense to just go ahead and do it now.

6 MR. KATZ: Yes, that's fine. That's  
7 fine. And the other thing, I don't know if we  
8 need you to discuss, so, Portsmouth and K-25  
9 responses, do we have a sense of when those  
10 will be --

11 MR. NELSON: We have the Portsmouth  
12 ones pretty much done.

13 MR. KATZ: Okay.

14 MR. NELSON: I need to go through a  
15 management review of those, and whenever you  
16 want to set up a meeting here in the future,  
17 we'll be ready for those. Then K-25 will be  
18 done in late March.

19 MR. KATZ: Late March. Okay. Well,  
20 does it make more sense to just combine them  
21 and wait until late March --

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1 CHAIRMAN SCHOFIELD: I think so.

2 MR. KATZ: -- and knock off those  
3 two -- or try to. Okay.

4 MEMBER BEACH: And by that time,  
5 we'll have the answers back on these, as well,  
6 I'm sure. Yes.

7 MR. KATZ: All right, so we'll  
8 break for lunch and reconvene about 1 o'clock.  
9 It's a little bit past noon right now. Thank  
10 you, everyone.

11 (Whereupon, the above entitled  
12 matter went off the record at 12:03 p.m. and  
13 resumed at 1:05 p.m.)

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1 you know, this whole thing, I think, was  
2 transferred in '93, January 1st, '93, to USEC,  
3 a commercial operation regulated by NRC.

4 And just a little more background  
5 information on the -- on that development at  
6 that point in time. That was one thing that  
7 was -- just, basically as a informational  
8 thing mentioned from site description.

9 MR. NELSON: Yes, our response to  
10 that was that really that wouldn't change the  
11 way we do dose reconstruction, but we can add  
12 some clarifying information in the site  
13 description once we update it, so it would be  
14 worth doing that.

15 MR. FITZGERALD: Yes, just for  
16 background for the '92 end date. I think for  
17 those of us who are familiar with what was  
18 going on, that's why there's a '92 end date  
19 for the EEOICPA.

20 MR. NELSON: Okay.

21 MR. FITZGERALD: The second issue -

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1 -

2 MR. KATZ: So that's closed?

3 MR. FITZGERALD: Yes, I mean, I  
4 think, again, the secondary issues are more or  
5 less pointing out, you know, enhancements and  
6 accuracy issues --

7 MR. KATZ: Right.

8 MR. FITZGERALD: You know. Second  
9 one deals with the site map, and I don't know  
10 --

11 MR. NELSON: It's pretty weak, I  
12 agree.

13 MR. FITZGERALD: Yes --

14 MR. NELSON: And the ones in the  
15 PACE document --

16 MR. FITZGERALD: I've seen worse, I  
17 don't know --

18 MR. NELSON: Yes, the ones in the  
19 PACE document are much better --

20 MR. FITZGERALD: Yes --

21 MR. NELSON: -- and I think it's a

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1 good --

2 MR. FITZGERALD: I think it was a  
3 question of some of these secondary facilities  
4 weren't as easy to make out.

5 MR. NELSON: Right.

6 MR. FITZGERALD: So, anyway.

7 MR. NELSON: So I think we ought to  
8 put a nice map in there, maybe cover the whole  
9 page so you can actually see the facilities.

10 MEMBER BEACH: Good idea.

11 MR. FITZGERALD: That would be  
12 sufficient from our standpoint. And the third  
13 one was just pointing out that the feed  
14 material was not just UO3, but I think in toto  
15 that was sort of addressed in the new TBD.

16 I think that was a reference to  
17 the Site Profile, the site description TBD  
18 didn't get into some of the other feed sources  
19 as much.

20 MR. NELSON: Right.

21 MR. FITZGERALD: I mean, I think

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1 it's evident elsewhere in the TBD --

2 MR. NELSON: That's what our  
3 response was that we talk about the internal  
4 section of the Site Profile --

5 MR. FITZGERALD: Right.

6 MR. NELSON: -- and that, you know,  
7 we will consider all types of material types,  
8 and --

9 MR. FITZGERALD: I think it sounds  
10 like a short paragraph referring to recycle  
11 and some of the other feed sources that were  
12 involved at -- in the campaigns at Paducah.  
13 Not a big deal, but just a, you know, an  
14 enhancement to the site description.

15 MR. NELSON: So you think we might  
16 ought to add some stuff -- about recycle?

17 MR. FITZGERALD: Yes, I think the  
18 information is in the overall set of TBDs, it  
19 just, doesn't come out in the site description  
20 as clearly as --

21 MR. NELSON: Okay, so I'll check

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1 and see how much refers to recycle. I know  
2 there's some U -- 308 and others.

3 MR. FITZGERALD: Yes. I think UO3  
4 was the only --

5 MR. NELSON: UO3 is a feed --

6 MR. FITZGERALD: -- was the only  
7 one that was referenced --

8 MR. NELSON: Right.

9 MR. FITZGERALD: -- in the site  
10 description. We talked about incidents and  
11 special activities. I think, again, this gets  
12 back to that table in the PACE report. I think  
13 the reviewer for that site description was  
14 looking for something analogous to that. My  
15 guess is that maybe some reference to the PACE  
16 report for the history of incidents, major  
17 incidents --

18 MR. NELSON: And that's in there  
19 now. We talked about it during that particular  
20 --

21 MR. FITZGERALD: Yes.

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1 MR. NELSON: -- issue --

2 MR. FITZGERALD: Yes. Same issue.

3 MR. NELSON: -- about the PACE  
4 report --

5 MR. FITZGERALD: Same issue, so I  
6 don't think there's anything new there. The  
7 fifth one, I think with a little bit more  
8 explanation of how the 2001 Bechtel Jacobs  
9 report was going to be applied in terms of  
10 citing these additional concentrations. I  
11 think this may be addressed in one of the  
12 primary issues we discussed this morning. I  
13 mean, this is sort of very close to that.

14 MR. NELSON: And when I said --  
15 what I have for the response is the maximum  
16 concentrations for neptunium, plutonium,  
17 technetium are listed as reference data only,  
18 and they're not used in the calculation of  
19 internal or external doses during dose  
20 reconstruction. Those are accounted for in the  
21 internal and external dose sections of the

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1 Site Profile.

2 MR. FITZGERALD: Yes, I think it  
3 was the classification category that was cited  
4 in the TBD versus how it was referenced in the  
5 BJC document, the Bechtel Jacobs document.  
6 That's the way I read --apparently the BJC  
7 document, the Bechtel Jacobs does not  
8 associate specific nuclides with neptunium  
9 plutonium.

10 MR. NELSON: Okay.

11 MR. FITZGERALD: I think this is  
12 something you should go back and check. I  
13 mean, this --

14 MR. NELSON: All right, I'll make  
15 sure I understand that, then. Is there --

16 MR. FITZGERALD: It says pages 11,  
17 20 of TBD provide maximum concentrations for  
18 neptunium, plutonium technetium expected for  
19 activities at each of the buildings that were  
20 referenced, recycle --

21 MR. NELSON: Okay.

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1                   MR. FITZGERALD: -- these mass  
2 concentrations are associated with types of  
3 exposures, worker activities in those  
4 buildings. The TBD has misinterpreted the  
5 classification categories applying only to  
6 external radiation exposure potential.

7                   I think that's probably the more  
8 important statement that's made in there is  
9 that one.

10                  MR. NELSON: Where it says like --  
11 radiological risk?

12                  MR. FITZGERALD: Well, SC&A knows  
13 that the use of these data for calculation of  
14 internal doses would not necessarily be  
15 consistent with methods used in the internal  
16 TBD.

17                  MR. NELSON: Okay. Our response to  
18 that was that this is only for reference only  
19 and the specifics are more so in the TBD --

20                  MR. FITZGERALD: Yes, I think the  
21 fact that the internal is the relevant one --

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1 the site description is really just for  
2 background. But I think for consistency's  
3 sake, you may want to look at that.

4 MR. NELSON: Where it says like,  
5 radiological risks?

6 MR. FITZGERALD: This is comparing  
7 what's here with what's in the Berger  
8 document, but that's --

9 MEMBER BEACH: Just making it more  
10 clear?

11 MR. FITZGERALD: -- that's 2000.  
12 Consistency.

13 MEMBER BEACH: More consistent,  
14 okay.

15 MR. FITZGERALD: Again, this is the  
16 2004 version of the internal TBD, so take that  
17 with a grain of salt. I think the consistency  
18 issue is looking at Bechtel Jacobs 2001 and  
19 comparing it with 2007 version of the internal  
20 TBD.

21 Issue six under occupational

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1 medical TBD. Sections 3.2 and 3.3 of the TBD,  
2 this is the 2004 TBD on occ. med., failed to  
3 describe information upon which to establish  
4 beam quality for x-ray units used from `52 to  
5 `75. And it goes into a lot of very factual  
6 details.

7           And the question is, you know, the  
8 documentation to support the technetium  
9 protocols used to apply the dose and whether  
10 that history that's laid out here is the same  
11 as the TBD.

12           MR. NELSON: Okay, what I think we  
13 have on that is standards and regulations for  
14 required minimum filtration x-ray units has  
15 been around for a long time. The predecessor  
16 is NCRP-102. The predecessor to NCRP-102 was  
17 NCRP-33.

18           Many of the sites performed only a  
19 PA projection, so it's not an unreasonable  
20 assumption if no evidence exists to the  
21 contrary, so based on a review of the x-ray

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1 records provided by Paducah, x-ray exams are  
2 listed as PA chest or as PA x-ray.

3 When we do the dose  
4 reconstructions, if it says PA chest then  
5 we'll assign a PA dose only. But if it's a  
6 chest x-ray, then we do both PA and lab doses.

7 MR. FITZGERALD: I think a lot of  
8 this goes away with referencing Kathren, 2005.  
9 You know, some of these issues are somewhat  
10 related --

11 MR. NELSON: Yes, because they --

12 MR. FITZGERALD: This speaks to the  
13 ORAU 2003 reference. That the information is  
14 derived from that. I think that the later  
15 reference is more relevant.

16 I guess I would just sum this up  
17 and say there's just a lot of technical, you  
18 know, what ifs and isn't this more relevant.  
19 And I, again, I think this is provided for a  
20 factual accuracy check. You know, I don't  
21 think we necessarily have to go through each

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1 of these items and -- but I think they're all  
2 there for your use, to validate what's in the  
3 current TBD as you revise it.

4 MR. NELSON: Okay.

5 MR. FITZGERALD: I suspect the 2005  
6 reference probably will take care of most of  
7 that. I mean, the overall issue is that the  
8 technetium protocols bring into question some  
9 of the DCFs that are listed in the table on  
10 the old TBD.

11 MR. NELSON: Okay. I think it went  
12 on quite a bit, though, about discussion of  
13 minimum filtration and --

14 MR. FITZGERALD: Yes. Yes, I think  
15 as a function of whether or not these  
16 techniques and protocols are the accurate  
17 ones, you could increase the uncertainty about  
18 the dose reconstruction that you would do.

19 I think that just -- it's just  
20 laying out, you know, some questions about the  
21 techniques that are listed, and the frequency,

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1 and I'm not disputing that. I think the  
2 inclusion of the Kathren information from that  
3 2005 document plus the -- you looked into  
4 photofluorography?

5 MR. NELSON: Yes.

6 MR. FITZGERALD: And I think that's  
7 a pretty complete picture, based on what we  
8 discussed this morning. So I think this was  
9 more of a looking at the issue, more on the --  
10 factual accuracy check, and I would go through  
11 this, and, if the Kathren 2005 plus the  
12 photofluorography resolves most of these  
13 issues, then, I don't -- you know --

14 MR. NELSON: I mean, there is an  
15 uncertainty assigned to the x-rays.

16 MR. FITZGERALD: Yes, this just  
17 says the uncertainty would be increased if the  
18 frequency in the techniques weren't right on.  
19 The same thing with issue -- issue seven. That  
20 gets to the Kathren report as well.

21 MR. NELSON: All right. And we

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1 talked about how we're actually assigning x-  
2 rays in a claimant favorable manner if no  
3 documentation exists. Otherwise, as you  
4 mention, we adopted the discussion in Kathren  
5 on the x-rays for asbestos workers.

6 So that's where we got into the  
7 1985 date of where we add frequency of x-rays  
8 every two years after 1985 and every three  
9 years before that time.

10 MR. FITZGERALD: Now, the other  
11 question, you know, certainly, back in the  
12 Site Profile, it would -- the claim was made  
13 that it would be more claimant favorable to  
14 instruct dose reconstructors to use an annual  
15 dose of 3 rem per year for the radiographs,  
16 chest radiographs.

17 That was based -- and, again, that  
18 was actually based on the Kathren document, so  
19 --

20 MR. NELSON: I think that was a PFG  
21 --

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1 MR. FITZGERALD: Yes.

2 MR. NELSON: -- photofluorography  
3 which we have no evidence whatsoever, after  
4 reviewing 1200 claims --

5 MR. FITZGERALD: Right, this gets  
6 back to -- this gets back to PFG -- so you  
7 verified that?

8 MR. NELSON: Yes.

9 MR. FITZGERALD: Okay. And that  
10 would close that one.

11 MEMBER BEACH: I thought we did --

12 MR. FITZGERALD: That was issue --  
13 that was the other one. This is issue seven.

14 MR. NELSON: Yes.

15 MEMBER BEACH: That would close  
16 that here.

17 MR. FITZGERALD: Right.

18 MEMBER BEACH: Or back here.

19 MR. FITZGERALD: Well, it closes it  
20 here as well.

21 MEMBER BEACH: Okay. Yes.

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1                   MR. FITZGERALD: Okay, issue --  
2                   issue eight deals with other potential medical  
3                   exposures being identified, and you've looked  
4                   at the PFG. And, let's see -- portable x-ray  
5                   units were not used. TBD fails to document  
6                   that available x-ray units were not operated  
7                   at greater than 80 to 90 kilovolts prior to  
8                   `75. To the contrary table 3-3 of TBD  
9                   indicates that the kilovolt after 1975 was set  
10                  up at 100 kVp when operated -- when performing  
11                  LAT chest exams.

12                 MR. NELSON: Those are for later  
13                  years.

14                 MR. FITZGERALD: Right, after `75.

15                 MR. NELSON: What we have is a  
16                  direct interview with the technologist that  
17                  worked in there in 1974, and he had previous  
18                  knowledge of what they had done, and he's  
19                  worked there ever since. So we have a  
20                  reference document where we have the actual  
21                  interview that took place and the summary of

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1 the results. And that's where all that  
2 information came --

3 MR. FITZGERALD: The 80 to 90  
4 versus --

5 MR. NELSON: Yes.

6 MR. FITZGERALD: -- the 100 after -  
7 -

8 MR. NELSON: Right. Those are  
9 direct -- directly out of that reference.

10 MR. FITZGERALD: Now that -- would  
11 the interview documentation been available --

12 MR. NELSON: Yes, I can give you  
13 the --

14 MR. FITZGERALD: During the Site  
15 Profile review?

16 MR. NELSON: Yes, I can give you  
17 the reference ID number. I didn't write it  
18 down on here. It was --

19 MR. FITZGERALD: Okay.

20 MR. NELSON: -- I can get that to  
21 you, though. I did not write the reference ID

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1 number. Let me see if I have it in one of  
2 these other responses.

3 MR. FITZGERALD: Relative to the  
4 question of beyond x-ray units, isotopes and  
5 sealed sources, anything else that would have  
6 been applied for medical purposes?

7 MR. NELSON: The one thing -- let  
8 me get back to that little section there,  
9 because -- in SRDB 11951, there's discussion  
10 of the portable -- if I say this right --  
11 Baltospot x-ray machine was used for tests on  
12 equipment in the field, and it was not used on  
13 personnel.

14 MR. FITZGERALD: Okay. That's -- so  
15 that wasn't a medical application.

16 CHAIRMAN SCHOFIELD: Give me that  
17 number again?

18 MR. NELSON: 11951.

19 CHAIRMAN SCHOFIELD: Okay.

20 MR. FITZGERALD: And that's only  
21 field application, not medical.

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1 MR. NELSON: Correct.

2 MR. FITZGERALD: And there weren't  
3 any other applications beyond the x-ray units?

4 MR. NELSON: We have no indication  
5 of portable units based on the interviews with  
6 the medical x-ray technician. And I think that  
7 number is 18610.

8 MR. FITZGERALD: 18 --

9 MR. NELSON: The reference ID I  
10 couldn't find a minute ago.

11 MEMBER BEACH: 186 --

12 MR. NELSON: -- 10.

13 MEMBER BEACH: -- 10.

14 MR. FITZGERALD: Well, that would  
15 respond then to this issue that, even though  
16 it's not explicit in the TBD at the time, your  
17 reviews -- indicates there weren't any other  
18 medical applications of sealed sources, x-ray  
19 units, and certainly no PFG units.

20 MR. NELSON: Correct. I can -- and  
21 if you want, I can read the discussion from

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1 the interview, if you want me to --

2 MR. FITZGERALD: No, I think,  
3 really, the only intent here is that when, I  
4 guess you revise the Site Profile, that would  
5 be kind of useful background information to  
6 provide in the occ. med. section, just to kind  
7 of --

8 MR. NELSON: So add that reference  
9 in there if it's --

10 MR. FITZGERALD: Well, just cross  
11 the T that there weren't any other medical --

12 MR. NELSON: Okay.

13 MR. FITZGERALD: -- applications of  
14 sealed sources, x-ray units, all that, there  
15 weren't any PFGs -- actually, have done all  
16 the research already --

17 MR. NELSON: Right, just roll that  
18 into the TBD information we have.

19 MR. FITZGERALD: So that would  
20 resolve the action at the table, but that  
21 would be something that would be put in the --

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1 next rendition.

2 Issue nine. Issue nine, and the  
3 reason I list it as a secondary, I think this  
4 was just a commentary on the fact that there  
5 were other contributors to uncertainties.

6 Not sure I want to go through all  
7 of this, but a beam, a varying beam quality.  
8 How equipment was used -- use of screens,  
9 grids, or Bucky systems. I mean, there's sort  
10 of a lot of inside baseball, you know, x-ray  
11 machine applications on this thing here.

12 And I don't think there's a real  
13 firm -- there's a real concern over how it's  
14 treated. I think there was some comment that  
15 these were additional uncertainties that would  
16 be -- that would play into it.

17 MR. NELSON: There was some mention  
18 about the DCS or -- derived from ICRP-1982,  
19 and that they were not comparable in terms of  
20 beam quality, which varies from unit to unit,  
21 and the responses in ICRP-34 DCFs are in fact

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1 chosen based on beam quality.

2 And also there is -- if you go  
3 into ORAU procedure 0061, there is guidance  
4 provided for uncollimated x-rays, if  
5 necessary.

6 MR. FITZGERALD: That's ORAU --

7 MR. NELSON: PROC-0061.

8 MR. FITZGERALD: 61 --

9 MR. CALHOUN: PROC-61.

10 MR. FITZGERALD: PROC-61.

11 MR. NELSON: That's the Kathren  
12 document, correct?

13 MR. CALHOUN: I don't know, I --  
14 that might be in that document. I don't know  
15 that. I don't know what the Kathren document  
16 is.

17 MR. FITZGERALD: How about retake  
18 rates?

19 MR. NELSON: Okay. Okay, it's --  
20 here's what I have here. It's doubtful that  
21 retakes were significant. Even sites like BNL

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1 we did research in all aspects of medical  
2 radiation exposures and recorded estimates of  
3 x-ray dose and medical records, did not do a  
4 retake analysis.

5 Also we reviewed many films at DOE  
6 sites over the various times. It's pretty  
7 clear that sub-optimal films were not  
8 repeated. These went through for reading as  
9 is. So I don't feel there's a big potential  
10 for retakes.

11 MR. FITZGERALD: So there's a  
12 benchmark at a -- comparable facilities or  
13 plants that could be used as -- for practice  
14 at the time --

15 MR. NELSON: Where our -- what we  
16 found so far is that with the other DOE sites,  
17 that for the most part they weren't repeated.

18 MEMBER BEACH: What kind of  
19 percentage do you think that --

20 MR. NELSON: I don't have a number.  
21 I don't have a number for that. What I should

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1 have done is got our x-ray expert on the phone  
2 with this. She could have helped you some on  
3 it.

4 MR. CALHOUN: Elyse?

5 MR. NELSON: Elyse, yes.

6 MR. FITZGERALD: I think the  
7 question, at least these questions, for  
8 example, there's another one, you know, what  
9 correction factor should one apply prior to  
10 `75. Correction factor is plus 30 percent, and  
11 the SC&A reviewer at the time was claiming a  
12 factor of two.

13 I guess on this one I would just  
14 say leave it open but give it to your x-ray --  
15 I mean, I'm kind of swimming in shallow  
16 waters, too, because some of these are pretty  
17 technical to how uncertainties are treated in  
18 a medical x-ray applications. I, again, you  
19 see this is sort of a secondary issue, these  
20 are all points that could be considered in a  
21 update of that TBD.

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1                   And, you know, the -- being that  
2                   there are uncertainties, the question is just  
3                   weighing them as whether they're significant  
4                   uncertainties or not. If they're not  
5                   significant, why would you include them?

6                   MR. NELSON: Well, the feeling is  
7                   that they're insignificant and --

8                   MR. FITZGERALD: Yes.

9                   MR. NELSON: -- I think we do an  
10                  adequate job of accounting for them. So I  
11                  mean, if we want to have some detailed  
12                  discussions, I guess we could do that on the  
13                  next opportunity, and we could get our x-ray  
14                  expert here, and she could probably go on for  
15                  hours --

16                  MR. FITZGERALD: I would just keep  
17                  it -- I would just keep it significance. I  
18                  mean, I don't think any research is warranted,  
19                  but just, you know, what's the relative  
20                  significance of any of these factors in terms  
21                  of a dose reconstruction.

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1                   And if relatively speaking,  
2 they're not significant, then I wouldn't spend  
3 much time with it. I think this factor, two  
4 versus 30 percent, sounds at least, off the  
5 top, significant enough that you'd want to  
6 have a -- have her take a look at that.

7                   Some of these others, I think, are  
8 more incidental. So I would just leave this  
9 sort of pending maybe a review by the medical  
10 x-ray resource at NIOSH and, you know, a  
11 judgment on significance of some of these  
12 factors and if any of them are significant  
13 enough to be considered.

14                   MR. NELSON: I think what we'll do  
15 is we'll, on the next conference -- on the  
16 next meeting, we'll have her come in and give  
17 us a nice -- so everybody's -- understands a  
18 little better because I know I didn't do a  
19 great job on that. I'm certainly not an x-ray  
20 expert.

21                   MR. FITZGERALD: Well, neither am

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1 I. But I think that's probably the question  
2 that matters most for these.

3 Occupational and environmental  
4 TBD. This is moving from the occ. med. to the  
5 environmental TBD. And item -- item ten. The  
6 reason I put this on the secondary list is I  
7 don't think that we have done this on other  
8 Site Profiles. I haven't seen that in other  
9 Site Profiles where there's sort of a  
10 validation, you know, that's comparing what  
11 one measures versus what's predicted by some  
12 of the analyses.

13 I included it for completeness  
14 sake, but I'm not quite sure I understand this  
15 one. And --

16 MR. NELSON: My feeling was there's  
17 no comparison because they're two different  
18 purposes for the data and --

19 MR. FITZGERALD: That's --

20 MR. NELSON: -- their application  
21 is job dependent.

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1                   MR. FITZGERALD: The issue is it  
2 reads right from the Site Profile review. All  
3 Paducah personnel wore film badges. That's  
4 what's stated in the TBD. And this document is  
5 supposed to provide information for estimating  
6 environmental doses when monitoring was not  
7 performed or coworker data could not be used,  
8 but there were no comparisons of any doses  
9 based on personnel badge data, with estimates  
10 based on the ambient environmental exposures.

11                   And I -- like I said, again, I --  
12 it's a bit of a non sequitur because I don't  
13 think that has been compared, for good reason,  
14 in the past. So, again, I'd list it, but I  
15 guess, speaking for SC&A, would not hold you  
16 to that one.

17                   I didn't want to leave it out,  
18 either, but that one's a little hard for me to  
19 get my hands around. So I would close that,  
20 but more from the standpoint that I don't  
21 think it's a significant finding. Sort of a

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1 peremptory strike on that one.

2 MEMBER BEACH: Yes.

3 MR. FITZGERALD: Item 11.

4 Preoperational measurements cannot have  
5 detected ambient levels. This is sort of a  
6 similar issue. And this comes from the TBD.  
7 The TBD states that none of the ten  
8 preoperational samples analyzed in '52 showed  
9 any measurable concentration of uranium.

10 But, you know, how could it in  
11 '52? I guess that's kind of the conundrum  
12 there.

13 MR. NELSON: What we have is the  
14 Site Profile states what is known about the  
15 preoperational measurements, and it's not  
16 sufficient to conclude there were no pre-  
17 existing airborne radioactivity in the area,  
18 nor was this data used in the determination of  
19 the environmental dose. It was simply listed  
20 in the Site Profile as a historical document.

21 MR. FITZGERALD: Okay, so this is

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1 just a historical reference?

2 MR. NELSON: Yes.

3 MR. FITZGERALD: So this would not  
4 be referenced in a dose reconstruction?

5 MR. NELSON: No, when we do the  
6 environmental data, or when we assign an  
7 environmental dose, it's based on the data we  
8 collected in the -- using the worst case  
9 assumption from uranium concentrations, and we  
10 assign what the contaminants were associated  
11 with, be they plutonium, technetium --

12 MR. FITZGERALD: I mean, the other  
13 purpose for this would be just if you had some  
14 reading, to subtract it out as being a  
15 preoperational baseline. I mean, that's the  
16 only thing I could think of. I don't want to  
17 belabor it.

18 I think that's the only thing you  
19 would do -- typically, in an operation, you'd  
20 have a preoperational baseline of your  
21 naturally occurring contamination levels and

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1 make sure those were subtracted out, but in  
2 this case -- let's see -- total uranium, about  
3 4.6. Not really familiar -- what is that, a?  
4 Small letter a, curie. It's awful small.

5                   Okay, what I would suggest then,  
6 if this is a historical reference, it doesn't  
7 -- it doesn't play into a dose estimation  
8 process, then I think it's a useful piece of  
9 information but it doesn't have to be  
10 addressed as a response. Is that reasonable,  
11 Phil?

12                   CHAIRMAN           SCHOFIELD:       Sounds  
13 reasonable.

14                   MR. FITZGERALD: Item 12. This is  
15 the ambient air sampling collection network.

16                   MR. NELSON: Right.

17                   MR. FITZGERALD: I think that the  
18 notion there is, you know, these were for  
19 compliance with NESHAPS and what have you but  
20 not intended for actually onsite monitoring  
21 because of the location of the fence line and

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1 all that.

2 MEMBER BEACH: Is there dates on  
3 those or anything? Is this a constant --

4 MR. NELSON: What are you referring  
5 to as far as dates?

6 MEMBER BEACH: The -- for the  
7 sampling. Onsite -- the onsite monitoring  
8 stations. What was the operational time  
9 period? Do we know, or --

10 MR. NELSON: Of the onsite air  
11 samplers?

12 MEMBER BEACH: Yes.

13 MR. NELSON: I can't remember if  
14 those started in `59. I don't have the exact  
15 date in front of me. I believe it was 1959,  
16 going from my memory.

17 MR. FITZGERALD: But in terms of  
18 using the data from the fence line, compliance  
19 monitoring, essentially, the air samplers on  
20 the fence. How are those adapted to  
21 establishing --

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1                   MR. NELSON: There's an entire  
2 discussion in the environmental TBD, but  
3 basically they did use those perimeter air  
4 samples, and they talked about what the wind  
5 rose were and so forth. And they were used for  
6 estimating the release data and the maximum  
7 air concentrations.

8                   And what they actually chose was  
9 the higher values based on the releases that  
10 occurred from some of the campaigns when the  
11 exposure levels were higher and based on air  
12 monitoring trends. So they would look -- they  
13 looked at all that and chose the worst case  
14 scenario.

15                  MR. FITZGERALD: Being in the worst  
16 case, the perimeters --

17                  MR. NELSON: Yes.

18                  MR. FITZGERALD: -- necessarily,  
19 wouldn't necessarily characterize, depending  
20 on the, you know, the way the onsite  
21 dispersion was.

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1                   MR. NELSON: Well, some of the  
2 discussion was, is based on the stack location  
3 and predominant wind direction, all that lined  
4 up actually pretty nicely with the perimeter  
5 air monitors. And they had pretty consistent  
6 winds in that area, and the layout of the  
7 buildings where they felt that --

8                   MR. FITZGERALD: So you --

9                   MR. NELSON: -- they were adequate.

10                  MR. FITZGERALD: -- think your  
11 position would be that the perimeter monitors  
12 were representative based on your --

13                  MR. NELSON: They can be used --

14                  MR. FITZGERALD: They can be used,  
15 you looked at the data onsite.

16                  MR. NELSON: Yes.

17                  MR. FITZGERALD: The data there  
18 was, emission data, and you're seeing that's  
19 representative.

20                  MR. NELSON: Correct.

21                  MR. FITZGERALD: I think this gets

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1 to the representativeness of the perimeter  
2 monitors that were onsite, adjacent to the  
3 facilities themselves.

4 MEMBER BEACH: Well, how important  
5 this last statement is, there's no map showing  
6 the locations of the air sampling stations. Is  
7 that just --

8 MR. NELSON: We --

9 MEMBER BEACH: Do you have that  
10 information?

11 MR. NELSON: What we said on that,  
12 we can add a map during the next Site Profile  
13 revision to show the air monitoring locations.

14 MR. FITZGERALD: And maybe --

15 MR. NELSON: I know there's one  
16 there for the TLD monitoring locations.

17 MR. FITZGERALD: Well, they seemed  
18 like, a brief discussion of what you just  
19 said, basically, which is the -- sort of  
20 answers the question why the perimeter  
21 monitors --

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1                   MR.     NELSON:     That's     in     the  
2     environmental TBD.

3                   MR.     FITZGERALD:   That's -- that is  
4     sufficient. I don't have my --

5                   MR.     NELSON:     So we will add a map  
6     to show the --

7                   MR.     FITZGERALD:   All right.

8                   MR.     NELSON:     -- perimeter air  
9     monitors.

10                  MR.     FITZGERALD:   Now, I would close  
11     that with the qualification that a map would  
12     be added. There's two basic questions that are  
13     listed under -- well, it's issue 13 here. It's  
14     issue 6 in the --

15                  MR.     NELSON:     Yes, they're very  
16     similar.

17                  MR.     FITZGERALD:   How would you  
18     respond to those?

19                  MR.     NELSON:     The first one, well,  
20     see, our primary response to number six, which  
21     is that big long list you were happy with

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1 earlier.

2 MR. FITZGERALD: Right. Right.

3 MR. NELSON: But, if you look at --  
4 we got some references, 37840, those are  
5 reference IDs, and 37842. And these are TLD,  
6 near the cylinder yards for 82 and 84. Let's  
7 see -- I can go through the response for  
8 number six, but I don't --

9 MR. FITZGERALD: No, no. I think --

10 MR. NELSON: -- the exact question  
11 for 13, I'm not sure when I read the little  
12 paraphrase here, question exists regarding  
13 section 4.3.2, radiological conditions of the  
14 cylinder yard, I need to look at that. Because  
15 basically our response was see issue number  
16 six, where we went and did a --

17 MR. FITZGERALD: Yes, the first  
18 part of that, which is this question number  
19 one, actually, was in fact responded to in  
20 your answer to six. So, you know, that -- the  
21 question of dose rate measurements, 100 meters

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1 from the UF6 storage yards, how representative  
2 they are.

3 MR. NELSON: Okay. You're saying  
4 relative to the distance from the cylinder  
5 yards themselves?

6 MR. FITZGERALD: Yes. Yes.

7 MR. FITZGERALD: I know in later  
8 years, the area is pretty well controlled for  
9 access, so -- and really, since 1960, anybody  
10 that went into that area would have been  
11 monitored anyways, as far as, you know, if  
12 somebody did work, like on the fence line and  
13 those areas there, then it was -- that would  
14 be representative of those locations.

15 What we do is we take the highest  
16 reading out of all those. We make it for 2600  
17 hours, and you come out with about 260  
18 millirem per year that's assigned to these  
19 individuals if they work in the cylinder yard.  
20 Which, incidentally, is more than you would  
21 assign to an individual that worked onsite and

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1 had zeros for the whole year. So that would be  
2 the same as what a missed dose would be.

3 MEMBER BEACH: How many hour day is  
4 that based on?

5 MR. NELSON: Well, that's, what,  
6 2600 hours? What is that --

7 MEMBER BEACH: Is that a year, or -  
8 -

9 MR. CALHOUN: Standard work year is  
10 2080, so.

11 MR. FITZGERALD: Is this an  
12 unmonitored worker?

13 MR. NELSON: Yes, an unmonitored  
14 worker --

15 MR. FITZGERALD: An unmonitored  
16 working in a cylinder yard --

17 MR. NELSON: If they were to happen  
18 to visit a cylinder yard or if they had  
19 something in their record about being in a  
20 cylinder yard, we're going to give them 240  
21 millirem a year.

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1                   MEMBER BEACH: If they are assigned  
2                   a cylinder yard, and they --

3                   MR. NELSON: Then they're going to  
4                   have a TLD or a film badge.

5                   MEMBER BEACH: Okay. Even guards,  
6                   service -- those type of folks?

7                   MR. NELSON: Well, starting in  
8                   1960, everybody was badged.

9                   MEMBER BEACH: Everybody, okay. I  
10                  thought I read somewhere --

11                  MR. NELSON: Susan, do you got an  
12                  elaboration on that? Because you worked on  
13                  this particular issue some, so if I'm missing  
14                  some points you want to bring out, jump right  
15                  in there.

16                  MS. WINSLOW: No, actually, you're  
17                  covering things pretty well. You know, if we  
18                  have somebody who worked in the cylinder yard,  
19                  then we're going to give them coworker; we're  
20                  not going to give them environmental.

21                  MR. NELSON: Yes.

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1 MS. WINSLOW: But, you know, if  
2 they talked about working around, outside,  
3 that type of thing, that's when we're going to  
4 look at giving them possibly an environmental  
5 dose. As Chuck mentioned, the 260 millirem per  
6 year.

7 MR. FITZGERALD: Which is  
8 responsive to the first item, which is why you  
9 use 100 meters. More of an environmental  
10 ambient dose.

11 MR. NELSON: Yes, I guess that's a  
12 good point.

13 MR. FITZGERALD: -- the coworker  
14 would be inside the fence.

15 MR. NELSON: We did look at some  
16 more data. They used to do GM readings prior  
17 to, what was it, 1981. They would go around  
18 with a GM side window, and they would do  
19 exposure rates in a lot of different areas.

20 And we looked at some of those  
21 records in this, I believe it was in the

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1 1970s, wasn't it, Susan? And those ranges were  
2 about 14 to 49 millirem for 2000 hours. So we  
3 feel like 260 millirem is pretty claimant  
4 favorable.

5 Then we also looked at several TLD  
6 readings which were --

7 MR. FITZGERALD: I'm sorry, what  
8 was the time period for that 260 millirem? Per  
9 day?

10 MR. NELSON: 260 millirem per year.

11 MR. FITZGERALD: Per year.

12 MR. NELSON: Calendar year.

13 MR. FITZGERALD: Calendar year.

14 This is for incidental?

15 MR. NELSON: That's for an  
16 environmental worker who worked in the  
17 vicinity of cylinders.

18 MR. FITZGERALD: Okay.

19 MR. NELSON: Unmonitored worker,  
20 let's put it that way. So that's pretty  
21 claimant favorable.

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1                   MR. FITZGERALD: And I think the  
2 second part of this was sort of raising the  
3 question if this -- if there was a new policy  
4 for everyone being badged, who was -- who were  
5 these unmonitored workers in the first place?  
6 I guess that was a --

7                   MR. NELSON: I guess I didn't see  
8 that particular question. Let's see --

9                   MR. FITZGERALD: Now, of course,  
10 the question, all workers, who were the  
11 workers that were referred to there? I'm not  
12 sure that included all the support staff.

13                  MR. NELSON: Are you -- you're  
14 going to have to direct me where in the  
15 procedure --

16                  MR. FITZGERALD: 2B.

17                  MR. NELSON: 2B?

18                  MR. FITZGERALD: 2B, on page 40 of  
19 the Site Profile review itself. And this is  
20 listed as issue six in the -- on page 40.

21                  MR. NELSON: Okay.

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1                   MR. FITZGERALD: It has one and  
2 two. We were talking about one. But two talks  
3 about the workers themselves. It says that  
4 during recent years, this area has been posted  
5 as a radiological area which has reduced the  
6 number of unmonitored workers spending any  
7 significant time in the area to zero, which  
8 raises some questions.

9                   You know, what were the criteria  
10 for the designation of who would be monitored  
11 or unmonitored, and given the '62 policy that  
12 all workers were to wear dosimetry at all  
13 times, who were the unmonitored workers this  
14 policy was designed to protect?

15                  MR. NELSON: The only thing that  
16 comes to mind there would be someone that  
17 worked like at the perimeter of the fence, at  
18 the radiological boundary. That's the only  
19 thing I can think of on that. I didn't -- I  
20 don't really have a response prepared for that  
21 part of that question. But that's what comes

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1 to mind to me.

2 MR. FITZGERALD: Maybe it would be  
3 helpful if -- what's her name?

4 MR. NELSO Susan?

5 MR. FITZGERALD: I don't know if  
6 Susan would have more --

7 MS. WINSLOW: Yes?

8 MR. FITZGERALD: Were there  
9 unmonitored workers who would have been, you  
10 know, I guess given the environmental or the  
11 unmonitored worker dose for the cylinder yards  
12 that -- who were they, if in fact after '62,  
13 almost by definition they should have been  
14 badged if they were working at Paducah?

15 MS. WINSLOW: That's true. We  
16 actually approached this very conservatively  
17 in that anyone that we can maximize their  
18 environmental exposure regardless of whether  
19 they were an admin person or a computer  
20 person, anybody that may have traveled through  
21 the site delivering paychecks, and that sort

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1 of thing, we assigned the maximum 260.

2 MR. FITZGERALD: Okay. So really  
3 this gets down to the most broadest -- the  
4 broadest definition of workers.

5 MS. WINSLOW: Correct.

6 MR. FITZGERALD: Okay. Or  
7 employees.

8 MR. NELSON: I think though  
9 sometimes that it might -- it says nothing  
10 about working in a cylinder yard. Do you guys  
11 always give them 260?

12 MS. WINSLOW: I'm sorry, say that  
13 again, Chuck.

14 MR. NELSON: You guys don't always  
15 give them the maximum environmental dose for  
16 an admin worker if they didn't say anything  
17 about the cylinder yard, do you?

18 MS. WINSLOW: Most of the time we  
19 do, unless we need to do a best estimate on  
20 the case.

21 MR. NELSON: That's what I'm

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1 referring to.

2 MS. WINSLOW: Oh, yes. I'm sorry.

3 Yes. If we have to do a best estimate, then we  
4 tweak the environmental down based on a more  
5 reasonable number, not including all the  
6 higher cylinder yard doses.

7 MR. FITZGERALD: I would suggest  
8 that some of that might be just a little bit  
9 clarifying in that section. I think that was a  
10 source of some of the confusion on this. I  
11 mean, what you're saying makes a lot of sense,  
12 but I think -- and, again, this was going back  
13 to the original TBD --

14 MR. NELSON: Right, because I'm  
15 looking in the new one --

16 MR. FITZGERALD: Yes.

17 MS. WINSLOW: Right. And the other  
18 thing too is, we now have Procedure 60, which  
19 addresses onsite environmental doses, and it  
20 addresses how to maximize, how to best  
21 estimate environmental doses, and it does give

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1 some site specific recommendations, as well.

2 MR. FITZGERALD: Okay, what's the  
3 date on that?

4 MS. WINSLOW: That I don't have.

5 MR. FITZGERALD: Okay. Is that  
6 referenced in the 2007 TBD?

7 MS. WINSLOW: Let me check.

8 MR. NELSON: Procedure 60?

9 MR. FITZGERALD: That would help.

10 MR. NELSON: I don't see it in  
11 here.

12 MR. CALHOUN: 6/28/06 is the  
13 effective date of that one. PROC-60.

14 MR. FITZGERALD: Which would have  
15 been just before this review. This is well  
16 before the review. This is a few months before  
17 this review took place, so it's doubtful that  
18 had been reflected. So the next revision, you  
19 would probably cite PROC-060 but maybe provide  
20 some additional clarification on the  
21 cylinders.

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1                   MR. NELSON: We can add that PROC-  
2                   060 in there. I was going to try to quote some  
3                   sections of this environmental TBD. I thought  
4                   I was fairly clear exactly how to assign dose  
5                   to those individuals. I guess the point taken  
6                   here is that we'll put PROC-060 in there and  
7                   whatever, clarify --

8                   MR. FITZGERALD: -- would be  
9                   warranted. Again, this is the 2004 version --

10                  MR. NELSON: Right. You haven't  
11                  evaluated the 2007.

12                  MR. FITZGERALD: Well, you know, I  
13                  ran the matrix in the primaries --

14                  MR. NELSON: Right.

15                  MR. FITZGERALD: -- and I didn't go  
16                  line by line on the secondaries, but I think  
17                  that would be the easy way to see, just make a  
18                  judgment call on that.

19                  MR. NELSON: We'll take -- we'll  
20                  look that over.

21                  MR. FITZGERALD: So I think we're

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1 in agreement in principal at the table, and  
2 just a matter of revisiting the thing at next  
3 revision. This one I think is perhaps  
4 addressed in the 2007. There's no discussion  
5 in the TBD of radionuclide specific  
6 concentrations, aerosol, water, environmental  
7 fate of uranium, radionuclide releases,  
8 burning of contaminant material at onsite  
9 pits.

10 MR. NELSON: What are you on,  
11 number 14, then?

12 MEMBER BEACH: Number 7.

13 MR. FITZGERALD: Number 14 -- issue  
14 7 on page 40 of the Site Profile review.

15 MR. NELSON: What we have here is a  
16 -- the source term at the site is known, and  
17 the ratios of recycled uranium components are  
18 provided in internal section of the Site  
19 Profile, which is also used in the assignment  
20 of environmental internal doses.

21 And that has some discussion like

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1 I said before about a nearly constant wind at  
2 the site contributed to a very effective  
3 diffusion of contamination from releases all  
4 over the small site with no significant  
5 terrain features to channel or moderate the  
6 wind.

7 MR. FITZGERALD: Any characters --  
8 I mean, I think the site, within the air,  
9 soil, and water sampling, I mean, just part of  
10 the environmental -- characterization program.  
11 Is that something that would be in --  
12 referenced or cited?

13 MR. NELSON: I'm unsure about that.

14 MR. FITZGERALD: I mean, I think  
15 that's the root of this issue, is that the  
16 reviewer was aware that there was certainly  
17 monitoring that was done at the site, and some  
18 actual measurements taken, and whether or not  
19 that would be relevant to that TBD.

20 MR. NELSON: So you're referring to  
21 soil, water, and that type.

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1 MS. WINSLOW: Yes, and that data is  
2 contained in most of the environmental reports  
3 that I've seen. It's just I'm not sure how  
4 relative it is to the assignment of dose for  
5 onsite workers.

6 MR. FITZGERALD: See, I think this  
7 has only come up -- I know, at Mound they came  
8 up with soil contamination because of the D&D,  
9 but we haven't been through D&D at Paducah, so  
10 it's not as relevant from that standpoint.  
11 What I would suggest is just leave this for  
12 review. I think it's just -- it's information.  
13 I don't think there's any pressing issue on  
14 the question of validity on this one. I think  
15 it's just information.

16 MR. NELSON: Okay.

17 MR. FITZGERALD: I would leave it  
18 as information and close it. So on  
19 occupational internal, I think there's going  
20 to be some overlap because, again, we get into  
21 Bechtel Jacobs 2001. See if I can navigate

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1 this.

2 This is issue 5. The question of  
3 equations for estimating -- 24 hour excretion.  
4 The basis is spot urine samples. Those -- that  
5 -- those equations are no longer in --

6 MR. NELSON: Right. They got  
7 removed.

8 MR. FITZGERALD: -- so they got  
9 removed. Are they being still used? Are they  
10 in the Paducah site field guidance for dose  
11 reconstructors? I mean, I guess that was the  
12 question because there was some question --  
13 there was some concerns about the -- whether  
14 the equations were correct.

15 MR. NELSON: I think there was an  
16 error in the equation, I think, and it was  
17 removed as far as how they are applied with  
18 tools. Susan, you got an answer to that one?

19 MS. WINSLOW: Not at the moment  
20 because for some reason I can't even find the  
21 equation that was in the old version.

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1                   MR. FITZGERALD: Yes, I don't have  
2 my computer up at the moment, but it's -- I  
3 did check it out, and that's been dropped in  
4 the 2007 version. And the only question is,  
5 and there's no -- there's just a mistake in  
6 the equation, and if it's still being used,  
7 perhaps, as a field guide or something.

8                   You know, the 2007 is streamlined,  
9 I think, as a document, compared with the  
10 2004. Some of these things just drop out.

11                  MR. CALHOUN: 2004, that's the one  
12 we're looking at? Because there's been three  
13 since then.

14                  MR. FITZGERALD: Well, the one we -  
15 - I guess, the one they looked at --

16                  MR. CALHOUN: `04, `06, and then  
17 February of `07.

18                  MR. FITZGERALD: Well, they would  
19 have looked at `04.

20                  MR. CALHOUN: Might want to look --

21                  MR. NELSON: Let's see -- equations

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1 -- let's see where that is. It's for  
2 estimation of 24 hour excretion based on spot  
3 urines. We could probably get back to you on  
4 that one.

5 MR. FITZGERALD: Yes, I mean,  
6 again, it's --

7 MR. NELSON: And we could look and  
8 see what they're using for a tool on that.  
9 We'll get back to you on that --

10 MR. FITZGERALD: Okay.

11 MR. NELSON: -- the best thing to  
12 do --

13 MR. FITZGERALD: And, again, it's  
14 somewhat good because it doesn't show up in  
15 the 2007 TBD, but it sort of also raises the  
16 question when these documents are streamlined,  
17 some of the detailed equations and algorithms,  
18 are they moved to a different location and  
19 still used, or are they -- does the fact  
20 they're deleted means that they're either not  
21 relevant or used that way anymore, and it's

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1 just, you know, raises that question.

2 MR. NELSON: We'll follow up on  
3 that and close that out.

4 MR. FITZGERALD: Same thing with  
5 the next one, which is issue 16, which is, you  
6 know, limited fecal analysis and breath  
7 analyses were performed at Paducah, and  
8 there's no mention of it now.

9 MR. NELSON: Well, to date, we  
10 haven't found any --

11 MR. FITZGERALD: Still haven't  
12 found --

13 MR. NELSON: -- fecal analysis --

14 MEMBER BEACH: Haven't found any?

15 MR. NELSON: No. If we would find  
16 such a -- if we find a, you know, claim with  
17 that in it, we would do it on a case by case  
18 basis.

19 MR. FITZGERALD: All right. Case by  
20 case. Because it wasn't by intention or  
21 omission. It was just, you have not found any

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1 evidence?

2 MR. NELSON: No.

3 MR. FITZGERALD: Okay. That's fine  
4 from our standpoint.

5 MEMBER BEACH: So that one's  
6 closed?

7 MR. FITZGERALD: Yes --

8 MR. NELSON: I think there was a  
9 few -- on the site for fecal. I mean, I've  
10 seen some of that in the PACE document, but  
11 that would be something that we would deal  
12 with on a case by case if we were to get  
13 those.

14 MR. FITZGERALD: Well -- I think  
15 it acknowledges that fecal analysis and  
16 positive breath analysis were very limited at  
17 Paducah, but there's no information provided  
18 in the TBD. Sort of a catch-22. If it wasn't  
19 done very much, maybe it would be relevant to  
20 mention. But, anyway. But I still would close  
21 that.

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1                   Number     17.     Inadequate     and  
2     internally inconsistent discussion -- in vivo  
3     measurements. This is sort of a similar issue.  
4     It wasn't widely performed, but, you know,  
5     should the TBD still provide some information  
6     on the in vivo program, what little there was?

7                   MR. NELSON: We can elaborate on  
8     that. I know there was a table in there that  
9     was kind of confusing in table 5.6, so we plan  
10    on simplifying that table, and we can  
11    elaborate some on that accounting system.

12                  MR. FITZGERALD: Okay, so NIOSH  
13    will elaborate.

14                  MEMBER BEACH: Close that one?

15                  MR. FITZGERALD: No, I think all of  
16    these will be evident in the issuance of the  
17    document.

18                  MR. NELSON: Yes.

19                  MR. FITZGERALD: I think this only  
20    calls for a little bit of elaboration in the  
21    document as to how the in vivo is --

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1 performed.

2           Next issue is number 18, which is  
3 use of unverified bioassay data. And this gets  
4 to a whole bugaboo, which is the verification  
5 of the database itself. And what's cited in  
6 the SC&A review is this Dodd, 2002, where it  
7 notes that the data that's included in the  
8 database -- this is the internal database,  
9 this is going back, again, for eight years --  
10 consists of in vivo data and urine card data.

11           This data has not been through a  
12 verification and validation process. Therefore  
13 it should not be considered a data record. And  
14 I guess the comeback question is, has it been  
15 through V&V since then?

16           MR. NELSON: The data in the file,  
17 they were pulled from databases which  
18 contained official file -- official site  
19 records. The in vivo records are hard copy  
20 records of personnel monitoring results from  
21 the mobile whole body counter and the urine

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1 card data. They were actually five by seven  
2 index cards that contained personal urinalysis  
3 results.

4 And the use of data from official  
5 site records would be applicable to the  
6 development of a coworker. So we felt they  
7 were actually -- when we first got that  
8 historical urinalysis data, it was marked as  
9 unverified. But then we found out that it was  
10 actually an official site record, so we felt  
11 it was good records.

12 MR. FITZGERALD: Yes, but the  
13 question is whether the site actually ended up  
14 verifying before it went ahead and adopted it  
15 into the site records.

16 MR. NELSON: Okay.

17 MR. FITZGERALD: This is sort --  
18 this is sort of, to me, reminiscent of the  
19 chain of custody -- question we get into --

20 MR. NELSON: Okay--

21 MR. FITZGERALD: -- in the

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1 environmental, you know, is the raw data, has  
2 it been V&Ved, validated -- verified and  
3 validated?

4 MR. NELSON: That I don't -- I  
5 don't believe I -- I don't have an answer for  
6 that one. That wasn't what I got out of the  
7 question.

8 MR. FITZGERALD: And I think this  
9 one probably is important to at least be able  
10 to establish that somebody somewhere verified  
11 and validate the database, which is the --  
12 what's being used in dose reconstruction. This  
13 would be the internal --

14 MR. NELSON: Yes, because our  
15 response was basically they were official site  
16 records, and your question is --

17 MR. FITZGERALD: Well, I think the  
18 question's just raised because it was deemed  
19 as unverified at some point, as you were  
20 saying, and it was adopted into the DOE  
21 database, but, you know --

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1 MR. NELSON: Okay.

2 MR. FITZGERALD: -- there's been  
3 instances in the past where, you know, no one  
4 went back to ensure that the hard copy was  
5 transferred into the electronic --

6 MEMBER BEACH: So actually do a --

7 MR. FITZGERALD: Well --

8 MEMBER BEACH: -- line by line --

9 MR. FITZGERALD: -- a sampling to  
10 at least validate that, you know, you have  
11 some assurance that it was done. And this may  
12 just be a record that DOE accomplished it. I  
13 would think they would have.

14 MR. CALHOUN: And if you -- but if  
15 it wasn't, what would you do?

16 MR. FITZGERALD: Well, we're kind  
17 of in a --

18 MR. CALHOUN: With this being an  
19 SEC site, what do you do?

20 MR. FITZGERALD: I don't know --

21 MR. CALHOUN: We could invalidate

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1 the data and just not use any of it.

2 MR. FITZGERALD: It's just  
3 interesting -- but, you know, it's interesting  
4 that, you know, in the public record you have  
5 it's listed as unverified. And the first order  
6 would be to see if somebody did go through and  
7 verify it, and if it turns out there's no  
8 record of that, then you're sort of left with  
9 this, you know, uncertainty about it.

10 MR. NELSON: Okay.

11 MR. FITZGERALD: You're right, on  
12 an SEC thing, that would be --

13 MR. CALHOUN: Yes, I just don't  
14 know --

15 MR. FITZGERALD: -- very first  
16 thing you would do, but still, you know, I  
17 think there's a responsibility to make sure  
18 the data hangs together. I would put this  
19 right up with the contamination issue, so  
20 maybe one of the two issues with this site  
21 that would be important, even though it's an

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1 SEC site, to at least be able to answer, you  
2 know, is the data V&Ved, and, and who did it.

3 So I would leave that open pending  
4 a NIOSH response at the next Work Group  
5 meeting. The final one, which is the -- this  
6 is the -- to me, this is, again, an  
7 enhancement issue, this question of the  
8 selection of distinct time periods. Let's see  
9 if I can find it.

10 MEMBER BEACH: While you're looking  
11 for that, so far we have just three open items  
12 out of this list, 9, 15, and 18? Is that what  
13 -- is that what everybody has?

14 MR. KATZ: You have 9 --

15 MEMBER BEACH: 15 and 19?

16 MR. NELSON: Let's see what I got.

17 MR. KATZ: 15. That's correct.

18 MEMBER BEACH: Okay.

19 CHAIRMAN SCHOFIELD: That's what  
20 I've got.

21 MEMBER BEACH: Just wanted to make

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1       sure.

2                   MR. KATZ: That's correct.

3                   MEMBER BEACH: Thanks.

4                   MR. NELSON: I missed number 9.

5       What was 9? I guess that -- I'll just mark it  
6       on this.

7                   MEMBER BEACH: There are additional  
8       factors that contribute to --

9                   MR. NELSON: Okay. 9, 15, and 18?

10                  MEMBER BEACH: 18.

11                  MR. KATZ: Yes, Elyse is going to  
12       address that at the --

13                  MR. NELSON: Right.

14                  MR. KATZ: -- next meeting.

15                  MEMBER BEACH: Right.

16                  MR. KATZ: Issue 9.

17                  MR. NELSON: I think what you were  
18       looking for, Joe, is on page 45.

19                  MR. FITZGERALD: Yes, I got it here  
20       finally. This goes back to Ikenberry, and the  
21       way he sort of splits the bioassay results

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1 into two periods, from '52 to '88, and the  
2 question was there was no explanation why that  
3 was done, I guess, is the biggest reason.

4 And, certainly, the reviewer here  
5 posits you could do -- actually argue for  
6 three distinct periods, so, you know, I guess,  
7 stepping back from it, I wasn't quite sure,  
8 you know, what the significance was either  
9 way. But nonetheless, it does raise some  
10 questions.

11 MR. NELSON: Okay. It says there's  
12 apparently a obvious separation in data, in  
13 attachment A of TIB-37, early in 1980. And  
14 looking at table A1, it's not until 1980 the  
15 data consistently decreases for both 50th and  
16 84th percentile.

17 And although the data drops  
18 somewhat in 1951, as SC&A pointed out, it's a  
19 relatively small drop, that's followed by an  
20 increase later. The current coworker data as  
21 calculated appears to be sufficient and

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1 provides favorable coworker evaluation.

2 MR. FITZGERALD: Yes, I think,  
3 again, it was simply wanting to understand  
4 better why that particular split because, if  
5 you split it three ways, the, the 50th  
6 percentile -- 4th percentile provide rather  
7 different answers. For '52 to '59, '59 to '80,  
8 and '80 to '88.

9 I guess it comes down to whether  
10 you're seeing distinct differences between  
11 those chronic time periods, chronic intake  
12 time periods, and what implications that has  
13 for dose estimation.

14 MR. NELSON: Well, I don't have a  
15 great answer for that.

16 MR. FITZGERALD: No, I think most  
17 of it just comes to -- Ikenberry split it two  
18 ways and -- but didn't really provide much of  
19 an explanation why it was laid out that way.  
20 And the reviewer kind of played around with  
21 it, found that if you did it based on, you

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1 know, obvious differences in the urinalysis  
2 results, you would actually, in his view, come  
3 up with three periods where you have what  
4 looks like a -- distinct patterns.

5 Now where I fall short is figuring  
6 out what difference that makes in the final  
7 analysis, you know, if you did it using these  
8 three time periods versus the two. And that  
9 part -- that's why I made it a secondary  
10 issue. I'm not sure in the final analysis  
11 whether it makes a big difference.

12 But I think it goes back to  
13 explaining why -- this may be moot. I don't  
14 know, does this carry forward? I didn't verify  
15 --

16 MR. NELSON: Based on our -- my  
17 understanding of the coworker, I'm not sure  
18 that it's even carried forward.

19 MR. FITZGERALD: Yes, I -- that  
20 would be the first thing because I think this  
21 is a little confusing as to why, although I

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1 think it's for the same reason that they offer  
2 two distinct chronic intake periods. So if a  
3 worker fell into one period versus another,  
4 you would apply different mean value for the  
5 50th and 84th.

6 MR. NELSON: I am not 100 percent  
7 on that. Page 45.

8 MR. FITZGERALD: So I, you know, I  
9 think it affects the assignment, but I'm not  
10 sure whether it makes a big difference in the  
11 end. That'd be useful to look at. I would hold  
12 this open, just, you know, get a -- maybe an  
13 explanation as to, one, is it carried forward  
14 because, again, how that's treated in the  
15 revision would be the relevant question.

16 And then whether the three time  
17 periods versus the two with Ikenberry's  
18 proposal, whether that would be a big deal or  
19 not.

20 MR. NELSON: Okay.

21 MR. KATZ: Okay, so this one's

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1 open?

2 MR. FITZGERALD: Yes, I think we  
3 can bring it up next time. And it may have  
4 been superceded with the new approach.

5 MR. NELSON: We have, what, 19 18?

6 MR. FITZGERALD: 9 -- 18, 19. 4?

7 MR. FITZGERALD: Correct.

8 MR. NELSON: Okay.

9 MEMBER BEACH: So far.

10 MR. FITZGERALD: That was -- that  
11 was my --

12 MEMBER BEACH: Oh, we're not doing  
13 -- we're not doing Oak Ridge. Okay.

14 CHAIRMAN SCHOFIELD: No.

15 MEMBER BEACH: That's right.  
16 Nevermind. I keep trying to give you those, so  
17 you --

18 MR. FITZGERALD: And just to  
19 complete that, for the primaries, I have five  
20 -- 9 and 11 are combined. Same issue.

21 MR. KATZ: Right, although those

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1 are in abeyance? Those aren't really --

2 MR. FITZGERALD: Well, abeyance --

3 MR. KATZ: -- those aren't really  
4 open.

5 MR. FITZGERALD: Yes, I got  
6 abeyance. Let's see, 15?

7 MR. NELSON: 15, yes.

8 MR. FITZGERALD: Okay. It should be  
9 in abeyance, and close, closed. 15 is -- is  
10 open.

11 MR. KATZ: 15 is open. The other  
12 one's in abeyance, meaning everyone's agreeing  
13 on it, it's just --

14 MEMBER BEACH: 16 is an SC&A  
15 actually.

16 MR. FITZGERALD: Right, right.

17 MR. NELSON: How'd that go, Ted?  
18 The abeyance?

19 MR. KATZ: So, abeyance, when we  
20 put it in -- we close ones where we're  
21 completely clear on the solution and we agree.

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1 Abeyance is an issue where we think we agree,  
2 but we do want to see the final written  
3 response, or change, whatever it might be.

4 MR. NELSON: Okay.

5 MR. KATZ: So that's what abeyance  
6 means.

7 MR. FITZGERALD: The ones I have  
8 open are 5, 15 -- no, no. Just those two. And  
9 then SC&A has --

10 MEMBER BEACH: SC&A has 16, but 17  
11 was open. NIOSH was going to do OTIB-37 -- is  
12 what I have. And then 19.

13 MR. KATZ: 17 is in abeyance,  
14 though --

15 MEMBER BEACH: That's in abeyance?  
16 Okay.

17 MR. KATZ: Yes, it's not open. Yes,  
18 17 is in abeyance. 19 was closed.

19 MR. NELSON: I thought we took care  
20 of 17.

21 MR. KATZ: You were going to

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1 clarify the statistical basis, so --

2 MR. NELSON: Okay.

3 MR. KATZ: -- that's why. But  
4 that's pretty close to being settled.

5 MEMBER BEACH: Okay.

6 MR. FITZGERALD: Yes, I have 5 and  
7 15. And --

8 MR. KATZ: Yes so, right. You're  
9 right, Chuck. 17, we ultimately had in  
10 abeyance and we simply closed. We agreed on --  
11 we understand it. So it's closed. You do need  
12 to add some language to the --

13 MEMBER BEACH: I thought there was  
14 something --

15 MR. FITZGERALD: On 16, SC&A agreed  
16 that we would validate that the PACE 2001  
17 document --

18 MR. KATZ: Right.

19 MR. FITZGERALD: -- includes the  
20 incidents, and that's 16.

21 MR. KATZ: Right, that one is in

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1 abeyance.

2 MR. FITZGERALD: Right, and --

3 MEMBER BEACH: And 19, I just have  
4 that table, that 6.1. You were already --

5 MR. FITZGERALD: 19 is closed, but  
6 we're going to complete that table relative to  
7 the issue that Hans raised, which was left  
8 out, and NIOSH is going to respond.

9 MR. KATZ: Yes.

10 MR. FITZGERALD: But at the table I  
11 think we agreed on the response -- so that's  
12 more of an abeyance. So, really, only two  
13 actions and several abeyances.

14 MR. KATZ: Yes, 19 is closed,  
15 actually, that's right.

16 MR. FITZGERALD: So 5 and 15 were  
17 the two that were -- that are over on the  
18 primaries. The two primaries and four  
19 secondaries. Good. And what I'll do is I'll go  
20 ahead and take a crack at this and circulate  
21 it, and you can, you know, revise it, and, you

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1 know, we'll finalize it.

2 MR. NELSON: Okay.

3 MR. KATZ: Sounds good.

4 MR. FITZGERALD: For the next --  
5 while it's still fresh.

6 MEMBER BEACH: Do we want to try  
7 and set something for March?

8 MR. KATZ: We can. Who are we  
9 missing -- Andy, are you on the phone?

10 MEMBER BEACH: Andy?

11 MR. NELSON: Yes, we won't be done  
12 until the end of March, so it might want to be  
13 April --

14 MR. KATZ: We might want to wait,  
15 then.

16 CHAIRMAN SCHOFIELD: Yes, we'll  
17 wait.

18 MR. KATZ: Schedule that far out,  
19 let's wait and see how things come.

20 MR. NELSON: What do you think  
21 about -- do we want to combine sites in one

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1 meeting? Because it would get very confusing  
2 for me. I have a hard enough time with one  
3 site. So --

4 MR. KATZ: I mean, yes, I mean,  
5 ideally we'd do both K-25 and --

6 MR. NELSON: They're going to get  
7 more complex.

8 MR. FITZGERALD: We can separate  
9 during the -- like do --

10 MR. KATZ: During the meeting, yes  
11 --

12 MR. FITZGERALD: -- during the  
13 meeting, just do one site at a time.

14 MR. KATZ: Yes.

15 MR. NELSON: Right.

16 MR. FITZGERALD: Maybe in the  
17 morning it could be --

18 MR. NELSON: I think K-25's going  
19 to take a while. I think there's some issues  
20 we've got to work through, from what I'm  
21 hearing, anyways.

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1                   MR. KATZ: That's fine, and if it's  
2 clear that it's way too much work for one day,  
3 we can have a two day meeting, too.

4                   MR. NELSON: Okay. I was just  
5 trying -- I like to -- to be able to put my  
6 arms around it, and we've got one person and  
7 you're trying to cover two entire facilities,  
8 and --

9                   MR. KATZ: Yes.

10                  MR. NELSON: -- it's a bit  
11 overwhelming.

12                  MR. FITZGERALD: It might be  
13 worthwhile having two days and have the  
14 followup on this --

15                  MR. NELSON: Right, and maybe with  
16 Portsmouth --

17                  MR. FITZGERALD: -- go into the  
18 other site and save this third site for the  
19 next day, just to --

20                  MR. NELSON: Yes, that would be my  
21 suggestion, or what I would --

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1                   MR. KATZ: Sure, and if you find  
2                   that you're going to be ready on one site far  
3                   before the other site, we can then just meet  
4                   on that one site and wrap this stuff up.

5                   MEMBER BEACH: One's almost ready,  
6                   right? Didn't you say Oak Ridge was close --

7                   MR. NELSON: Yes.

8                   MEMBER BEACH: -- maybe.

9                   MR. NELSON: No, not Oak Ridge --

10                  MEMBER BEACH: Not Oak Ridge.

11                  MR. NELSON: Portsmouth.

12                  MEMBER BEACH: Portsmouth.

13                  CHAIRMAN SCHOFIELD: Portsmouth.

14                  MR. NELSON: That's the order we  
15                  went in, Paducah, Portsmouth, K-25.

16                  MR. KATZ: Is Portsmouth a day's  
17                  worth of work, or is it --

18                  MR. NELSON: I believe it is.

19                  MR. KATZ: We could have a meeting  
20                  just to close out these and do Portsmouth.

21                  MR. NELSON: Right.

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1                   MR. KATZ: And then wait for K-25  
2                   until after March, so, in which case, we could  
3                   book this one if you want to. If you -- when  
4                   will you be ready for Portsmouth?

5                   MR. NELSON: I would say February.

6                   MR. KATZ: In February?

7                   MR. NELSON: Yes.

8                   MR. KATZ: From the beginning of  
9                   February forward?

10                  MR. NELSON: Yes.

11                  MR. KATZ: Okay.

12                  MEMBER BEACH: We have a LANL  
13                  meeting on the 11th. If there's nothing on the  
14                  --

15                  MR. KATZ: We don't have Andy, so  
16                  we can't really settle this.

17                  MR. FITZGERALD: By email, I mean,  
18                  if we know that much, we could do it by email.

19                  MEMBER BEACH: Yes. Yes, that's  
20                  true. Sometimes, you just, but, you know, if  
21                  we don't have Andy --

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1                   MR. KATZ: Well, let me check with  
2                   you, you guys, though, because it will make it  
3                   simpler if we just have one person to  
4                   schedule. So let's look at February.

5                   CHAIRMAN SCHOFIELD: February.

6                   MR. KATZ: So we have the Board  
7                   meeting the 23rd through the fifth, so we want  
8                   to stay away from that. And the week before  
9                   that, you know, this is not a meeting that's  
10                  necessary for that Board meeting, so I'd like  
11                  not to -- to book too much for the week --

12                  MEMBER BEACH: We have Fernald on  
13                  the 8th --

14                  CHAIRMAN SCHOFIELD: Fernald on the  
15                  8th, yes.

16                  MEMBER BEACH: And we have LANL on  
17                  the 11th, so the 10th would be an obvious  
18                  choice.

19                  CHAIRMAN SCHOFIELD: Thanks.

20                  MEMBER BEACH: For those of us that  
21                  just have to come in and leave. The rest of

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1       you --

2                   CHAIRMAN   SCHOFIELD:   Yes,   well,  
3       see, I've got Fernald on the 8th.

4                   MEMBER BEACH: Right.

5                   CHAIRMAN SCHOFIELD: And so nothing  
6       on the 9th and then the 10th.

7                   MEMBER BEACH: Well, that's what I  
8       mean. That's why it's an obvious choice, so  
9       people that are stuck here anyway won't be  
10      free on the 10th with nothing to do.

11                  MR. KATZ: So, Phil is saying he'd  
12      be stuck on the 9th.

13                  CHAIRMAN   SCHOFIELD:   Yes,   well.  
14      Actually, you know, if we move Fernald -- it  
15      might be possible to move it to the 9th, and  
16      we could just have 9th, 10th, 11th.

17                  MR. KATZ: Well, there's probably a  
18      reason why they aren't together right now.

19                  MR. FITZGERALD: Sort of an all  
20      uranium extravaganza.

21                  CHAIRMAN SCHOFIELD: Yes.

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1                   MEMBER BEACH: Yes, that seems kind  
2 of odd to have one on the --

3                   CHAIRMAN SCHOFIELD: Served on the  
4 half shell.

5                   MEMBER BEACH: -- the 8th and the  
6 11th.

7                   MR. KATZ: Well, it's not odd  
8 because it's -- it's because someone has a  
9 conflict because we generally start with  
10 adjacent dates and then move out from there.  
11 Okay, so --

12                  CHAIRMAN SCHOFIELD: You've got to  
13 be here on the 11th -- Josie?

14                  MR. KATZ: So what about the --  
15 wait, you don't want the 7th, Josie, because  
16 you don't want to travel on the --

17                  MEMBER BEACH: No. Well, and I'm  
18 going to be here on the 11th, too, so. Try to  
19 avoid flying twice in one week, if I can.

20                  MR. KATZ: Yes. Well, maybe we  
21 should --

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1                   MR. NELSON: Can we get it out to  
2                   March, then? Or is that too much -- too far  
3                   away? This will give us a little time to, I  
4                   mean, this is all, maybe some new stuff we got  
5                   to do here.

6                   MR. KATZ: What about --

7                   MR. NELSON: Then we got to bring  
8                   in everything from --

9                   MR. KATZ: No, I understand. What  
10                  about the week after the Board meeting? It's  
11                  the last part of February and the first part  
12                  of March? I note that week, that whole week is  
13                  fine, as far as I'm concerned. So what about  
14                  the first of March? Does that work for  
15                  everybody?

16                  CHAIRMAN SCHOFIELD: That works.

17                  MEMBER BEACH: How about the 4th?

18                  CHAIRMAN SCHOFIELD: Won't be on  
19                  the 4th, I'll be on travel --

20                  MR. KATZ: The 4th will mean you're  
21                  traveling on Saturday. The 4th of March is a

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1 Friday. So let's try for March 1st, and I'll  
2 check with Andy, and if March 1st doesn't --  
3 so you folks are good for March 2nd, too, or -  
4 -

5 MEMBER BEACH: Yes.

6 CHAIRMAN SCHOFIELD: Yes.

7 MR. KATZ: March 3rd, even? Is that  
8 true?

9 MEMBER BEACH: Yes.

10 CHAIRMAN SCHOFIELD: Yes.

11 MR. KATZ: Okay. So, I'll try for  
12 1st, and use 2nd or 3rd as possibilities, too,  
13 with Andy. We'll see.

14 CHAIRMAN SCHOFIELD: Because I  
15 guarantee on the 5th on that week I won't be  
16 available. I'll be in the Caribbean.

17 MEMBER BEACH: Nice.

18 MR. FITZGERALD: Just make sure you  
19 have a speakerphone.

20 CHAIRMAN SCHOFIELD: My wife would  
21 throw me overboard. Find some little hunky

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1 thirty year old guy there.

2 MR. KATZ: Are we adjourned with  
3 that great comment?

4 CHAIRMAN SCHOFIELD: Okay, yes. The  
5 1st or 2nd.

6 MR. KATZ: Are we adjourned?

7 CHAIRMAN SCHOFIELD: Yes, we're  
8 adjourned.

9 MR. KATZ: Okay. Thank you,  
10 everyone, for hanging with us on the phone.  
11 Have a good day.

12 (Whereupon, the above-entitled  
13 matter went off the record at 2:21 p.m.)

14

15

16

17

18

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