

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

convenes the

WORKING GROUP MEETING

ADVISORY BOARD ON  
RADIATION AND WORKER HEALTH

VOL. I

ROCKY FLATS

The verbatim transcript of the Working Group Meeting of the Advisory Board on Radiation and Worker Health held telephonically on April 12, 2006.

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April 12, 2006

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

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-- ^ indicates failure in speech, often due to phone service in this case.

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

(10:00 a.m.)

**WELCOME AND OPENING COMMENTS****DR. LEWIS WADE, DFO**

1                   **DR. WADE:** So again this is Lew Wade, welcome.  
2                   This is a meeting of the working group of the  
3                   Advisory Board. This is the working group  
4                   again that looks at site profiles, individual  
5                   dose reconstruction reviews, procedures  
6                   reviews. Recently, they've looked  
7                   extensively, this working group has looked  
8                   extensively at site profiles related to Y-12  
9                   and Rocky Flats. And then the Board has asked  
10                  them, based upon that experience, to pick up  
11                  and look at SEC petition activity with regard  
12                  to Y-12. That we did yesterday, and Rocky  
13                  Flats, that we're doing today.

14                  NIOSH has recently issued a petition  
15                  evaluation report on Rocky Flats that's in the  
16                  hands of all on the working group and on this  
17                  call hopefully. And we're looking at the  
18                  possibility of a presentation of that  
19                  evaluation report to the Board at the Board's

1 meeting at the end of April in Denver,  
2 Colorado.

3 What I'd like to do, a couple of  
4 things, is again we want to be mindful of not  
5 having a quorum of the Board. I really don't  
6 think that's an issue today, but we'll  
7 identify Board members on the call now. And  
8 we've asked in the recently sent e-mail that  
9 Board members identify themselves when they do  
10 come on so that we avoid a quorum. Again, I  
11 don't think that's an issue.

12 With regard to conflict of interest I  
13 would like to have our normal conflict of  
14 interest discussion. That would be my sharing  
15 you the realities of the Board and the Board  
16 members. And then we would ask SC&A, NIOSH  
17 and the broad NIOSH team which would include  
18 ORAU and other contractors to clearly identify  
19 who's on the call and if any of those  
20 individuals have a conflict with regard to  
21 Rocky Flats.

22 As is our custom we hope that  
23 petitioners will join us on these calls, and  
24 we give petitioners free license to speak as  
25 they think is appropriate. While we won't be

1           having a public comment period, we do  
2           certainly welcome petitioner comments as they  
3           think those comments are appropriate.

4                       With regard to Rocky Flats at this  
5           point based upon the determinations that exist  
6           for Board members, there are no Board members  
7           who are conflicted on Rocky Flats. And I  
8           would then ask the NIOSH team to identify  
9           themselves and to state any conflicts that  
10          might exist.

11                     (Whereupon, the working group teleconference  
12           was interrupted by phone problems.)

13                     **DR. WADE:** Well, I won't repeat my wonderful  
14           introduction although I'm sure you would all  
15           love to hear it again, but I'll spare you that  
16           and we'll go now to the NIOSH team including  
17           ORAU. We'll identify who's on the line and  
18           identify those individuals who are conflicted  
19           on Rocky Flats.

20                     **DR. ULSH:** This is Brant Ulsh in Cincinnati  
21           with NIOSH. I am the lead on NIOSH's  
22           evaluation of the Rocky Flats SEC petition. I  
23           have no conflicts at Rocky Flats. I also have  
24           in the room with me some members of the ORAU  
25           team, Karin Jessen who took the lead in

1 preparing the evaluation report. Karin has no  
2 conflicts at Rocky. I also have Jim Langsted  
3 and Roger Falk who are here in the capacity of  
4 site experts. They do have long working  
5 histories at the site.

6 **DR. NETON:** This is Jim Neton, NIOSH, I have  
7 no conflict at Rocky Flats.

8 **MR. ALLEN:** And this is Dave Allen at NIOSH,  
9 and I have no conflicts at Rocky.

10 **MR. ELLIOTT:** Larry Elliott, NIOSH, I have  
11 no conflicts with Rocky Flats.

12 **DR. WADE:** Other NIOSH --

13 **MR. KATZ:** Ted Katz at NIOSH, no conflicts.

14 **MS. HOMOKI-TITUS:** This is Liz Homoki-Titus  
15 of Health and Human Services, and I have no  
16 conflicts.

17 **MR. SUNDIN:** This is Dave Sundin, NIOSH, no  
18 conflicts.

19 **MS. HOWELL:** Emily Howell, Health and Human  
20 Services, no conflicts.

21 **MR. RAFKY:** Michael Rafky, HHS, no  
22 conflicts.

23 **MR. MEYER:** Bob Meyer --

24 **DR. WADE:** Go ahead.

25 **MR. MEYER:** Bob Meyer with NIOSH/ORAU. I

1 have never worked on a contract with the DOE,  
2 and I have not worked at Rocky Flats.

3 **MR. LITTLE:** Craig Little with the ORAU  
4 team. I have no conflicts with Rocky Flats.

5 **DR. WADE:** We didn't hear your name, sir.  
6 I'm sorry.

7 **MR. LITTLE:** Craig Little.

8 **MR. ROBINSON:** Al Robinson, NIOSH team, I  
9 don't have any conflicts.

10 **MR. SHARFI:** Mutty Sharfi, ORAU team, no  
11 conflicts.

12 **MR. SMITH:** And this is Matthew Smith, ORAU  
13 team, no conflicts.

14 **MS. BRACKETT:** Liz Brackett with the ORAU  
15 team, no conflicts.

16 **MR. MCFEE:** Matt McFee, ORAU team, and no  
17 conflicts.

18 **MR. FIX:** Jack Fix, ORAU team, I don't  
19 believe I have a conflict.

20 **MR. POTTER:** Gene Potter with the ORAU team,  
21 and I worked at the site for about ten years.

22 **MR. HERNBERGER:** This is David HERNBERGER,  
23 ORAU team, I have no conflict.

24 **MR. LOCHAMY:** This is Joe Lochamy, ORAU  
25 team, no conflict.

1           **DR. WADE:** Anybody else on the broad  
2 NIOSH/ORAU team?

3           (no response)

4           **DR. WADE:** SC&A?

5           **DR. MAURO:** This is John Mauro, no conflict.

6           **MR. FITZGERALD:** This is Joe Fitzgerald, no  
7 conflict.

8           **DR. MAKHIJANI:** This is Arjun Makhijani, no  
9 conflict.

10          **DR. BEHLING:** Hans Behling, no conflict.

11          **DR. WADE:** Okay, Mark, I think that  
12 concludes the preliminaries.

13          **INTRODUCTION BY MR. GRIFFON**

14          **MR. GRIFFON:** Okay, and I think the way  
15 we're going to proceed is if anyone was on the  
16 call yesterday I think that worked pretty  
17 well. I'd like to have Brant Ulsh go through  
18 the evaluation report and then give us sort of  
19 an overview, a summary, of the evaluation  
20 report. And then after that --

21          **MS. HOMOKI-TITUS:** Mark, I'm sorry, this is  
22 Liz. I'm sorry to interrupt, but I wanted to  
23 give a brief Privacy Act reminder for  
24 everyone.

25          **MR. GRIFFON:** Sure, go ahead.

1           **MS. HOMOKI-TITUS:** Just to remind everyone,  
2           ORAU, SC&A, NIOSH, the Board, the people who  
3           are on the call that these SEC petitions are  
4           still protected by the Privacy Act including  
5           the information, affidavits and everything  
6           that's included in them. So that information  
7           should not be shared publicly. Just wanted to  
8           remind everyone that we're still bound by the  
9           Privacy Act even though it's an SEC petition.  
10          That was all.

11          **MR. GRIFFON:** And the evaluation report  
12          itself, Liz, has no Privacy information in it  
13          because it's been reviewed for Privacy.

14          **MS. HOMOKI-TITUS:** Yes, it's been reviewed  
15          for Privacy, that's fine.

16          **MR. GRIFFON:** So that's fair to send it to  
17          the --

18          **MS. HOMOKI-TITUS:** Yes, and that's --

19          **DR. ULSH:** Brant, some of the comments do  
20          deal with affidavits from the petition.

21          **MR. GRIFFON:** Right.

22          **DR. ULSH:** I mean, they're not, they don't  
23          contain personal identifiers, but --

24          **MS. HOMOKI-TITUS:** Right, and that's fine.  
25          As long as there's no personal identifiers

1 that's what we're protecting. But I just want  
2 to remind everyone that the information in the  
3 petition itself is protected, that the  
4 affidavits in the petition are protected.

5 **MR. GRIFFON:** I think any comments in the  
6 matrix or in your response, Brant, we were  
7 careful just to not mention any names anyway.

8 **MS. HOMOKI-TITUS:** Yeah, names, social  
9 security numbers, dates of birth.

10 **MR. GRIFFON:** Right.

11 **MS. HOMOKI-TITUS:** Identifying information  
12 that could identify the person who provided  
13 it.

14 **MR. GRIFFON:** Yeah, I don't know, again, the  
15 matrix has not been reviewed for Privacy. I  
16 don't know if inadvertently by the description  
17 of incidents or, you know, the scenarios  
18 within the affidavit if we inadvertently  
19 identified someone that --

20 **DR. WADE:** Liz, why don't you stay very  
21 cautious through the discussions.

22 **MS. HOMOKI-TITUS:** I will.

23 **DR. WADE:** If you see anything then let us  
24 know.

25 **MS. HOMOKI-TITUS:** Thank you.

1           **DR. WADE:** Could we also have other Board  
2 members identify themselves just so I could be  
3 sure on the record of quorum issues.

4           **MR. GRIFFON:** I'm sorry; I should have done  
5 that. And this is Mark Griffon chairing the  
6 work group.

7           **MS. MUNN:** Wanda Munn, no conflicts, Board  
8 group.

9           **DR. WADE:** No other Board members?

10           (no response)

11           **DR. WADE:** Okay, what about other federal  
12 employees on the line?

13           (no response)

14           **DR. WADE:** And petitioners?

15           (no response)

16           **DR. WADE:** Okay, Mark.

17           **MR. GRIFFON:** So I think we'll do similar to  
18 what we did yesterday. If Brant could give an  
19 overview of the evaluation report itself, just  
20 sort of a roadmap for it. And then we could  
21 go from there into the matrix. I've updated  
22 the matrix and sent it out. I hope that  
23 everyone involved has it. I sent it to  
24 usually one, I sent it to one person in SC&A,  
25 I believe, and I sent it to Jim Neton. I was

1 hoping that that would be forwarded from there  
2 to the appropriate people. If not, maybe you  
3 could be doing that this morning.

4 And the matrix, I just want to step  
5 through those items to make sure that any  
6 outstanding actions have either been addressed  
7 in the evaluation report or NIOSH will address  
8 them between now and the Board meeting  
9 hopefully.

10 **MS. MUNN:** Just to be doubly sure, we are,  
11 however, still working from the matrix that's  
12 dated March 28<sup>th</sup>, correct?

13 **MR. GRIFFON:** We are working from -- you're  
14 going to make me pull it up here, Wanda. The  
15 one I sent out the other night. It should be  
16 dated March 28<sup>th</sup> meeting, right?

17 **MS. MUNN:** Right, all right.

18 **MR. GRIFFON:** So it's the matrix which  
19 resulted from the last work group meeting,  
20 correct. And then after the matrix at the end  
21 of the matrix I think Brant has some sample  
22 DRs that he just forwarded, and maybe he could  
23 do similar to what Jim did yesterday which is  
24 step through those examples. All of us have  
25 just received them basically so I think just

1 to give us a sense of how they were done, what  
2 they covered, an overview of the cases that  
3 are provided.

4 And I guess that's it. I think we can  
5 start with an overview of the report.

6 **SEC PETITION EVALUATION REPORT**

7 **DR. ULSH:** Here's a quick summary of the  
8 evaluation report for the Rocky Flats SEC  
9 petition. There were over 200 pages that were  
10 supplied by the petitioner in the original  
11 petition. They also supplied over 500 pages  
12 in a supplement, an addendum, to the petition.

13 The petitioner cited seven bases for  
14 the petition, the first of which was exposure  
15 to high-fired plutonium oxides or Super-S  
16 material. The second was inability to link  
17 exposures to specific incidents. The third  
18 was periods of inadequate monitoring and lack  
19 of monitoring and also changes in  
20 methodologies and inconsistency of procedures.  
21 The fourth was unmonitored exposures surfacing  
22 over time. Now these four bases were  
23 qualified according to the regulation so those  
24 are the qualified bases for the petition.

25 There were three more bases which were

1 not qualified. Those were negative effects of  
2 site closure on the accuracy of dose  
3 reconstruction and worker recall monitoring  
4 programs going away, and also plutonium being  
5 linked to cancer. Those last three were not  
6 qualified bases.

7 So to summarize the first four, the  
8 bases that did qualify, the short version is  
9 periods of inadequate monitoring, lack of  
10 monitoring, and/or changes in methodology and  
11 procedures over the history of the Rocky Flats  
12 plant which the petitioner asserted make  
13 accurate dose reconstruction over time  
14 impossible.

15 Some examples that they provided  
16 include no routine lung counting until the  
17 late 1960s, no monitoring for neutron  
18 radiation prior to the late 1950s, and neutron  
19 measurements found to be in error until the  
20 1970s, and the impossibility of accurate dose  
21 reconstruction for high-fired plutonium oxide  
22 or Super-S material.

23 And the petitioner requested that all  
24 represented members past and current of the  
25 United Steelworkers of America Local 8031 and

1           its predecessors who have worked at all of the  
2           facilities at Rocky Flats plant between April  
3           of 1952 and February 15<sup>th</sup> of 2005 be included  
4           in the class.

5                        NIOSH expanded that class to include  
6           all employees of the Rocky Flats plant  
7           regardless of union membership. That is any  
8           worker who worked at Rocky Flats between April  
9           1952 through February 2005. This class, NIOSH  
10          decided to expand this class because we  
11          determined that it would not be feasible to  
12          segregate union from non-union workers at the  
13          site with respect to their work and their  
14          exposures.

15                       Just a real brief overview of the  
16          Rocky Flats mission. The primary mission was  
17          production of plutonium triggers or PITs for  
18          nuclear weapons, and they also did processing  
19          of retired weapons for plutonium recovery.  
20          The evaluation report summarizes the  
21          development chronology of the key facilities,  
22          including operations and approximate date of  
23          operation start up.

24                       The next big topic covered in the  
25          evaluation report is internal monitoring. And

1 potential sources of internal exposure,  
2 significant sources at Rocky Flats include  
3 plutonium, americium, enriched and depleted  
4 uranium and the primary mode of exposure would  
5 have been chronic or acute inhalation or  
6 through wounds, breaks in the skin.

7 The primary bioassay data that is  
8 available for dose reconstruction is  
9 urinalysis. And the intake exposure record  
10 for a typical worker consists of bioassay data  
11 and reports of incidents and accidents that  
12 the worker may have been involved in, and/or  
13 special situations. In some cases nasal  
14 smears served as supplementary data. These  
15 were largely screening-type measurements to,  
16 that were used in (inaudible).

17 Fecal sampling was available in some  
18 cases. It was intermittent while site  
19 operations were active. The fecal samples  
20 served primarily as a means to verify an  
21 intake and to evaluate clearance rates. Fecal  
22 sampling was also used to quantify a suspected  
23 intake in some cases.

24 The next topic is external monitoring,  
25 and like most other DOE sites, the technology

1 for external monitoring evolved over time from  
2 the beginning of the Rocky Flats plant  
3 operation. The dosimetry evolved from the use  
4 of film badges in the early years to TLDs.  
5 And that switch from film to TLDs occurred in  
6 the 1969, 1970 timeframe. Neutron dosimetry  
7 consisted of neutron track plates in the early  
8 years and later NTA films. And in 1971, the  
9 NTA film was replaced with TLDs. The badge  
10 exchange frequency was based on the potential  
11 for external dose.

12 Now dosimetry records, dosimetry  
13 records are available for the entire  
14 operational period of the Rocky Flats plant.  
15 There were several electronic databases that  
16 were used over the history of the site, the  
17 first of which was the Health Sciences  
18 Database. That was used from the years 1976  
19 to 1990. The next one was the Radiological  
20 Health Record System, and that was, that  
21 covered the years 1990 through 1999. And  
22 finally, the HIS-20 Database, Health Physics  
23 Information System. And that covers the years  
24 1999 through 2005.

25 I should point out to you that as

1           these systems were upgraded, these electronic  
2           databases, the data that was contained in a  
3           database was migrated to the system that  
4           replaced it.

5           Next, CER provides evaluation of major  
6           topics in the petition. All seven of the  
7           bases brought up by the petitioner are  
8           addressed and discussed in Section 7.5 of the  
9           evaluation report. And in addition, nine  
10          specific statements by the petitioners are  
11          discussed. The petitioner also supplied 22  
12          affidavits. However, the majority of the  
13          affidavits deal with lack of monitoring.  
14          NIOSH decided to discuss nine of the  
15          representative affidavits explicitly.

16          Other general concerns raised by the  
17          petitioners are discussed, and these include  
18          the use of lead aprons and their possible  
19          effects on dosimetry, improper control badge  
20          storage, and we also discussed the three major  
21          fires that occurred over the history of Rocky  
22          Flats. Those occurred in 1957, 1965 and 1969.

23          And that is the nickel tour of the  
24          evaluation report.

25          **MR. GRIFFON:** Brant, can I ask you to, on a

1 couple of the topics, if I could ask you to  
2 expand a little maybe on the processes. You  
3 hit on the major processes. There was also  
4 some thorium processing and americium recovery  
5 work that were kind of separate from those  
6 main ones you mentioned. Can you explain the  
7 thorium and americium?

8 **DR. ULSH:** The americium is probably the,  
9 that started in, let's see, I think 1957 if my  
10 memory serves me correctly. And that was  
11 separating americium from plutonium. In the  
12 early years, let's see, I don't remember  
13 exactly what process they used. I think it  
14 was a -- well, I would be guessing. But they  
15 did that in 1957 up to I believe 1967 when  
16 they implemented the molten salt extraction  
17 process. And that was used over the next  
18 several years. I'm looking at Jim Langsted to  
19 see if he's got the -- when did that end, Jim?

20 **MR. LANGSTED:** I don't have that  
21 information.

22 **DR. ULSH:** Don't know? Okay.

23 That started in '67 and operated for a  
24 number of years. In 1973, okay, in 1973, that  
25 was replaced with a cation exchange procedure.

1 And the process underwent another major change  
2 in 1975 when ammonium thiocyanate steps were  
3 eliminated. By the way, Mark, this is  
4 described on page 20 of the ER, 5.2.2, I  
5 believe.

6 **MR. GRIFFON:** Yes, I did see it briefly,  
7 yeah.

8 **DR. ULSH:** Yeah, that's the americium.

9 Now with regard to thorium --

10 **MR. GRIFFON:** I guess the question there was  
11 there wasn't necessarily any separate  
12 monitoring for those workers for americium  
13 exposures.

14 **DR. ULSH:** There was monitoring, Mark, in  
15 the early years. Health physics had available  
16 gross alpha techniques, which would be capable  
17 of detecting both thorium and americium.  
18 Beginning in, I believe, 1963, Rocky Flats  
19 began widespread americium-specific bioassay.  
20 Although I think we do have some early  
21 examples of, earlier examples of bioassay  
22 specific for americium. By and large that  
23 ramped up in 1963.

24 **DR. MAKHIJANI:** Brant, this is Arjun. Were  
25 you referring in the early years' gross alpha

1 for bioassay like urine, or air monitor?

2 **DR. ULSH:** No, gross alpha for bioassay in  
3 urine.

4 **MR. GIBSON:** Excuse me. Lew and Mark, this  
5 is Mike. My power came on so I'm back online  
6 now.

7 **DR. WADE:** Oh, Mike, good.

8 **MR. GRIFFON:** Thank you.

9 **DR. WADE:** Maybe a quick summary for Mike?  
10 I mean, we, after the introductions and the  
11 conflict of interest discussions, we started  
12 asking Brant to review the petition evaluation  
13 report, and that's what he was doing.

14 Brant, could you do just a 15-second  
15 summary?

16 **MR. GIBSON:** I've been online for about 15  
17 minutes. I was just trying to find a  
18 convenient time to cut in.

19 **DR. WADE:** Okay, fine, thank you. Go ahead,  
20 Brant.

21 **MR. GRIFFON:** I guess the thorium then,  
22 Brant.

23 **DR. ULSH:** Yeah, beginning in 1952, Mark,  
24 thorium -- this is discussed on page 18 of 86  
25 -- thorium is used on the site in quantities

1 in small enough that effluents were not  
2 routinely analyzed for thorium. The principle  
3 --

4 **MR. GRIFFON:** I don't understand what that  
5 means. Can you explain what, because I see in  
6 some cases up to 238 kilograms a month  
7 inventory.

8 **DR. ULSH:** Well, as you know --

9 **MR. GRIFFON:** Small enough that effluent  
10 wasn't monitored routinely. I'm not sure I  
11 understand what, I mean there must have been  
12 some cutoff for effluent monitoring based on  
13 how much was processed. Is that what you're  
14 saying?

15 **DR. ULSH:** I really can't give you any  
16 details, Mark, on what the criteria were.

17 **MR. GRIFFON:** Okay, all right.

18 **DR. ULSH:** In terms of thorium though the  
19 primary radiological hazards at the site were  
20 uranium and plutonium. And as you know,  
21 thorium has a very low specific activity,  
22 about one-third that of DU, and at the Rocky  
23 Flats site, DU was just barely recognized as  
24 radiological hazard. So the site pretty much  
25 considered that thorium was not a major

1 radiological hazard, and we're not really  
2 aware of any credible scenario where a  
3 significant uptake would have occurred.

4 **MR. GRIFFON:** What buildings would that have  
5 been associated with, the thorium work or was  
6 it multiple buildings?

7 **DR. ULSH:** Hold on just a minute, Mark. Let  
8 me see if I can find anything on that.

9 **MR. GRIFFON:** SC&A, did you guys look into  
10 the thorium question? I don't recall much  
11 discussion on thorium before.

12 **DR. ULSH:** Okay, Mark, I've got some  
13 information here for you I think. In Building  
14 71 there was some small scale thorium work.  
15 In Building 881 there was light production of  
16 thorium parts and some thorium strikes. And  
17 let's see, in Building 334 there were small  
18 quantities of thorium and depleted uranium  
19 that were sheared. And this comes from the  
20 Chem Risk report, Mark.

21 **MR. GRIFFON:** Okay, thanks.

22 Any other follow up to that, SC&A?  
23 Did you have any comments on the thorium  
24 processing, or did you recall reviewing this?

25 **DR. MAKHIJANI:** Is Kathy on the call?

1           **MR. FITZGERALD:** No, Kathy's not on the  
2 call. I think we identified it as one of the  
3 other nuclides but didn't --

4           **DR. ULSH:** Actually -- is this Joe?

5           **MR. FITZGERALD:** Yes.

6           **DR. ULSH:** Actually, you didn't specifically  
7 identify it as one of the other nuclides. I'm  
8 thinking of, if I'm thinking of the right  
9 comment, Joe. That's the ones that you sent  
10 over last week, the 17 --

11          **MR. FITZGERALD:** No, no.

12          **DR. ULSH:** And there were two additional  
13 ones?

14          **MR. FITZGERALD:** No, no, that was, I'm not  
15 talking about the original site review.

16          **DR. ULSH:** Oh, I see.

17          **MR. FITZGERALD:** We certainly looked at what  
18 was in the site profile and identified a  
19 number of nuclides, but we didn't pursue  
20 thorium per se.

21          **DR. ULSH:** Yeah, I think it was just  
22 generally not recognized as a major hazard at  
23 Rocky Flats. It was primarily uranium and  
24 plutonium.

25          **MR. GRIFFON:** And then if, that's really all

1 I had on the process areas unless other people  
2 had any clarifications they wanted of the  
3 process descriptions.

4 **DR. MAKHIJANI:** No, I had a question about  
5 americium monitoring, but that --

6 **MR. GRIFFON:** Yeah, then I was going to go  
7 on to the monitoring. If you could, and maybe  
8 this is restating some of it, Brant, I  
9 apologize, but we're kind of reviewing this  
10 real time, too.

11 **DR. ULSH:** Yeah, I know.

12 **MR. GRIFFON:** If you could give us a little  
13 summary of monitoring data that you'll be  
14 relying on and maybe start with internal  
15 monitoring data.

16 **DR. ULSH:** Okay, for internal monitoring  
17 data we're primarily going to be relying on  
18 urinalysis. That's almost always our primary  
19 bioassay data. In the later years starting --  
20 let's see, when did in vivo counting start?

21 **DR. MAKHIJANI:** 'Sixty-five.

22 **DR. ULSH:** Nineteen sixty-five and later we  
23 also have lung counts that we can use. So if  
24 there's a situation that would require us to  
25 use air monitoring at Rocky, I'm not aware of

1 it.

2 What's that?

3 **MR. GRIFFON:** And it seems like -- I'm  
4 trying to recall, but is a lot of the  
5 urinalysis data pre-'65? Is there a lot of  
6 less than detectable data?

7 **DR. ULSH:** Well, Mark, that's a good  
8 question. I don't know the answer to that off  
9 the top of my head.

10 **MR. GRIFFON:** We might hit on more in the  
11 matrix. I don't know, but Arjun, did you --

12 **DR. MAKHIJANI:** No, I've not looked other  
13 than the data integrity questions and kind of  
14 compiling things from the petition. I haven't  
15 actually delved into the details of Rocky  
16 Flats.

17 **MR. GRIFFON:** I'm thinking about the wrong  
18 site, too.

19 **DR. ULSH:** There was a significant fraction  
20 that was left in the reporting level, Mark,  
21 which was, I think it was 0.88 dpm per --

22 **MR. LANGSTED:** Bioassay is for plutonium.

23 **DR. ULSH:** For plutonium. I can't really  
24 tell you what fraction of the measurements  
25 that we have are less than their reporting

1 level.

2 **MR. GRIFFON:** And the urinalysis records  
3 available are primarily for plutonium or are  
4 they -- there's gross alpha as well you said,  
5 right?

6 **DR. ULSH:** Yes, there is gross alpha; there  
7 is plutonium specific; there is uranium  
8 specific. I think those are the major ones.

9 **DR. MAKHIJANI:** Brant, this is Arjun. Don't  
10 you also have americium monitoring?

11 **DR. ULSH:** Yes, americium specific beginning  
12 in, I think, 1963.

13 **DR. MAKHIJANI:** Nineteen sixty-three?

14 **DR. ULSH:** Yeah, that's -- is this Arjun?

15 **DR. MAKHIJANI:** Yeah.

16 **DR. ULSH:** Okay, that's described, I think,  
17 in Attachment A of the internal TBD.

18 **MR. GRIFFON:** And nothing on thorium and  
19 maybe for the reasons you've previously  
20 described but nothing on thorium specific?

21 **DR. ULSH:** I think that that is the case,  
22 Mark. Gross alpha would have been used to  
23 measure that, but for the reasons I stated.  
24 It wasn't generally recognized as a big hazard  
25 at Rocky.

1           **MR. GRIFFON:** And then whole body counting  
2 started in, I think you just said this, but  
3 '65?

4           **DR. ULSH:** Yes.

5           **MR. LANGSTED:** Lung.

6           **DR. ULSH:** That was lung counting.

7           **MR. GRIFFON:** Or lung counting, yeah.

8           **DR. ULSH:** I should mention also that Rocky  
9 Flats did have some wound counters. We don't  
10 make great use of those in dose  
11 reconstructions is why we didn't focus on it  
12 too much. Those were used mainly as a  
13 screening technique to determine whether a  
14 worker had received a contaminated wound. But  
15 again, we relied primarily on the urinalysis.

16           **MR. GRIFFON:** Right, and again, just to  
17 refresh our memories, I think for Rocky you  
18 had mentioned on several other work group  
19 calls that most of the -- and maybe I'm  
20 overstating this, but I think most of the  
21 individuals have individual bioassay records.  
22 In other words the use of the coworker models  
23 would not be a high percentage or is that --

24           **DR. ULSH:** That is true, Mark, and at the  
25 risk of putting out old numbers, let me see.

1 Give me just a second here. Okay, here it is.  
2 I just pulled these numbers off NOCTS this  
3 morning. We have a total of 1105 claims for  
4 Rocky Flats. We have completed about 62  
5 percent of those. And as of a couple of weeks  
6 ago there were only, I think, two cases on  
7 hold for coworker data. So you're right.  
8 We're going to spend a lot of time talking  
9 about this, but --

10 **UNIDENTIFIED:** Brant, those were for  
11 external coworker, not internal.

12 **DR. ULSH:** Okay, thank you. That was Matt,  
13 right?

14 (no response)

15 **DR. ULSH:** Okay, well, the answer to your  
16 question, Mark, is no, there's not --

17 **MR. GRIFFON:** Not a heavy reliance on the  
18 coworker --

19 **DR. ULSH:** Exactly, although we will spend a  
20 lot of time talking about it.

21 **MR. GIBSON:** Brant, this is Mike.

22 **DR. ULSH:** Yes, Mike.

23 **MR. GIBSON:** I have a question. As far as  
24 the data and stuff have, has NIOSH looked into  
25 what the FBI or anyone may have found based on

1           those, when they raided the place because the  
2           incinerators were burning plutonium?

3           **DR. ULSH:** Yeah, Mark, or I'm sorry, Mike, I  
4           believe that the subject of that FBI  
5           investigation was environmental violations,  
6           violations of environmental statutes. We have  
7           had some communications with the petitioner.

8                       This has, well, as you know, this has  
9           come up in terms of their data integrity  
10          questions about there are some allegations  
11          that there was systematic -- or that's  
12          probably not the right word. There were  
13          allegations that there was fraud and  
14          manipulation of the dosimetry results. That's  
15          not tied to the FBI investigation, and I do  
16          have more to say about that topic when we go  
17          through the matrix items.

18          **MR. GRIFFON:** But you've reviewed the FBI  
19          investigation findings to make sure that  
20          there's no tie or no findings in, I mean, I  
21          understand there it was mainly more focused on  
22          the environmental side, but it is sort of  
23          hanging out there as a major thing that  
24          happened at that site. Has NIOSH or the ORAU  
25          team looked into those findings from that

1 investigation and the grand jury findings, I  
2 guess? I think there were grand jury  
3 findings.

4 **DR. ULSH:** Mark, the only thing I can tell  
5 you is we didn't spend a lot of time on that  
6 because, you know, again, it was violations of  
7 environmental statutes. So the answer to your  
8 question is no, we haven't spent a lot of time  
9 with it.

10 **MR. GRIFFON:** All right, and I was actually  
11 coming to the, skipped ahead a little bit on  
12 the data integrity, but can we go back to just  
13 an overview of the external monitoring? Go  
14 through the internal monitoring and then we'll  
15 go to data integrity again.

16 **DR. ULSH:** Data integrity is, well, as you  
17 know, is a big topic in the comment responses.

18 In terms of external, in the early  
19 years, you know as at most sites, not everyone  
20 was monitored, but it ramped up pretty quickly  
21 at Rocky Flats. I believe it was in 1964  
22 where they integrated the dosimetry with the  
23 security badges. In the early years for  
24 neutrons they used neutron track plates  
25 followed by NTA films, and those were swapped

1 out for TLDs in the '70s, '71. And films were  
2 also used for beta-gamma.

3 And TLDs came into play for beta-gamma  
4 in the 1969-'70 timeframe. And we have a very  
5 high percentage of monitoring for workers,  
6 especially when they integrated the badges.  
7 Now after '91 in the D&D period, only workers  
8 who were judged to have a potential exposure  
9 of greater than 100 millirem -- is that per  
10 year? Yes, per year -- were badged. Though  
11 for that later period not everyone was badged.  
12 But we do have dosimetry for all years  
13 available for coworker data should we need it.

14 **MR. GRIFFON:** And I think you said prior to  
15 the NTA film, there was going to be, you were  
16 going to apply neutron-photon ratios for  
17 calculating neutron doses. Is that correct or  
18 --

19 **DR. ULSH:** Yes, that is correct, Mark.

20 **MR. GRIFFON:** And what are the, I'm sure  
21 you've mentioned this before, but it's just a  
22 refresher. Where are those derived from, the  
23 neutron-photon ratios?

24 **DR. ULSH:** I am going to ask Roger Falk to  
25 give you some details on that.

1           **MR. GRIFFON:** It's probably a review, but  
2 it's, we're covering a lot.

3           **MR. FALK:** That is described in Section 11  
4 of the Neutron Dose Reconstruction Project  
5 protocol. And it was based on the neutron  
6 doses derived from the NDRP project readings  
7 divided by the gamma results for those, and it  
8 was based on the building. And so we have the  
9 total ratio for those matched neutron and  
10 gamma results for the building, and that  
11 determines the building ratio. And then we  
12 had a combination method which used the  
13 building ratio as well as the average neutron  
14 dose for a specific worker if that worker had  
15 the qualified neutron readings for that year  
16 and for that building.

17           **MR. GRIFFON:** Okay, and Roger, the, I think  
18 a conclusion of your report was that the  
19 likely highest neutron exposed individuals  
20 were not monitored. How did you establish the  
21 ratios for those buildings?

22           **MR. FALK:** We used the --

23           **MR. GRIFFON:** Seven seventy-one?

24           **MR. FALK:** We used the building ratios to  
25 determine for the first full year that they

1                   were monitored, and we have quality data. And  
2                   that was 1959, and we back extrapolated it to  
3                   the earlier years.

4                   **MR. GRIFFON:** And similar processes were  
5                   taking place is the assumption?

6                   **MR. FALK:** Yes.

7                   **MR. GRIFFON:** Okay, thank you.

8                                 Any other questions on the monitoring  
9                   program, external monitoring program?  
10                   Clarifying points, I guess, is what we're  
11                   really what we're looking for.

12                                 (no response)

13                   **MR. GRIFFON:** Not hearing any, I'll ask  
14                   Brant to briefly go over the data reliability  
15                   question.

16                   **DR. MAURO:** Mark, this is John Mauro. I  
17                   took some notes as I was reading, and there  
18                   was just one area that I noted. And this had  
19                   to do with this, the lead apron. I don't know  
20                   if this is the appropriate time to bring this  
21                   up, but since you're talking external  
22                   monitoring --

23                   **MR. GRIFFON:** Yeah.

24                   **DR. MAURO:** I noticed that one place  
25                   indicated that the lead apron only shielded

1 out zero-to-50 percent of the photons. And I  
2 was surprised to hear that considering the  
3 very low energy, certainly of the plutonium x-  
4 rays. So I was surprised at such a small  
5 fraction of the photon. Radiation was  
6 shielded by the lead apron. I thought perhaps  
7 we'd get clarification on that.

8 **MR. LANGSTED:** This is Jim Langsted. Yes,  
9 that's the results of measurements that were  
10 taken at Rocky Flats with the lead aprons and  
11 the dosimeters that were in use, I believe, in  
12 the early 1990s timeframe.

13 **DR. MAURO:** So I guess that would be for the  
14 americium, like a 61 keV as opposed to the  
15 lower energy x-rays?

16 **MR. LANGSTED:** Well, that was in a plutonium  
17 storage vault, and so that would have been a  
18 combination spectrum typical of that  
19 environment.

20 **DR. MAURO:** Okay, I guess it might be  
21 worthwhile doing a quick calculation to see if  
22 that makes sense.

23 **DR. BEHLING:** John, this is Hans. It may  
24 also be due to the fact that you do have a  
25 beta component and an introduction of

1 Bremsstrahlung that may actually add some  
2 photon components that would otherwise not be  
3 there.

4 **DR. MAURO:** But it was basically saying that  
5 the lead apron shielded out virtually a  
6 hundred percent.

7 **DR. BEHLING:** Yes, but you may also  
8 introduce new photons so the result of betas  
9 impinging on the lead that then converted to  
10 Bremsstrahlung.

11 **DR. MAURO:** Oh, I see what you're saying.

12 **MR. GRIFFON:** The beta was in a storage  
13 vault, Hans? Would there be beta?

14 **DR. BEHLING:** Well, again, I don't know what  
15 the source term is, but you do have ^  
16 associated with uranium and other  
17 radionuclides that may have some involvement  
18 in introducing Bremsstrahlung.

19 **DR. MAKHIJANI:** Yeah, that's a peculiar  
20 thing to --

21 **MR. GRIFFON:** I agree in theory, but I -- a  
22 plutonium storage vault, I don't know that  
23 that would --

24 **MS. MUNN:** Physically plutonium probably  
25 wouldn't contribute much I wouldn't think.

1           **MR. GRIFFON:** Anyway, so that's -- and also,  
2 I think we've -- and this will probably, we  
3 can follow through on this a little more in  
4 the matrix because I know there was a question  
5 on where employees had the badges and that  
6 might impact on how you calculate these  
7 ratios. So I think we have that as a follow  
8 up item on the matrix.

9           **DR. ULSH:** Yeah, Mark, this is discussed in  
10 comment number eight. These are the ones that  
11 SC&A has labeled data integrity comments.

12           **MR. FITZGERALD:** Mark, this is Joe  
13 Fitzgerald. May I suggest, Kathy Robertson-  
14 DeMers is going to join the call a little  
15 late, but I talked to her this morning. I  
16 think she should be part of this conversation.  
17 She should be on, I think, within the next 15,  
18 20 minutes.

19           **MR. GRIFFON:** Okay, again, this is really an  
20 overview, and when we get to the matrix, when  
21 this comes up, Kathy should be on the call by  
22 then I would assume.

23                       If there's nothing more on external  
24 monitoring, I wanted to go into, if, Brant, if  
25 you could give an overview of what NIOSH has

1 looked at in terms of data reliability. And I  
2 should say, well, maybe I should ask this  
3 question. Data reliability mainly we're  
4 looking at this for the purposes of these, of  
5 the databases. And the database information  
6 would certainly be used for coworkers. And  
7 we've already heard that there is likely a few  
8 claimants that will be, that will have to rely  
9 on coworker data for their dose assessment.

10 However, I'm not sure -- and maybe you  
11 can answer this question, Brant -- whether the  
12 data in an individual's file is actually hard  
13 copy raw data, urine cards, you know, copies  
14 of film badge cards that were generated for  
15 the input into the database or whether they're  
16 printouts of database. Oftentimes we've seen,  
17 some of the cases we've reviewed anyway, it's  
18 been actual just printouts of the, for  
19 example, HIS-20 data records for that  
20 individual.

21 And that certainly would not, even  
22 though it's that individual's personal data,  
23 it still raises a question of that database  
24 reliability. So are those, the claimants,  
25 when you say that only two are relying on

1 coworkers, the other ones have their  
2 individual data. Is that individual data raw  
3 data or is it printouts from the databases  
4 that we're talking about.

5 **DR. ULSH:** Well, in my experience, Mark, the  
6 dosimetry files that we have for claimants  
7 include both the raw records and the HIS-20  
8 printouts. Now this question is covered in,  
9 let's see, data integrity comment number four.  
10 And so what I might do is -- Craig Little, are  
11 you out there?

12 **MR. LITTLE:** Yes, I am.

13 **DR. ULSH:** This might be a good time, Craig,  
14 to describe some of the comparisons that you  
15 have done. And for the benefit of people  
16 listening in, I would direct you to the  
17 comment responses, page 13.

18 **MR. GRIFFON:** Now is this the one you just  
19 sent out, Brant?

20 **DR. ULSH:** Yeah, I put it on e-mail --

21 **MR. GRIFFON:** April 06 comment responses?

22 **DR. ULSH:** Yes, yes, it is. So it's page 13  
23 is the beginning, I believe of what Craig is  
24 going to be talking about.

25 Craig, if you're ready, go right

1 ahead. Hello, Craig?

2 **MR. LITTLE:** Can you hear me?

3 **DR. ULSH:** I can hear you.

4 **MR. LITTLE:** Okay, good enough. We did two  
5 exercises to compare a claimant's file. The  
6 first thing we did was to compare original  
7 laboratory --

8 **MS. MUNN:** You're fading in and out here.

9 **DR. WADE:** You're cutting out.

10 **MS. MUNN:** You're cutting out badly.

11 **DR. WADE:** We don't hear you at all now.

12 **DR. ULSH:** Craig, are you out there?

13 (no response)

14 **DR. ULSH:** All right, until Craig comes back  
15 in, let me try to walk you through some of  
16 these anyway as best I can.

17 The first exercise that they did  
18 compared original beta/gamma datasheets that  
19 were in the claimants' files. And they  
20 searched, let's see here, 2800 pages of those  
21 worksheets and time data for claimants. And  
22 that, when they compiled that that was 400  
23 worker quarters of data.

24 Let me see, I'm skimming through  
25 Craig's stuff here. And an example of that is

1 shown in Figure 5 which is on page 14. So  
2 there, Mark, is an example of the handwritten,  
3 the hard, however you want to describe that,  
4 the paper records, I guess, the scanned image  
5 of it.

6 And they next retrieved data in the  
7 form of printouts from the claimant's file.

8 Craig, are you out there yet?

9 (no response)

10 **DR. ULSH:** Okay, I guess not, so I will  
11 continue.

12 There were 400 worker quarters of data  
13 as I mentioned, a total of 152 complete worker  
14 quarters were found in which there was  
15 complete agreement. And of those, there were  
16 33 complete worker years and an additional 20  
17 worker quarters of data. Complete agreement,  
18 when we say complete agreement, what we mean  
19 is that the total penetrating dose for a given  
20 worker year or given worker quarter as  
21 represented in the claimant file was exactly  
22 the same as what was taken from the beta/gamma  
23 worksheet. And that indicates that the data  
24 on the handwritten beta/gamma worksheets were  
25 accurately transcribed into the database.

1                   Now there were also an additional nine  
2 complete worker years of data that showed some  
3 disagreement between the laboratory sheets and  
4 the claimant files. I'm pretty much just  
5 reading off page 13 here. In those instances  
6 the explanation that is most likely is that  
7 there was some neutron exposure that wasn't  
8 captured on the beta/gamma worksheets. And  
9 the reason we conclude that is that the  
10 claimant file dose was always, without  
11 exceptions, larger than the beta/gamma  
12 worksheets.

13                   So to state that another way, the data  
14 in the claimant file included doses not only  
15 from the beta/gamma doses, but it also  
16 includes neutron exposures. And you wouldn't  
17 see that on the beta/gamma sheets. So the  
18 dose, the bottom line is that the dose for the  
19 penetrating radiation in the claimant's file  
20 was always the bigger number if there was  
21 neutron exposure.

22                   So what we concluded from that is that  
23 the dosimetry data in the claimant file  
24 accurately represents the data from the  
25 original beta/gamma worksheets. And in the

1 instances there were differences, it can be  
2 explained by a neutron dose.

3 Craig, are you back yet?

4 **MR. LITTLE:** Yeah, I don't know what  
5 happened.

6 **DR. ULSH:** Okay, you're still a little faint  
7 if you can speak up, and let me tell you where  
8 I am. I'm at the bottom of page 13. I just  
9 covered the section called Comparison of  
10 Original Datasheets to Data in the Claimant  
11 File. So if you can pick it up with  
12 Comparisons of Original Datasheets to Data in  
13 the HIS-20 File, that would be great.

14 **MR. LITTLE:** Am I clear now?

15 **DR. ULSH:** Yes.

16 **MS. MUNN:** Yes.

17 **MR. LITTLE:** I'm on a landline so that's  
18 better.

19 Okay, so you went through the claimant  
20 file part. All right, we also examined  
21 beta/gamma film badge worksheets and compared  
22 them to the penetrating radiation listed in  
23 the HIS-20 database for non-claimants. The  
24 previous exercise was strictly for claimants.  
25 And for each worker year we combined -- the

1 HIS-20 database only has annual data in it.

2 And so what we did was for each worker  
3 year, we found four sheets, four quarterly  
4 datasheets and combined those to create an  
5 annual beta/gamma dose record. We found 30  
6 such worker years and compared those to the  
7 same worker year compiled by HIS-20. Of those  
8 30 years we found 22 that were totally  
9 complete and agreed 100 percent with the data  
10 in the HIS-20 database.

11 For five worker years out of the 30 we  
12 found one quarter was missing. That is, there  
13 was just blank data. I could not, that  
14 doesn't mean it's missing. It means in the  
15 file that I had we could not find that  
16 particular quarter for that worker for that  
17 year for that building. But the good news on  
18 that was that the annual total that was, that  
19 we calculated from the three quarters that we  
20 had was completely agreed with the HIS-20  
21 database. So if you combine those two, 90  
22 percent of the data that we looked at  
23 completely agreed with the HIS-20 database for  
24 the same worker in the same worker year.

25 For three worker years that we looked

1 at some quarterly data were missing or blank  
2 and the annual totals didn't agree. But in  
3 all three of these instances, the HIS-20  
4 database values were higher than the data that  
5 we pulled out of the beta/gamma worksheets.  
6 So what this likely means is that there was  
7 missing data for the years that we couldn't  
8 find that's been captured by the HIS-20  
9 database. Although we didn't find it, that  
10 just means that the files that we looked at,  
11 which were a PDF again of the six years that  
12 we looked at, there were sheets missing in the  
13 file that we looked at.

14 **MS. MUNN:** This is Wanda. But I understand  
15 correctly the error was always on the high  
16 side for the database we're relying upon,  
17 correct?

18 **MR. LITTLE:** That's correct.

19 **DR. ULSH:** Mark, where do you want to go  
20 from here? Hello, Mark, are you there?

21 (no response)

22 **DR. ULSH:** Is anybody there?

23 **DR. WADE:** This is Lew Wade.

24 **MS. MUNN:** Wanda's always there.

25 **DR. WADE:** Mark, are you with us?

1 (no response)

2 **DR. WADE:** Let's give Mark a moment.

3 **MS. MUNN:** He seems to have dropped off.

4 **DR. WADE:** He usually comes back.

5 **MS. DeMERS:** This is Kathy DeMers. I just  
6 joined the call.

7 **DR. WADE:** Hi, Kathy, we've lost Mark for a  
8 minute so we're trying to wait for him to  
9 reconnect.

10 **MS. MUNN:** We hope it's momentary since I  
11 don't have his list of specific concerns.

12 **DR. ULSH:** Kathy, we're just at the overview  
13 point of the discussion, haven't gone into any  
14 depth on these particular issues.

15 **MS. MUNN:** In Mark's absence maybe we can  
16 just continue the comments that we were going  
17 through because I know there was considerable  
18 concern about the next data integrity comment.  
19 In earlier conversations we've been concerned  
20 about how widespread the issue of unauthorized  
21 work practices has been, I think, alleged by  
22 more than one claimant.

23 **DR. ULSH:** Wanda, that is addressed in one  
24 of the matrix items. I'd be happy to go into  
25 it now if you'd like to or we can wait and go

1 through it as a matrix item. Whatever you  
2 prefer.

3 **MS. MUNN:** Probably the matrix item would be  
4 the best place to address it would be my  
5 guess.

6 **DR. MAURO:** Along these lines, this is John  
7 Mauro, by way of orientation for myself,  
8 addressing these data integrity issues there  
9 was a memorandum that SC&A issued on April 5<sup>th</sup>  
10 which was the results of Kathy DeMers' visit.  
11 And to what degree does the discussion we're  
12 having now overlap with or is related to the  
13 material provided in the minutes of that site  
14 visit?

15 **DR. ULSH:** Well, John, I didn't have time to  
16 explicitly merge in the material from Kathy's  
17 report into the evaluation report because that  
18 went out on Friday.

19 **DR. MAURO:** Oh, no, I appreciate that. I  
20 was just asking more from --

21 **DR. ULSH:** No, no, I understand; however,  
22 the comment responses that I'm referring to,  
23 the, I think it's called 5 April 2006, those  
24 do include responses to the issues raised in  
25 Kathy's report.

1                   **MR. LITTLE:** And I might add the  
2 organization in terms of the sequence of  
3 issues is the same, so it's actually pretty  
4 easy to follow. Additional language has been  
5 added.

6                   **MR. GRIFFON:** Hello. Maybe that power loss  
7 is going around. My phone cut out for a  
8 little while there.

9                   **DR. ULSH:** Okay, Mark, we just finished up  
10 everything.

11                               Okay, Mark, I'm not sure where we lost  
12 you. Craig was describing the exercises that  
13 we did to compare HIS-20 versus raw records.  
14 Did you catch that?

15                   **MR. GRIFFON:** I didn't catch that. I  
16 apologize.

17                   **DR. ULSH:** Shall we repeat, Craig?

18                   **MR. GRIFFON:** Briefly if you can, I mean, I  
19 don't --

20                   **DR. ULSH:** Craig, give him the talking  
21 points if you would.

22                   **MR. LITTLE:** We pulled 30 worker years worth  
23 of data, original datasheets from the  
24 beta/gamma worksheet and compared those to  
25 HIS-20 data. HIS-20 data are annual so we had

1 to find four quarters of data to find, data to  
2 compare with HIS-20. In 22 of those 30 we  
3 found all four quarters in the files, and they  
4 were in complete agreement with HIS-20. There  
5 were five worker files where one quarter of  
6 data was missing. That is, it just means it  
7 was missing from the files we looked at, but  
8 the total that was calculated from those three  
9 quarters was the same as the total in the HIS-  
10 20 database for the annual. And there were  
11 three worker years that we did not find data  
12 for where either the quarterly data was  
13 missing or blank, and for some reason then the  
14 numbers did not add up to the annual.

15 But in those cases the HIS-20 database  
16 values were always higher than the data that  
17 we pulled off of the beta/gamma worksheet.  
18 Which simply means we didn't find the  
19 worksheet, but when it was transcribed at the  
20 plant or later, it was probably captured and  
21 put into the HIS-20 database because we didn't  
22 find any instances where HIS-20 had lower  
23 beta/gamma values or penetrating radiation  
24 values than the beta/gamma worksheets whether  
25 they were missing or complete.

1           **MR. GRIFFON:** Craig, you said 30 working  
2 years. How many individuals was that  
3 covering?

4           **MR. LITTLE:** It was 30 worker years.

5           **MR. GRIFFON:** It was 30 different workers?

6           **MR. LITTLE:** Yeah, well, it may not,  
7 actually, there may have been double years for  
8 some of the people.

9           **MS. DeMERS:** Was this an individual from the  
10 petition?

11          **MR. LITTLE:** An individual from where?

12          **MS. DeMERS:** From the petition.

13          **MR. LITTLE:** No.

14          **MR. GRIFFON:** Would have been claimants  
15 though or people with a file?

16          **MR. LITTLE:** No, these were not claimants.  
17 These were non-claimants. These were just  
18 randomly sampled workers.

19          **MS. MUNN:** Then there were multiple workers?  
20 There was not just a single worker or two.

21          **MR. LITTLE:** Yeah, that's correct. There  
22 were multiple workers.

23          **MR. GRIFFON:** But not necessarily 30. You  
24 don't know how many.

25          **MR. LITTLE:** No, and I don't have that off

1 the top of my head.

2 **MR. GRIFFON:** And how, if these weren't  
3 claimants, I thought there was an issue about  
4 getting raw records for non-claimants because  
5 that had come up before as far as pulling the  
6 string on some of these individual affidavits  
7 that have, Brant. You talked about you might  
8 not be able to do it because of the  
9 availability of those records since they  
10 weren't claimants.

11 **DR. ULSH:** Mark, I think -- Craig, jump in  
12 and correct me if I'm wrong here, but I think  
13 when we talked about this last time, we  
14 decided that at that time Craig had compared,  
15 done his comparison using claimants.

16 But we decided that we needed to pull  
17 the string a little bit further because I  
18 recall that when the site supplied data to us  
19 for a particular individual, a claimant, they  
20 did an additional QA step on that data. So it  
21 wouldn't be surprising that that data might  
22 have better agreement than for non-claimants.  
23 And that's why we had Craig go back and look  
24 at non-claimants.

25 **MR. LITTLE:** Yes.

1           **DR. ULSH:** And I accurately summarized that,  
2 Craig?

3           **MR. LITTLE:** Yes.

4           **MS. DeMERS:** And what areas did these people  
5 work in?

6           **MR. LITTLE:** Well, I'm trying to think  
7 exactly which buildings. I'm going to say  
8 Building 21, Building 81, Building 86,  
9 Building 83, Building 44, Building 59 maybe.  
10 I don't have the file up in front of me, but  
11 it was a variety of different buildings.

12           **MS. MUNN:** Okay, and were there any  
13 buildings from the 700 area?

14           **MR. LITTLE:** I don't think I had any in the  
15 700 area in this sampling.

16           **MR. GRIFFON:** Just to shorten this  
17 conversation maybe, is this written up  
18 anywhere, Craig? Did you provide that?

19           **MR. LITTLE:** Yeah, I provided that to Brant.

20           **DR. ULSH:** Yeah, this is in, Mark, we're  
21 looking at the --

22           **MR. GRIFFON:** It is in these comments, April  
23 5<sup>th</sup>?

24           **DR. ULSH:** Yes. Page 13 of that.

25           **MR. GRIFFON:** Oh, that's right. You said

1                   that. I'm sorry.

2                   And these 30 worker years, were they,  
3 I mean, they weren't in the '90s were they?  
4 Were they --

5                   **DR. ULSH:** No, they were the '60s.

6                   **MR. GRIFFON:** Okay, I assumed that, but I  
7 don't want to assume.

8                   **MR. SMITH:** This is Matt Smith. I've just  
9 got one more thing to add, and it's based on  
10 what others have said at other meetings. As  
11 far as the rest of the data in terms of its  
12 validity for everybody who's a claimant on  
13 this program as I understand it, Kaiser-Hill  
14 went through and did a quality assurance check  
15 back to the worksheets.

16                   **MR. GRIFFON:** Okay, and I asked about that  
17 before, too, and there's no sort of roll up on  
18 that, is there? You just did individual  
19 quality assurance against the worksheets. But  
20 there's no sort of roll-up analysis of we  
21 looked at, you know, 500 of these and we found  
22 discrepancies in only one percent or whatever,  
23 and there's nothing like that that exists,  
24 Brant. Is that correct?

25                   **DR. ULSH:** That is correct, Mark. We are

1 working with Ken Savitz, and Ken and his staff  
2 are the ones that did the QA procedure that  
3 we're talking about. And according to Ken  
4 there is no roll up. They just did that on an  
5 individual basis.

6 **MR. GRIFFON:** All right, thank you for going  
7 through that again. I apologize.

8 **DR. ULSH:** You're welcome.

9 **MR. GRIFFON:** And data reliability then, did  
10 you talk at all while I was off the phone  
11 about the, was this the internal?

12 **DR. ULSH:** Let me point out the difference  
13 for the situation between external and  
14 internal. For external with regard to the,  
15 especially the coworker data, we are relying  
16 on data from the HIS-20 database. For  
17 internal it's a little different. We're going  
18 to be relying on Speeder^ data, and so we have  
19 compared internal data from Speeder HIS-20.  
20 And Jim Lochamy, are you out there?

21 **MR. LOCHAMY:** Yes, I am.

22 **DR. ULSH:** Okay, it's show time.

23 There were a couple of documents that I  
24 placed, I e-mailed to you. I don't remember  
25 the exact titles. I think if you open up the

1 documents they're called Comparison of Rocky  
2 Flats, HIS-20 and CEDR Databases.

3 **MR. GRIFFON:** Internal comparison of HIS-20  
4 and CEDR is one of them.

5 **DR. ULSH:** Yeah, and there's one called  
6 Follow Up. So those are the documents that  
7 Joe is going to be talking about. I should  
8 point out that there's an error in the title  
9 of the first one, and that's my fault. I  
10 missed taking that out. We took out the  
11 external because we're not going to use CEDR  
12 data for external.

13 So Joe, if you could walk us through  
14 your two analyses?

15 **MR. LOCHAMY:** Okay. Basically, the first  
16 analysis was an attempt to try to compare the  
17 two databases without literally going back and  
18 doing the entire coworker analysis over again  
19 using the other database. That's a fairly  
20 large task. So what we tried was for  
21 plutonium and uranium, we did multi-year  
22 statistical analyses so that we would run  
23 multiple years at one time instead of doing it  
24 quarterly or annually as we had done with the  
25 actual coworker database or the actual

1                   coworker statistics.

2                   We also did not do anything to the  
3                   data to handle of zeros and other data that  
4                   are handled somewhat differently in the actual  
5                   statistical analysis. And if you look at the  
6                   -- let's see, you said you have extracted just  
7                   the internal. I'm looking at that one copy.  
8                   Is that correct? Hello?

9                   **MR. GRIFFON:** I'm not sure who you're  
10                  asking.

11                  **MR. LOCHAMY:** I guess I'm just asking  
12                  whoever did the extraction. I forgot who did  
13                  it. You separated the internal and external  
14                  and everyone is just looking at the internal  
15                  version?

16                  **DR. ULSH:** That is correct, Joe.

17                  **MR. LOCHAMY:** So if you look at Tables 1 and  
18                  2 on pages three and four, you see actually  
19                  more data than one needs or wants, but you can  
20                  see that for the multiple years of plutonium  
21                  and uranium there is a rough approximation of  
22                  the number of samples. They're essentially  
23                  the same except in most case there is more  
24                  data in the CEDR database than there is in HIS  
25                  database except for the years '86 to '88 which

1 I'm assuming is because the CEDR database was  
2 extracted in 1988 and the year was not  
3 complete. The only explanation I can come up  
4 with. But in all other years there are more  
5 data points in the CEDR database than there  
6 are in the HIS-20 database. That, I guess, is  
7 just an observation. As a general rule, the  
8 maximum --

9 **MR. GRIFFON:** I was going to ask. You don't  
10 know why that would be?

11 **MR. LOCHAMY:** Do not know why that is.

12 **MR. GRIFFON:** It's quite significant, you  
13 know. It's not just a little --

14 **MR. LOCHAMY:** Certainly for the '86 to '88  
15 there's huge difference. There's like a  
16 factor of two difference.

17 **MR. GRIFFON:** Well, yeah, but even in the  
18 early years, I mean, I'm looking at '53 to  
19 '57, 4300 versus 3000.

20 **MR. LOCHAMY:** Yeah, I do not know why they  
21 are, why CEDR, which is what we used, has more  
22 data in it. It does appear from my later  
23 study that most of those entries, those  
24 additional entries, are zero entries. So I'm  
25 not sure what happened there exactly.

1                    Anyway, if you look at it, in same  
2 cases the two databases, the key data that are  
3 of most interest are the equation geometric  
4 mean and the equation 84<sup>th</sup> percentile which are  
5 like, I don't know, somewhere in the middle  
6 there. And those two numbers if they were  
7 exactly the same database would compare  
8 closely. And those are kind of the -- of what  
9 we would be using to do the coworker analysis.

10                   With the plutonium, there is not a  
11 huge amount of agreement in the early years.  
12 In the latter years, there is much, much  
13 better agreement. In fact, identical from  
14 about 1968 where the HIS is just slightly  
15 larger for plutonium for the geometric mean  
16 and the 84<sup>th</sup> percentile. And then afterwards  
17 it appears -- I'm looking down to make sure  
18 I'm correct -- it appears that they're  
19 identical except for the last year, '86 to '88  
20 where CEDR is actually larger for the  
21 geometric mean.

22                   Similar types of results for Table 2  
23 for uranium except in that case the -- I'll  
24 look. I'm checking -- the CEDR database  
25 always has a larger value for both the

1           geometric mean and the 84<sup>th</sup> percentile or equal  
2           to the same. In most cases it's larger. So  
3           when you first look at that, you say, okay,  
4           the uranium we claimant favorable in all cases  
5           for the uranium if we use the CEDR database or  
6           else equal to HIS-20.

7                     The plutonium is a little more  
8           questionable, and so I went back and ran  
9           individual years for some of the earlier data  
10          that were dramatically different. And that is  
11          shown in the next document called Follow-Up  
12          Evaluation. And if you look at the Table 1  
13          there, there are still clearly some  
14          differences if you look at the geometric mean  
15          and 84<sup>th</sup> percentile.

16                    And I extracted, well, I removed some  
17          of the extraneous data that only detracts from  
18          being able to find what's important. And if  
19          you look at that data, you can see that the  
20          HIS database still reads higher for the  
21          geometric means and the 84<sup>th</sup> percentile until  
22          you get to the latter years starting about  
23          1968 they've become essentially the same as  
24          far as the numbers that we would use for doing  
25          coworker statistics.

1                   And so I decided I needed to look  
2 further into the earlier years. And what I  
3 did in Table 2 -- let's see, that's not the  
4 one. Table 2 was uranium. And as you can  
5 see, we are still about equal to or larger  
6 than the HIS data. The Table 3 though is the  
7 yearly comparison which again I said didn't  
8 seem to solve the question of what is going  
9 on.

10                   So finally, I went down to Table 4 at  
11 the end of the document, and said, okay, let's  
12 treat the data as if we were actually doing  
13 the coworker analyses, to treat the zeros in  
14 some fashion. And so what we did, this was  
15 about the time that we were changing  
16 methodologies, but we had not changed the  
17 methodology when we ran this analysis. So the  
18 methodology that was being used at the time  
19 was to change each zero to a less than value  
20 that was equal to the cut-off value that was  
21 supplied in this Technical Basis Document for  
22 the site.

23                   These values varied over time, but  
24 during the periods that I looked at they were  
25 .2 and I believe .88 --

1           **DR. ULSH:** Point 88.

2           **MR. LOCHAMY:** Yeah, .2 and .88 the earlier  
3 years, .2 the latter years, I believe.

4           **DR. ULSH:** You're referring to, at least in  
5 the .88 case, that's the reporting level.

6           **MR. LOCHAMY:** That was the reporting level.  
7 It wasn't an mda or anything. Any time they  
8 got a number smaller than that they wrote a  
9 zero. I believe it corresponded to about ten  
10 percent of the maximum permissible body burden  
11 or some such, but I can't remember right off  
12 the top of my head. But nevertheless, they  
13 would cut off the numbers and report them as  
14 zeros if they were below that reporting level,  
15 the presumption being it was considered  
16 insignificant as far as their total dose.  
17 That would be my assumption. I don't know  
18 what they were actually thinking, but that  
19 appears to be what they might have been  
20 thinking.

21                       So if we go back in and substitute  
22 these cut-off values and list them as less  
23 than values into the statistical analysis, of  
24 course, a less than value doesn't get treated  
25 as a real number, but it does get treated as a

1 placeholder. And so it changes the  
2 statistical analysis and thus, the equation  
3 because of the placeholder position that it  
4 takes.

5 And when you look at Table 4, you see  
6 the results of running CEDR and HIS for those  
7 special years. And you notice that the  
8 geometric means and the 84<sup>th</sup> percentiles are  
9 quite close. In some cases CEDR is higher,  
10 and in some cases HIS is slightly higher. It  
11 kind of vacillates back and forth in that  
12 case. Now we did not do that for uranium  
13 because we were already -- wait a minute --  
14 I'm sorry, excuse me, I did do it for uranium.  
15 I'm sorry. I did it for uranium on there  
16 because that was the one of concern there.

17 So essentially my conclusion was if I  
18 were to rerun the analyses using the  
19 methodologies that we used to run the coworker  
20 statistics I would get essentially the same  
21 numbers. I guess that was my conclusion.  
22 Even though the two databases are not  
23 identical, they are essentially the same as  
24 far as statistical analysis.

25 **DR. ULSH:** So the bottom line -- this is

1 Brant. The bottom line, to recap this  
2 process, Mark, when we did the first analysis,  
3 we got pretty substantial agreement between  
4 plutonium and uranium. There were a couple of  
5 periods where there was some concern, and I  
6 asked Joe to refine the analysis, investigate  
7 those areas. And he did an excessive number  
8 of refinements to narrow in on these  
9 differences and what you see as the result is  
10 in Table 4, I believe --

11 **MR. LOCHAMY:** Yes, Table 4.

12 **DR. ULSH:** -- of that latter, the follow-up  
13 document. What you see is that we arrived at  
14 values for the geometric mean and the 84<sup>th</sup>  
15 percentile which is what's important for  
16 coworker data with pretty substantial  
17 agreement between the two. So therefore, we  
18 concluded that we're going to propose to use  
19 CEDR for the internal data, coworker data, and  
20 there's pretty good agreement between the two  
21 once we applied the right statistical handling  
22 procedures. And so that's what we're  
23 proposing for internal.

24 Now I would reiterate that it's not  
25 exactly a moot point, but as we've mentioned

1 before, the need for coworker data at Rocky  
2 Flats is pretty minimal, but that's where we  
3 are.

4 **MR. GRIFFON:** I guess I would have concluded  
5 that you, well, you had already modeled it on  
6 CEDR, correct?

7 **DR. ULSH:** Yes, we ran the --

8 **MR. GRIFFON:** It appears to me that all the  
9 HIS-20s are -- oh, no, that's not true.

10 **DR. ULSH:** No, they are, toward the end  
11 they're very comparable. Sometimes CEDR is  
12 larger, in fact, it looks like most of the  
13 time CEDR is larger.

14 **MR. LOCHAMY:** About 50-50.

15 **MR. GRIFFON:** At any rate, a follow up or  
16 the same question sort of that I asked for  
17 external, which is this is database to  
18 database. What about database to raw data.  
19 Did any --

20 **MR. LOCHAMY:** Brant, who took care of that?  
21 We were going to --

22 **DR. ULSH:** Craig Little is currently waist-  
23 deep in that. That's a significantly more  
24 difficult proposition, Mark. I'm not  
25 intimately familiar with the details of it,

1 but Craig is just pulling his hair out over  
2 it.

3 **MR. GRIFFON:** Can you share some of where  
4 you're at with that?

5 **DR. ULSH:** Craig, are you still on?

6 **MR. LITTLE:** I'm still on.

7 **DR. ULSH:** Talk about just in general the  
8 approach that we're taking with this to  
9 compare HIS-20 back to ^ records.

10 **MR. LITTLE:** We're doing essentially the  
11 same thing we did with the external data. We  
12 have claimant, urinalysis worksheets or  
13 handwritten urinalysis records. And we're  
14 pulling those out and comparing those to  
15 database records to, essentially we're doing  
16 the same thing we did before. We're looking  
17 for places where we're in agreement or  
18 disagreement, where we have missing data, et  
19 cetera.

20 And it's just much more difficult to  
21 do than external data because there are  
22 multiple entries per person as opposed to a  
23 quarterly entry or a monthly entry or  
24 something like that because you take it. A  
25 bioassay is essentially a snapshot of a point

1 in time, whereas, an external, a film badge or  
2 a TLD is an integrated measurement over some  
3 longer period of time. So for a given year  
4 you might have 20 or 30 bioassays for an  
5 individual as opposed to four film badge  
6 measurements. And we just don't have enough  
7 of a sample yet to make a good statement about  
8 that.

9 **MR. GRIFFON:** Okay, and these handwritten  
10 records, are they in the claimants' files,  
11 these handwritten, I think you referred to  
12 them as -- I'm not sure. They weren't cards,  
13 they're --

14 **MR. LITTLE:** Yeah, actually they're  
15 worksheets.

16 **MR. GRIFFON:** -- worksheets I guess.

17 **DR. ULSH:** No, you might be thinking of the  
18 beta/gamma worksheets, Mark. There were  
19 actually urinalysis cards in the claimants'  
20 files.

21 **MR. GRIFFON:** Okay, there are urine cards in  
22 the claimants' files.

23 **DR. ULSH:** Yes. I know that I've seen them  
24 there. I can't tell you that I've gone  
25 through and looked for every year, but I

1 believe so. I have no reason to think that  
2 they wouldn't be.

3 **MR. LITTLE:** Oh, they're in the claimant  
4 file, yes.

5 **DR. ULSH:** They're in the claimant file.

6 **MR. LITTLE:** Yes, we're getting them. We're  
7 pulling them out of the claimant file.

8 **MR. GRIFFON:** And did a similar quality  
9 assurance approach go on when they pulled the  
10 claims together as with the external side?

11 **MR. LITTLE:** I'm sorry, would you repeat  
12 that?

13 **MR. GRIFFON:** Well, for each, you mentioned  
14 that for each claimant, when they pulled the  
15 file together, Kaiser would do a sort of QA  
16 process where they would look at the external  
17 HIS-20 compared to the, now, did they do a  
18 similar thing for the urinalysis?

19 **DR. ULSH:** I don't, I think the answer to  
20 that, Mark, is no, probably for the same  
21 reasons that Craig's having a hard time. It's  
22 just much more of a difficult thing to do.  
23 But what that would tell you is that we  
24 wouldn't have the same issue about having to  
25 look at non-claimants if that extra QA stuff

1                   wasn't done. So I think we can get some  
2                   insights from claimant data.

3                   **MR. GRIFFON:** Anybody else have any  
4                   questions or clarifications on the data  
5                   validation question here?

6                   **DR. MAKHIJANI:** Mark, this is Arjun. I had  
7                   a question in the first document we were  
8                   discussing, the internal comparison. If you  
9                   look at Table 1 for plutonium where the CEDR  
10                  numbers are smaller because there were zeros  
11                  there included and the number of data points  
12                  are also larger. Then you go to the uranium,  
13                  you see the number of data points are still  
14                  larger, but the values for uranium are also  
15                  larger, and that's a little bit puzzling. Why  
16                  is there so, difference would mean --

17                  **MR. LOCHAMY:** By the way, hello, Arjun, it's  
18                  been awhile.

19                  **DR. MAKHIJANI:** Hello, Joe. I wondered if  
20                  it was the same Joe.

21                  **MR. LOCHAMY:** I'm the same one. I'm looking  
22                  at the --

23                  **DR. MAKHIJANI:** Tables 1 and 2.

24                  **MR. LOCHAMY:** I'm sorry. Say it again?

25                  **DR. MAKHIJANI:** Tables --

1                   **MR. LOCHAMY:** Point to a year.

2                   **DR. MAKHIJANI:** -- 1 and 2 in the internal  
3 comparison of the HIS document.

4                   **MR. GRIFFON:** In which year, Arjun?

5                   **DR. MAKHIJANI:** If you look, most of the  
6 years it's the same if you look at say the '53  
7 to '57, '58 to '62, '63 to '67. The equation  
8 geometric mean and so on, .26 versus .30 and  
9 .^ versus .5. That's in Table 1. And then  
10 that's presumably because there are zeros in  
11 the CEDR.

12                                 But then you go to the Table 2 for  
13 uranium, and you see the opposite thing. No,  
14 not all the time but most of the time. The  
15 differences aren't very big, but they are  
16 opposite indicating that the zeros are not an  
17 issue for uranium, but they're an issue for --  
18 I'm puzzled by that.

19                   **MR. LOCHAMY:** I'd have to go back and look,  
20 Arjun, but I believe that the uranium had less  
21 zeros in it. I can't recall. As I recall,  
22 plutonium was almost exclusively zeros.

23                   **DR. MAKHIJANI:** Then why are there so many  
24 fewer data points in the HIS database?

25                   **MR. LOCHAMY:** That I cannot answer. I do

1 not know. They tend to merge in latter years  
2 until the very last two years.

3 **DR. MAKHIJANI:** I see that, yeah.

4 **MR. LOCHAMY:** They're very, very close in  
5 the latter years, but I do not know why there  
6 is a different number of data points in there.

7 **DR. MAKHIJANI:** That kind of raises a  
8 question about the nature of your adjustment,  
9 you know, technically I see that you can make  
10 the numbers match up by the kind of adjustment  
11 that you did in the follow-up document.

12 **MR. LOCHAMY:** Yes.

13 **DR. MAKHIJANI:** But that assumes that the  
14 CEDR database, this is an adjustment for  
15 uranium not the plutonium, and --

16 **MR. LOCHAMY:** Let's see, let me make sure  
17 because I was looking at that, and it's been  
18 ten minutes since I looked at it, so --

19 **DR. MAKHIJANI:** Table 1 is plutonium.

20 **MR. LOCHAMY:** For some strange reason I was  
21 thinking that I had included that I was doing  
22 plutonium instead of uranium, but the table  
23 says uranium.

24 **DR. MAKHIJANI:** Yeah, I'm a little surprised  
25 by that.

1                   **MR. LOCHAMY:** Yeah, I'm going to have to  
2 look at it. Hang on just a second. Let me  
3 look and see what I've got here. Well, it may  
4 be hard for me to determine.

5                   **MR. GRIFFON:** We can also let you follow up  
6 if you --

7                   **MR. LOCHAMY:** I'm --

8                   **MR. GRIFFON:** -- come back to it if you --

9                   **MR. LOCHAMY:** -- thinking, let's see, if I  
10 do '53 to '57 for plutonium, the geometric  
11 mean is very low, point double of something,  
12 and the -- no, it looks like I'm doing the  
13 uranium.

14                   **DR. ULSH:** Joe?

15                   **MR. LOCHAMY:** Yes?

16                   **DR. ULSH:** Don't' guess, let's -- if you  
17 need to investigate it, go check it out, but  
18 don't make a guess.

19                   **MR. LOCHAMY:** The table says uranium.

20                   **DR. ULSH:** Yeah, I'm wondering if you might  
21 have mislabeled the table. I don't know.  
22 It's something you need to check out there.

23                   **MR. GRIFFON:** Yeah, you don't need to follow  
24 up live here. We can come back to you, but  
25 just a question.

1           **MR. LOCHAMY:** Yeah, I think what I've done  
2 is I've accidentally typed uranium in instead  
3 of plutonium.

4           **MR. GRIFFON:** Do we have access, Brant, to  
5 these two databases on the O drive, or are  
6 they not accessible to SC&A?

7           **DR. ULSH:** Are you talking the HIS-20 and  
8 the CEDR database?

9           **MR. GRIFFON:** HIS-20 and CEDR. I don't  
10 think we have access to these, do we?

11          **DR. ULSH:** Good question, Mark. I'm not  
12 sure I know the answer.

13          **MR. GRIFFON:** If that could be done, I think  
14 that would be great if we don't already. It  
15 might be --

16          **DR. ULSH:** People around the table are  
17 shaking their heads that HIS-20 is not  
18 currently accessible.

19          **MR. LOCHAMY:** I have a copy out there.

20          **DR. NETON:** This is Jim Neton. HIS-20 is  
21 run by proprietary software, a product that is  
22 being used here. Unless, Joe, to do this  
23 analysis, have you downloaded these into other  
24 files though. You must have had them.

25          **MR. LOCHAMY:** There is a copy of HIS-20 out

1 on the O drive.

2 **DR. NETON:** A copy of a downloaded file.

3 **MR. LOCHAMY:** What happened was Jim sent me  
4 a flat ASCII file, and I imported it into an  
5 ACCESS database.

6 **DR. NETON:** Okay, well, that would work, I  
7 think.

8 **MR. GRIFFON:** Yeah, can that be made  
9 available, Jim or Joe?

10 **MR. LOCHAMY:** It's sitting out there on the  
11 O drive.

12 **MR. GRIFFON:** Well, it may be on your O  
13 drive, but we --

14 **DR. NETON:** Well, we need to be careful  
15 which O drive we're talking about. If it's  
16 available as an ACCESS database, we can make  
17 it available on the Advisory Board debut  
18 Document Review file.

19 **MR. GRIFFON:** And the same thing for the  
20 CEDR so we can maybe look at this?

21 **DR. NETON:** Yeah, I think we'll just work  
22 with Joe Lochamy.

23 **MR. LOCHAMY:** Okay, the two are sitting out  
24 there right now together.

25 **DR. NETON:** Yeah, we'll have to put them in

1 the right location, that's all.

2 **MR. GRIFFON:** Thank you, Jim.

3 **DR. NETON:** No problem.

4 **MR. GRIFFON:** And Joe, we can come back to  
5 you on this question, or later in the  
6 discussion if you have more clarification on  
7 that.

8 **MR. LOCHAMY:** Table 4 is plutonium. It is  
9 not uranium. I accidentally, when I copied  
10 the table over to use it as a basis for  
11 building the next table, I --

12 **MR. GRIFFON:** This is Table 4 in the follow  
13 up?

14 **MR. LOCHAMY:** -- Table 4 should be PU.

15 **MR. GRIFFON:** Excuse me, Table 4 in the  
16 follow-up document?

17 **MR. LOCHAMY:** In the follow-up document  
18 should be PU. And I've looked at the others.  
19 In fact, Table 3 should also be PU. I  
20 apologize for that. When you're in a hurry to  
21 try to meet a deadline, you sometimes don't  
22 pay attention to what you're doing there. But  
23 the data are clearly plutonium data.

24 **DR. ULSH:** This won't be the last typo I can  
25 only --

1           **MR. LOCHAMY:** I can assure you, that won't  
2 be the last time that happens.

3           **DR. MAKHIJANI:** Except for Table 2 which is  
4 uranium.

5           **MR. LOCHAMY:** That is correct. Table 2 is  
6 definitely uranium.

7           **MR. GRIFFON:** Thank you for that  
8 clarification.

9           **MS. MUNN:** Will you correct that and send us  
10 the correction?

11          **MR. LOCHAMY:** I'm sorry. You want me to do  
12 that?

13          **MS. MUNN:** Yes. I need somebody to do so  
14 that I --

15          **MR. LOCHAMY:** Yeah, I'll take the lead on  
16 that.

17          **MS. MUNN:** -- and get the right ones.

18          **DR. ULSH:** Okay, can you just correct those  
19 errors?

20          **MR. LOCHAMY:** Yes.

21          **DR. ULSH:** So it'd be Table 3 and 4 should  
22 read plutonium instead of uranium.

23          **MR. LOCHAMY:** So it should read plutonium?

24          **DR. ULSH:** Yes.

25          **MR. LOCHAMY:** I'm sorry.

1           **DR. ULSH:** Wanda, I will do that. I will  
2           make those corrections and get them out.

3           **MS. MUNN:** Thanks, Brant.

4           **MR. GRIFFON:** Is there anything else on the  
5           data validation, data reliability question? I  
6           think a lot of the data reliability items,  
7           specific allegations, we're going to cover  
8           through the matrix because there were a number  
9           of specific allegations brought up in the  
10          petition, and I've now included those in the  
11          matrix, maybe not in the best fashion.  
12          Sometimes they're a little lengthy. I was  
13          trying to boil them down, but they're,  
14          sometimes to keep the content, I had to  
15          basically copy the entire thing. But we can  
16          walk through those in that area, but if  
17          there's other items here that we might want to  
18          discuss, anybody have anything?

19          **MS. MUNN:** We had a brief conversation about  
20          that while you were off somewhere this  
21          morning, and the experts convinced me that I  
22          should wait for the matrix.

23          **MR. GRIFFON:** Okay.

24          **DR. MAURO:** Mark, this is John. I just  
25          clarify, I know a couple of the issues, of

1 course, one was data reliability and one was  
2 the coworker OTIB. I guess my sense was what  
3 we were talking about here is more oriented  
4 toward building a coworker database that could  
5 be used for your coworker OTIB. Or am I  
6 incorrect in that?

7 **MR. GRIFFON:** Well, these two documents that  
8 we just went through, it seems, yes, this is  
9 all around how do you use the database for  
10 coworker model.

11 **DR. ULSH:** And then Craig's discussion  
12 compared, for external, compared HIS-20 to raw  
13 records so that would not just be coworker.

14 **DR. MAURO:** So in other words in a way this  
15 discussion we had has validity not only to  
16 coworker, but also to data reliability?

17 **DR. ULSH:** I don't want to say that it, I  
18 certainly wouldn't be optimistic enough to  
19 hope that it would put data reliability to  
20 bed. But I do think that it weighs in and you  
21 can draw some conclusions from it.

22 **MR. GRIFFON:** Right, I think the data  
23 reliability, you know, the raw record, as  
24 Brant said, the external, they've done,  
25 they've made some efforts on the raw record

1 comparison, but the internal, I think they're  
2 just delving into that.

3 **DR. ULSH:** We're in the thick of it.

4 **MR. GRIFFON:** And anything else on data  
5 reliability?

6 (no response)

7 **MR. GRIFFON:** And anything else on the  
8 evaluation report in general before we --

9 **DR. MAKHIJANI:** This is Arjun. There was  
10 one new thing in the evaluation report that I  
11 had a question about that I had not seen  
12 before, and it related to the americium zeros,  
13 which I don't think has come up so far.

14 **DR. ULSH:** Americium zeros, Arjun?

15 **DR. MAKHIJANI:** Yeah. I think it is, but  
16 I've got so many files open I can't find the  
17 evaluation report. I think it's on page 41.

18 **DR. ULSH:** Okay, I'm on page 41.

19 **DR. MAKHIJANI:** This is from memory so I'm  
20 not there yet, but, yeah, it is on page 41 in  
21 the paragraph that starts, "In vivo Americium-  
22 241 lung data ..." The second sentence there,  
23 "From 1965 through 1971, all results above  
24 4000 were reported as zero." That whole  
25 discussion was kind of puzzling.

1 I understand the words, of course.  
2 You're accepting the zeros at face value, but  
3 then there doesn't seem to be any explanation  
4 of whether they're real zeros or how you  
5 determined that they're real zero, especially  
6 if, there's some kind of indication the  
7 problem continued after that. But it's not  
8 real clear that it continues so I was a little  
9 puzzled by this paragraph.

10 **DR. ULSH:** Okay, I'm re-reading the  
11 paragraph right now. Give me a second here.  
12 Okay, this deals with Americium-241 lung count  
13 data from '65 to '88. Let me just -- for  
14 those of you who don't have this open, let me  
15 just read this paragraph.

16 In vivo Americium-241 lung data from  
17 1965 to '88 were extracted from a Microsoft  
18 ACCESS table, and it gives the name. There  
19 were just fewer than 80,000 Americium-241  
20 records in the lung database. From '65  
21 through '71 all results, in parentheses, about  
22 4,000, were reported as zero with no  
23 explanation of what those values might have  
24 meant. So therefore, no analyses were  
25 performed on those data. Furthermore, the

1 Tech Basis Document mentions that Americium-  
2 241 activities were quantified only if a known  
3 plutonium incident occurred. However, the TBD  
4 also says that results were sometimes recorded  
5 in counts per minute when no known incident  
6 had occurred. Some results were also recorded  
7 in micrograms or nanocuries. And finally it  
8 says, after '71 positive values began to  
9 appear, but there were still no exclusion  
10 instructions for when zero values were  
11 reported. See the no calc discussion above.

12 I'm not sure, I don't know exactly  
13 where the no calc is, but therefore, zero  
14 results were treated as zeros because no  
15 better information was available.

16 Calculations of the lung plutonium values  
17 recorded with the Americium-241 lung data were  
18 determined by using the Americium-241 data and  
19 an assumed concentration of 1,000 dpm by  
20 weight of americium and the plutonium.

21 So that's what the paragraph says. Is  
22 that the one you're talking about?

23 **DR. MAKHIJANI:** Yeah, exactly.

24 **DR. ULSH:** Okay, I'm looking around the  
25 table to see if we've got any input to

1 provide.

2 **MR. FALK:** Yes, this is Roger Falk. I am  
3 thinking that that table came from the CEDR  
4 database.

5 **DR. ULSH:** That is true. The name indicates  
6 that it is a CEDR database.

7 **MR. FALK:** That was basically transcribed  
8 from the raw lung count report. And  
9 basically, the situation is that the zeros  
10 that they are describing were actually blanks  
11 on the hardcopy original data. They should  
12 not have been put in there as zeros. It is my  
13 understanding that the CEDR database is based  
14 on microfiche copies done by Los Alamos in  
15 support of the epidemiological study, and that  
16 they transferred that data into the database.  
17 I am thinking, and I believe this fairly  
18 firmly, is that they misinterpreted all that  
19 data. The statement in the Technical Basis  
20 Document says that if there was not a  
21 confirmed lung deposition, there was no  
22 evaluation done for those lung counts, only if  
23 it was a confirmed deposition. Therefore,  
24 there should be no zeros put in there because  
25 it was a non-evaluated count per minute

1 signal. Therefore, that data should not be  
2 used to develop coworker for the americium  
3 results for the in vivo measurements.

4 **DR. ULSH:** Keep in mind we're not proposing  
5 to use that, the coworker.

6 **DR. MAKHIJANI:** So not evaluated means what?

7 **MR. FALK:** See, when we did it on the  
8 record, it was either called normal or the  
9 result was called background. It was a  
10 qualitative decision. It was not a  
11 quantitative decision.

12 **DR. MAKHIJANI:** So you're not treating these  
13 as zeros in other words?

14 **MR. FALK:** They shouldn't be treated as  
15 zeros.

16 **DR. MAKHIJANI:** The words in the evaluation  
17 report read that they were treated as zeros,  
18 but it's not being treated as zeros?

19 **DR. ULSH:** You're right, Arjun. The working  
20 in the ER might be a little bit misleading,  
21 but that refers to, again, to the CEDR dataset  
22 for americium in vivo counting. And we're not  
23 proposing to use that for coworker data.

24 **DR. MAKHIJANI:** But what about the  
25 individual data?

1           **MR. FALK:** What I would like to point out is  
2 that the original lung count sheets are all  
3 part of the claimants' data files. And the  
4 dose reconstructors will use that for the  
5 claimant.

6           **DR. ULSH:** Not the CEDR data.

7           **DR. MAKHIJANI:** No, so my question is so  
8 they have blank, and then what do they do?

9           **DR. ULSH:** You mean during dose  
10 reconstruction?

11          **DR. MAKHIJANI:** Yeah.

12          **MR. GRIFFON:** Yeah.

13          **MR. FALK:** They will likely rely on the  
14 urine data. However, we need, probably one of  
15 the dose reconstructor team needs to clarify  
16 that.

17          **DR. ULSH:** Muttu, are you out there?

18          **MR. SHARFI:** Yes.

19          **DR. ULSH:** Do you have any insights to  
20 provide?

21          **MR. SHARFI:** Is this maybe a coworker  
22 question or just how we'd use the --

23          **MR. GRIFFON:** No, this is for an individual  
24 claimant.

25          **DR. ULSH:** Individual dose reconstruction

1 question. I don't --

2 **MR. SHARFI:** Go ahead, Brant. What did you  
3 say?

4 **DR. ULSH:** Arjun, I don't, I think we're  
5 talking about two different things here.  
6 We're talking about data that's in a CEDR  
7 database. If you look at the name of the file  
8 which is given in the second line of that  
9 paragraph, rff^. That's a CEDR database.  
10 What's going to appear in the individual dose  
11 reconstruction is the actual lung count  
12 report.

13 **DR. MAKHIJANI:** I accept, you know, it  
14 seems, Roger's explanation seems fine that  
15 this was something that was misinterpreted  
16 when entering, when transcribing the data into  
17 the CEDR database. But then the explanation  
18 kind of lead to this question of if it's a  
19 blank in the original, then what do you do?  
20 How do you interpret that blank when there's  
21 no information for the individual in whose  
22 record the blank appears?

23 **MS. MUNN:** You're doing an individual dose  
24 reconstruction and you have a blank there both  
25 ^ to the reconstruction, right?

1                   **DR. MAKHIJANI:** Yeah, that is the question.

2                   **DR. NETON:** This is Jim Neton. I think I  
3 might be able to shed some light on this. The  
4 in vivo measurements are typically used, we  
5 would start normally with the urine data to do  
6 an internal dose. And then the in vivo data  
7 are used to compare to make sure that there's  
8 consistency between those two types of  
9 measurements.

10                               So if there were a blank there, I've  
11 been told that the original data are all there  
12 from the net counts per minute where one could  
13 actually calculate the detection limit for the  
14 measurement for the amount and compare that  
15 for consistency purposes to the intake  
16 determined from the bioassay urine  
17 measurement.

18                   **DR. MAKHIJANI:** Okay, thank you, Jim.

19                   **MR. ROBINSON:** This is Alan, and I was, I do  
20 dose reconstructions, and I would confirm  
21 that. I mean, typically the raw counts are  
22 there. You use it for comparison, and we have  
23 from the TBD there's methodology in there that  
24 we can calculate the mda and determine what  
25 the mda would have been for that count. And

1 then we can compare back to urine analyses to  
2 make sure that we're consistent.

3 **MS. DeMERS:** And we're talking about  
4 americium here?

5 **MR. GRIFFON:** Yes.

6 **MS. DeMERS:** Okay, can I read you a quote  
7 from a report that was put out by the --

8 **MR. GRIFFON:** Is this Jennifer?

9 **MS. DeMERS:** This is Kathy.

10 **MR. GRIFFON:** Oh, Kathy, hi.

11 **MS. DeMERS:** It was put out in February 5<sup>th</sup>,  
12 1963, by the Industrial Hygiene group. It  
13 says, "The plutonium analytical procedure  
14 adopted in 1961 is specific for plutonium  
15 alpha activity. This means that we are not  
16 screening employees for possible americium  
17 exposures. In addition, positive exposures to  
18 materials can be as much as 45 percent  
19 americium activity basis and are still being  
20 studied. As a result, an americium-specific  
21 urine analysis is under development."

22 So this would indicate that there is a  
23 period of time where there was a gap in the  
24 monitoring for americium.

25 **DR. ULSH:** Kathy, could you read the first

1 part of that again about the gross alpha?

2 **MS. DeMERS:** "The plutonium analytical  
3 procedure adopted in 1961 is specific for  
4 plutonium alpha activity."

5 **DR. ULSH:** Okay, that is the plutonium  
6 analysis. That is not gross alpha. What we  
7 said was in the earlier years prior to the  
8 development of the americium-specific  
9 bioassay, which was widely implemented in  
10 1963, we would cover americium with gross  
11 alpha bioassay, not plutonium-specific  
12 bioassay.

13 **MS. DeMERS:** Well then, what are you doing  
14 from 1951 forward?

15 **DR. ULSH:** Up until 1963 we would be  
16 covering americium with gross alpha. After  
17 1963 we would use americium-specific bioassay.

18 **MS. DeMERS:** Okay, and you've got a document  
19 here that is stating that they haven't fully  
20 developed that process.

21 **DR. ULSH:** What's the date on that?

22 **MS. DeMERS:** February 5<sup>th</sup>, 1963.

23 **DR. ULSH:** Oh, '63. That's when the  
24 americium-specific bioassay was implemented,  
25 in 1963. It was developed in 1963. That's

1 when they started using it widely.

2 **MS. DeMERS:** Okay, and you've got a gap  
3 there because it says, "The plutonium  
4 analytical procedure adopted in 1961 is  
5 specific for plutonium alpha activity."

6 **DR. ULSH:** Yes, and prior to 1963 we would  
7 have used gross alpha, not plutonium-specific.

8 **DR. NETON:** It seems to me there were  
9 analytical techniques being employed at the  
10 same time, both a gross alpha and a plutonium  
11 procedure, that you'd get two pieces of data  
12 not just one.

13 **MS. DeMERS:** And do you have the analytical  
14 method by which the bioassay samples were  
15 processed?

16 **DR. ULSH:** I believe that is described in  
17 Attachment A of the internal TBD.

18 **MS. DeMERS:** Okay, Mark, I don't know when  
19 it's going to be the best time to bring up  
20 some items.

21 **MR. GRIFFON:** Well, this may come, we do  
22 have a section in the matrix where we discuss  
23 americium doses, the doses from americium and  
24 the monitoring for americium. So why don't we  
25 save more details on this for the matrix if

1                   that's okay?

2                   **MS. DeMERS:** Well, I'd like to make one  
3 comment about NIOSH responses to my draft  
4 memo. They did not include --

5                   **MR. GRIFFON:** Which, can you tell us what  
6 responses you're talking about, the April 5<sup>th</sup>  
7 responses is that --

8                   **MS. DeMERS:** Right, right. They did not  
9 include a table in there that I added of the  
10 records that were not provided to me at the  
11 time I was at Rocky Flats. And these records  
12 were designated to get at the issue of when a  
13 zero was reported in the record, did the field  
14 conditions support that zero.

15                   **MR. GRIFFON:** Okay, again, Kathy, are you  
16 going to be available after, I think we're  
17 going to break for lunch soon probably, but I  
18 want to pick up the matrix after lunch, and  
19 all these comments fall at the bottom of our  
20 matrix. So I want to take more time on all  
21 these I think if that's okay.

22                   **MS. DeMERS:** That's fine.

23                   **MR. GRIFFON:** Just to go back to the report  
24 for a few final things, Brant, I hope a few  
25 final things anyway and then maybe we can

1 break.

2 I had a, just a question or a  
3 clarification. On page 42 at the bottom in  
4 Section 7.1.3, the first paragraph there,  
5 basically your conclusion on data sufficiency.

6 **DR. ULSH:** Yes.

7 **MR. GRIFFON:** And it says in the middle,  
8 similarly NIOSH also investigated the pedigree  
9 of internal dosimetry data found in the CEDR  
10 and HIS-20 databases, compared the CEDR data  
11 to HIS-20 data, and finally, compared HIS-20  
12 data to original hard copy records. I think  
13 that's a little bit of an overstatement, isn't  
14 it?

15 **DR. ULSH:** I think I agree with you, Mark.  
16 That is one of those cases where real events  
17 caught up with me.

18 **MR. GRIFFON:** Right, you're in the midst of  
19 that, I guess.

20 **DR. ULSH:** Yes, that is correct.

21 **MR. GRIFFON:** I just wanted to make sure I  
22 was reading it correctly, and I think that's  
23 something you need to probably follow through  
24 on.

25 **DR. ULSH:** Absolutely.

1           **MR. GRIFFON:** And then on page 47, it's the  
2 second paragraph under Section 7.2.1.3,  
3 Application of Coworker Model. I just want to  
4 understand this. It says, "These models  
5 coupled with claimant-favorable inputs may be  
6 used to reconstruct doses for unmonitored  
7 workers." Fine, we understand that. "Or to  
8 fill data gaps where records may have been  
9 lost, incorrectly recorded or where assigned  
10 doses may have been underestimated."

11           I guess my question is do you have  
12 reason to believe that records were lost,  
13 incorrectly recorded or assigned doses were  
14 underestimated?

15           **DR. ULSH:** No.

16           **MR. GRIFFON:** Or was this sort of a catch-  
17 all statement? I don't --

18           **DR. ULSH:** It's the latter. It's meant to  
19 address the hypothetical if such, if evidence  
20 of that were discovered, or in situations  
21 where we suspect that might be the case,  
22 that's what it's meant to cover. But I'm not  
23 aware of any situations that we have  
24 discovered like that.

25           **MR. GRIFFON:** All right, I just wanted a

1 clarification on that.

2 And that's really all I have. I mean,  
3 we have several, we're going to get into more  
4 detail on some of these items within the  
5 matrix, but is there anything before we, I  
6 think it might be a good time to break for  
7 lunch in a few minutes.

8 **DR. MAURO:** Mark, this is John. I just have  
9 one very brief question if that's okay.

10 **MR. GRIFFON:** Sure.

11 **DR. MAURO:** On page 13 of your evaluation  
12 report, and this is a recurring thing which we  
13 noticed also in the Y-12, one of your lines of  
14 argument for being able to do a dose  
15 reconstruction is you make reference to all of  
16 the dose reconstructions that have been  
17 performed and that have been completed. I  
18 would be interested in hearing a little bit  
19 about when you have your full array of cases  
20 before you, and you're going through the dose  
21 reconstruction selection process, I presume  
22 that there are some that need to be set aside  
23 for various reasons because certain protocols  
24 have not been developed, certain databases  
25 have not been developed, for example, coworker

1 database may not be developed.

2 I think it would be very informative  
3 if the evaluation report developed that part  
4 of the story because to a large extent it is  
5 the challenges posed by those cases that  
6 represent the areas where there is some  
7 difficulty in doing dose reconstruction. And  
8 to a large extent, the ability to do dose  
9 reconstruction is to find ways of overcoming  
10 those difficulties.

11 So I guess as a general observation I  
12 think that I would have liked to have seen  
13 some discussion along the lines of how, the  
14 degree to which that, you have encountered  
15 those kinds of challenges as you went through  
16 the dose reconstruction process for your cases  
17 on Rocky, for example.

18 **DR. ULSH:** John, that's an interesting  
19 comment. Thank you for that. We kind of came  
20 at this in a little different way, and that  
21 was through the example dose reconstruction  
22 where, through our discussions with the  
23 working group and with SC&A, we've identified,  
24 at least I hope we've identified the right  
25 areas to do sample dose reconstructions that

1 demonstrate how we would handle some of these  
2 situations that questions have been raised  
3 about. But I understand what you're saying  
4 about, in terms of looking at real cases.

5 **MR. GRIFFON:** And to the -- John's point, to  
6 the extent, what is the extent of these sort  
7 of situations might exist within the real  
8 cases, yeah.

9 **DR. ULSH:** Well, okay, I don't want to  
10 comment specifically on how frequently these  
11 situations that are covered in the example  
12 dose reconstructions might exist because, you  
13 know, I want to wait until we talk about  
14 individual ones, but I can tell you that for a  
15 number of them the example dose  
16 reconstructions were done to answer a  
17 particular question that was raised by the  
18 Board or by SC&A. They weren't done to  
19 represent necessarily situations that we would  
20 expect to see. And a good example is the  
21 coworker examples. We don't expect to see  
22 that very often, but --

23 **MS. MUNN:** Indeed, you have not given the  
24 numbers you just gave.

25 **DR. ULSH:** Right, but we had to construct an

1 example to show what we would do if we, you  
2 know, in those cases. So don't take that  
3 example as being representative of the real  
4 universe of claims that we have from Rocky  
5 Flats, but rather they were constructed to  
6 address a specific question.

7 **DR. BEHLING:** Mike, this is Hans Behling. I  
8 do have a question, and I guess I'd like to  
9 ask before we break for lunch. And that is  
10 the issue of gross alpha versus alpha  
11 spectrometry when we talk about urine  
12 bioassays for plutonium. Is there any  
13 difference between the actual up-front process  
14 between spectroscopy when we talk about the  
15 chemical isolation of plutonium?

16 **MR. FALK:** This is Roger Falk. The process  
17 of the alpha spectrometry was basically  
18 introduced I'm going to say around 1970, 1971  
19 when they started to get multi-channel  
20 analyzers.

21 **DR. BEHLING:** Yes, and I'm fully aware of  
22 the fact that obviously with spectroscopy, you  
23 can isolate or separate the different  
24 plutonium alpha emitters from each other. But  
25 in fact, I would assume that the chemical

1 isolation of plutonium for either gross alpha  
2 or spectroscopy, spectroscopy's the same,  
3 meaning that the issue of Americium-241 really  
4 isn't an issue since obviously you would not  
5 expect significant amounts of carryover of  
6 Americium-241 as has been alluded in previous  
7 discussions.

8 **MR. FALK:** The use of the gross alpha is,  
9 was basically was a nonspecific-type of the  
10 analysis, and that was used in the '50s and  
11 '60s primarily. And so basically any of the  
12 alpha emitters would have been caught by that  
13 process.

14 **DR. BEHLING:** You mean to tell me you  
15 wouldn't first isolate plutonium as a chemical  
16 element before you do gross alpha? I mean,  
17 you have to reduce a urine volume to something  
18 that is now countable on the planchette^ and  
19 suitable for alpha counting. And I would  
20 assume that involves the chemical isolation of  
21 plutonium from urine whether you do gross  
22 alpha or alpha spectroscopy.

23 **MR. FALK:** I do not know the details of that  
24 process, but it was my general understanding  
25 that there was minimal separation of ^

1                    basically prior to the counting.

2                    **MR. GRIFFON:** Brant, is this described in  
3                    that Attachment 1 of the TBD?

4                    **MR. FALK:** Yes.

5                    **MS. MUNN:** I thought it was.

6                    **MR. FALK:** Yes.

7                    **DR. ULSH:** Attachment A, Mark.

8                    **MR. GRIFFON:** I'm sorry. Attachment A does  
9                    cover the chemical processing of the samples,  
10                    too and the kind of methods --

11                    **MR. FALK:** In a fairly broad brushstroke,  
12                    however.

13                    **MS. MUNN:** I remember reading something, but  
14                    it was, I was reading very fast, but there was  
15                    something in there. And I came away with the  
16                    impression that there was not a separation  
17                    prior to the gross count. Perhaps I was  
18                    incorrect.

19                    **DR. BEHLING:** Well, I just don't know how  
20                    you would essentially, if you talk about a  
21                    urine sample, and you simply, let's say,  
22                    evaporate the water component, for a liter  
23                    sample, you would end up with approximately  
24                    one or two grams of total material from urea  
25                    to sodium chloride to whatever. So there has

1 to be some chemical separation in order to  
2 avoid sample self-absorption. There's no  
3 doubt in my mind.

4 **DR. NETON:** This is Jim Neton. I seriously  
5 doubt they used a liter. It was probably  
6 more, a much smaller volume, and you could  
7 certainly dry off your organic material with  
8 wet ash and with nitric acid or something of  
9 that nature. And whether or not there was  
10 some sort of a calcium oxalate precipitation  
11 to separate out the bulk elements that would  
12 not preferentially remove transuranic or  
13 alpha-type emitters. You know, it's not that  
14 uncommon. I mean, if you look at the HASL  
15 manual, I'm sure there are procedures in there  
16 for gross alpha analysis of urine. It's more  
17 of a screening technique than anything else.  
18 It's just much quicker.

19 **DR. BEHLING:** Yeah, I was just curious about  
20 the issue of the Americium-241 being an issue.  
21 It was always my impression that even when you  
22 engaged in gross alpha counting for plutonium  
23 that you chemically isolated plutonium.

24 **DR. NETON:** If you want to get plutonium-  
25 specific, but the payback, the cost is fairly

1 enormous to start doing plutonium-specific  
2 chemical separation. The bottom line is if  
3 you can pull out the gross alpha emitters by  
4 themselves and demonstrate that there is not  
5 much there, you accomplished your mission  
6 without going to the great expense of some  
7 sort of ion exchange column or solvent  
8 extraction process. It's not that uncommon in  
9 the early years for them to do those type of  
10 analyses.

11 **MR. GRIFFON:** So we're talking in  
12 generalities now, Jim. I mean, maybe over the  
13 break, Hans, if you haven't reviewed  
14 Attachment A completely, maybe you can take a  
15 look at that.

16 **DR. BEHLING:** Yeah, I'm actually looking at  
17 a document that a Savannah River site internal  
18 Technical Basis Manual which has nothing to do  
19 with the TBD for the energy employee issue  
20 here, and I'm looking here. And for a gross  
21 alpha counting they do, in fact, isolate  
22 plutonium by using Plutonium-241 as a tracer,  
23 et cetera, and chemically separate it.

24 **MR. GRIFFON:** But again, that was Savannah  
25 River so maybe --

1                   **DR. BEHLING:** I realize that.

2                   **MR. ROBINSON:** Excuse me, this is Al  
3 Robinson. You know, in the TBD there it turns  
4 out that from '52 to '71 for gross alpha, what  
5 they did is they did an extraction method  
6 using either TBP or a TOPO. And basically it  
7 pulled out the plutonium, uranium as well as  
8 americium and natural thorium, the major parts  
9 of the urine matrix, and allowed it to be  
10 counted. So they were all pulled out, but  
11 there was some purification, but it was a  
12 gross purification of all the alpha emitters.

13                   **MR. GRIFFON:** So that's in the TBD?

14                   **MR. ROBINSON:** Yeah.

15                   **MR. GRIFFON:** Do you have a page number and  
16 stuff, and maybe, Hans, you can --

17                   **MR. ROBINSON:** That's on page 42.

18                   **DR. BEHLING:** Okay, that would clarify it,  
19 so I'm not, you know, it's been a long time  
20 since I read the TBD.

21                   **MR. GIBSON:** This is Mike Gibson. Could I  
22 ask one question, too, and I'm certainly not a  
23 health physicist, but the size of the sample,  
24 I thought I heard someone say one liter.  
25 That's, in my task we're just accustomed to a

1 complete 24-hour voiding for a bioassay  
2 sample. So if some smaller sample was used,  
3 how representative would that be? Would that  
4 actually show a representative sample of what  
5 you may have had in an uptake?

6 **DR. NETON:** Well, Mike, this is Jim Neton.  
7 This issue sort of came up yesterday early in  
8 our discussion of the Ames Laboratory where we  
9 would, you know, oftentimes it was practiced  
10 when spot samples were taken for routine  
11 analyses, something less than a 24-hour void  
12 was collected. And in fact, that's fairly  
13 common even today.

14 Twenty-four-hour voids were collected  
15 in response to known incidents. The bottom  
16 line is when you take less than a 24-hour  
17 void, you do incur some amount of uncertainty  
18 in extrapolating to a daily voiding. But all  
19 of our internal dosimetry calculations, when  
20 they're done, have an assigned geometric  
21 standard deviation of three, which  
22 incorporates some of that uncertainty.

23 In other words, we don't, none of our  
24 internal doses, if they're reasonable  
25 estimates of internal dose, are assigned a

1 single value. They allow for the uncertainty  
2 distribution to be sampled as part of the IREP  
3 process, or as part of the IMBA, the IREP  
4 process. And if you recall, if the 99<sup>th</sup>  
5 percentile is used so that the value of POC  
6 that is calculated, 99 percent of the possible  
7 outcomes are less than the value that we  
8 quote. And that would include the uncertainty  
9 assigned for the internal dose.

10 **MR. GIBSON:** Well, I mean, and I'm just  
11 speaking from my own experience, that's all I  
12 have as far as the DOE complex, but even on  
13 spot checks or incident checks, it was always  
14 a 24-hour sample not just a one-time voiding  
15 or a one-liter voiding. It was always a 24-  
16 hour sample.

17 **MR. ALLEN:** In the modern era I'm sure.

18 **DR. NETON:** That was Dave Allen by the way.  
19 In the modern era that may be true for stuff  
20 like plutonium, but not in the early days.

21 **MR. GIBSON:** Who asked me in the modern era?  
22 Who was that?

23 **DR. NETON:** That was Dave Allen speaking.

24 **MR. ALLEN:** Yeah, by modern era I mean, you  
25 know, after the, say, 1970 or...

1           **MR. GIBSON:** I was at Mound for about 25  
2 years, and it was that practice for at least  
3 the 25 years.

4           **DR. NETON:** But again, if it were not as I  
5 described --

6           **MR. GIBSON:** I'm not trying to be  
7 argumentative, but I don't know what you mean  
8 by modern times.

9           **MR. ALLEN:** Well, basically, that type, but  
10 it's timeframe into the '70s. The '50s, '60s  
11 things were a little different as far as  
12 trying to every plant sorting out something  
13 different it seemed like. But once you got  
14 into the '70s with plutonium, I think almost  
15 everybody was doing a 24-hour sample.

16           **DR. NETON:** Again, the uncertainty is  
17 incorporated into the overall dose estimate.  
18 And in fact, the 95<sup>th</sup> percentile is somewhere  
19 around nine times higher than what the best  
20 estimate is, and that is sampled and part of  
21 the dose, part of the POC calculation.

22           **MR. GIBSON:** Okay, like I say, I'm not a  
23 health physicist, and I'm just trying to  
24 clarify that for myself. Maybe if I'm off-  
25 base, you know, someone's got the expertise

1 and can speak in, but just had that question.

2 **MR. GRIFFON:** Yeah, and that point has been  
3 raised before, Mike. I think we've, and  
4 they're, you know, we have discussed it and  
5 the ways to adjust for it and account for it  
6 and added uncertainty in for it. And I think  
7 Jim pretty accurately described that.

8 **MR. GIBSON:** Okay, that's fine.

9 **MR. FITZGERALD:** Mark, Joe. Just one quick  
10 question that really deals with the overview  
11 as opposed to the matrix. On page 44 of the  
12 evaluation there's a conclusion that none of  
13 the other radionuclides present at Rocky was  
14 in high enough quantities to contribute  
15 significantly to internal dose. Just as a  
16 point of clarification, is there any  
17 characterization analyses or anything that  
18 would tie that to work-specific activities  
19 such as those involved in thorium strikes?

20 I guess I was just curious about the  
21 basis for that, you know, pretty much pushing  
22 that off the table at this point. Given the  
23 fact that it was, did figure rather  
24 prominently during the Y-12 analyses, it just  
25 seems like we ought to be clear on what the

1 basis of that conclusion is.

2 **MR. GRIFFON:** Right, good point.

3 **DR. ULSH:** This is Brant. In terms of  
4 thorium, if you read that paragraph there,  
5 Joe, where it talks about the thorium strikes  
6 that you mentioned --

7 **MR. FITZGERALD:** Right.

8 **DR. ULSH:** -- those occurred during the mid-  
9 to-late 1960s. At that time Rocky Flats was  
10 doing gross alpha, and so they did have a  
11 bioassay method in place to detect, I mean,  
12 that bioassay method would have covered  
13 thorium. As I mentioned before, it wasn't  
14 generally observed that there was a large  
15 potential exposure to thorium, and that's the  
16 way they would have monitored it with gross  
17 alpha.

18 Is that, I mean, you asked  
19 specifically about thorium.

20 **MR. FITZGERALD:** Well, no, I was just saying  
21 that there's sort of a list of the minor and  
22 trace materials. And I tend to agree that  
23 trace materials that were used in the weapons  
24 program I can see where the, just the  
25 quantities would be so small as not to be

1 significant. But between the thorium maybe,  
2 the neptunium, is there an analysis or  
3 anything or is it just strictly based on the  
4 amount of material handled?

5 **DR. ULSH:** Well, I guess I would base it on  
6 the amount of material present. I'm not sure  
7 what you mean by --

8 **MR. FITZGERALD:** But was the conclusion  
9 based on just the amount of material handled  
10 and the fact that, I guess in the case of  
11 thorium, you would expect the gross alpha to  
12 pretty much encompass whatever exposure the  
13 worker would have had.

14 **DR. ULSH:** Right, I think what you're saying  
15 is probably accurate.

16 **MR. GRIFFON:** Brant, I don't think you're  
17 even in that situation, the way I read this.  
18 If you had gross alpha in those years, even if  
19 a person was working in those areas where they  
20 had the thorium, unless you had specific  
21 information, you probably just assumed the  
22 gross alpha was, what, plutonium or the most  
23 claimant-favorable assumption in that case?

24 **DR. ULSH:** Yes, that is correct, Mark.

25 **MR. GRIFFON:** But you'd never assume thorium

1 I guess is what this statement says, you know,  
2 that these were not significant.

3 **DR. ULSH:** We would not assume thorium.  
4 Okay, let me put it this way. If it were  
5 possible for a worker to be exposed to a  
6 multitude of alpha-emitting radionuclides and  
7 all we had was gross alpha, we would assign  
8 that to the most claimant favorable of the  
9 possible choices. And I can't think of a case  
10 where that would be thorium, but I'm looking  
11 around for someone who's more of an expert to  
12 correct me.

13 **UNIDENTIFIED:** I think it would usually be  
14 plutonium. I can't think of a case that would  
15 be thorium. That wouldn't be an easy high  
16 dose already.

17 **DR. ULSH:** Does that answer your question,  
18 Mark or Joe or whoever asked it?

19 **MR. GRIFFON:** Yeah, I mean, I can understand  
20 that gross alpha would encompass the  
21 potential, you know, that you could use the  
22 gross alpha to calculate thorium doses, but  
23 here you're saying that these nuclides are, as  
24 Joe stated, you know, sort of off the table  
25 because they weren't of a significant quantity

1 to contribute to the internal dose  
2 significantly, and that's a different  
3 statement, you know?

4 **DR. ULSH:** Okay, so you're differentiating  
5 between thorium and the other ones that were  
6 present in lower quantities. Is that  
7 accurate?

8 **MR. GRIFFON:** Well, I, no, I'm using thorium  
9 as an example. Are all of them, are you  
10 saying that thorium, oh, you're saying limited  
11 amounts of neptunium, americium, plutonium.

12 **DR. ULSH:** Right.

13 **MR. GRIFFON:** So those are the ones that  
14 you're saying are not of significant quantity?

15 **DR. ULSH:** That's correct.

16 **MR. GRIFFON:** Okay, I'm brushing over the  
17 paragraph quickly. I apologize then, so if  
18 you knew that a person was in a thorium area,  
19 for instance, and you had gross alpha data,  
20 you may reconstruct thorium doses as opposed  
21 to just assumed the worst radionuclides?

22 **DR. ULSH:** I suppose theoretically that  
23 would be possible although I would have to  
24 look at whether we could ever say that a  
25 worker was only exposed to thorium and not to

1 something else.

2 **MR. GRIFFON:** Right, so when in doubt, you  
3 would defer to the most claimant-favorable  
4 nuclide?

5 **DR. ULSH:** That's correct.

6 **DR. MAKHIJANI:** Mark, this is Arjun. In  
7 some cases -- I think this has come up before,  
8 maybe in my own -- in some cases thorium is  
9 the worst rated.

10 **DR. ULSH:** Then we would pick it.

11 **MR. GRIFFON:** Okay, and I just don't  
12 understand. It's not clear to me how within  
13 this, how you determine whether someone was  
14 working in the thorium areas. Do you have  
15 enough specificity as far as job title,  
16 location, timeframes, et cetera to make a  
17 determination?

18 **DR. ULSH:** I don't think I could say that we  
19 do, Mark. We do know, in general I think,  
20 where the thorium was on site. If we could  
21 pin a worker to a specific area, we could  
22 maybe do that, but I can't say with confidence  
23 that we would have that level of detail. But  
24 if a particular building handled thorium in  
25 one area and plutonium in another area, and we

1 know that a worker worked in that building, we  
2 would include all of the possible radionuclide  
3 alpha emitters from that building.

4 **MR. GRIFFON:** And again I'm just looking for  
5 clarification myself, so thank you.

6 Joe, did you have a follow up on that,  
7 or Arjun?

8 **DR. MAKHIJANI:** No.

9 **MR. FITZGERALD:** I think that helps. Again,  
10 I think that paragraph had a lot in it. I see  
11 that he had two basic conclusions there, but  
12 it wasn't clear what the basis of the first  
13 was. And you're saying the gross alpha.

14 **MR. GRIFFON:** And I think at this point  
15 unless there's anything else pressing in the  
16 evaluation report, we can maybe take lunch and  
17 come back and start in on the matrix. Is that  
18 acceptable?

19 **DR. WADE:** Makes sense. How much time  
20 should we take?

21 **MR. GRIFFON:** Can we try to be back by 1:00  
22 p.m.?

23 **DR. WADE:** Let's try 1:00 p.m. We'll call  
24 back in.

25 (Whereupon, a lunch break was taken, and the

1 meeting resumed at 1:00 p.m.)

2 **MS. MUNN:** And it is page 43, by the way,  
3 when he starts talking about gross alpha.

4 **DR. WADE:** Just if I could have all Board  
5 members identify themselves. I know Mark, any  
6 other Board members besides Mike, Mark and  
7 Wanda?

8 (no response)

9 **DR. WADE:** Mark, go ahead. We don't have a  
10 quorum, and we've all been identified as to  
11 our prejudice.

12 **MATRIX**

13 **MR. GRIFFON:** I think what I'd like to do is  
14 go back to the matrix that we worked from in  
15 the past work group meetings. And I sent a  
16 revised version of that out. I just wanted to  
17 make sure that everyone was able to get that  
18 including the petitioners, if anyone's on from  
19 the petitioners.

20 Did that get to the petitioners, Jim?

21 **DR. WADE:** I asked Jason to send it to them.

22 **MR. GRIFFON:** And now Mark has to find it.  
23 I know I've got it in one of my folders here.

24 **DR. MAKHIJANI:** That's the April 10<sup>th</sup> file,  
25 right, Mark? March 27<sup>th</sup>, 2006, Mark, April

1 10<sup>th</sup>, 2006.

2 **MR. GRIFFON:** Yeah, March 27<sup>th</sup> it should say.

3 **MS. MUNN:** March 28<sup>th</sup>, actually.

4 **MR. GRIFFON:** Does it say 28<sup>th</sup>? I forgot how  
5 --

6 **DR. MAKHIJANI:** Yeah, and in the text it  
7 says 28<sup>th</sup>.

8 **MS. MUNN:** My heading says 28<sup>th</sup>, too, March  
9 28<sup>th</sup>.

10 **DR. MAKHIJANI:** A different one.

11 **MS. MUNN:** Prepared by ABRWH Work Group  
12 March 28<sup>th</sup>, 2006, in parenthesis.

13 **MR. GRIFFON:** The file name, I think the  
14 file name is what Arjun is talking about. It  
15 says March 27, but the header should --

16 **MS. MUNN:** Oh, your file name. I'm sorry,  
17 Arjun, I'm just reading off the paper that's  
18 in front of me.

19 **MR. GRIFFON:** At least I think that's what  
20 Arjun was referring to.

21 **DR. MAKHIJANI:** Yeah, the file name says  
22 March 27 to April 10<sup>th</sup>.

23 **MR. GRIFFON:** Anyway that two-day meeting so  
24 I got a little confused. If we start with  
25 that matrix then it is, the file name has

1 Rocky Flats SEC Issues Matrix March 27, '06.  
2 And the header actually says prepared by the  
3 work group March 28<sup>th</sup>, '06. And again, this  
4 cross-references back to the February 27<sup>th</sup>  
5 matrix. Just for formatting reasons I didn't  
6 include all of the actions from previous work  
7 group meetings. I carried them through into a  
8 March 28<sup>th</sup> action.

9 **MS. MUNN:** They were much too cumbersome.

10 **MR. GRIFFON:** Yeah, it was just too unwieldy  
11 to carry all that through.

12 So anyway, comment number two, I guess  
13 it'll make most sense to go right down this as  
14 an overview. You'll see that the, this is  
15 much lengthier, and the main reason is because  
16 after issue, what previously was called new  
17 issue number two and new issue number one, I  
18 relabeled those ten and 11. And then from 12  
19 on our, the issues that we identified through  
20 the review of the petition, many, some of  
21 these I should say, have no further action  
22 necessary, but I thought we need to capture  
23 these in summary form so I tried to do that.

24 So going back up to the top starting  
25 with comment number two, I guess just to

1 follow up, the TIB-0049 SC&A was going to  
2 review this. Now I don't know if SC&A ever  
3 got any formal comments back to the Board or  
4 to NIOSH on this.

5 **DR. MAURO:** This is John Mauro. We have  
6 reviewed it. We have not submitted formal  
7 comments. However, I can say that the  
8 discussions and review of the material  
9 represent a very scientifically robust  
10 approach to evaluating high-fired, the doses  
11 from high-fired plutonium when you know the  
12 lung burden. We also are aware of a great  
13 deal of work and material that NIOSH has  
14 prepared are related to when you have  
15 information on urinalysis and the, whereby  
16 your starting point is the activity in urine.

17 However, the material we saw, of  
18 course, that was all part of the working group  
19 discussions. We are not aware of a revision,  
20 at least I'm not aware of any revisions to  
21 OTIB-0049 or any other OTIB where that  
22 protocol has, in fact, been adopted or  
23 incorporated into any documentation. But we  
24 are certainly familiar with the work that was  
25 done and have done a great deal of work on our

1 own to independently evaluate NIOSH's position  
2 regarding this matter.

3 **MR. GRIFFON:** Are you in a position to  
4 provide any of your analysis to the Board or  
5 to the work group I mean?

6 **DR. MAURO:** We are planning on doing that as  
7 part of our report. That was sort of center  
8 stage of some of the work that we were  
9 preparing to put together. At the risk of I  
10 guess speaking up before we have a chance to  
11 put all of our material together, I would like  
12 to say that the material that we did review is  
13 very compelling. I guess we were expecting --  
14 correct me if I'm wrong. I don't think we've  
15 seen anything in GI tract yet though nor  
16 related to, the marriage between the high-  
17 fired plutonium issue when you're starting  
18 point is urinalysis and the GI tract protocol  
19 and the lymph node protocol. We are, of  
20 course, very familiar with the other organs.  
21 And of course --

22 **MR. GRIFFON:** I think 1-c, John, 1-c is an  
23 action for NIOSH to provide those other, I  
24 don't know if it's going to be a different  
25 procedure or expansion of TIB-0049, but --

1           **DR. NETON:** Mark, this is Jim. We provided  
2 that at the last working group meeting.

3           **MR. GRIFFON:** It was provided, okay.

4           **DR. NETON:** Yeah, on March 21<sup>st</sup>, 2006. The  
5 title was "Approach to Dose Reconstruction for  
6 Super Type-S Material. And I went over that -  
7 -

8           **DR. MAURO:** Yes, do that, but did that  
9 include the GI tract?

10          **DR. NETON:** Yes, it did.

11          **DR. MAURO:** Then my apologies, I must have  
12 missed on that.

13          **DR. NETON:** Yeah, it started with TIB-0049  
14 and then based on the models that were  
15 generated in TIB-0049, and then we adapted 49  
16 to adjust from urine data and included an  
17 analysis for GI tract, systemic organs and the  
18 extrathoracic regions.

19          **DR. MAURO:** As I said, I missed that.

20          **DR. MAKHIJANI:** I have it here. This is  
21 Arjun. I can send it to you, John.

22          **DR. MAURO:** Thank you.

23          **MR. GRIFFON:** What I'll say here is SC&A, on  
24 both those items SC&A will review and  
25 incorporate comments into their final review

1 of the evaluation report. Is that --

2 **DR. MAURO:** That's correct.

3 **DR. ULSH:** Considering the timeframe that  
4 we're operating on here, is there any  
5 estimated time that we will get comments on  
6 that?

7 **MR. GRIFFON:** Well, it's probably going to  
8 be the same question as, I don't know, it  
9 might be a different question then. Why don't  
10 we, Brant, I would ask if we, let's go through  
11 the matrix and at the end of this let's  
12 discuss process if that's okay.

13 **DR. ULSH:** Okay.

14 **MR. GRIFFON:** Because I know we have two  
15 weeks, and yesterday we discussed all kinds of  
16 deadlines for Y-12 as well. So I think we  
17 only have a finite number of people involved  
18 so I think we, let's discuss, if that's okay.

19 And, Lew, I would ask you, too --

20 **DR. WADE:** Sure.

21 **MR. GRIFFON:** -- if we could discuss process  
22 maybe at the end. I think that's important,  
23 but --

24 **DR. WADE:** Yeah, I think we need to go  
25 through those technical issues. We have to

1 take a look back and see what's reasonable and  
2 do able.

3 **MR. GRIFFON:** And item 1-b, item 1-b was  
4 actually just the fact that you provided the  
5 background materials. So that's completed as  
6 well.

7 The only reason there's a pause here  
8 is I'm trying to do my updates real-time so I  
9 don't have to spend hours updating these  
10 matrices.

11 **MS. MUNN:** So 1-b now essentially falls  
12 under the same response as 1-a, correct?

13 **MR. GRIFFON:** Right, correct, so 1-a and 1-  
14 c, those comments will be incorporated into  
15 your final comments of the evaluation report  
16 for SC&A.

17 And then I'm up to comment number 4, I  
18 guess, if we can move ahead on this. Unless  
19 there's any discussion of those items while  
20 we're on the phone, John, are you, I mean,  
21 really, you need to look further at the GI  
22 models that were provided?

23 **DR. MAURO:** Yes.

24 **MR. GRIFFON:** So you're not in a position  
25 right now to comment or discuss that.

1           **DR. MAURO:** Yes, I'm not in a position right  
2 now to comment. I'm not quite sure if Joyce  
3 is on the line.

4           (no response)

5           **DR. MAURO:** She has not joined us. She  
6 indicated she might be able to join us. But  
7 right now from caucusing within our group, I  
8 know that we have looked closely at organs  
9 other than, well, look at the lung and organs  
10 other than the lung but not the GI tract  
11 portion of the analysis. So we right now are  
12 not in a position to discuss that.

13           **DR. MAKHIJANI:** But John and Mark, could I  
14 ask a question about that? I have the  
15 document that Jim Neton was talking about. It  
16 has two short paragraphs on the GI tract  
17 implying that there's more underlying analysis  
18 that's where this multiplication factor comes  
19 from and so on. Did we get that also or is  
20 that --

21           **DR. NETON:** Well, Arjun, I think you're  
22 making more technical out of this than there  
23 really is.

24           **DR. MAKHIJANI:** Oh, okay.

25           **MR. GRIFFON:** Maybe you can re-explain it,

1 Jim. It might just be that we've got so many  
2 sites running through our heads.

3 **DR. NETON:** This whole analysis hinges on  
4 the model that was developed that I discussed.  
5 The model was developed for TIB-0049 which was  
6 the Super, it wasn't only a model, it was a  
7 Super-S technique that was developed using the  
8 Rocky Flats case number 872 in conjunction  
9 with the Hanford one case. In using the  
10 clearance parameters developed from those  
11 combination of bioassay and in vivo counts, we  
12 determined that the maximum difference between  
13 the intake retention fraction for S versus  
14 Super-S at any time post-intake. It turned  
15 out that the maximum difference in those two  
16 values was a ratio of four.

17 **DR. MAKHIJANI:** Yes, I remember.

18 **DR. NETON:** So it's very simple, and we did  
19 not want to speculate as to which portion we  
20 were applying it to so we just decided to use  
21 four over all times post-intake and that the  
22 genesis of that multiplier.

23 **DR. MAKHIJANI:** Yes, yes, I see that. It's  
24 here in Table 1 and in your charts, and, I  
25 forgot.

1           **DR. NETON:** After that analysis it's a  
2 simple matter of adjusting the intakes by a  
3 factor of four and clearing the material to  
4 the GI tract with Type-S clearance parameters,  
5 which we believe is claimant favorable. So I  
6 think it's all outlined there fairly well.

7           **DR. MAURO:** Jim, I'm listening to you and I  
8 think that where we have the material we need,  
9 and really there's no further clarification.  
10 It's just a matter of us looking a little more  
11 closely at it to make sure that we all fully  
12 understand that all the issues have, in fact,  
13 now been addressed.

14                   With regard to our having a position  
15 on it, we will be writing something up, but I  
16 can say that the material you have provided is  
17 very compelling and very comprehensive.

18           **DR. NETON:** Okay, thank you.

19           **MR. GRIFFON:** If we, I guess we can move on  
20 to item 4 then, number one.

21           **DR. ULSH:** Okay, Mark, this is Brant. If  
22 you look at the handout that I prepared, the 5  
23 April, 2006 comment responses, the first page  
24 there deals with this issue. I think the last  
25 time we talked about this at the last working

1 group meeting in Cincinnati in March, we  
2 presented some information to demonstrate or  
3 to document plutonium isotopic composition.

4 And I think it was Arjun had a  
5 question about one of the bullets. That  
6 figure is provided on the first page of my  
7 comment responses. And the bullet that we're  
8 talking about is the one second from the  
9 bottom where it says waste stream americium  
10 content. And the specific part that I think  
11 generated the question was in parentheses  
12 where it says the salt waste streams have  
13 heavy concentrations of Americium-241. I  
14 think that's kind of the thing that generated  
15 the question.

16 **MR. GRIFFON:** Yeah, regarding the americium  
17 processing I guess.

18 **DR. ULSH:** Yeah, now we've talked about some  
19 of that this morning. Let me recap.

20 **DR. MAKHIJANI:** What page are you on? I'm  
21 sorry.

22 **DR. ULSH:** Arjun, this is the 5 April 2006  
23 comment responses, page one. You might  
24 recognize that figure. We showed it last time  
25 at the last meeting and you asked the question

1 about the next-to-the-last bullet.

2 The thing that I didn't notice at the  
3 time when we were talking about this the last  
4 time is up at that top of that figure you see  
5 that it says in the second line there, years,  
6 1985 to 1987. So in fact, what we're talking  
7 about here is the molten salt extraction  
8 process and that began at Rocky Flats in 1967.  
9 And by that time Rocky Flats was using a  
10 solvent extraction process for americium-  
11 specific bioassay, which began on an  
12 appreciable scale in 1963. So the intakes,  
13 any possible intakes that we're talking about  
14 from the molten salt extraction process would  
15 have occurred during the period when Rocky  
16 Flats had americium-specific bioassay.

17 **MR. GRIFFON:** No, no, we did discuss this  
18 last time because I asked Roger, well, there  
19 must have been some americium processing prior  
20 to that, a different process.

21 **DR. ULSH:** Yes, there was. Prior to the  
22 molten salt process, Rocky Flats used a  
23 peroxide precipitation process and that was  
24 from '57 to '67. And during that era we would  
25 have used gross alpha to capture americium

1 doses as we discussed this morning.

2 **MR. GRIFFON:** Arjun, any follow up?

3 **DR. MAKHIJANI:** No, I think I understand  
4 what is being done. And then this morning's  
5 discussion that there are actually gross alpha  
6 and americium bioassay kind of addresses the  
7 rest of that question.

8 **MR. GRIFFON:** And Brant, I guess that would  
9 mean, I'm guessing that if you didn't know the  
10 person was involved in americium processing,  
11 then you would pick what, the worst  
12 radionuclide for the organ of interest?

13 **DR. ULSH:** If we couldn't limit it down to a  
14 specific radionuclide, Mark, we would pick  
15 from the most claimant favorable among the  
16 plausible solutions.

17 **MR. GRIFFON:** Any further questioning on  
18 that, Arjun, John, Joe?

19 (no response)

20 **MR. GRIFFON:** Then I think that's --

21 **MS. MUNN:** It was the issues with the  
22 americium issues then?

23 **MR. GRIFFON:** I'm sorry, Wanda, I didn't  
24 capture that.

25 **MS. MUNN:** So are we now happy with the

1 basic questions about americium?

2 **MR. GRIFFON:** Yeah, I think they've answered  
3 all the questions about how that would be  
4 handled, right? So I don't think there's any  
5 further action on this other than as  
6 incorporated into the final evaluation report.

7 **MS. MUNN:** Right.

8 **MR. GRIFFON:** And that answers number two as  
9 well I think, correct?

10 **DR. ULSH:** Yes, I think so, Mark.

11 **MR. GRIFFON:** Item one and two are -- Then  
12 on to item six. This is the NTA film  
13 question, and I know some of this overlaps  
14 with the later comments I think, but maybe we  
15 can address it at this point.

16 Brant, is there any follow up on this?

17 **DR. ULSH:** Mark, we had, I'm looking at our  
18 notes, and let me see. What I have from our  
19 notes is that the glass plate calibration  
20 issue has been resolved per Mark Griffon. And  
21 we talked about that last time. I don't know  
22 if SC&A has any --

23 **MR. GRIFFON:** John, is Ron, Ron seemed to be  
24 the one that was looking mainly into this for  
25 your team.

1           **DR. MAURO:** Yeah, Ron's not here but I got  
2 the impression that was closed as well based  
3 that the reaction that Ron had on the phone.

4           **MR. GRIFFON:** I believe so.

5           **DR. ULSH:** Yeah, I believe, that's what my  
6 notes say as well.

7           **MS. MUNN:** There's some discussion, I can't  
8 remember where, in the comments that just says  
9 --

10          **DR. ULSH:** About the glass plate issue,  
11 Wanda?

12          **MS. MUNN:** No, not about the glass plate  
13 issue, just data and corrective dose.

14          **DR. ULSH:** Yeah, it might be included in one  
15 of these 17 issues --

16          **MR. GRIFFON:** Yeah, I think it does come up  
17 again. We might hit this one again. I guess  
18 my feeling was I think we're down to sort of  
19 proof of principle here and a sample DR might  
20 be useful in this area. I don't know if one  
21 of the samples you have covers neutron  
22 reconstruction.

23          **DR. ULSH:** Well, we do have neutron -- hold  
24 on a minute. Yes, the first example that we  
25 have is a hypothetical neutron dose assignment

1 for monitored worker pre-1970.

2 **MR. GRIFFON:** So there you go.

3 **DR. ULSH:** We'll talk about that one.

4 **MR. GRIFFON:** Item number seven then I think  
5 we're on to.

6 **DR. ULSH:** According to your action item  
7 there we provided the plutonium tetrafluoride  
8 calibration information, so I didn't have any  
9 action for us.

10 **MR. GRIFFON:** I think all actions are  
11 complete on that as well unless, SC&A is there  
12 any follow up on that?

13 **DR. MAURO:** I'm going to pass the buck to  
14 Joe. I don't. This is John.

15 **MR. FITZGERALD:** This is on comment seven?

16 **MR. GRIFFON:** Yes.

17 **MR. FITZGERALD:** The only thing was the lead  
18 aprons issue, and I think the report that you  
19 identified and the analysis in that report,  
20 and Kathy also looked into this for us. I  
21 think we're at a point where we can resolve  
22 that issue. I think that was the only  
23 question was the lead aprons.

24 **DR. ULSH:** Yeah, lead apron is covered under  
25 one of the other issues.

1           **MR. GRIFFON:** Under your comments anyway.

2           **DR. ULSH:** That was a question. You could  
3 certainly do it, but the question was whether  
4 the lead aprons might compromise that.

5           **MR. GRIFFON:** And I think that does come up  
6 later, right, Brant?

7           **DR. ULSH:** Yes, that's covered under one of  
8 the other comments.

9           **MS. MUNN:** Yes, it does.

10          **MR. GRIFFON:** So we'll close out seven I  
11 think.

12          **DR. ULSH:** Right.

13          **MR. GRIFFON:** Number nine, if you note,  
14 halfway down number nine, number five, I've  
15 captured the individual items in number five.  
16 I've separated them out into items listed  
17 further in the matrix because there was some  
18 overlap here I think. And I hope I did that  
19 appropriately, but so we don't have to have  
20 the discussion twice, well start with number  
21 one anyway here.

22          **DR. ULSH:** All right, number one, I think  
23 SC&A, what it says here is SC&A to review  
24 OTIB-0050. I believe they've done that.

25          **MR. FITZGERALD:** Yeah, we had those three

1 specific issues that we discussed in  
2 Cincinnati, and you had responses to that. We  
3 had Ron Buchanan on the phone. And I think we  
4 satisfied those remaining issues. Those were  
5 the three issues that remained from that  
6 review.

7 **DR. ULSH:** So closed for number one then,  
8 Mark?

9 **MR. GRIFFON:** Yup.

10 **DR. ULSH:** Number two is the job exposure  
11 matrix, the Ruttenber data. I think we agreed  
12 that that was not an SEC issue. Is that  
13 correct, Mark?

14 **MR. GRIFFON:** That's what it says, believes  
15 this is not an SEC issue, right. And I guess  
16 I took, I said that NIOSH believes it's not an  
17 SEC issue only because I wasn't exactly sure.  
18 I think the main utility of that information  
19 was going to be for job information.

20 **DR. ULSH:** I can provide you a little bit of  
21 an update. I think it was last week Jim  
22 Langsted and I visited with Dr. Ruttenber at  
23 his office in Denver. He showed us the  
24 database that he has, and we noted that in  
25 particular for his penetrating dose estimate

1 he has not included, he's not been able to  
2 include the NDRP data. So I think that what  
3 we have is superior for dose reconstruction  
4 purposes.

5 You are correct that the primary value  
6 of Dr. Rutenber's data would be identifying  
7 specific work locations by time period for  
8 specific individuals. And that could  
9 certainly be useful in some situations, but  
10 it's not, our ability to do dose  
11 reconstructions will not depend on doing that.

12 **MR. GRIFFON:** It doesn't seem now, and the  
13 reason I phrased it that way was because I  
14 wasn't sure of your models, but it doesn't  
15 seem as though the models you presented would  
16 be reliant on job information. That's much  
17 more reliant on bioassay information.

18 **DR. ULSH:** That was a very early issue  
19 because it wasn't clear how the coworker model  
20 was developed. And I think you're right,  
21 Mark. I think now that we've seen how that's  
22 going to be handled, it's certainly a lesser  
23 concern.

24 **MR. GRIFFON:** Right, and I think that's --

25 **DR. ULSH:** Is it closed?

1           **MR. GRIFFON:** I think it's not an SEC issue  
2 at this point.

3           **DR. ULSH:** Okay, so closed for terms of, for  
4 purposes of SEC action, maybe not for --

5           **MR. GRIFFON:** No further actions I don't  
6 think unless others think otherwise.

7           (no response)

8           **MR. GRIFFON:** Okay.

9           **DR. ULSH:** Let's see, number three, NIOSH  
10 provided analysis regarding completeness of  
11 external exposure data. We talked about that  
12 this morning. Since we talked about it this  
13 morning, I don't suppose that SC&A has had  
14 time to review it.

15           **MR. GRIFFON:** Well, and I think at this  
16 point will review and provide comments in the  
17 review of the evaluation report. I think that  
18 would be appropriate unless, the only question  
19 I would have here is if there's anything, I  
20 guess that would be issued as supplemental  
21 data if you did do more on the internal dose,  
22 you know, oh, this is regarding completeness  
23 of external exposure.

24           **DR. ULSH:** Right.

25           **MR. GRIFFON:** But if you were going to

1 provide more, I guess it would include review  
2 of supplemental, you know --

3 **MR. FITZGERALD:** If I'm right, the external  
4 actually is treated in the evaluation. It's  
5 the internal that's not fully addressed.

6 **DR. ULSH:** Right, the external, forget it.  
7 That's accurate.

8 **MR. GRIFFON:** So I guess I would say that  
9 that would be, you know, that SC&A doesn't  
10 have to do a separate review. Rather, it  
11 would just be included in their review of the  
12 full evaluation report?

13 **MR. FITZGERALD:** Okay.

14 **DR. ULSH:** Okay. Number four, NIOSH will  
15 provide description of coworker model to be  
16 used, provide coworker database analysis  
17 files. We do have some example DRs that  
18 include coworker for unmonitored external  
19 dose. That's example number three. And  
20 example number four is internal coworker. And  
21 with that I have provided the tables that show  
22 the distributions that we would be using for  
23 coworker data should we ever find a case that  
24 requires it.

25 I don't know, Mark. Do you want to

1 wait and get through the matrix items and then  
2 talk about the example DRs?

3 **MR. GRIFFON:** Yeah, I think so. That'll  
4 just make it easier. On this I would also say  
5 the review would be within the construct of  
6 the full review for SC&A.

7 **MR. FITZGERALD:** Just to clarify the earlier  
8 description of the model. We were talking  
9 about data reliability, but in a sense we're  
10 backing into some description of the basis  
11 perhaps of using the data for this purpose.  
12 Is that what constitutes a description or do  
13 we have something additional to that?

14 **DR. ULSH:** Well, there is -- Joe, right?

15 **MR. FITZGERALD:** Yes, hi.

16 **DR. ULSH:** Joe, there is some material in  
17 the comment responses, you know, the 17  
18 issues?

19 **MR. FITZGERALD:** Right.

20 **DR. ULSH:** There's some material in one of  
21 the, maybe a few of the responses there. So  
22 between what we've provided this morning in  
23 the frame within the framework of the ER and  
24 the comment responses, I think that that will  
25 be pretty much what we've got for now.

1                   **MR. FITZGERALD:** Okay, I just wanted to  
2 clarify because again, it wasn't addressed  
3 head-on in the evaluation.

4                   But I guess just to get back to what  
5 you were driving at, Mark, how do we deal with  
6 the ancillary information that interprets  
7 what's not necessarily fully addressed in the  
8 evaluation?

9                   **MR. GRIFFON:** Right, right.

10                  **DR. ULSH:** Well now, I do want to point out  
11 that the evaluation report focused on issues  
12 that were brought up in the petition. There  
13 are additional issues and expansions of issue  
14 that were brought up within the context of  
15 SC&A's review of the TBD. And so the ER was  
16 no meant to cover those expansions. I mean,  
17 we just focused on what was in the petition,  
18 so the question still remains, how do we  
19 handle that other stuff that was brought up  
20 outside the confines of the petition or as an  
21 expansion on that?

22                  **MR. FITZGERALD:** And I don't know, Mark,  
23 maybe you want to take a stab at that.

24                  **MR. GRIFFON:** I still think coworker models,  
25 well, you know, whether they're, they are

1 addressed in the petition or in the ER report,  
2 aren't they to some extent?

3 **DR. ULSH:** I think in the data sufficiency  
4 section we talked about that.

5 **MR. GRIFFON:** And I, even though it wasn't a  
6 specific issue maybe brought up by the  
7 petitioners, I think that.

8 **DR. ULSH:** It's a fuzzy line.

9 **MR. GRIFFON:** Yeah, I guess from my  
10 standpoint any issues that we've identified as  
11 SEC issues through the work group process  
12 should also be rolled into SC&A's evaluation  
13 of the petition, you know, of the, I mean not  
14 evaluation of the petition, review of the  
15 evaluation report. So I would say that unless  
16 you think that's inappropriate, I would think  
17 that, since through our work group process  
18 with you guys on the line, we've identified  
19 these things as potential SEC issues with,  
20 that they should be included in SC&A's SEC  
21 review. Does that make sense?

22 **DR. MAURO:** Mark, this is John. Our plan,  
23 I'll give you an example. When I reviewed the  
24 Rocky evaluation report, I noticed that  
25 reference was made to OTIB-0049 on the high-

1 fired; however, there was -- and correct me if  
2 I'm wrong -- the development of the urine-base  
3 starting point worked ^ NIOSH and ORAU was not  
4 part of the evaluation report. And in fact, I  
5 noticed that there is reference, lots of  
6 reference in the evaluation report to some  
7 ongoing work, reference to OTIBs, such as  
8 coworker.

9 Our plan was to use all the  
10 information in our review as if it were a  
11 supplement to the evaluation report, but  
12 nevertheless make a statement in our report  
13 that where we note that this material is  
14 really not contained in the evaluation report,  
15 not is it actually an actual OTIB, for  
16 example. So in effect, we will, our attempt  
17 was to point out where the evaluation report  
18 does not explicitly contain the information or  
19 the OTIB itself has not actually been  
20 published yet, the material or the substance  
21 of it has been provided to SC&A as a result of  
22 working group activities.

23 And on that basis we will be able to  
24 make certain statements as findings and  
25 observations. So we're going to be treating

1 all of this material, including the material  
2 that has been provided to us electronically  
3 yesterday and today, as part of the universe  
4 of material that we're going to draw upon when  
5 we write our reports.

6 **MR. GRIFFON:** That's what I was hoping,  
7 John.

8 **DR. ULSH:** With the one proviso being though  
9 that the SEC evaluation of record from NIOSH  
10 cites, for example in this particular case, a  
11 particular OTIB for the coworker model. So  
12 what we're doing is compensating for not  
13 having that available OTIB and drawing from  
14 these various sources to glean what the NIOSH  
15 approach appears to be. That's not as direct  
16 as the reference in the evaluation itself.  
17 So, well, we'll have to qualify it certainly.  
18 Not certainly a review of that coworker model  
19 as it would be contained in the OTIB, but  
20 something that would be preliminary to that.

21 **MR. FITZGERALD:** Yeah, we have draft OTIBs,  
22 OTIB-0038 and OTIB-0058, which describe the  
23 coworker external and coworker internal. I'm  
24 not sure I've got, I might have those numbers  
25 reversed. And we would be happy to provide

1 those to you like tomorrow.

2 **DR. ULSH:** Resemble what we have pretty  
3 closely. That might actually be a little  
4 cleaner.

5 **MR. FITZGERALD:** Yeah, I think so.

6 **MR. GRIFFON:** Can you post those on the O  
7 drive in their folder in --

8 **DR. ULSH:** Yes.

9 **MR. GRIFFON:** -- Board folder.

10 **DR. MAURO:** By the way -- this is John  
11 again. All the more reason, the fact that  
12 we're in real time working with material that  
13 is being developed as we're working through  
14 the problems that we maintain this ongoing  
15 communication over the next two weeks because  
16 we will be using the material that has been  
17 transmitted to us electronically as part of  
18 our work. And since a lot of material, for  
19 example, is very much in draft form as, for  
20 example, we noticed that the uranium-  
21 /plutonium-typos, that sort of thing. So I  
22 see this as we work through the problem, we're  
23 going to have to work very closely with Jim to  
24 make sure we have the right material that has  
25 been sent to us that it is --

1           **MR. GRIFFON:** With Jim or Brant, yeah.

2           **DR. MAURO:** I guess my plan was to work  
3 directly, what I understood is that we make  
4 our call to Jim, and Jim becomes sort of like  
5 a traffic cop.

6           **DR. NETON:** Yeah, I think for purposes of  
7 the Rocky Flats petition though, John, I think  
8 Brant's been leading it up.

9           **DR. MAURO:** Okay, so we'll go through you,  
10 Jim, for Y-12 and Brant for Rocky.

11           **DR. NETON:** Yeah, I would make sure, keep me  
12 cc'd, but I think in this case feel free since  
13 time is of the essence and Brant's been taking  
14 the lead to deal with him directly.

15           **DR. MAURO:** Okay, very good.

16           **DR. ULSH:** Darn, I thought for a minute  
17 there I was off the hook.

18           **MR. GRIFFON:** The other thing I would ask  
19 Brant, you said OTIB-0038 and 0058?

20           **DR. ULSH:** Yes.

21           **MR. GRIFFON:** And before you committed to  
22 OHIS and a CEDR, OHIS-20 and a CEDR databases  
23 or ACCESS versions of those databases being  
24 posted --

25           **DR. ULSH:** I will.

1           **MR. GRIFFON:** -- and also I would say the  
2 analytical files. I'm sure you have some  
3 Excel files that support those OTIBs for your  
4 extrapolation methods back calculations for  
5 intakes for the internal coworker model, et  
6 cetera.

7           **DR. ULSH:** I'll see what Joe can provide.

8           **MR. GRIFFON:** All right, does that, I think  
9 that clarifies it then, John. And certainly,  
10 John, you're right. We'll keep in close  
11 contact on this since we're moving in very  
12 real time here.

13                         Number five then I think we're on to.

14           **DR. ULSH:** Number five --

15           **MR. GRIFFON:** I was actually going to say if  
16 we, I think most of these items I've broken  
17 out in further issues at the bottom of the  
18 matrix so we can probably discuss them at that  
19 point.

20           **DR. ULSH:** So do you want to pass over this,  
21 Mark?

22           **MR. GRIFFON:** Yeah, pass over that one.  
23 Just someone might want to, I'll try to  
24 crosswalk those and make sure that I didn't  
25 miss any of them, but I'm pretty sure I lifted

1 all those out of there and put them in the  
2 bottom of the matrix. So try number six.

3 **DR. ULSH:** All right, number six, this deals  
4 with this question of inappropriate low energy  
5 photon detector correction factors.

6 **MR. LANGSTED:** I believe this is a K-16  
7 issue.

8 **DR. ULSH:** Okay, I'm going to let Jim  
9 Langsted give you an update on that.

10 **MR. LANGSTED:** Okay, I've done some research  
11 on this issue, and back in the initial  
12 implementation of DOELAP there was a 16 keV  
13 photon. It was a fluorescent x-ray technique  
14 that they defined as one of the test  
15 exposures. There was also a 30 keV x-ray  
16 spectrum, 30 keV average x-ray spectrum, that  
17 was specified.

18 Since these two are very close  
19 together, it became a difficult issue to  
20 develop an algorithm that was robust enough to  
21 recognize the difference between these two  
22 exposure, respond appropriately to these  
23 exposure categories and then also respond  
24 appropriately to the photons in the more  
25 realistic regions that we needed to deal with.

1           So at the time that the algorithm that was  
2           developed at a bias associated with it that  
3           was somewhere between one percent and ten  
4           percent bias. In some cases that was a plus  
5           ten percent. In some cases that was up to a  
6           minus ten percent of bias in responding at  
7           these very low energies. That turns out not  
8           to be a significant problem because that's  
9           within the recognized uncertainty of the  
10          dosimeter badges as we're viewing them today.

11           DOELAP recognized that this was a  
12          difficult issue to deal with and has since  
13          dropped one of that lowest keV 16 x-ray  
14          technique. And since then the algorithms have  
15          been refined to give a better response across  
16          the spectrum and not have to deal with that  
17          careful distinction at those low energies.

18           So the conclusion here is that the  
19          response was adequate back when those  
20          algorithms were, the initial algorithms were  
21          used, and then was refined as the algorithms  
22          improved, and turns out not to be an issue.

23          **MR. GRIFFON:** Is this written up in one of  
24          your -- I was just looking through the April  
25          5<sup>th</sup>. It's not in those.

1           **DR. ULSH:** No, it's not, Mark.

2           **MR. LANGSTED:** That's correct.

3           **MR. GRIFFON:** I mean, that sounds, you know,  
4 I just wonder if we should have some sort of  
5 document just to answer that or just a memo  
6 just with what you said.

7           **DR. ULSH:** Sure, we can do that.

8           **MR. LANGSTED:** We'll get that to you.

9           **MR. GRIFFON:** Something for the record,  
10 that's all. Unless, SC&A, any follow up on  
11 that one?

12           **DR. MAURO:** No, but we do appreciate that  
13 these kinds of response, our plan right now is  
14 to put together a report that effectively  
15 starts with the issues as laid out either in  
16 the matrix or the petition. And then work our  
17 way through NIOSH's position by making  
18 reference to the appropriate OTIBs, sections  
19 of the TBD, sections of the assessment and  
20 other material.

21                   So we would like to have a paper trail  
22 for every one of the issues. So please, yes,  
23 any time we have a response. In fact, this  
24 may not be possible, but the transcript of  
25 this conversation and yesterday's conversation

1 is really going to be very important to us in  
2 the next several days to help us navigate our  
3 way through this. So that would be helpful  
4 also. I don't know if that's possible.

5 **DR. WADE:** We'll do what we can.

6 **MR. GRIFFON:** Going on to number seven in  
7 that same category, issue nine, number seven.

8 **DR. ULSH:** Okay, number seven, let me give  
9 you, this is also one of those issue that is  
10 included in the, as our responses to the 17,  
11 but let me give you the short answer here from  
12 my memory because I can't locate it in my 42  
13 pages right at the moment.

14 **MR. GRIFFON:** Did you get a written response  
15 from the petitioners?

16 **DR. ULSH:** Yes, if you recall, we talked at  
17 the last working group meeting. We had sent a  
18 letter to Tony DeMaiori, the petitioner, dated  
19 March 16<sup>th</sup>. He had mentioned in his call that  
20 he had several investigations, so we wrote and  
21 asked him for those on March 16<sup>th</sup>. Jennifer  
22 Thompson stated that we would be getting a  
23 letter, and in fact, we did get it the next  
24 day. And basically, Tony said that he did not  
25 have access to those investigations. And he

1 directed us to a lady named Lisa Bressler^, a  
2 Freedom of Information officer.

3 We talked, some of the ORAU team  
4 talked to Ms. Bressler. She directed us to  
5 some other personnel, DOE and Kaiser-Hill, and  
6 our conversations with them are ongoing. I  
7 tried a couple of times on Friday to reach her  
8 and couldn't. I think it's possible, I'm  
9 going secondhand here, but they might have  
10 talked to Tony to try to nail down some  
11 specifics about what he was talking about.

12 And I think there were some Privacy  
13 Act concerns. I think we can iron those out  
14 once I manage to get in touch with these  
15 additional people. But that's where we are  
16 with that right now. And I guess the bottom  
17 line is we haven't seen anything that suggests  
18 fraud or manipulation of the data, but I have  
19 to say that our conversations are continuing.

20 **MS. MINKS:** This is Erin Minks from Senator  
21 Salazar's office. Is this a conversation that  
22 will be time sensitive to the same timeline as  
23 the meeting in two weeks?

24 **DR. ULSH:** I'm sorry, could you repeat that?  
25 I didn't hear it.

1           **MS. MINKS:** This is Erin Minks with Senator  
2 Salazar's office. The conversation about that  
3 documentation with Tony from the Steelworkers  
4 --

5           **DR. ULSH:** Yes.

6           **MS. MINKS:** -- is that going to be also time  
7 sensitive to the meeting in two weeks? Is  
8 that something that is going to be ongoing  
9 after this is --

10          **DR. ULSH:** Well, it's hard for me  
11 characterize, but our goal is to provide all  
12 the information that we can to support the  
13 Board. I mean, at least it's on the agenda  
14 right now for them to cast a vote so we're  
15 going to provide all the information that we  
16 have at the time.

17          **MS. MINKS:** Okay, thanks.

18          **MR. GRIFFON:** That's why I was saving the  
19 discussion for the, discussion of process till  
20 the end of the matrix here to see where we  
21 stand sort of. Because I do believe there's  
22 some, I'm just wondering if there's some  
23 issues that are going to be, that all parties  
24 are going to be able to complete in this two-  
25 week timeframe. But let's save that for the

1 end and have that discussion once we get  
2 through the matrix.

3 **DR. ULSH:** Is there anything else on seven?  
4 (no response)

5 **DR. ULSH:** Okay, Mark, do you want me to go  
6 on to eight?

7 **MR. GRIFFON:** I think so, yeah. I just  
8 think for seven that you're, I added to the  
9 action that you're in process of researching  
10 this specific investigations mentioned in the  
11 letter from Tony.

12 **DR. ULSH:** Well, sort of, I mean, Tony,  
13 basically, Tony's letter didn't provide  
14 specifics. He just told us to talk to Ms.  
15 Bressler, and then she directed us to the  
16 other personnel. And I think Tony --

17 **MR. GRIFFON:** I think the process of  
18 researching past investigations.

19 **DR. ULSH:** Yes.

20 **MR. GRIFFON:** How about that?

21 **DR. ULSH:** Yes.

22 **MR. GRIFFON:** Maybe not specific.

23 **DR. ULSH:** Number eight, we've talked about  
24 this this morning, I think, about where we are  
25 with this issue. Demonstrate reliability of

1 bioassay and external database data for the  
2 compensation program. And we talked about  
3 this issue about Kaiser-Hill doing a QC on the  
4 external dosimetry that they provide for  
5 individual claimants to us. And we also  
6 talked about that there is no roll up reported  
7 in that QC effort. That still holds. This  
8 morning we talked about, we compared the HIS-  
9 20 to raw records for external, and we also  
10 compared, for internal, we compared CEDR to  
11 HIS-20 and we're in the midst of going from  
12 HIS-20 to raw records. So that's where we are  
13 with that. That's the update.

14 **MR. GRIFFON:** And we had some discussion of  
15 that previously. Any other discussion on  
16 that?

17 Ken, is it fair to say that you  
18 incorporated further analysis within your  
19 evaluation report that we spoke from this  
20 morning, right?

21 **UNIDENTIFIED:** Yes.

22 **MR. GRIFFON:** The HIS-20 and CEDR comparison  
23 were in separate documents?

24 **UNIDENTIFIED:** That's correct. That's  
25 outside of the ER.

1           **MR. GRIFFON:** Is there any further action on  
2 this? It sounds like there still is an  
3 outstanding action as far as --

4           **DR. ULSH:** I think that there is, Mark.

5           **MR. GRIFFON:** -- the urine.

6           **DR. ULSH:** Yes, going from HIS-20 to raw  
7 records for bioassay, I think, is an  
8 outstanding action. And I don't know about  
9 the external.

10          **MR. GRIFFON:** Well, the external was that, I  
11 think I asked, rather that was written up, and  
12 I forget the response to tell you the truth.  
13 But is that written up or --

14          **DR. ULSH:** Yes, that is --

15          **MR. GRIFFON:** The 30 worker years or  
16 whatever.

17          **DR. ULSH:** Yeah, that's included in one of  
18 our comment responses to one of the 17  
19 questions. When we walk through those, I'll -  
20 -

21          **MR. GRIFFON:** So it's within that 17, within  
22 that April 5<sup>th</sup> memo?

23          **DR. ULSH:** Yes, yes.

24          **MR. SMITH:** I have one thing to add. Hello?

25          **MR. GRIFFON:** Yes.

1           **MR. SMITH:** This is Matthew Smith. I did go  
2 ahead and add Craig Little's analysis into  
3 OTIB-0058. So when you look at that draft,  
4 and when it does become a final document,  
5 there'll be a couple paragraphs there on this  
6 validation issue as well.

7           **MR. GRIFFON:** Okay, thank you.

8           **MR. FITZGERALD:** I guess before we leave the  
9 issue is the urine to raw records review, the  
10 one we just talked about, is that something  
11 that we'd likely see in the timeframe we have  
12 or is that perhaps further off?

13          **DR. ULSH:** I hope it's not further off, Joe.

14          **MR. FITZGERALD:** Well, I'm just wondering  
15 because in the course of this review,  
16 obviously, if it's going to be provided, we'll  
17 certainly look for it.

18          **DR. ULSH:** Yeah, is Craig on, Craig Little?  
19 (no response)

20          **DR. ULSH:** No, he's not. I'll double check  
21 with him. We're going to try. We're going to  
22 try as hard as we can.

23          **MR. GRIFFON:** I guess we're on to the next  
24 item. Any comment, any further comments  
25 there?

1 (no response)

2 **MR. GRIFFON:** Item number ten now, which  
3 used to be labeled New Issue One, but I didn't  
4 feel like having New Issue One through 30 so I  
5 started renumbering.

6 **DR. ULSH:** This is the roll-up issue where -  
7 - let's see, only penetrating doses were  
8 available prior to '76. I think your action  
9 item there spells it out, Mark, and that was  
10 an SC&A issue to review the approach?

11 **MR. GRIFFON:** Right.

12 And John or Joe, did you provide any  
13 written comments on this?

14 **DR. MAURO:** This was Ron's report. If I  
15 recall, there wasn't really anything  
16 outstanding. There were a couple of minor  
17 comments.

18 Joe, last time we spoke, there were a  
19 couple of things that were on the periphery  
20 but nothing center stage.

21 **MR. FITZGERALD:** Right, that's kind of what  
22 we said a little earlier. That we looked at  
23 those particular issues. He had three  
24 specific issues, and he had this comment as  
25 well. And my notes show that we certainly

1 reached satisfaction with his review at the  
2 last working group meeting. So I don't see an  
3 outstanding issue on this.

4 **MR. GRIFFON:** I'm going to put no further  
5 action on that.

6 **DR. MAKHIJANI:** This is Arjun. Joe, wasn't  
7 there a 1970 -- this is maybe a little bit  
8 off-base because I haven't been that involved  
9 in this, but wasn't there an issue of the  
10 specific year of 1970?

11 **MR. FITZGERALD:** Yeah, yeah, we discussed  
12 that in Cincinnati, and it was a relatively  
13 short period of time, and the explanation was  
14 satisfactory. It's like four months in 1970.

15 **MR. GRIFFON:** All right.

16 **DR. MAKHIJANI:** Okay.

17 **MR. GRIFFON:** Okay, I think I'll label this  
18 as no further action, if that's --

19 **DR. MAKHIJANI:** Yes.

20 **MR. GRIFFON:** Number 11.

21 **DR. ULSH:** Let's see, this was an algorithm  
22 --

23 **MR. GRIFFON:** Oh, don't bother. I think we  
24 already addressed this, right, no further  
25 action?

1           **DR. ULSH:** Oh, no further action. Okay,  
2 good. That gives me, because I was scratching  
3 my head about this.

4           **MR. GRIFFON:** Yeah, I think we've addressed  
5 that one.

6           **MS. MUNN:** Yeah.

7           **MR. GRIFFON:** Number 12 starts with those,  
8 the comments from the petition actually.

9           **DR. ULSH:** So is that the 7/17, Mark?

10          **MR. GRIFFON:** Yes, so that should go to  
11 your, it should be in the order that we  
12 addressed them last time. So they should go  
13 right down your document.

14          **DR. ULSH:** Okay, so how do you want to  
15 handle this? Do you want to work from the new  
16 document or --

17          **MR. GRIFFON:** Let's work from the matrix,  
18 but they should be in the order that you have  
19 them in your comments document, too, unless  
20 you have a different response. That might be  
21 the one difference, but we'll find that as we  
22 go, I guess.

23          **DR. ULSH:** Yeah, okay. If you look at the 5  
24 April comment responses, the first one we've  
25 already covered. That was one from the old

1 matrix. So we'll start on page two with what  
2 is labeled Data Integrity Comment Number One,  
3 zero entries when badges were not returned.  
4 And --

5 **MR. GRIFFON:** Wait now, does that coordinate  
6 with number 12 on my matrix?

7 **DR. ULSH:** Yes, I'm sorry, number 12 on the  
8 matrix.

9 **MR. GRIFFON:** It is, okay. I just wanted to  
10 make sure. I've got to pull both these up at  
11 the same time. All right, got it. I'm sorry.

12 **DR. ULSH:** So SC&A has provided, I think --  
13 Joe, correct me if I'm wrong. This is from  
14 Kathy's trip --

15 **MR. FITZGERALD:** Yeah, we again provided  
16 some interim information that was collected  
17 and reviewed from that trip. It again was a  
18 relatively brief trip, but these are some of  
19 the data points about that.

20 **DR. ULSH:** Okay, so you can read SC&A's  
21 comment, complete comments, on pages two,  
22 three, and then there's some graphics,  
23 excerpts of logbooks that were provided on  
24 page four and five. And then you get to our  
25 response on page six.

1                   The new, okay, it's not a new comment.  
2                   I'm trying to think of the right words here,  
3                   the new write up that SC&A provided, the  
4                   expanded write up that SC&A provided cited  
5                   part of our comment response, but I've  
6                   provided the complete text of the response  
7                   here. And specifically I would direct you to  
8                   a section of our original response that wasn't  
9                   reproduced, and that is on page seven. At the  
10                  end of the paragraph it says entries of no  
11                  data available indicated instances on and on.  
12                  And that is we concluded that since anomalous  
13                  readings were investigated, and I think that  
14                  the excerpts of the logbook that SC&A provided  
15                  certain show an example anyway that, at least  
16                  in this case, problems with dosimeters were  
17                  recorded. So in instances where there were  
18                  anomalous reading, we contended that the  
19                  presence of no data available entries in the  
20                  reports that were given back to the workers  
21                  don't prevent us from performing dose  
22                  reconstructions of sufficient accuracy. So we  
23                  don't see anything new here in the expanded  
24                  material that SC&A provided that contradicts  
25                  that, our previous response. And so in our

1 previous response we described how we would  
2 handle these situations and that is the  
3 assignment of missed dose. Now I don't want  
4 to comment on documents that I haven't  
5 reviewed yet. And we don't have the complete  
6 logbooks. All we have is the excerpts that  
7 were provided in SC&A's expansion of the  
8 comment. And we would want to do, of course,  
9 we would want to do a careful review. But  
10 they do provide some evidence, at least these  
11 excerpts do, that suspect badge readings were  
12 at least recorded.

13 **MR. FITZGERALD:** And we had additional,  
14 certainly additional documentation that was  
15 coming in. This was just simply a cut to  
16 provide what we could within the last week or  
17 so.

18 Kathy, are you on the line?

19 **MS. DeMERS:** Yeah, I am.

20 **MR. FITZGERALD:** Is there anything else you  
21 want to add to that?

22 **MS. DeMERS:** The records that I reviewed at  
23 the Mountain View facility, which were the  
24 records that DOE provided, first of all, they  
25 didn't give me all the records I requested.

1                   And second of all, the ones I did copy are  
2                   still at Rocky Flats. And there's going to be  
3                   a couple of additional records that come out  
4                   of the data that I have received.

5                   **MR. FITZGERALD:** Kathy, was there any reason  
6                   for DOE not providing the records requested?

7                   **MS. DeMERS:** I believe they couldn't  
8                   initially find what I was asking for and by  
9                   the time they found it, it was the first day  
10                  of my trip, and they didn't have enough  
11                  turnaround time.

12                  **MR. FITZGERALD:** To respond to, I think,  
13                  Brant's question though in terms of perhaps  
14                  the relevancy of the kinds of documents that  
15                  are being requested to the issue at hand, to  
16                  give as to what these might show us?

17                  **MS. DeMERS:** When I interviewed the  
18                  petitioners and several other people, there  
19                  was a continued concern over them working in  
20                  very hot areas but receiving zero dose on  
21                  their record or receiving no data available on  
22                  their record. NIOSH has responded that a  
23                  dosimetry investigation form would be put in  
24                  the file in these cases, and to date I have  
25                  not found one. The reason I'm pulling the

1 secondary data is because workers indicated  
2 that the logbooks have some recorded doses in  
3 them for periods of time. These were jobs  
4 where individuals were assigned special  
5 dosimetry.

6 **DR. ULSH:** Kathy, if I could maybe ask you  
7 for a clarification? When you're saying the  
8 logbooks, are you talking about the logbooks  
9 that were used in the field to record the dose  
10 rates recorded with field instruments or are  
11 you talking about dosimetry logbooks?

12 **MS. DeMERS:** No, I am talking about the  
13 contamination control and shift supervisor  
14 logbooks. And what I was told is that there  
15 is results from, exposure results basically  
16 for a particular job.

17 **MR. GRIFFON:** So, Kathy, does this, these  
18 excerpts that we have in this document that's  
19 Brant's referring us to, these are excerpts of  
20 those logs that you're talking about?

21 **MS. DeMERS:** No, the only reason that those  
22 were put in there is to demonstrate that there  
23 are logs out there that do have notations that  
24 the crystal was lost or there was a problem  
25 with the reader. Now what needs to be done is

1                   they need to take individuals and verify that  
2                   they did an investigation of those  
3                   individuals.

4                   **MR. GRIFFON:** Right, and you didn't uncover  
5                   any of that type of information. You  
6                   requested some maybe, but you weren't able to  
7                   get to that yet?

8                   **MS. DeMERS:** What I didn't get were several  
9                   dosimetry records from individuals who made  
10                  claims of mda results or zeros in the petition  
11                  and the field logbooks that allegedly  
12                  contained dosimetry results that would  
13                  contradict with those being reported by  
14                  dosimetry.

15                  **DR. ULSH:** Okay, again, I want to be  
16                  cautious here because I haven't seen any of  
17                  these, any of this documentation, but it  
18                  occurs to me that if you're talking about  
19                  shift supervisors and contamination control  
20                  logbooks, that would have been based on survey  
21                  data. You may not expect that to correspond  
22                  one-to-one with what would show up on the  
23                  worker's dosimetry badge once it was read in  
24                  Dosimetry. But I really can't say beyond that  
25                  because I haven't seen the document.

1           **MS. DeMERS:** These were some of the records  
2 that were not pulled at the time that I was  
3 there. And we can get you to pursue them and  
4 look into the issue further.

5           **MR. GRIFFON:** I think some of the actions  
6 that as we go down the matrix there's a couple  
7 specific cases where we asked to try to pull  
8 the string. And that's, I think those kind of  
9 things will be very interesting in this  
10 regard, but I don't know, is there anything  
11 more to discuss on this particular item? I'm  
12 not sure.

13           **MS. DeMERS:** Well, I guess I have a question  
14 for NIOSH. And that question is did you talk  
15 to the individuals that provided the  
16 affidavits, in the process of doing the  
17 evaluation?

18           **DR. ULSH:** I'll get to that a little bit  
19 later in the comment responses. We did pull  
20 some of the dosimetry records for those  
21 individuals. And once we had those dosimetry  
22 results, we felt that that was sufficient to  
23 cover the issue, to address the issue.

24           **DR. MAURO:** This is John Mauro. I'd like  
25 to, I think this is a good point to raise

1           this. In working the problem in terms of all  
2           of the issues that are before us, I think an  
3           enormous amount of work was done on the  
4           technical issues. And NIOSH has put forth  
5           some very powerful material that I think has  
6           been very compelling going to chest cavity  
7           issues, neutron dosimetry issues and also, of  
8           course, the high-fired plutonium issues.

9                     The area right now where SC&A has been  
10           looking closely has to do with the data  
11           reliability issue. I think that this is  
12           center stage. It's clear that there are a  
13           number of records out there that might be of  
14           great value to break the ground to obtain  
15           review interfacing perhaps with some of the  
16           folks that are expressing this concern to run  
17           these to ground as opposed to, let's say,  
18           looking at records on file that you currently  
19           have working with the individuals that are  
20           making these claims.

21                     I think the, this one issue, data  
22           reliability, and the concerns regarding  
23           falsification of records is emerging as by the  
24           single most important issue related to this  
25           SEC petition. I think that to a large extent

1           everything has been done that's humanly  
2           possible to address the, which I call, the  
3           more technical issues. So I guess I just  
4           wanted to put that perspective in so that we  
5           put the spotlight on what we believe to be the  
6           area that is of greatest concern to us.

7           **MS. MUNN:** This is Wanda. I need to be, I  
8           need to have a clarifying point here. I  
9           believe I've been hearing from the beginning  
10          of our discussion that the dose  
11          reconstructions, one of which I tried to do  
12          and gave up in total despair early on, will be  
13          based on bioassay data not necessarily on  
14          dosimetry. Is that, am I incorrect in this?

15          **MR. GRIFFON:** That would be for the internal  
16          dose, Wanda, not for external exposures. So  
17          you're correct on the internal dose that I  
18          think the primary basis will be the bioassay.  
19          In vivo may be used to bound, right?

20                 Is this right, Brant? I mean, I'm  
21          summarizing, grossly summarizing here. But  
22          the dosimetry's going to be relied on for the  
23          external, certainly.

24          **DR. ULSH:** Yes, that is true, Mark.

25          **MS. MUNN:** I'm having a hard time imagining

1 extreme external dosimetry issues that would  
2 not be reflected in the bioassay.

3 **MS. DeMERS:** Well, in this case we're  
4 talking about the dosimeter response.

5 **MR. GRIFFON:** Yeah, I can certainly think of  
6 some scenarios where you'd have fairly  
7 significant external and limited internal. I  
8 mean, correct me if I'm wrong anybody, but I -  
9 -

10 **MS. MUNN:** No, I understand what you're  
11 saying.

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

13 **MS. MUNN:** But it's difficult -- well, never  
14 mind. I'll think on that.

15 **DR. ULSH:** As kind of an addendum to John's  
16 previous comment, I would point out that we  
17 certainly have had conversations with the  
18 dosimetry personnel at Rocky Flats and also  
19 with, we followed up, at least partially, I  
20 mean, to the extent that we have been able to  
21 give them a timeframe, we have followed up on  
22 the leads that were given to us by Tony  
23 DeMaiori.

24 Now we're not at the end of the road  
25 on those. I'll be up front with that, but we

1 do, we have had a number of conversations with  
2 dosimetry personnel who were actually  
3 processing the badges and who actually had the  
4 details of how these badges were processed,  
5 were recorded, what problems occurred with  
6 them. So we have done that. I mean, it's not  
7 like we haven't talked to anybody out here.  
8 But if you're asking if we have interviewed  
9 everyone who submitted an affidavit in the  
10 petition, the answer is no. No, we have not.

11 **MR. GRIFFON:** Well, and let's try to go down  
12 the matrix a little because there are some  
13 specific ones where we asked that we thought  
14 would be useful to crosswalk and, I mean, I  
15 can recall the radiation technician with a  
16 very specific allegation, you know, that I  
17 thought would be useful to either demonstrate  
18 that the procedures were working or, you know,  
19 question whether they were.

20 But I would say the only thing that I  
21 would note on number 12 here is I think there  
22 were two parts of this. One was to look at  
23 specific cases and the other was to look at  
24 the systemic problem or potential systemic  
25 problem by doing, I think you proposed some

1                   statistical approaches of looking at the data.  
2                   And I don't know if you've looked at that at  
3                   all, Brant, either. Have you done either one  
4                   of those?

5                   **DR. ULSH:** We tried to do that, Mark. We --  
6                   let me tell you what we did. We had a number  
7                   of years' worth of quarterly data that we  
8                   looked at. And what we were looking for was  
9                   an indication that as workers approached limit  
10                  over the year, there would might be a  
11                  difference in the distribution of their doses  
12                  by quarter.

13                  And that might signify either one,  
14                  their badges were left in their locker as some  
15                  workers have alleged or two, the workers were  
16                  pulled out of the radiation areas as they  
17                  approached their limits. Both of those would  
18                  fit such a pattern. We performed that  
19                  analysis and we didn't see differences between  
20                  quarters; however, after we talked about this,  
21                  we decided that, you know, that's not going to  
22                  be, it's not going to put the issue to bed.

23                  And the reason is that in some time  
24                  periods the most exposed workers, which is  
25                  where you would most logically expect to see

1           this kind of an issue, they would not be on  
2           quarterly badge reads. They might be on more  
3           frequent badge reads. And so we didn't feel  
4           that that issue really got at what we were  
5           trying to do. In addition, we can compare to  
6           regulatory limits in place at the time, but  
7           that may not get at the issue either because  
8           in some situations there were administrative  
9           limits.

10                   And we really didn't have a way to, on  
11           a large-scale basis, tie workers to particular  
12           situations where there were administrative  
13           limits in place. Those would have been the  
14           ones that would have been binding. You know,  
15           if a worker approached an administrative  
16           limit, he might have been pulled out of an  
17           area or, you know, and we just have no way to  
18           evaluate that. That's where we are with that.  
19           We just didn't feel it was terribly  
20           informative.

21                   **MR. GRIFFON:** All right.

22                   **DR. MAURO:** Where that puts us is when we  
23           last spoke quite frankly I was optimistic  
24           about that investigation in terms of putting  
25           to bed the, I guess the issue had to do with

1           how prevalent was that and making a judgment  
2           whether or not it was a deliberate act or just  
3           an inadvertent act, but how prevalent was it  
4           whereby an individual would go from relatively  
5           high readings and then the next cycle go to a  
6           zero reading? That, when we discussed it, it  
7           sounds like it was a tractable analogy.

8                     That is, looking at an individual's  
9           records and seeing when the numbers sort of  
10          fall off the table indicating that some action  
11          was taken, that action could very well have  
12          been taking the person off that particular job  
13          because he was approaching the regulatory or  
14          administrative limit. But having an  
15          understanding of the extent to which that  
16          happens would give us some insight as to if  
17          that was very widespread.

18                    Now, what that does, if that's do  
19          able, now certainly it doesn't answer that  
20          question whether or not there's, and I'll use  
21          the word falsification of records or  
22          deliberate leaving your film badge somewhere  
23          else. But it does go to the frequency with  
24          which we have indication that there was some,  
25          I guess, abrupt change in activity that

1           resulted in a person going from having cycles  
2           where he was accumulating exposures, perhaps  
3           approaching some administrative limit, and  
4           then that exposure ceased in the next cycle or  
5           two or three and then perhaps picking up  
6           again.

7                         In other words that type of pattern  
8           and the degree to which that occurred is  
9           indicative of the prevalence. Now if that  
10          turned out to be not that prevalent, that in  
11          itself is very informative, and perhaps to a  
12          large degree could put to bed some of the  
13          concerns that we've been hearing. Is it  
14          possible just to get some information on those  
15          patterns or are you saying that the records  
16          are not amenable to that type of an analysis?

17          **DR. ULSH:** Well, John, I mean to do this on  
18          an individual basis, I mean, certainly we can  
19          look at selected individuals. And in fact, I  
20          think one of the later comments deals with a  
21          couple of situations like that, but that's  
22          only a couple of individuals. Now on a  
23          system-wide basis I can tell you what we  
24          found, and that was we didn't detect great  
25          difference between quarters.

1                   In other words, we didn't see a big  
2 drop off from the limits in the fourth  
3 quarter. But again, that's just quarterly  
4 data. Now I can also tell you that the, we  
5 basically had accumulative frequency so how  
6 many people's badges recorded 50 millirem or  
7 less, 100 millirem or less and I can tell you  
8 that those histograms were far below  
9 regulatory limits in most, there were only a  
10 very few that would have been at the higher  
11 spectrum, but again, I've got to caution you  
12 on what conclusions you can draw from that  
13 because the regulatory limits may not be the  
14 appropriate limits to consider.

15                   **MS. DeMERS:** Can I make a statement here?  
16 This is Kathy. You should probably be aware  
17 that when someone received excessive exposure,  
18 then they were assigned to another area, what  
19 they liked to call a cold area. It was not  
20 necessarily an area without radioactive  
21 material and exposure potential. For example  
22 if someone was assigned to the americium line  
23 and was receiving too much exposure, they  
24 might send him to another area of the 771  
25 building which was still involved with

1 plutonium processing.

2 **DR. ULSH:** Okay, wouldn't the idea though,  
3 Kathy, be, I mean, it's probably true that the  
4 dose potential would not be zero, but the  
5 whole idea of the move would be to move him to  
6 a lower potential area.

7 **MS. DeMERS:** What I'm bringing that up for  
8 is because you're looking for patterns where  
9 you have a dose and then all of a sudden you  
10 get a drastic drop.

11 **DR. ULSH:** Right.

12 **MS. DeMERS:** And the drop may not be as  
13 drastic as you might think it would be because  
14 they're still in a radiological area.

15 **MR. GRIFFON:** Yeah, and I think more to the  
16 point is your assessment, Brant, that you've  
17 got quarterly data and you had weekly  
18 exchanges or monthly exchanges. You know, I  
19 think it's very hard --

20 **DR. MAURO:** Can't do it.

21 **MR. GRIFFON:** -- if your tool's not  
22 sensitive enough to see those differences.

23 **DR. ULSH:** That's kind of my point. I would  
24 hate to -- yes.

25 **MR. GRIFFON:** I think that's the primary

1 point which brings me back to step back from  
2 that a second. All you have is the CEDR in  
3 this case? I'm wondering if the monthly or  
4 weekly was ever recorded in any sort of  
5 database. I guess if it was, you would have  
6 been using it so I'm assuming it's not.

7 **DR. ULSH:** Mark, Jim tells me that HIS-20  
8 does contain -- what data?

9 **DR. NETON:** Cycle-by-cycle.

10 **DR. ULSH:** Cycle-by-cycle data after '76.

11 **MR. GRIFFON:** Oh, after '76?

12 **DR. ULSH:** Yeah.

13 **MR. GRIFFON:** And did you look at that for  
14 any pattern?

15 **DR. ULSH:** You know, Craig is the one who  
16 did this.

17 Craig, are you online?

18 **MR. LITTLE:** I am online.

19 **DR. ULSH:** Where did we get the data that  
20 you used, quarterly data? That was claimant  
21 data, wasn't it?

22 **MR. LITTLE:** Well, in the one instance it  
23 was claimant data, yes. In the other instance  
24 it was data that come off of the beta-gamma  
25 worksheets that we rolled up into a comparison

1 with the 20.

2 **MR. GRIFFON:** But those are two cases that  
3 you tracked, right? I mean, that was looking  
4 for patterns or systemic, was it?

5 **MR. LITTLE:** The data that Frank was talking  
6 about where we did the histograms came from  
7 the, essentially, I think the dose  
8 reconstruction database. I don't know if you  
9 call that CEDR or not, but it's a summary of  
10 all the data that's in all the claimant files,  
11 but it is quarterly data. Now there is also  
12 in there some cyclic data as fine as weekly,  
13 and there's a bunch of annual data.

14 But this we tried to do a summary of  
15 some of that and put it into histogram form so  
16 that we could cut these histograms on a finer  
17 scale. And what we found was that the data  
18 got all coded the same way so there's a huge  
19 amount of manipulation that has to go on to  
20 get the data to the point where I'm looking at  
21 all the same thing.

22 In other words there may be a  
23 different, for example, in one case it might  
24 be week one, week two, week three would be the  
25 identifier for the data. That's a weekly

1 badge. In another one it might be one-one, 69  
2 though 1769. It's a text identifier that just  
3 makes it very hard to sort out without a lot  
4 of manual effort.

5 **DR. ULSH:** And I think at the end of the day  
6 the biggest problem is, let's say we see this  
7 pattern. We see a tail off. We can't really  
8 say whether that was because the individual  
9 was pulled out or because they left their  
10 badge in their locker.

11 **DR. MAURO:** Oh, I agree with that, but if we  
12 find out that it's not a very common  
13 occurrence where that circumstance arises,  
14 that in itself is an important piece of  
15 information.

16 **MR. GRIFFON:** Right, I agree with that. But  
17 if, and I'm just not sure, Craig, what  
18 database were you, well, you're referring to  
19 this dose reconstruction database, but is that  
20 the CEDR? I'm getting a little confused on  
21 what database this is.

22 **MR. LITTLE:** ^ the main port so I can't  
23 really give you, I don't really know the  
24 answer.

25 **MR. GRIFFON:** Right, okay, but this probably

1 -- the ACCESS databases that you're going to  
2 post on the O drive for us, right? These ones  
3 we've discussed before.

4 **MR. LITTLE:** And I don't know the answer to  
5 that either.

6 **MR. GRIFFON:** Okay. Brant, do you know?

7 **DR. ULSH:** I'm sorry, Mark, can you repeat  
8 that? What was the question?

9 **MR. GRIFFON:** I'm just trying to figure  
10 which database, I'm not clear which database  
11 you were working from for this analysis.

12 **DR. ULSH:** I think it was just claimant data  
13 that we had. I don't know, Mark, because we  
14 kind of concluded that it wasn't going to be  
15 that useful so I didn't really focus too much  
16 on it. Why don't I -- how about this? I will  
17 get together with Craig and Jim and maybe Ken  
18 and see how feasible it might be for us to  
19 look at some selected workers in the post-'76,  
20 post-'76 timeframe. And these are  
21 contemporary workers making these allegations  
22 so that might be the right timeframe.

23 **MR. GRIFFON:** That would be from the HIS-20  
24 stuff, right?

25 **DR. ULSH:** That would be from HIS-20. We'll

1 see what we can do about conducting, I don't  
2 know. I just have to, we'll have to talk  
3 about it and see what it would take to do it.

4 **MR. GRIFFON:** Okay, I guess that's as far as  
5 we can go with that one. I'm going to leave  
6 that as sort of an outstanding action.

7 **MR. FITZGERALD:** Can we summarize the  
8 action? It sounds like we have perhaps three  
9 different tracks of review. Certainly NIOSH  
10 has two, one being the systemic one we just  
11 covered. Another one being the contacts with  
12 DOE, Kaiser-Hill and basically trying to run  
13 down the issues that was. And then, of  
14 course, we're looking at data, logbooks, and  
15 trying to corroborate through documentation  
16 which may have the data to speak to us in a  
17 way on separate cases. Is that a fair  
18 characterization? There's basically three  
19 paths of follow up?

20 **MR. GRIFFON:** And, what, I understood every  
21 one except the second one, Joe. What follow-  
22 up with Kaiser-Hill?

23 **MR. FITZGERALD:** Well, this is the one that  
24 I think Brant was referring to where he went  
25 to Tony, and Tony referenced these

1 investigations that were going on, and I guess  
2 eventually ended up with Kaiser-Hill and DOE  
3 trying to get additional information which has  
4 not been forthcoming yet.

5 **MR. GRIFFON:** Those investigations, were  
6 they tied to the no data available-type of  
7 claim or were they different claims?

8 **DR. ULSH:** I don't know, Mark, because we  
9 haven't really got, I haven't heard the  
10 specifics from Tony, and I haven't been able  
11 to get in touch with the DOE people yet or the  
12 Kaiser-Hill people.

13 **MR. GRIFFON:** I don't really know that under  
14 the past action items, but I agree with the,  
15 at least those other two that, the  
16 investigation of the systemic review, SC&A has  
17 continued to look for the field data. And I  
18 think that there's also an action for NIOSH to  
19 check specific cases where available. And  
20 some of those come out in actions below this  
21 in the matrix.

22 **MR. FITZGERALD:** But all of it comes out  
23 here. I guess that's why. It sounds like  
24 your pursuit through Tony to Kaiser and DOE is  
25 looking at particular cases, Brant?

1           **DR. ULSH:** I believe so. I hope so. That's  
2 what we asked Tony for so I hope that's what  
3 he's got in mind.

4           **MR. GRIFFON:** Okay, so maybe that is in  
5 there, okay.

6           **DR. MAURO:** Mark, this is John. I think  
7 from SC&A's perspective, we've run this I  
8 think as far as we could. I know that some  
9 additional material might be coming in to  
10 Kathy DeMers, but Kathy, I guess I'd pose a  
11 question to you. Are we at a point where we  
12 really are passing off the baton? This is as  
13 far as we were able to take it in order to get  
14 documents to discuss these matters with some  
15 of the petitioners, and you've documented very  
16 nicely in your April 5<sup>th</sup> trip report. Are we  
17 at a point now where we're really, have done  
18 what we can do or do you, Joe and Kathy, do  
19 you envision there are more things that is  
20 appropriate for us to do at this point?

21           **MS. DeMERS:** I think that we need to pull  
22 the logbooks that I requested and the files,  
23 and I've spent a lot of time talking to  
24 individuals who have provided affidavits in  
25 the SEC petition and for NIOSH to go back and

1 do that. They would also have to potentially  
2 start over in that process.

3 **MR. GRIFFON:** Kathy, did you, I'm sure you  
4 did, but I don't know if you provided that in  
5 your trip report that sort of interview notes  
6 with those individuals that you talked to?

7 **MS. DeMERS:** I integrated them into the  
8 answers, but the interview notes are not  
9 complete --

10 **MR. GRIFFON:** Because I wonder if you  
11 received these items you requested, I think I  
12 agree with John, is that you've sort of  
13 uncovered some questions. You've pulled the  
14 string on this a bit, but essentially I think  
15 it's NIOSH's role to investigate further. You  
16 know, SC&A's in the position of providing the  
17 review of NIOSH's products.

18 So is that sort of where you're going,  
19 John, with this?

20 **DR. MAURO:** Exactly, in other words, if Joe  
21 and Kathy are at a point where, well, there  
22 are a few more things that are sort in the  
23 pipeline right now, might as well let that  
24 come to closure. But at that point I think we  
25 stop and just communicate, this is where we

1 are, this is what we have --

2 **MR. GRIFFON:** And provide the materials to  
3 NIOSH, right.

4 **DR. MAURO:** -- this is what we envision  
5 might be good follow up, and then we just  
6 leave it with the working group.

7 **MR. GRIFFON:** I agree, or and provide those  
8 materials to NIOSH.

9 **DR. MAURO:** Exactly.

10 **MR. FITZGERALD:** Now the only dilemma, just  
11 since we're on the subject, I think both NIOSH  
12 and SC&A are both waiting for things that we  
13 don't necessarily control in terms of access  
14 and timing. I suspect we will get what we  
15 want from DOE, but I can't say when and that's  
16 the only issue. Certainly, how far does one  
17 go and how long does one wait. And we  
18 certainly don't know how long that's going to  
19 take. So I think we both, NIOSH and SC&A,  
20 have similar issues, at least in that regard.

21 **DR. MAKHIJANI:** This is Arjun. Kathy, are  
22 there documents you've gotten in the last week  
23 that might kind of exemplify some of the  
24 issues a little bit farther?

25 **MS. DeMERS:** From the standpoint of --

1           **DR. MAKHIJANI:** From the standpoint of, you  
2 know, whether there were pressures at the  
3 plant of the type that the petitioners are  
4 talking about to alter the data, you know, to  
5 promote production or for other reasons, or  
6 whether any of the documents show some of that  
7 or don't?

8           **MS. DeMERS:** I actually have a statement  
9 that I wanted to read that I was saving for  
10 later, but it kind of shows or it creates  
11 questions about how important ^ was over  
12 production and what it is is the Atomic Energy  
13 Commission has issued a letter.

14           **COURT REPORTER:** Kathy, I'm sorry, this is  
15 Ray. I'm getting a real bad noise out of your  
16 reception. I don't know if it's just me or  
17 what.

18           **MS. MUNN:** It's not just you.

19           **MR. GRIFFON:** And I can hardly hear you.

20           **COURT REPORTER:** Yeah, it's hard to hear  
21 you.

22           **MS. DeMERS:** Can you hear me now?

23           **COURT REPORTER:** Well, you're louder, but  
24 that noise is still in the background.

25           **MR. GRIFFON:** Are you on speaker or not?

1           **MS. DeMERS:** No, I'm on.

2           **MR. GRIFFON:** Is it bearable, Ray? Or can  
3 you...

4           **COURT REPORTER:** Yeah, if, Kathy, I hate to  
5 ask you, but you'll just speak as loudly as  
6 possible, that'll help.

7           **MS. DeMERS:** Or I could try and call back  
8 in.

9           **COURT REPORTER:** I don't know what's going  
10 on. It sounds like there's a big machine  
11 behind you.

12           **MS. MUNN:** It may not be her line. I heard  
13 it when she was not speaking.

14           **COURT REPORTER:** Oh, did you? Okay.

15           **DR. WADE:** Well, why don't we just try,  
16 Kathy, if you could speak loudly and let's see  
17 how we do.

18           **MS. DeMERS:** Okay, there was a letter issued  
19 from the Atomic Energy Commission to the union  
20 March 3<sup>rd</sup>, 1970. And there were several items  
21 that were listed in this memo, but what I  
22 wanted to bring your attention to was an item  
23 about the TLD dosimeter. And this reads, "The  
24 new thermoluminescent dosimeter, TLD,  
25 personnel badge for neutrons is an excellent

1 one, but it will not be put into use because  
2 (a) it is too expensive, and (b) the more  
3 accurate reading from this new dosimeter will  
4 pose a radiation exposure control problem  
5 which could close down certain operations and  
6 Production will object."

7 Now obviously, they went on and they  
8 implement TLDs in several buildings and then  
9 eventually spread out from there. But I guess  
10 the question is what does this statement mean  
11 with respect to questions on work practices  
12 and dosimeter assignments? Are you still  
13 there?

14 **DR. WADE:** Yes, go ahead.

15 **MR. GRIFFON:** We're still here but we just  
16 have a -- They're very challenging calls,  
17 aren't they?

18 **DR. WADE:** It'll stop in a minute.

19 **MS. DeMERS:** And this --

20 **MR. GRIFFON:** What timeframe did that say,  
21 Kathy, if I can ask you again?

22 **MS. DeMERS:** March 30<sup>th</sup>, 1970.

23 **DR. ULSH:** This is Brant Ulsh. First of all  
24 I'd like to see a copy of that. If you could  
25 send that over to us, Kathy, that'd be great.

1 We'd like to review it. Second point is that  
2 in 1969 and '70, they did, in fact, institute  
3 the TLDs in '71 for neutron. I really can't  
4 comment any further because I don't have the  
5 letter in front of me, but I'd sure like to  
6 see it.

7 **MS. DeMERS:** Okay.

8 **DR. ULSH:** And I guess that's all I can say  
9 at the moment.

10 **MR. SMITH:** This is Matt Smith in Richland.  
11 I helped set the job for the future. I know  
12 Jack Fix is not available right now because  
13 he's talking with other OCAS members, but you  
14 know, he wouldn't ^ from a Hanford perspective  
15 and likewise the ^, the historical things that  
16 went on across the complex at this time. And  
17 Brant, I recommend at some point we interface  
18 with Jack on that a little bit.

19 **DR. ULSH:** Okay.

20 **DR. MAKHIJANI:** This is Arjun. The thing  
21 that this call kind of brings up is the  
22 question, you know, in a way it's a question  
23 of whether you believe what's on the paper or  
24 whether there's more to what the workers are  
25 saying in their statements and affidavits.



1 additional pay.

2 **MS. MUNN:** That was common.

3 **MR. GRIFFON:** Yeah, we heard that, yeah.

4 I guess, Brant, I mean, I think I'm  
5 with you, Brant, on the fact that we need to  
6 see this memo. And I think I'll go back to  
7 John's original proposal which was if Kathy,  
8 if you and Joe can sort of roll up what you  
9 found into a mini-report I guess I'd call it,  
10 and any, and also forward any additional  
11 materials to NIOSH and the Board on this  
12 related to this topic, then we can go from  
13 there.

14 I mean, it's hard to sort of comment  
15 on a memo that we're, I think we need to look  
16 into that more, and maybe if you can provide,  
17 and then I think, as John was suggesting, I  
18 think it's appropriate that you've identified  
19 some things. It's up to NIOSH to follow up on  
20 or respond to. Does that make sense?

21 **DR. ULSH:** I'd like a clarification. If  
22 there are action items here for NIOSH other  
23 than -- let's see, I think we were going to  
24 check out the plausibility of doing a  
25 statistical analysis on the post-'76 data from

1 HIS-20.

2 **MR. GRIFFON:** Right.

3 **DR. ULSH:** Is there another action item  
4 here?

5 **MR. GRIFFON:** The only other action item I  
6 have outstanding which is that you'll track  
7 specific no-data-available cases, but that was  
8 sort of, it's not stated in the matrix, but  
9 it's stated later in the matrix. That was  
10 sort of, you know, where possible was the  
11 underlying construct of that. And then to  
12 review the database for systemic. And that's  
13 what you're saying. You're going to do post-  
14 '76 now. But the other action I'm adding to  
15 this matrix item is that SC&A has conducted  
16 interviews with some individuals at the site  
17 and has recovered some additional materials,  
18 logbooks, et cetera, pertinent to the topic  
19 and will provide a report and materials to the  
20 Board and NIOSH.

21 **DR. ULSH:** Okay, so is this the thousand or  
22 so pages, Kathy, that we're talking about?

23 **MR. GRIFFON:** I don't know how extensive  
24 this is. Did she say?

25 **MS. DeMERS:** With respect of tracking down

1 back to the secondary records?

2 **DR. ULSH:** Let me look here. I thought that  
3 at some point you said you identified a lot of  
4 records. They were being shipped. Yeah, here  
5 it is. On page 41 in your response back  
6 there, I'm sorry, your comment, it says that  
7 as previously mentioned approximately 1,000  
8 records are being shipped to SC&A and required  
9 review. Are we talking about the same  
10 material here?

11 **MS. DeMERS:** I think we're talking about the  
12 secondary field records. The records that  
13 have not been pulled yet.

14 **MR. GRIFFON:** Right, but what are these  
15 secondary field records related to? These are  
16 the logbooks? What are these records?

17 **MS. DeMERS:** These are logbooks which  
18 correspond with time periods when an  
19 individual is on a particular project that  
20 allegedly contains information on personnel  
21 dose.

22 **DR. ULSH:** Is this material that SC&A has  
23 asked DOE for, and they have not received it  
24 yet and they will be receiving it in the  
25 future?

1           **MS. DeMERS:** This is material that I  
2 requested that they pull. And when I was  
3 there, they had not pulled it. There is also  
4 material that I copied while I was at Rocky  
5 Flats, and that is still sitting at Rocky  
6 Flats. There's probably a records box full.

7           **MR. GRIFFON:** I guess what I'm trying to get  
8 a handle around is is there some sort of, you  
9 know, summary conclusion that SC&A can come  
10 to? And I'm not saying right here this minute  
11 on the call. But if there's some point short  
12 of just waiting for all the records to come  
13 from DOE because I have the same concern that  
14 Joe mentioned with that. That that's sort of  
15 an indefinite timeline, but based on your  
16 field interviews and some data that you were  
17 able to look at, we've got the following  
18 concerns on this issue. I mean, is there some  
19 way that SC&A can put together a report like  
20 that in short order, and then say, in addition  
21 to that say we've also requested further  
22 documentation including the following items  
23 which are still outstanding?

24           **MS. DeMERS:** I can certainly pull together  
25 my concerns and the roadmap that I was going

1 to follow. Have all those records been  
2 pulled?

3 **MR. GRIFFON:** Because I think that's  
4 important because it may be that if you boil  
5 this down to an issue, Brant and the NIOSH  
6 team may look at it and say, we think we've  
7 addressed this already, and here's why, you  
8 know, as opposed to just everybody just  
9 sitting and waiting for further records to be  
10 pulled. I just want to make sure that we know  
11 what all this is leading to maybe. You can't  
12 tell until you have all the data, too.

13 **DR. MAURO:** Mark, the only concern I have is  
14 to clarify this thing a little bit more is I  
15 think Brant and his folks have done a good job  
16 of following this thing along with the issue-  
17 by-issue analysis, and I understand frankly  
18 the position that I'm reading which is we have  
19 not provided anything singular or new or  
20 sufficiently compelling to change the  
21 position, I think, that NIOSH has taken. And  
22 at this point I would agree that that stuff, a  
23 lot of the material should be ^.

24 So the question I would have is in  
25 order to establish whether there's anything

1           compelling on this particular issue, we almost  
2           would be relying on some of the information  
3           which is forthcoming. And my only concern, I  
4           expressed it before, it's not clear since we  
5           don't control DOE processes and stuff, how  
6           soon we could expect to have it and whether it  
7           would be in time to provide the Board the  
8           analysis you're talking about.

9                     I'm just trying to put this on the  
10           table because I think that's kind of where  
11           we're at. That Kathy's done a great job of  
12           identifying what's there and what should be  
13           looked at, but the logistics of getting it and  
14           looking at it, if, in fact, we're in real time  
15           now, is a big concern.

16           **MR. GRIFFON:** Is any of this classified? Is  
17           it going to classification review? Is that  
18           part of the delay?

19           **MS. DeMERS:** No, there has been no  
20           indication that it's classified.

21           **MR. GRIFFON:** It's just a matter of shipping  
22           the box, or is it a matter of the contents of  
23           the box?

24           **MS. DeMERS:** There's really two separate  
25           issues. Rocky Flats needs to ship the boxes,

1 the box of information that I copied while I  
2 was there, but that's one situation. And then  
3 there's an issue where we need to pull the ^  
4 they request and the dosimetry logs, and you'd  
5 have to get them copied.

6 **MR. GRIFFON:** Who's we? I mean, is that,  
7 did you leave specific logbooks that you  
8 wanted copied and they just have to do it for  
9 you?

10 **MS. DeMERS:** No, they have not pulled them  
11 yet.

12 **MR. GRIFFON:** But have you identified the  
13 specific ones that you --

14 **MS. DeMERS:** Yes.

15 **MR. GRIFFON:** -- would like, or you have to  
16 -- you have?

17 **MS. DeMERS:** Yes.

18 **DR. MAURO:** Kathy, this is John --

19 **MR. GRIFFON:** It may be something that NIOSH  
20 can help facilitate as well.

21 **DR. MAURO:** As a point of clarification, I'm  
22 looking at your Rocky Flats interview and  
23 records review report that was sent out under  
24 Joe's signature on April 5<sup>th</sup>. There's a Table  
25 1 in there that appears to list a number of

1 documents, goes on for a couple of pages. And  
2 it appears that, am I correct that that list  
3 of documents, as far as you can tell on the  
4 list of documents that you think need to be  
5 obtained and reviewed, or is there more than  
6 that?

7 **MS. DeMERS:** There are, I think I would  
8 narrow that list down a little bit, and we  
9 also need to pull the logbooks from Building  
10 779 for a period.

11 **DR. MAURO:** I think the thing that would be  
12 helpful is if we could have a very crisp  
13 recommendation in effect based on your site  
14 visit. What I'm hearing is you have  
15 identified a number of documents that you  
16 think might be important. I think that list,  
17 and basically our recommendations regarding,  
18 to the working group should be provided to the  
19 working group as a recommendation for follow  
20 up. That this material may contain  
21 information that will help to bring closure to  
22 the data reliability issue.

23 **MR. GRIFFON:** I guess that's what I'm asking  
24 for, John, a report and recommendation and why  
25 you believe it's important to this issue.

1           **DR. MAURO:** And I think we're close to it  
2 because in looking at the minutes of the site  
3 visit, it looks like a lot of that material is  
4 there. It maybe just a matter of repackaging  
5 it in a way as almost like a recommendation to  
6 the working group and of course to NIOSH that  
7 perhaps they may want to look into this,  
8 perhaps meet with certain individuals.

9           In other words, the way I see this is  
10 in the end it's going to be data reliability  
11 and the trust that the petitioners have that  
12 we have tried, you know, turned over every  
13 rock possible. We're where the credibility of  
14 this process is going to lie. And it seems to  
15 me that Kathy is saying to us there's an awful  
16 lot of stuff we still have to do.

17           And when I say we, I guess I really  
18 mean NIOSH, that she has uncovered as a result  
19 of that visit. If NIOSH has already done that  
20 or if that's well underway, all well and good.  
21 However, I think we owe it to the working  
22 group and NIOSH to communicate this clearly,  
23 some of the things that we found out and the  
24 actions that we think would really benefit the  
25 process.

1           **DR. ULSH:** And, John, I would add to that if  
2 this report relies on documentation that  
3 you've uncovered that we don't have, if you  
4 could provide that with the report so that we  
5 can evaluate it that would be --

6           **DR. MAURO:** Absolutely.

7           **MR. GRIFFON:** I think that's --

8           **MR. ELLIOTT:** This is Larry Elliott. I  
9 agree with your comments there, John. And if  
10 in that crisp conclusionary summary if we can  
11 have a better sense of what the concerns are  
12 related to regarding data reliability, maybe  
13 that will help us determine if we've already  
14 seen the information or if we need to go out  
15 there and perhaps look at this box before it's  
16 transferred to Kathy, wherever she's asked for  
17 it to be sent.

18           **DR. NETON:** Yeah, this is Jim Neton. I'd  
19 like to make a follow up.

20           **MR. ELLIOTT:** No, I just think if we can get  
21 a better understanding of what aspect of data  
22 reliability, this information might reflect  
23 upon, that would enable us to do a better job  
24 as well.

25           **DR. NETON:** Larry, that's exactly what I was

1 going to say. This is Jim Neton. We need to  
2 have a good sense as to what these shift logs  
3 and whatnot are believed to contain that will  
4 shed light on these issues because I frankly  
5 have looked at a number of such logs, and I  
6 think I can't make the connection. And I'm at  
7 a loss, so it would be interesting if they  
8 summarize that very precisely in the analysis  
9 as to what light is going to be shed on these  
10 issues with these data.

11 **MS. DeMERS:** May I make a suggestion? If we  
12 pass the torch to NIOSH that they actively  
13 allow the petitioners to be involved in the  
14 process.

15 **MR. GRIFFON:** I think first you need a crisp  
16 recommendation.

17 **MS. DeMERS:** Yeah, I realize that.

18 **MR. GRIFFON:** And NIOSH has to decide  
19 whether they're going to pick up the torch  
20 sort of. I mean, I think that's what you're  
21 saying, Jim and Larry, right?

22 **DR. NETON:** Yeah.

23 **MR. ELLIOTT:** Yes.

24 **MR. GRIFFON:** Let's weigh this first and  
25 make an argument to the work group and NIOSH,

1 and I would say within the next several days  
2 we'd like to see that sort of argument, John,  
3 if you can pull up a brief, crisp report on  
4 this within the next several days. Then we  
5 have to make a decision on path forward here  
6 certainly in the near future.

7 **DR. MAURO:** In my mind this is, on the Rocky  
8 Flats petition, this is the highest priority,  
9 that we get this material to you in the right  
10 form so that you folks can make the judgments  
11 you need to make going forward.

12 **MR. GRIFFON:** And as Jim said, if it's  
13 related to data reliability, what specifics  
14 of, what specific aspects of data reliability  
15 I guess. Is it the no data available issue?  
16 Is it the, you know, is it only focused on  
17 that or is it broader than that. You know,  
18 you can describe that in your report. Is that  
19 fair? Can we move past that one at this  
20 point?

21 **MS. DeMERS:** Yes.

22 **MS. MUNN:** It's hard to imagine what data is  
23 likely to be gleaned from these documents that  
24 would substantiate the concerns many of the  
25 claimants have with respect to falsification

1 of data.

2 **MR. GRIFFON:** Well, that what, yeah, and  
3 maybe it's other areas of data reliability  
4 that they want to get at.

5 **MS. MUNN:** That's really the bottom line,  
6 isn't it? Is there anything that  
7 substantiates those claims?

8 **DR. MAURO:** Wanda, this is John. I'd like  
9 to take that a step further. I think the very  
10 process of doing this and interfacing with the  
11 individuals that have expressed this concern,  
12 have given us the information that there might  
13 be something important there in these  
14 documents. That in itself is an important  
15 part of the process.

16 It may turn out that after we go  
17 through this process, and it looks like a list  
18 of perhaps 20 documents and perhaps a thousand  
19 more pages altogether. I think when we go  
20 through that process itself, the process  
21 itself is going to lend credibility, and we  
22 may very well uncover important information.  
23 But I think there's no choice but to go  
24 through the process.

25 **MS. MUNN:** Yeah, I think you're probably

1 correct as long as we are focused specifically  
2 on charges that have been made or plans that  
3 have been made and not try to prove a  
4 negative. That's almost impossible to do.

5 **MR. GRIFFON:** Okay, I think we, let's move  
6 on to 13. I think there's a couple other  
7 actions that are similar to this number 12,  
8 too, but let's go on to 13 and try and work  
9 our way through the matrix before we run out  
10 of time in the day here.

11 **MR. PRESLEY:** Hey, Mark, Bob Presley. I've  
12 been back on for about an hour.

13 **MR. GRIFFON:** Hi, Bob.

14 **MS. MUNN:** Welcome back. Yes, it seems to  
15 me that all those items on the next page, 13,  
16 14, 15 are all sort of a, they're all sort of  
17 in the same box as 12, aren't they?

18 **MR. GRIFFON:** Several of them relate, yes,  
19 although a couple are very specific. Let's  
20 just walk through them and hopefully they'll  
21 go faster than 12 in most cases.

22 Brant, number 13.

23 **DR. ULSH:** Yes, number 13 corresponds to I  
24 guess the SC&A comment that starts on page  
25 seven of the 5 April responses. And SC&A's

1 expanded on their previous comment on page  
2 eight there. And our response is at the  
3 bottom of page eight. Basically, in our  
4 previous response we said that since instances  
5 where badges were missing, crystals were  
6 investigated, we contend that this does not  
7 prevent NIOSH from performing dose  
8 reconstructions with sufficient accuracy.

9 We don't see anything in the new  
10 expansion that would make us reconsider that.  
11 In fact, the logbooks actually show places  
12 where badges were processed that had missing  
13 crystals. I'm sorry, the excerpts of the  
14 logbooks, so that offers material support for  
15 what we said, and it was that at the time of  
16 the reading, the badges were sometimes missing  
17 crystals or contained damaged or contaminated  
18 crystals. SC&A has questioned the meaning of  
19 no crystal in the logbook, but --

20 **MS. DeMERS:** Well, that was a quote.

21 **DR. ULSH:** A quote?

22 **MS. DeMERS:** Yeah, from the logbook.

23 **DR. ULSH:** Yes, in the logbooks there are,  
24 at least in the excerpts that were provided  
25 back on page four and five, I believe -- well,

1 I don't know. I'm looking now and I don't see  
2 anything that says no crystal, but let's say  
3 that -- I don't know.

4 Okay, I think it's fair to say that no  
5 crystals probably did appear in a logbook  
6 somewhere and that would seem to us to  
7 indicate that a crystal was missing. I don't  
8 know.

9 **MR. GRIFFON:** But you're still saying that  
10 wouldn't preclude you from --

11 **DR. ULSH:** Exactly.

12 **MS. DeMERS:** I guess my concern is, yes,  
13 there are other logbooks that say, quote, no  
14 crystals, unquote. My concern is in reviewing  
15 several files I'm not seeing a dosimetry  
16 investigation form in those files. And what  
17 would be useful is if you took those problem  
18 dosimeters and followed through to make sure  
19 that that dosimetry investigation is in the  
20 files and is being provided to NIOSH.

21 **DR. ULSH:** I'm not certain that in instances  
22 where a crystal was missing, that you would  
23 find an investigation report in the claimant's  
24 file because what would occur is that they  
25 would calculate a dose from the other crystals

1                   that were in the badge as shown the excerpt of  
2                   your logbook here.

3                   **MR. GRIFFON:** Brant, I don't disagree with  
4                   what you just said, but your response says  
5                   that these situations were investigated if you  
6                   look in the matrix. Your previous response  
7                   says it. I would tend to think that that  
8                   might not require an investigation, whereas  
9                   number 14 where you might have an elevated  
10                  one, that would be more of an investigation  
11                  situation.

12                  **DR. ULSH:** Yeah.

13                  **MR. GRIFFON:** I don't know if you want to,  
14                  you know.

15                  **MS. DeMERS:** There are several issues that  
16                  are listed in the logbooks. It's not just  
17                  missing crystals. What do you do in the case  
18                  of bad crystals? What do you do when the  
19                  crystals are switched? And all I'm wondering  
20                  is have you gone and verified that these  
21                  dosimetry investigation forms are in files of  
22                  individuals that have dosimeter issues?

23                  **MR. LANGSTED:** This is Jim Langsted. And  
24                  you have to look at the periods of time here  
25                  that we're talking about. The procedures that

1 are quoted here are procedures from the mid-  
2 '90s, and from 1990 on, the whole DOE-nuclear  
3 industry became much more proceduralized than  
4 it was in the previous years. The logbooks  
5 that were looking at here are from the mid-  
6 '80s, and there was not that level of  
7 proceduralization and documentation. It's  
8 unlikely that you will find any sort of report  
9 in the worker's file resolving that crystal.

10 **MR. GRIFFON:** Well then, Jim, I think you're  
11 answering the follow-up question because I had  
12 asked in the previous work group whether, at  
13 the bottom of the matrix, NIOSH will determine  
14 if a similar procedure existed for earlier  
15 time periods.

16 **MR. LANGSTED:** And what we did find, Mark,  
17 was in the mid-'80s there was a procedure. It  
18 was one of the first procedures I recall that  
19 were written formally on running the dosimetry  
20 operation. And it did talk about if you had  
21 dosimetry problems, take that issue to the  
22 supervisor. But that was about it, and how it  
23 was resolved was not formalized.

24 **MR. GRIFFON:** Do you have a procedure number  
25 for that or any reference for that?

1                   **MR. LANGSTED:** The procedure is Lincoln  
2 Pennock^ 1983, and if you want the complete  
3 citation, Mark, it's on page ten of the  
4 comment responses, a caption to the figure.

5                   **MR. GRIFFON:** And so that's mid-'80s and  
6 prior to that you haven't found anything prior  
7 to that probably.

8                   **MR. LANGSTED:** No, there were not procedures  
9 that we have located previous to that.

10                  **MR. GRIFFON:** Is there any follow up on this  
11 beyond what we've discussed to this point?  
12 Kathy or John?

13                  **DR. MAURO:** It sounds like we have the  
14 answer. The answer is that prior to a certain  
15 data that kind of follow up is not possible.

16                  **DR. ULSH:** I think that what we're saying is  
17 prior to that date we don't have procedures  
18 that document that. These were more  
19 procedures that were followed but not  
20 necessarily written down anywhere.

21                  **DR. MAURO:** So am I hearing that if we were  
22 to pull the string on some of these, we might  
23 very well find documentation prior to the date  
24 of those procedures?

25                  **DR. ULSH:** I doubt that you would find

1 documentation. You might find it in the later  
2 years. After 1990 you could maybe find it.

3 **MR. GRIFFON:** And guess to be specific here,  
4 I think the allegations were related to later  
5 years. Am I correct in that or am I, I'm  
6 going by memory here. But I think the  
7 allegations of chips fell out was made by an  
8 individual that was talking, were they talking  
9 about the '80s, the '70s, the '90s?

10 **MS. DeMERS:** 'Eighties.

11 **MR. GRIFFON:** It was the '80s.

12 **DR. BEHLING:** Yes, this is Hans. I would  
13 imagine that the chip issue falling out  
14 probably predates the use of Panasonic 802  
15 badge where you don't really remove the, the  
16 TLD itself. It's a sealed package and so the  
17 issue of chips falling out and being misplaced  
18 or handled with the issue of hands and hair  
19 and oils is probably something that dates back  
20 to the TLD systems.

21 **MR. GRIFFON:** And is there a timeframe on  
22 that, Hans? Or actually Rocky specific? Do  
23 we know that?

24 **DR. BEHLING:** I think I have to look at the

25 --

1           **DR. ULSH:** We've got it.

2           **DR. BEHLING:** -- to determine when the  
3 switch over was to the more current Panasonic  
4 system.

5           **MR. GRIFFON:** Jim probably can answer that,  
6 right?

7           **MR. LANGSTED:** Nineteen sixty-nine through  
8 1983 were the loose chip TLD years. And  
9 that's the period we're talking about here in  
10 terms of contaminated chips and/or loose or  
11 lost individual chips.

12           **DR. BEHLING:** And on the issue of the oil  
13 and hair, again I'm not so sure. Obviously,  
14 I'm familiar with the old TLD system where you  
15 handled it with forceps that are clean, but  
16 even there I'm not sure to what extent, for  
17 instance, body oils would introduce a false  
18 positive in the glow curve that would be  
19 misread as a false exposure. I'd have to go  
20 back and look at that as an issue.

21           **MR. LANGSTED:** Yeah, our experience was that  
22 that would happen. And remember in those days  
23 we were not collecting glow curves. We were  
24 just integrating the charge on the instrument  
25 and reading it so you wouldn't see the

1 difference in the shape of the curve. The  
2 chips were typically handled with forceps, and  
3 they were typically washed in alcohol prior  
4 to, each one was dipped in alcohol prior to  
5 being read to reduce this problem, but --

6 **DR. ULSH:** And that's documented in Lincoln  
7 Pennock 1983, the procedure for cleaning  
8 chips.

9 **MR. GRIFFON:** And that's in 1983, and after  
10 that they really wouldn't have used those  
11 types of badges you're saying as of 1984.

12 **MR. LANGSTED:** Yeah, '83 was the start of  
13 the change over to Panasonic and that was a  
14 much more automated, less handled system with  
15 glow curves.

16 **DR. BEHLING:** Yes, and then I'm very  
17 familiar with Panasonic system. Those issues  
18 are addressed in items 14 and 15 would  
19 probably not even be an issue.

20 **MR. GRIFFON:** So I don't know that, this  
21 question's really been answered especially,  
22 you know, the preliminary matrix I have  
23 references the procedure that was in the late  
24 '80s I think or early '90s. And then you're  
25 saying this other procedure's in '83 and the

1 time period of concern is '69 to '83.

2 **DR. ULSH:** Mark, the practices were  
3 implemented at the onset, but they weren't  
4 formally, we haven't located any formalized  
5 procedures prior to that, and we're pretty  
6 skeptical about whether anything like that  
7 exists. I can't -- So I don't know. I think  
8 we've pulled the string as far as we can on  
9 this.

10 **MR. GRIFFON:** Right. And we don't, other  
11 than, yeah, I don't know that we would be able  
12 to without logbooks, crosswalk any specific  
13 situation such as this. And even with  
14 logbooks if there was a recorded dose, you  
15 would expect that from the other chips, right,  
16 if you only lost one chip out of the --

17 **DR. ULSH:** That's correct.

18 **MR. GRIFFON:** Can we take this anywhere,  
19 SC&A, any follow up on this?

20 **MS. DeMERS:** I think it would be worth it to  
21 follow up on a couple of people who had issues  
22 with their TLD chip and find out what kind of  
23 dose they were assigned and how it was  
24 assigned.

25 **MR. GRIFFON:** But I'm wondering how, I mean,

1                   how would they know if they had issues with  
2                   their chips, Kathy? I mean, it seems like the  
3                   people who reported, alleged this were in the  
4                   dosimetry and chip-reading area, weren't they?

5                   **MS. DeMERS:** The documentation I put into my  
6                   report, there are badge numbers.

7                   **MR. GRIFFON:** So there are some specifics  
8                   that you believe can be crosswalked?

9                   **MS. DeMERS:** Yes.

10                  **MR. GRIFFON:** I don't know where to take  
11                  this. I guess if that possible because I'm  
12                  still thinking that it was a multiple badge  
13                  system and if they allege, and it was true,  
14                  that that one chip was damaged or fell out and  
15                  there was a dose recorded, that wouldn't  
16                  surprise me necessarily because they've got  
17                  other chips to use.

18                  **MS. DeMERS:** I think the concern is not so  
19                  much missing one chip but other issues and --

20                  **MR. GRIFFON:** Such as?

21                  **MS. DeMERS:** Well, like the TLD reader.

22                  **COURT REPORTER:** Kathy, this is Ray again.  
23                  I'm sorry. It's just very difficult to hear  
24                  you. I don't meant to complain, but it is  
25                  just kind of difficult.

1           **MR. GRIFFON:** To hear you.

2           **MS. DeMERS:** There were several issues with  
3 the gases in the TLD reader. There were  
4 issues with crystals being swapped. This is  
5 just two pages of what I collected. I have  
6 several more.

7           **MR. GRIFFON:** Well, I guess that to the  
8 extent, I mean, this says chips fell out of  
9 TLDs and reading were not included. I think  
10 we're addressing that specific item here. If  
11 we could crosswalk those badges, and they have  
12 a recorded dose, I think that sort of puts  
13 that to rest. That specific issue. I'm not  
14 saying there's not other issues, Kathy, but  
15 that specific one.

16           **MS. DeMERS:** They're concerned not about  
17 whether there's actual measured dose there,  
18 but they're concerned about the zeros.

19           **DR. ULSH:** And it may very well be possible  
20 that the recorded dose would be zero if that's  
21 what was determined from the other crystals in  
22 the badge.

23           **MR. GRIFFON:** It could be so we may not have  
24 a conclusion on this, but if there's several  
25 badges, I don't know, that might be easy

1                   enough to crosswalk. It may not be that easy.  
2                   I don't know, how difficult would that be to  
3                   crosswalk in HIS-20.

4                   **MR. PRESLEY:** Mark, this is Bob. We have  
5                   some coworker data on any of this stuff?

6                   **MR. GRIFFON:** Yeah, we do, but this is  
7                   getting at the data reliability question, I  
8                   guess, and the allegations of intentionally  
9                   sort of not including data within the database  
10                  and that sort of thing, Bob. But you're  
11                  right, they do have coworker approaches if  
12                  they have gaps in data. But this is going  
13                  back to the whole reliability of the data  
14                  itself.

15                 **MR. PRESLEY:** Well, it still looks to me  
16                 like that we ought to be able to come up with  
17                 some, if somebody's claiming they've got a  
18                 data reliability, they'd go back and check the  
19                 coworker data.

20                 **MR. GRIFFON:** Yeah, but I guess we're kind  
21                 of looking for if there are any systemic  
22                 problems like this. You know, if it's an  
23                 isolated one, correct, and maybe use coworker  
24                 data or whatever. But this is checking to see  
25                 whether there was any sort of systemic issue

1 here.

2 Is that possible to do the hit  
3 comparison on HIS-20 by badge number? Anybody  
4 know that?

5 **MR. LANGSTED:** HIS-20 in this period would  
6 only have quarterly data, and if this badge  
7 was a monthly or a semi-monthly badge, it  
8 would be buried in there with others.

9 **MR. GRIFFON:** Okay, I wasn't sure if they'd  
10 have monthly or not.

11 **MR. LANGSTED:** No, not in this period. No,  
12 wait. Wait, wait, wait. I'm sorry, this is  
13 '86. This would have been cycle-by-cycle  
14 data. My apologies.

15 **MR. GRIFFON:** So to the extent possible I  
16 guess my sense is that we try to, again, this  
17 is a previous request, try to track some cases  
18 back to the extent possible. And if Kathy's  
19 got specific badges where this is alleged,  
20 then can we get those badge numbers to NIOSH  
21 and have you try to crosswalk those. It seems  
22 like that would be a limited effort.

23 **MR. LANGSTED:** Yes, if you've got the  
24 specifics that we can trace to badge, we can -

25 -

1           **MR. GRIFFON:** SC&A, you can provide those to  
2 NIOSH maybe via phone. I don't know if you  
3 want to e-mail that sort of thing. Is that  
4 correct, John, John or Kathy?

5           **DR. MAURO:** That's a question for Kathy.

6                   Kathy, do you have that information  
7 for them? Can you release that information?

8                   (no response)

9           **DR. MAURO:** Sounds like Kathy's not on the  
10 line.

11           **MS. DeMERS:** I just got back.

12           **DR. MAURO:** I'm sorry. We were asking,  
13 Kathy, if you'd be able to send out, provide  
14 the badge numbers to NIOSH in a way that  
15 maintains the privacy information? Are you  
16 free to disclose that information?

17           **MS. DeMERS:** It's general logbook  
18 information so it's not a particular person.

19           **DR. MAURO:** Oh.

20           **MR. GRIFFON:** I thought you said you had  
21 badge numbers that were --

22           **MS. DeMERS:** Yeah, but it's multiple badges  
23 on one page. And I would assume that we can  
24 ship it in the same way as any other Privacy  
25 Act information.

1           **MR. GRIFFON:** Okay, so we can get this to  
2 NIOSH and try, you know, NIOSH will make an  
3 attempt to crosswalk this with HIS-20 and look  
4 at this issue. We're not talking hundreds,  
5 we're talking what? How many badge,  
6 approximately how many cases, Kathy? How many  
7 badges, badge numbers?

8           **MS. DeMERS:** Well, I gave you examples of  
9 two sheets. I actually have about 15. What I  
10 would do is take a sampling.

11           **MR. GRIFFON:** Just take a sampling of that,  
12 so we're talking maybe ten badges total at  
13 most, right? In the tens I would try to limit  
14 it to.

15           **MS. DeMERS:** Yeah, I would do the same  
16 thing.

17           **MS. MUNN:** Do you know whether our claimants  
18 have had their claims, the ones that are of  
19 most concern to you?

20           **MS. DeMERS:** What do you mean?

21           **MS. MUNN:** I mean have the claimants that  
22 you are most concerned with already had their  
23 claims processed?

24           **MS. DeMERS:** Not all these people are  
25 claimants.

1           **MS. MUNN:** Okay.

2           **DR. MAURO:** Kathy, this is John. Are we  
3 talking about -- let me ask the question very  
4 straightforward -- it sounds to me that you  
5 spoke to some folks face-to-face who don't  
6 really trust the process, that the records for  
7 them as individuals, in their minds anyway,  
8 are questionable. And the very fact that you  
9 spoke to them and they provided you with some  
10 information, and you're following up and  
11 looking into it, are we dealing with something  
12 that would be called as much technical as  
13 bedside manner?

14           **MS. DeMERS:** Yeah.

15           **DR. MAURO:** So in a way going through this  
16 process with them, and let's say a similar  
17 process being pursued by NIOSH, this is going  
18 to add credibility.

19                   Let me ask NIOSH a question. To what  
20 extent have you, these individuals that are --

21                   These are petitioners that are part of  
22 the SEC petition? Who are these folks you  
23 were talking to?

24           **MR. GRIFFON:** Without saying names.

25           **DR. MAURO:** Don't give, but are these

1 workers?

2 **MS. DeMERS:** I talked to individuals who  
3 gave statements in the petition. I talked to  
4 individuals who had knowledge in areas that we  
5 felt we had incomplete knowledge, for example,  
6 production people. I talked to the  
7 petitioners themselves.

8 **DR. MAURO:** And that very same process is  
9 going on right now with NIOSH. It sounds like  
10 you folks have started a process like that.

11 **DR. ULSH:** I'm not sure what you mean, John.  
12 I mean, we have been working with the  
13 petitioner throughout the SEC process. They  
14 participated in the working group meetings as  
15 you know. We've had contacts with Tony  
16 DeMaiori, and we're following up on, well, we  
17 plan to follow up on specific instances that  
18 we might get from those conversations. That's  
19 what we've done.

20 **DR. MAURO:** You could see where I'm going  
21 with this. You know, there are individuals  
22 obviously are, don't really believe or trust  
23 the process, but it sounds like these one-on-  
24 one type of discussions and perhaps one-on-one  
25 types of follow-up investigations are going to

1           be important to these individuals. And I've a  
2           feeling that, I don't know where it's going to  
3           bring us and what we'll find out, but the  
4           very, again, the process of going through this  
5           is going to help out in terms of later on  
6           whatever decisions are made, the fact that  
7           these kinds of one-on-one conversations  
8           happened is going to be very important.

9           **MR. GRIFFON:** I think you're right, John.  
10          It just adds credibility that we're checking  
11          these specific allegations. We're making an  
12          attempt the best we can to check these  
13          specific allegations. I think I agree with  
14          you on the credibility standpoint, for NIOSH's  
15          credibility in this process and for all of our  
16          credibility in this process.

17          **MR. ELLIOTT:** This is Larry Elliott.  
18          There's no argument that this adds value from  
19          the perspective of the claimants and the  
20          workers at a given site. However, we operate  
21          here under a strict timeframe and trying to do  
22          the best that we can in that timeframe with  
23          limited resources.

24                   And we will chase down whatever leads  
25                   that we are given, but we have to do so with

1           some judgment as to what the benefit and the  
2           potential outcome might be of doing so. So it  
3           would help us to know, specifically again, in  
4           very crisp terms, what this, what a particular  
5           lead might relate to a concern that we need to  
6           pursue. I can't promise that we're going to  
7           touch everybody who worked at that site who  
8           may feel that they were wronged.

9           **MR. GRIFFON:** And I agree, Larry, that's why  
10          I'm trying the best I can to distill down  
11          these actions that we have. I agree with you,  
12          Larry, and in this case where the chips fell  
13          out, issue number 13, I think if we have  
14          specific IDs that NIOSH can crosswalk against  
15          the database, that's a very, and it does go to  
16          the question of reliability of the external  
17          dose data in a broader sense. So I think  
18          that's --

19          **MR. ELLIOTT:** I certainly want to be able to  
20          give an explanation to claimants or to the  
21          petitioners who raise issues recognizing full  
22          well they might not agree with or like or  
23          explanation, but I do believe and agree with  
24          you. They are owed an explanation if we can  
25          possibly give it to them. But we have to do

1 that and strike a balance with all of the work  
2 that we have underway.

3 **MR. GRIFFON:** I agree.

4 Can we move on in the matrix?

5 **DR. ULSH:** I think we're up to number 15 in  
6 your matrix, Mark. Is that correct? Oh wait,  
7 14.

8 **MR. GRIFFON:** Fourteen is very similar  
9 though I think, but --

10 **DR. ULSH:** That's the hair and body oils.

11 **MR. ELLIOTT:** Wait a minute. This is Larry  
12 Elliott again. I want to make sure on what is  
13 going to happen next on this last issue that  
14 was just discussed. Kathy is going to send us  
15 information relevant to certain badge numbers?

16 **MR. GRIFFON:** Yes, and you're going to  
17 compare it against HIS-20 for those specific  
18 time period badge number questions.

19 **MR. ELLIOTT:** And these are 20 different  
20 individuals or just 20 different badge numbers  
21 that may represent a smaller number of  
22 individuals.

23 **MR. GRIFFON:** Yeah, I don't know exactly.  
24 Kathy, I asked Kathy to keep it in the tens of  
25 numbers of badges.

1           **MS. DeMERS:** What I'll do is I will provide  
2 you with the sheets and then you can choose  
3 the individuals you want to pursue.

4           **MR. ELLIOTT:** Let me just offer this. We'll  
5 look at the sheet of information, but the  
6 outcome of that viewing of the sheet may be  
7 that we don't see an issue there, and we'll  
8 talk to the petitioner about that, what we  
9 see. But I don't know that I'm ready to  
10 commit that we're going to go pursue a number  
11 of individuals out in Denver and --

12           **MR. GRIFFON:** I don't thing this requires  
13 interviewing people, Larry. That wasn't my  
14 intent anyway. I mean this is to look at  
15 these --

16           **MR. ELLIOTT:** I do think we owe the  
17 petitioner an explanation here, but once we  
18 start going down individual badge results it  
19 concerns me that, you know, a number of  
20 interviews that would result from efforts is  
21 just too time consuming and perhaps too  
22 difficult to accomplish in the short timeframe  
23 we have.

24           **MR. GRIFFON:** Yeah, right, I agree. No,  
25 this is to look at the potential, you know,

1 this is specific allegations and we have  
2 specifics that we can crosswalk. That's what  
3 I figured. And it may be that it's  
4 inconclusive what we find, but it may be that  
5 you have these alleged chips fell out for 14  
6 different badges or 14 different people, you  
7 look back at those records, those time periods  
8 of concern, and you find out there's a value  
9 in their records. Then we may conclude that  
10 you read the other badge in the multiple badge  
11 chip badge.

12 **MR. ELLIOTT:** Yeah, I agree. It's hard --

13 **MR. GRIFFON:** -- crosswalk these but I don't  
14 think any of us are asking for you to go back  
15 to each individual that Kathy interviewed or  
16 whatever.

17 **MR. ELLIOTT:** Okay, I just wanted to be  
18 clear on that.

19 **MR. GRIFFON:** Okay, number 14, Brant.

20 **DR. ULSH:** Okay, number 14, that's the hair  
21 and body oils on the TLD chips cause  
22 inaccurate readings. That is addressed in  
23 page nine of my comment responses. It's  
24 labeled Data Integrity Comment Number 3. And  
25 what you see here is SC&A's comment is that,

1           let's see, they requested external dosimetry  
2           procedures from DOE but were not successful in  
3           getting those. And therefore, they could not  
4           determine how the dosimetry staff is told to  
5           handle the chips.

6                     And I would direct SC&A to ^ because I  
7           mentioned earlier that, at least for 1983,  
8           that is an example of the procedure that tells  
9           exactly how to handle chips and how to clean  
10          them prior to processing. And I think we're  
11          going to stand by our previous response. I  
12          mean, there's nothing that would make us  
13          change that at the moment. Again, I would  
14          offer that the excerpts of the logbooks do  
15          present examples that such instances were  
16          recorded, at least in these examples. I'd  
17          like to see the rest of the logbooks before I  
18          comment too strongly, but --

19                    **MR. GRIFFON:** Now in this particular one,  
20          Brant, I would assume that these type of  
21          instances would have been investigated and  
22          you're, you think that's the case?

23                    **DR. ULSH:** It's documented. But in the  
24          later years and the years that were covered by  
25          the later references, in '83 though you

1 probably have the same kind of a situation as  
2 you would for a missing crystal. It would be  
3 maybe listed in a logbook as you can see from  
4 Kathy's excerpts. I don't know that you can  
5 say that an investigation report would have  
6 been placed into a worker's file. Not in that  
7 period.

8 **MR. GRIFFON:** That was, I lifted this from  
9 your previous response so that's why I'm  
10 asking.

11 **DR. ULSH:** Well, we weren't --

12 **MR. LANGSTED:** It got a little mixed up  
13 there.

14 **DR. ULSH:** I mean the timeframes weren't  
15 specified so, and that's probably imprecision  
16 on our part. We should have specified the  
17 timeframe we were talking about there.

18 **MR. GRIFFON:** Okay, so we don't necessarily,  
19 there wouldn't necessarily have been any sort  
20 of investigation or any document in a person's  
21 file for these in the earlier years anyway?

22 **DR. ULSH:** Not for instances like that I  
23 don't think.

24 **MR. GRIFFON:** Any follow up on that? I  
25 don't know that we have any specific items

1           that we can follow through on here on this  
2           particular, the hair and body oils claim. Any  
3           follow up from SC&A on that item? And I think  
4           we've taken that action item as far as we can  
5           go.

6           **DR. ULSH:** I think there's really only two  
7           possible outcomes here. One is that the badge  
8           would have read artificially high which would  
9           not, I think that would be claimant favorable.  
10          Or they recognized that there was a problem  
11          and they read the dose from the other  
12          crystals. In either case I don't think we've  
13          got a problem here.

14          **MR. GRIFFON:** John, Kathy, any follow up on  
15          that particular item?

16          **MS. DeMERS:** I think that we're all falling  
17          into the --

18          **DR. BEHLING:** Just a comment from me. This  
19          is Hans. I was very much involved in the  
20          dosimetry program and I was at Three-Mile  
21          Island, and we did our own processing and I  
22          can tell you there were very, very strict  
23          procedures in place that would clearly  
24          identify how to deal with aberrant reads and  
25          how to resolve those issues. So it's a

1 question of are there any procedures available  
2 that you could look at or point to that would  
3 provide some reasonable explanation as to how  
4 these aberrant reads, whether they're false  
5 positives or missing crystals or loose TLD  
6 powder within and including the dependence on  
7 the 802 system, how they were dealt with. If  
8 there are such procedures, that would be the  
9 answer to resolve this as an issue.

10 **DR. ULSH:** Lincoln-Pennock 1983 and the two  
11 later documents that were referenced from the  
12 '90s. That's what we have available.

13 **MR. GRIFFON:** And no earlier procedures that  
14 you could find, right, at this point?

15 **DR. ULSH:** That's correct, Mark.

16 **MR. GRIFFON:** And again, this issue most  
17 likely would have been from the time period  
18 '69 to '83 due to the multiple badge or the  
19 system where you had to have badges?

20 **MR. LANGSTED:** What was the question, Mark?

21 **MR. GRIFFON:** This would have primarily been  
22 an issue, if it was an issue at all, would  
23 have been, the time for it would have been '69  
24 to '83?

25 **DR. ULSH:** Hair and body oils issue?

1           **MR. GRIFFON:** Yeah.

2           **DR. ULSH:** Yes, I think that is true because  
3 after that you had an automated process that  
4 would involve less handling of the chip.

5           **MR. GRIFFON:** I think we're on to the next  
6 item.

7           **DR. ULSH:** This is, in the matrix it's  
8 number 15, deliberately false entries were  
9 made into dose records. There's a charge of  
10 deliberate falsification. For instance, a  
11 worker alleges that a supervisor would advise  
12 to this other worker that the correct dose --  
13 no, I'm sorry. Would advise the dosimeter  
14 worker that the dose shown was too high to be  
15 possibly correct. And the worker was advised  
16 to change or delete the reading. And there's  
17 another instance cited where a worker alleges  
18 that zeros were entered into dose records when  
19 the TLD reader failed.

20                   Our original response was that both of  
21 these scenarios are, could have plausibly  
22 occurred and neither one constitute  
23 deliberately false entries made into dose  
24 records in and of themselves because as we've  
25 talked about, unexpected dosimeter reading

1                   could result from a number of causes.

2                   Shall I wait for the busy signal to go  
3 away or just continue?

4                   **DR. WADE:** Just continue.

5                   **MR. GRIFFON:** Go ahead.

6                   **DR. ULSH:** Those include, first of all it  
7 could be a high personnel exposure. It could  
8 also be exposure to the dosimeter when it was  
9 worn by the assigned individual, a  
10 malfunctioning of malfunctioning reader  
11 equipment. That this is a later time from  
12 claims year where we reference the '90s.

13                   They provided, those procedures  
14 provided procedures for conducting this  
15 reconstruction in those cases. They were  
16 investigated. Absent evidence to the  
17 contrary, we're going to stand by that. The  
18 petitioners expressed concerns about the  
19 reliability of the data, but to date we don't  
20 have any evidence that would support  
21 deliberate falsification on the part of the  
22 dosimetry staff.

23                   **MR. GRIFFON:** In the matrix, Brant, we talk  
24 about you were going to follow up with a  
25 petitioner, was that the same follow up from

1 before?

2 **DR. ULSH:** Right, that's what we talked  
3 about earlier where Tony directed us to talk  
4 to Lisa Bressler. We did talk to her. She  
5 directed us to a few other people who we are  
6 continuing to talk with.

7 **MR. GRIFFON:** I was going to ask, in the  
8 matrix, and I don't recall from the petition,  
9 but it seems like these are quotes. I don't  
10 know if they're quotes from the petition or  
11 quotes from individuals. I wonder if you did  
12 any follow up interviews with the individuals  
13 that made these claims. I don't know if it  
14 was I think Tony necessarily.

15 **DR. ULSH:** I think the quotes came from the  
16 -- let me make sure that what I'm about to say  
17 is true. I guess I have to look back at the  
18 SC&A comment.

19 **MS. DeMERS:** Some of those quotes are from  
20 NIOSH's initial response.

21 **DR. ULSH:** Okay, I think, Kathy, weren't  
22 some of also from the affidavits? Isn't that  
23 where we got these affidavits in the petition?

24 **MR. GRIFFON:** Yeah, I forget --

25 **DR. MAKHIJANI:** You got it right, Brant. I

1 made that initial --

2 **MR. GRIFFON:** One says SEC petition Part A  
3 on page 57.

4 **DR. ULSH:** Yeah, so those were, these issues  
5 were raised in the affidavits that were part  
6 of the petition.

7 **DR. MAKHIJANI:** And the petition itself,  
8 also.

9 **MR. GRIFFON:** Did NIOSH attempt to follow up  
10 by phone or anything with the individual that  
11 made the claim?

12 **DR. ULSH:** No, we didn't follow up by phone.  
13 We didn't feel that it was necessary.

14 **MR. GRIFFON:** Okay, as you say there's  
15 strong charges. I just wondered if it --

16 **DR. ULSH:** I mean, we've been pursuing this  
17 with Tony DeMaiori I think is --

18 **MR. GRIFFON:** Okay.

19 **MS. DeMERS:** Can I say something with  
20 respect to records access? It became very  
21 clear to me when I started talking to the  
22 petitioners that they didn't have access to a  
23 lot of the records that they thought could  
24 substantiate their position. So they were at  
25 a decided disadvantage. Unlike us they can't

1 go to DOE and say pull this record, this  
2 record, this record and have that done for  
3 them.

4 **DR. ULSH:** That's why we're pursuing this  
5 track with Tony DeMaiori. Hopefully, he'll be  
6 able to provide us some specific examples that  
7 we can track down. I mean, in the letter that  
8 I sent to Tony, I asked him to please provide  
9 any records that he had available, or  
10 alternatively, just provide us specifics that  
11 then we could chase down exactly for this  
12 reason.

13 **MR. GRIFFON:** So this is similar to the  
14 other item and that's where you stand is  
15 you're still trying to follow up on that to  
16 the best you can with the officer and other  
17 site document people, right?

18 **DR. ULSH:** Yes, that is correct, Mark.

19 **MR. GRIFFON:** I think that's as far as we  
20 can take that now.

21 I might use the prerogative of a Chair  
22 now to, would it be a good time to take a  
23 little break? Just a short break. I know  
24 it's getting close to the end of the day, but  
25 I don't think we're going to get through these

1 and the sample DRs without at least a short  
2 comfort break.

3 **DR. ULSH:** Okay with us.

4 **MR. GRIFFON:** Okay, can we limit it to five  
5 minutes?

6 **DR. WADE:** Sure.

7 **MR. GRIFFON:** Because I would like to try to  
8 wrap up before 5:00, so let's limit it to five  
9 minutes, okay?

10 (Whereupon, a break was taken and the  
11 meeting resumed.)

12 **MR. GRIFFON:** Ready to go?

13 **DR. ULSH:** Did we leave off starting with  
14 number 16 on the matrix, Mark?

15 **MR. GRIFFON:** Yes.

16 **DR. ULSH:** All right, this is unauthorized  
17 work practices. We had, in the matrix it says  
18 no further action required. However; SC&A has  
19 expanded on its comments. On page 17 of the 5  
20 April responses you see one, two, three, four,  
21 five bullets that we would like to talk about,  
22 I guess. The first is eating in the area  
23 although eating in the uranium area was  
24 allowed. This seems to keep coming up. We  
25 concede that eating in a radiation area might

1           conceivably result in an ingestion intake of  
2           radioactive materials; however, when you start  
3           from bioassay results as we do at Rocky Flats,  
4           universally claimant favorable, to assume that  
5           the material that you might detect in that  
6           urine was a result of inhalation intakes.

7                       Now I say almost universally. If  
8           there's a situation where that would not be  
9           claimant favorable, where it would be claimant  
10          favorable to assume ingestion, we certainly  
11          have the ability to do that. It's easy to do  
12          with IMBA, and that we'd work in the  
13          urinalysis results just like we would any  
14          other case. And then instead of putting the  
15          button on inhalation, we put it on ingestion.  
16          So I don't see why this an SEC issue.

17                      **MS. DeMERS:** I guess what I was doing here  
18           is trying to clarify where the petitioners  
19           were coming from because it was not, I felt  
20           like the NIOSH response wasn't getting to the  
21           real concern that the petitioners had. That  
22           was a clarification.

23                      **DR. ULSH:** So are we in agreement that this  
24           eating in radiation areas does not constitute  
25           an SEC issue, Mark?

1           **MR. GRIFFON:** I think so. We had closed it  
2 out before so I --

3           **DR. ULSH:** Well, there were a couple of  
4 other bullets. I mean that's only one --

5           **MS. DeMERS:** There are some other issues.

6           **DR. ULSH:** So let me walk through those.  
7 The second bullet was not using respiratory  
8 protection when required. And we've, our dose  
9 reconstructions don't rely on any assumptions  
10 about respiratory protection. We're starting  
11 with urinalysis data usually, so I mean, that  
12 doesn't rely on any assumptions about  
13 respiratory protection. If they fail to wear  
14 it, they might have had a higher intake and  
15 that would be reflected in the urinalysis  
16 results. So again, we contend that this is  
17 not an SEC issue.

18                           Mark, do you have any thoughts on  
19 that?

20           **MR. GRIFFON:** I agree.

21           **DR. ULSH:** The next bullet is de-posting  
22 airborne areas for tours. And we would, hard  
23 to comment on that without specifics; however,  
24 a scenario could be envisioned where -- you've  
25 got to keep in mind the airborne areas require

1 posting only for as long as there's airborne  
2 contamination and there was processes and  
3 machinery that generates airborne activity, if  
4 those are ceased, possibly when a tour is  
5 scheduled, then the need for posting might be  
6 mitigated. In any event, I don't see how de-  
7 posting radiation airborne areas for tours  
8 would compromise our ability to conduct dose  
9 reconstructions.

10 **MS. DeMERS:** These issues were mainly  
11 brought up to clarify what the petitioners  
12 were trying to say.

13 **DR. ULSH:** Well, since they were brought up,  
14 it's our obligation to address them with  
15 regard to whether or not they constitute an  
16 SEC issue so that's what I'm trying to do.

17 And then the last one -- oh, no, no,  
18 not the last one. The next one is  
19 manipulation of dosimetry, and I don't know.  
20 It's not clear to me who we're talking about  
21 doing the manipulating. If we're talking  
22 about where workers deliberately sabotaged  
23 their own badge or tried to make it read  
24 different, read inaccurately.

25 **MS. DeMERS:** Yes, that's what we're talking

1 about.

2 **DR. ULSH:** Okay, again, I think the best  
3 answer I'm going to be able to give at this  
4 point is that we do have methods for detecting  
5 and dealing with some situations where this  
6 might have occurred. We do not contend that  
7 we can detect it in all such cases. We're not  
8 making that contention. As the petitioner,  
9 Jennifer Thompson, I think it was, said in a  
10 previous working group meeting, these people  
11 were not stupid. I have no doubt that if a  
12 worker was sufficiently determined to make his  
13 badge read inaccurately, you could come up  
14 with a scenario where NIOSH would not have the  
15 ability to detect it. But in situations where  
16 this is pointed out or where we have evidence  
17 to suspect it, we do have methods to deal with  
18 it. And we talked about some other action  
19 items on other comments that we're going to  
20 take. I don't think I have anything to add to  
21 that at this point.

22 I don't know, Mark, how you want to  
23 categorize this one, but --

24 **MR. GRIFFON:** I think it's complete. I  
25 mean, I --

1           **DR. ULSH:** Well, we do have one more bullet  
2 and another thing. This next bullet is --

3           **MR. GRIFFON:** You're right, you should go  
4 through them. I agree, for completeness.

5           **DR. ULSH:** The next bullet, performing jobs  
6 without radiation monitor coverage. It may  
7 not have been a good idea but it's not clear  
8 how a lack of radiation monitor coverage would  
9 compromise our ability to do dose  
10 reconstruction.

11          **MR. GRIFFON:** Right, agree.

12          **MS. DeMERS:** Some of these are just showing  
13 you that there were unauthorized practices  
14 going on and there are safety reports that  
15 were issued.

16          **DR. ULSH:** We don't take issue with that.

17                   Mark, I think that --

18          **MR. GRIFFON:** Yeah, I guess, you know, in  
19 that context I guess Kathy's point is that  
20 often, I mean, there are some statements that  
21 imply that certain procedures existed then  
22 there's no issue here.

23                   So I guess that's what you're saying,  
24 Kathy, is that there are, at least these are  
25 cases where they say that even though they

1                   have procedures, they weren't being followed,  
2                   right?

3                   **MS. DeMERS:** Right.

4                   **DR. MAURO:** This is John. I think that your  
5                   answers are excellent, and I think that if the  
6                   petitioners were aware that though they may  
7                   have observed and experienced this, and they  
8                   understood that it really didn't prevent you  
9                   folks from doing the dose reconstructions,  
10                  that's an important message to send out.

11                  Now, a lot of the material you're  
12                  covering here would be very comforting, I  
13                  believe, to the petitioners. Right now, of  
14                  course, you have your evaluation report, but  
15                  not very much of this material is in it. Is  
16                  there any vehicle by which this type of  
17                  material is going to be made available to the  
18                  petitioners?

19                  **DR. ULSH:** I think we're participating in  
20                  that right now. The petitioner is invited to  
21                  participate in this call. I don't know if  
22                  they're on.

23                  **MS. MINKS:** This is Erin Minks calling from  
24                  Senator Salazar's office. We share that same  
25                  concern is the way to best communicate the

1 deliberations you are all going through to  
2 constituents we continue to work with.

3 **MR. ELLIOTT:** This is Larry Elliott. Well  
4 certainly these transcripts will be presented  
5 on our website, and we serve to respond to  
6 inquiries to our website or by phone or by  
7 mail on any point that is raised.

8 **MS. DeMERS:** While you brought that up,  
9 Larry, can I ask that any names be taken out  
10 of my draft memo?

11 **MR. ELLIOTT:** Kathy, I'm not aware that  
12 there are -- oh, no, wait. Are you talking  
13 about the memo that was sent out last week  
14 under Joe's signature?

15 **MR. ELLIOTT:** I'm not aware of any names in  
16 there, but I could be mistaken.

17 **MS. DeMERS:** Well, there are a bunch of  
18 names in the first --

19 **MR. ELLIOTT:** Out on the website now?

20 **MS. DeMERS:** -- paragraph.

21 **MR. ELLIOTT:** Is that on the website now?

22 **UNIDENTIFIED:** No.

23 **MR. ELLIOTT:** I'm glad to hear it's not on  
24 the website, but yes, if we put it on the  
25 website, Kathy, we would redact personal

1 identifiers.

2 **MS. DeMERS:** I'd appreciate that.

3 **MR. ELLIOTT:** Certainly.

4 **DR. ULSH:** Mark, we had --

5 **MR. GRIFFON:** And the other thing, just to  
6 follow up on that, is that this memo or this  
7 April 5<sup>th</sup>, 2006, comment response, that would  
8 be part of what's available to the petitioners  
9 as well, right Brant, so in terms of following  
10 up on these items? Is that true?

11 **DR. NETON:** It'll be on our website.

12 **DR. WADE:** Yeah, this is Lew Wade. If any  
13 of the petitioners or the representatives have  
14 suggestions as to how we can better do this,  
15 we would certainly be appreciative of that  
16 information. I mean, we want to get the  
17 information out --

18 **MR. GRIFFON:** Trying to go through,  
19 obviously difficult to go through and find --

20 **DR. NETON:** And also I thought John Mauro  
21 had indicated earlier that the totality of all  
22 this information was going to be considered as  
23 part of the evaluation, of our evaluation  
24 report. And to that extent then these things  
25 would be mentioned at least and referenced

1                   somehow.

2                   **MR. GRIFFON:** Right.

3                   **DR. WADE:** But the reality is that all that  
4                   we've done and the wonderful work that you  
5                   people have done today is very difficult for  
6                   people to understand who haven't spent the  
7                   time or really don't have the background. And  
8                   we need to explore ways to do this better, and  
9                   we're open to suggestions. Certainly, it's  
10                  what we want to do, so if you have any  
11                  specific suggestions for us now or after  
12                  you've been through the entire process please  
13                  let us know.

14                  **MR. ELLIOTT:** This is Larry Elliott again.  
15                  I think, and I feel that one way we can  
16                  certainly accomplish a little bit better job  
17                  in communicating with folks is to provide  
18                  them, and particularly the petitioners, we can  
19                  provide the matrix that has been a working  
20                  document up to this point. But at some point  
21                  in the near future it should be a finalized  
22                  document and all of the other associated  
23                  documentation that has been developed and  
24                  generated through this deliberation for a  
25                  given petition. We should provide that, I

1 believe, back to the petitioner as a way to  
2 help bring their level of understanding and  
3 bring closure to some of the questions and  
4 concerns that they have raised.

5 **MS. MINKS:** This is Erin Minks again. I  
6 think that would be very, anything would be  
7 helpful, that openness that we've talked about  
8 building credibility in the process to those  
9 who are not able to engage in the level of  
10 deliberation you're all engaging in. And I  
11 think that as this meeting comes up in two  
12 weeks out here in Denver, we're getting asked  
13 by a number of petitioner constituents who we  
14 work with just trying to get a sense of their,  
15 you know, we're trying to manage their  
16 expectations about how this meeting is going  
17 to be.

18 And we can talk about this at the end  
19 of the meeting, whatever's easiest today. But  
20 if we could have a sense of how the, you know,  
21 we talk about agenda or this is going to be  
22 presented and how. Summed up really in a  
23 very, I think the danger is to go so technical  
24 that folks don't also feel as alienated in  
25 that angle as well. But that's just what

1 we're hearing from the Congressman Udall's  
2 office and Senator Salazar.

3 **MR. GRIFFON:** That's a good point.

4 **DR. WADE:** Thank you.

5 **DR. MAKHIJANI:** Mark, this is Arjun. You  
6 know, we have, thanks to Dr. Wade and the  
7 other conversations that we've starting with  
8 Mallinckrodt when petitioners started actively  
9 participating, you know, when they send  
10 questions or we have at least a tentative  
11 procedure sometimes of interviewing  
12 petitioners and talking to them. So there's  
13 already some interchange, a considerable level  
14 of interchange happening.

15 And I think what Larry has suggested  
16 seems like an extremely good way to regularize  
17 it because we do answer questions. At least  
18 we will commit ourselves to anything in terms  
19 of what if there's a question about something  
20 or there's a normal kind of interchange about  
21 a technical matter. This sounds like a very  
22 good way to, that would be helpful to our work  
23 also.

24 **DR. WADE:** This is Lew Wade again, one last  
25 item. As the DFO I'd be willing next week

1 possibly to have a discussion, a telephone  
2 discussion, with those of you who might like  
3 if you give me your name and number to talk  
4 about the agenda and the inputs and things  
5 you're hearing. I'd like to spend some time  
6 exploring how we can do this well.

7 **MS. MINKS:** That would be very helpful. I  
8 think there's at least three members out here  
9 who would probably want to, of the  
10 congressional members out here who would want  
11 to be part of that.

12 **DR. WADE:** Okay, if you would give me your  
13 name and number, and I'll call you and we can  
14 set it up.

15 **MS. MINKS:** Erin Minks, it's E-R-I-N M-I-N-  
16 K-S and it's with Senator Salazar.

17 **DR. WADE:** And the number?

18 **MS. MINKS:** 3-0-3-4-5-5-7-6-0-0.

19 **DR. WADE:** Erin, I'll call you Monday and we  
20 can talk about setting up such a discussion.

21 **MS. MINKS:** Wonderful, thank you.

22 **DR. WADE:** Thank you.

23 I'm sorry, Mark, to take time.

24 **MR. GRIFFON:** That's okay. That's okay.  
25 It's important discussions.

1           **MS. MUNN:** And Lew and Mark, in that regard  
2           early on Paul Ziemer made an effort at the  
3           outset of our meetings to try to sort of set  
4           the stage for people who had not been involved  
5           in the Board's activity but only had  
6           interaction with NIOSH and their claim and  
7           labor. And we have not done that in recent  
8           times mostly I think because of the level of  
9           heavy lifting that was going to have to go on  
10          in our agenda of time constraints. It might  
11          not be a bad idea for us to consider a very  
12          brief overview, just five minutes or so, for  
13          new audiences to understand what has  
14          transpired with this activity prior to our  
15          actually appearing in their community.

16          **DR. WADE:** I will talk to Paul, I mean, as  
17          soon as I can about that and based upon my  
18          discussions with our friends from Colorado,  
19          possibly will include that as an item.

20                         Thank you, Wanda.

21          **MR. GRIFFON:** Let's go back to the heavy  
22          lifting.

23          **DR. ULSH:** I think we're on number 17. Am I  
24          correct?

25          **MR. GRIFFON:** Seventeen?

1           **DR. ULSH:** Seventeen from the matrix?

2           **MR. GRIFFON:** Yes.

3           **DR. ULSH:** Inappropriate subtraction of  
4 backgrounds. This comment begins on page 18  
5 of the 5 April document.

6           **MR. GRIFFON:** Was there any added comments  
7 because we had no further actions.

8           **DR. ULSH:** Yes, that's correct. We did have  
9 no further action. SC&A says in their  
10 expanded comments that there was a report  
11 written. We are speculating that this was the  
12 one that was written some time in the mid-  
13 '90s. I don't know if that's right, but I  
14 think that we're going to stand by our  
15 previous comment the full text of which is  
16 given on page 20, and I would direct you to  
17 the last italicized paragraph where it says  
18 that falsified ambient dose is assessed  
19 separately from dosimetry included in  
20 assessment. And in the worst case this might  
21 require ^ to that, but that's easily  
22 accomplished, I mean, if evidence is uncovered  
23 that we should do that. But we don't see it  
24 as an SEC in our response at the moment.

25           **MS. DeMERS:** Well, let me make a comment.

1 That report has not been sent to me. That's  
2 one of the reports that is in the box at Rocky  
3 Flats. And I guess I have a question and in  
4 order to answer this, you may have to look at  
5 page 60 of the external TBD.

6 **DR. ULSH:** Hold on, give me a minute. Six-  
7 zero, Kathy?

8 **MS. DeMERS:** Yes. It's Figure A-9.

9 **DR. ULSH:** All right, we've got it.

10 **MS. DeMERS:** There's a column, second over  
11 from the right, D-K-1. What does that mean?

12 **MR. LANGSTED:** That was the background that  
13 was -- now let's see, this is from '87, that  
14 was the background that was, environmental  
15 background that was subtracted from the badge  
16 or the crystals on the badge when loose chip  
17 TLD badge was processed.

18 **MS. DeMERS:** Okay, and is there a reason,  
19 natural background or otherwise, why these are  
20 so elevated?

21 **MR. LANGSTED:** Well, Rocky Flats is at about  
22 7,000 feet in a fairly uranium-bearing area,  
23 and typical environmental background was about  
24 a third of a millirem per day.

25 **MS. DeMERS:** Okay, that was my question.

1                   **MR. LANGSTED:** Does that make sense?

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

3                   **MR. GRIFFON:** All right, so are we at no  
4 further action required on that one?

5                   **MS. DeMERS:** Yeah.

6                   **DR. ULSH:** I'm in agreement with that.

7                   **MS. DeMERS:** Well, we haven't had an  
8 opportunity to review the report that --

9                   **MR. GRIFFON:** That's still in the box,  
10 right?

11                   **MS. DeMERS:** Yeah.

12                   **DR. ULSH:** We haven't had an opportunity to  
13 review it either obviously. However, again,  
14 if we need to adjust our background numbers we  
15 can do that. That's not an SEC issue.

16                   **MR. GRIFFON:** I guess that's the question,  
17 Kathy. Is this, would this be an SEC issue  
18 notwithstanding the documents that you're  
19 going to look at. Is this something that  
20 couldn't be adjusted if they found different  
21 information?

22                   **MS. MUNN:** It does not seem to exhibit any  
23 kind of dosimetry readings.

24                   **MS. DeMERS:** Well, I guess my answer is I  
25 don't know.

1           **DR. MAURO:** This is John. I always, I'm not  
2 afraid to stick my neck out a bit. I can't  
3 see that being an SEC issue.

4           **MR. GRIFFON:** I think we'll leave it there.  
5 I think we'll leave it there for now, but I  
6 still think it should be followed up on, but I  
7 don't see it as an SEC issue. So I think  
8 we'll leave it there, Brant.

9           **DR. ULSH:** Okay, I think then moving on to  
10 item 18 from Mark's matrix -- let's see, this  
11 is our oldest bugaboo about workers frequently  
12 did not wear badges in production areas.

13           **MR. LANGSTED:** I don't know if we have a lot  
14 to add here. We've talked about that a couple  
15 of times today.

16           **DR. ULSH:** Do you want me to respond again  
17 or are you --

18           **MR. GRIFFON:** No, no, I'm just re-reading  
19 here.

20                   Is this, this is one of the specific  
21 cases, this wouldn't happen to be one of the  
22 cases in the badges you're going to provide  
23 would it be, Kathy? I mean, the idea here  
24 again I think was to try to track back this  
25 specific individual and see if there was any

1 reason to believe that the allegation or  
2 whether it was appropriately adjusted in the  
3 future quarters or, you know, it may not be  
4 conclusive what you find. I don't know, but  
5 did you have any luck tracking or attempting  
6 to track back that individual?

7 **MS. DeMERS:** You are on page?

8 **MR. GRIFFON:** I'm on number 18 in the  
9 matrix.

10 I don't know what page, Brant, in your  
11 responses.

12 **DR. ULSH:** Twenty-one.

13 **MR. GRIFFON:** Twenty-one, thank you.

14 **MS. DeMERS:** The worker in -- okay, this is  
15 not the one I'm thinking about.

16 **MR. GRIFFON:** Yeah, I don't think this is  
17 the radiation technician example. Again, I  
18 was asking Brant more than you, Kathy.

19 Were you able to track this specific  
20 situation back? It doesn't sound like it.

21 **DR. ULSH:** I don't think so, Mark.

22 **MR. GRIFFON:** I mean was an attempt made I  
23 guess is the next question. I think this was  
24 a specific affidavit.

25 **DR. ULSH:** I don't know. I'm scratching my

1 head on this, Mark. We're going to have to  
2 look, track down this, trying to find this  
3 affidavit right now.

4 **MR. GRIFFON:** I may be wrong on that, too.

5 **DR. ULSH:** I guess my answer, Mark, is I  
6 have no update on that.

7 **MR. GRIFFON:** We'll leave that outstanding,  
8 and I think this goes, holds true for all the,  
9 you know, the badge information that Kathy's  
10 going to forward to you, but also some of  
11 these other specific cases. If you're able to  
12 track back I think that was the idea to the  
13 extent that it helps answer questions about  
14 reliability of the overall, you know, overall  
15 set of data that we're using for workers.

16 **DR. ULSH:** So what we're looking for is the  
17 petition part A, page 53, that's referenced  
18 here. The first to a specific individual, the  
19 allegation here is that sometimes this  
20 individual didn't wear their badge in the  
21 production area. What kind of analysis would  
22 you like us to do on this individual?

23 **MR. GRIFFON:** I guess without looking at the  
24 actual page, you may come back and say  
25 inconclusive because we found some data but we

1 don't know whether he off partially and had it  
2 on partially. So it may be inconclusive. If  
3 he reports to be in production areas for, if  
4 he's very specific about when he was in  
5 production areas and has all zeros in those  
6 areas, you know, that may be telling depending  
7 on the area I guess.

8 **MS. DeMERS:** I know who this person is so I  
9 can --

10 **MR. GRIFFON:** Is someone talking? I can't  
11 hear.

12 **MS. DeMERS:** There is an affidavit in the  
13 SEC petition by this person.

14 **MR. GRIFFON:** So I guess Brant I'm not sure,  
15 but I would say take the affidavit, crosswalk  
16 it, and see what you can report back. And if  
17 it's inconclusive; it's inconclusive, you  
18 know?

19 **DR. ULSH:** Okay, will do, Mark. We'll see  
20 what we can do.

21 **MR. GRIFFON:** Number 19 I'm on.

22 **DR. ULSH:** This issue is number 19 that is  
23 the geometry issue. And this picks up in the  
24 5 April comment responses on page 22. There  
25 are a number of additional points that SC&A

1 has expanded upon, and so let me try to walk  
2 you through our response here which picks up  
3 on page 24.

4 And the first issue raised is lead  
5 aprons. And what you see here on page 24 and  
6 25, we are relying a field study that was  
7 performed in two storage vaults in Rocky Flats  
8 that's 1992 to come up with the bias correct  
9 factors that we present on page 25. And that  
10 gives us factors to use for situations where  
11 we're talking about a cancer in a protected  
12 area. That is, an area that is under the lead  
13 apron and also an unprotected area, an area  
14 that is not under the lead apron, and then we  
15 also consider where the dosimeter was worn.  
16 And what's presented here are bias correction  
17 factors that will account for this.

18 There are some other specific issues,  
19 but I think maybe I'll pause here to see if we  
20 want to have more of a discussion about the  
21 lead aprons.

22 (no response)

23 **DR. ULSH:** Is that a no then?

24 **MS. DeMERS:** Well, I haven't had time to  
25 digest your responses to all of these since I

1 got them this morning.

2 **DR. ULSH:** In that case the next issue,  
3 describe the situation where there were some  
4 storage carts apparently in a hallway, and on  
5 the carts were some parts of radioactive  
6 material presumably that were placed in  
7 storage boxes with a hole cut in the front.  
8 And the comment asserts this would create a  
9 directed beam.

10 I would take some issue with that  
11 characterization. It's kind of difficult.  
12 I'm visualizing this in my head. I don't know  
13 the dimensions this, you know, the physical  
14 dimensions of the situation that we're talking  
15 about, but if you have a part in a cubic box,  
16 let's say, with a hole in one side --

17 **MS. DeMERS:** This is a shielded box.

18 **DR. ULSH:** Okay, a cubic shielding box, what  
19 you're going to have I would presume, I can't  
20 see how it would be different, is sort of a  
21 cone-shaped field, not a directed beam. The  
22 only way you can get a directed beam that I'm  
23 aware of is if you have sort of a gun barrel-  
24 type arrangement, and I don't think that's  
25 what we're talking about here. Again, I don't

1           have the specifics of the dimensions of these  
2           parts and boxes, but what you would have is a  
3           cone. And an issue that is being raised here  
4           deal with exposure geometry.

5                   And I would also remind you that you  
6           have to consider the fact that there would be  
7           scattering involved. I don't contend, okay,  
8           I'll grant you that there were heterogeneous  
9           radiation fields at Rocky Flats. But really  
10          the time that you have to worry about an  
11          exposure adjustment when you've got people  
12          working with discrete radiation sources for a  
13          significant portion of the badge exchange  
14          cycle. And the reason is that when you have a  
15          situation like that, a discrete source and a  
16          significant exposure time, it is possible that  
17          the dose recorded on the dosimeter badge might  
18          be different than the dose that would be  
19          received by some of the, for instance, if the  
20          badge is worn on the lapel area, the dose that  
21          was received by the abdominal organs could be  
22          different.

23                   And the reason for that is because of  
24          the one over  $r^2$  of radiation intensity, the  
25          distance between the badge and the source is

1 greater than the distance between the  
2 abdominal organs and the source. We fully  
3 recognize this, and in fact, we have written a  
4 TIB to deal with exactly that situation. It's  
5 OCAS TIB-0010, External Dose Reconstruction  
6 for Glove Box Workers. That TIB would also  
7 deal with the situation, the issue that SC&A  
8 raised where there were multiple glove box  
9 lines within the same room.

10 That is certainly true. We know that.  
11 However, due to that same consideration, the  
12 dependence of radiation intensity on inverse  
13 of the square of the distance, a worker's dose  
14 is going to be dominated by the glove box that  
15 he's working in front of. That's not to say  
16 that there's no contribution from other  
17 sources, but it's going to be dominated by the  
18 glove box that he's working in.

19 Furthermore, you have to consider that  
20 discrete sources in those other glove boxes  
21 have to get through not only the shielding in  
22 their own glove box but glove boxes or  
23 intervening structures that might provide some  
24 shielding. So that would even add to the  
25 dominance of the dose from the glove box that

1 the worker's working in.

2 **DR. MAURO:** Brant, this is John Mauro. My  
3 question is we just finished our review of  
4 that OTIB, and we matched your correction  
5 factors.

6 **DR. ULSH:** That's comforting, thank you.

7 **DR. MAURO:** We have some comments. You'll  
8 see it shortly. We're working on publishing  
9 that, the Task 3 report, but it turns out I  
10 was involved in that one in particular, and we  
11 just about matched every one of your  
12 adjustment factors.

13 **DR. ULSH:** I'm glad to hear that, thank you,  
14 John.

15 **MS. DeMERS:** I would add one comment to  
16 this. Storage in the hallways was no uncommon  
17 at Rocky Flats in the tunnel. So I don't know  
18 if it's correct saying that these were,  
19 resulted in less exposure than glove box work.

20 **MR. LANGSTED:** In the tunnels in 991  
21 Building?

22 **MS. DeMERS:** Well, from what I'm reading  
23 there were various storage locations. There  
24 was a tunnel that was converted to a vault.

25 **MR. LANGSTED:** Those tunnels that were used

1 for storage areas had very low occupancy  
2 factors. People would only be in there for a  
3 short period of time.

4 **DR. ULSH:** And again, Kathy, you have to  
5 consider that if you're talking about a cone-  
6 shaped field, even if you don't consider  
7 scattering, what you're going to have to have  
8 is a worker standing in such a position that  
9 his badge is outside the cone and his body is  
10 inside the cone. And it just don't find it  
11 credible that a worker would spend a large  
12 portion of his badge exchange cycle in those  
13 low occupancy areas standing in exactly that  
14 position. I just don't find that credible.

15 **MS. DeMERS:** Well, the statement about the  
16 directed beam was given by an RCT who measured  
17 it with field instruments.

18 **DR. ULSH:** Well, I wonder if there's some  
19 possible difference of interpretation here  
20 because like I said, the only way you're going  
21 to get a directed beam is with a gun barrel-  
22 type configuration.

23 **DR. MAKHIJANI:** Brant, this is Arjun. I  
24 think the nature of the beam will depend not  
25 on the distance and geometry of the source.

1                   And until, you know, it's a point source, and  
2                   I think you're completely right. It would be  
3                   like a cone. If it's a more spatially  
4                   extended source and a smaller hole in a  
5                   shielded box then you might get more like a  
6                   beam. But I think this is a, I don't know, I  
7                   guess sort of stepping back from it, it seems  
8                   like a theoretical discussion of when we don't  
9                   know the specifics enough to sort out the  
10                  situation.

11                   And if there are measurements, Kathy,  
12                  is there a document behind these measurements?

13                  **MS. DeMERS:** I've asked to be pulled.

14                  **DR. MAKHIJANI:** Well, I think both things  
15                  are possible. Brant is right that it could  
16                  very well be a cone, but it just depends on  
17                  what was being worked on.

18                  **DR. ULSH:** Yes, you're right, Arjun. This  
19                  is very much a theoretical discussion because  
20                  I don't have the layout of this situation in  
21                  front of me. But I still contend that unless  
22                  you have very thick shielding, you're not  
23                  going to get a directed beam. I will grant  
24                  that you might have an unhomogeneous or let's  
25                  say a heterogeneous radiation field.

1           **DR. MAKHIJANI:** Right.

2           **DR. ULSH:** But a worker would have to spend  
3 an appreciable amount of the badge exchange  
4 cycle standing where his badge in one position  
5 more or less, where his badge is getting a  
6 different reading. And I just don't see that  
7 happening other than working with discrete  
8 radiation sources for a large period of time  
9 exemplified by glove box workers. If you guys  
10 come up with evidence otherwise, I certainly  
11 will

12           **DR. MAKHIJANI:** Isn't that the context in  
13 which this thing is being --

14           **DR. ULSH:** No, this is, no, this is --

15           **MS. DeMERS:** Well, there's a --

16           **DR. MAKHIJANI:** there was a --

17           **MS. DeMERS:** -- couple of different issues.

18           **DR. MAKHIJANI:** -- context of this.

19           **DR. ULSH:** There were a couple of different  
20 issues raised in this comment. One was these  
21 putative directed beams that would be created  
22 by these storage boxes in the hallways. That  
23 was one issue. The second issue was multiple  
24 glove box lines within the same room. And  
25 what I'm saying is that the geometry issue to

1 the extent that there is one is typified by a  
2 glove box worker. And as John mentioned, you  
3 guys have just reviewed that TIB.

4 **DR. MAKHIJANI:** Yeah, I think that's  
5 probably right.

6 **MS. DeMERS:** It's difficult to give you a  
7 description because it's treading on sensitive  
8 information.

9 **DR. ULSH:** What you're saying -- I don't  
10 know.

11 **MR. GRIFFON:** Are you saying that this might  
12 be a classified concern here?

13 **MS. DeMERS:** Yes.

14 **DR. ULSH:** So the configuration of these  
15 storage boxes and the parts that they  
16 contained and the storage areas might be  
17 classified information is what you're saying?

18 **MS. DeMERS:** Possibly.

19 **DR. ULSH:** Okay, well --

20 **MR. GRIFFON:** Well, we can't take that any  
21 further here obviously.

22 **DR. ULSH:** Right, so I think that's our  
23 response with this issue open to discussion if  
24 necessary.

25 **MR. GRIFFON:** Yeah, I mean I think that just

1 about all we can say at this point is that  
2 NIOSH has provided a response in the 5 April  
3 comment memo, and SC&A will consider this  
4 within their review of the evaluation report.  
5 I mean, I think that's where I'm going to  
6 leave it if that's agreeable?

7 **MR. ELLIOTT:** Kathy, this is Larry. Do you  
8 have any sense of the magnitude of this  
9 perceived problem? In other words how many  
10 workers might have been engaged in an activity  
11 where their badge would not have captured the  
12 dose --

13 **MR. GRIFFON:** Good question.

14 **MR. ELLIOTT:** -- in this scenario?

15 **MS. DeMERS:** It's kind of hard to tell  
16 because you have to go back and this is for a  
17 particular time period.

18 **MR. GRIFFON:** Was it for a very unique  
19 process of it was only for a limited  
20 timeframe?

21 **MS. DeMERS:** It's hard to get into this.  
22 This was --

23 **MR. ELLIOTT:** Let me suggest this.

24 **MS. DeMERS:** -- plutonium fabrication  
25 facility.

1           **MR. ELLIOTT:** Fabrication facility, okay,  
2 but any way to narrow, give us a year or  
3 anything like that? Perhaps maybe I, let me  
4 suggest this. That maybe you with a Q  
5 clearance and one of the NIOSH folks who has a  
6 Q clearance and maybe one of the ORAU team  
7 need to have a discussion about this.

8           **MS. DeMERS:** And I don't have a lot more  
9 information to give you, but I don't want to  
10 go into too much detail.

11           **MR. ELLIOTT:** And I appreciate that, but it  
12 would help if you guys had a discussion to at  
13 least engage you about the magnitude or the  
14 number of people, the timeframe, where it  
15 occurred, et cetera.

16           **MR. GRIFFON:** Thanks, Larry, good point.

17                   Okay, let's leave that there and then  
18 go on to 20, I think. And I would suggest for  
19 efficiency purposes, 20, 21 and 22, the follow  
20 up on all these is that NIOSH will attempt to  
21 track the specific cases?

22           **DR. ULSH:** We actually have tracked one  
23 here, Mark.

24           **MR. GRIFFON:** So I'll do that then. Number  
25 20.

1           **DR. ULSH:** Number 20. I think this  
2 corresponds, yeah, the comment starts on page  
3 25 and SC&A relates a number of situations  
4 here. I see three of them on page 27 in  
5 bullets. The first bullet is about a worker  
6 working around annular tanks and there was a  
7 ten-minute stay time, and he had no dose  
8 reported. Another employee accidentally ran a  
9 dosimeter through an x-ray machine and it came  
10 back zero. And certain high-dose projects  
11 would result in film badges that were reported  
12 as black.

13                   So I'd first like to address the  
14 affidavit that was provided in part B of the  
15 petition, page 32. This is shown in Figure 7  
16 on page 28. I have redacted it, and I would  
17 direct you to the second paragraph. This is,  
18 I think, the allegation for the part of the  
19 affidavit that SC&A's comment concerns. And  
20 that is in the 1982-'83 timeframe, loading  
21 nuclear material into the stacker/retriever,  
22 he said that six quarters out of eight there  
23 is no data available for my dose.

24           **MS. DeMERS:** Okay, this is broader than this  
25 particular individual.

1           **MR. GRIFFON:** Well, but we asked about this  
2 individual so --

3           **MS. DeMERS:** And it goes back to the zero,  
4 the unbelievable zeros by the workers.

5           **DR. ULSH:** Okay, so let's run this one down  
6 because we can. What you see on page 29 is a  
7 copy of the 1982-'83 dosimetry for this  
8 individual. And what you see are in '82 we  
9 have dosimetry for quarter one, quarter two  
10 and quarter four. And for quarter three where  
11 we don't have a quarterly read, we have a  
12 monthly read. The next year we have another  
13 monthly read in '83, and then we have  
14 dosimetry results for all four quarters.

15                       So what you see here is that dosimetry  
16 does not support the assertion that there were  
17 six quarters out of eight where there is no  
18 data available. Now I will grant you that --

19           **MR. GRIFFON:** I'd like to see that, but I'm  
20 not sure I see that.

21           **DR. ULSH:** Well, Mark, look at --

22           **MR. GRIFFON:** Well, I mean, I'm looking and  
23 I see zeros.

24           **DR. ULSH:** Yes.

25           **MR. GRIFFON:** Correct me if I'm wrong. Now

1                   could zeros in a database form such as you've  
2                   printed out here, could no data available have  
3                   been transferred into zeros? I don't know  
4                   that.

5                   **DR. ULSH:** No. No data available indicates  
6                   that there was no data available at the time  
7                   the dosimetry report was reported back to the  
8                   supervisors, I believe. And a zero indicates  
9                   zero.

10                  **MR. GRIFFON:** So within the database there  
11                  are columns that say nda or no data available?

12                  **DR. ULSH:** I don't believe so, Mark. Those  
13                  nda's occurred -- I'm going to rely on Jim to  
14                  help me out here.

15                  **MR. LANGSTED:** That no data available was a  
16                  term that was used on the report that was sent  
17                  out to the supervisors on an exchange basis.

18                  **MR. GRIFFON:** So these zeros would be just  
19                  less than detectable all the time.

20                  **DR. ULSH:** Well, for the ones, yes, the  
21                  zeros. Yes, you'll notice that one quarter  
22                  that is missing, quarter three of 1982.  
23                  There's a monthly read in --

24                  **MR. LANGSTED:** That would have likely been  
25                  reported as a no data available on the report

1 that went out to the supervisor for that  
2 quarter.

3 **DR. ULSH:** But you do see numerical results,  
4 albeit some of them are zero in the dosimetry  
5 file. They are not missing for six out of  
6 eight quarters.

7 **MS. DeMERS:** I think the point here was,  
8 again, that the worker was in an area with the  
9 very high dose rate, and they don't believe  
10 the zero.

11 **DR. ULSH:** Well, let's talk about that.  
12 Areas that were posted for high dose rates are  
13 based on the highest dose rate in the area.  
14 That is not necessarily, you cannot assume  
15 that that is an average dose rate or  
16 representative of what the worker might have  
17 been exposed to.

18 Furthermore, this person identifies  
19 themselves as a radiological control technician.  
20 And it is consistent with our experience with  
21 radiological control technicians in accordance  
22 with the LARA procedures, they would stand  
23 back out of the radiation field, and they were  
24 the ones that were holding the instruments  
25 until their services were required to go up

1 and briefly take a reading near the source.  
2 And then they would retreat back to the low  
3 radiation area. So it is entirely plausible  
4 that a radiological control technician working  
5 in such an area might have had a badge read  
6 below the limit of detection.

7 **MS. DeMERS:** Have you verified his readings  
8 with the general field conditions? Have you  
9 asked yourself does that make sense? Because  
10 if he's standing in, say, 100 MR per hour  
11 field --

12 **DR. ULSH:** We are basing what I've said on  
13 the information provided in the affidavit.  
14 And it is entirely consistent, I mean, it's  
15 plausible that a special situation could have  
16 existed without falsification of data.

17 **MS. DeMERS:** This really goes back to a  
18 previous item we've already discussed.

19 **MR. GRIFFON:** Okay, well, you did track this  
20 one back to the specific case, and I do  
21 appreciate that. That was, that's useful.  
22 That's what the action was, right? So we have  
23 a response --

24 **DR. ULSH:** Yes.

25 **MR. GRIFFON:** -- for that specific part of

1           it. Now I guess SC&A added some bullets to  
2           this item?

3           **DR. ULSH:** Well, these deal with other  
4           situations so, yes, --

5                     Okay, the situation where, let's see,  
6           there was a non-destructive testing technician  
7           asserting that his dosimetry readings did not  
8           match his job duties. And SC&A mentioned that  
9           this person was a claimant, and they have  
10          looked at the dosimetry. And I'm looking at  
11          it right now.

12                    I didn't include it in the comment  
13          responses because I was a little worried about  
14          Privacy Act information at the time. But I  
15          don't disagree with any, I think the  
16          description that SC&A provided of his  
17          dosimetry is accurate because I'm looking at  
18          it right now. And I would, we looked at his  
19          dosimetry files just like SC&A did, and we  
20          were not able to establish his work locations  
21          and his job duties.

22                    What you see is that in the early  
23          years, '63 to '68, he does have higher deep  
24          dose and skin readings. And then in '69 there  
25          is a gap. There's nothing recorded. In 1970

1           it's pretty low, and the years after that are  
2           lower than they were in the earlier years. I  
3           would mention that since this person is a  
4           claimant, I was able to determine the status  
5           of his claim. It has been completed. I don't  
6           want to give any personal identifiers, but the  
7           POC that was calculated was greater than 50  
8           percent.

9                        Therefore, you might ask what about  
10           this gap in 1969? That did not prevent us  
11           from doing dose reconstructions. This is a  
12           classic case where we could use either  
13           coworker data or more likely in the case we  
14           would use the nearby technique. But that was  
15           not necessary in this case, and we found that  
16           frequently.

17                       Now we don't contend that the, we  
18           can't warrant that 100 percent of all the  
19           claimant files, we can't warrant that they are  
20           100 percent complete. We grant that there  
21           are, in certain instances there are gaps and  
22           that is why we have techniques like the nearby  
23           technique and coworker data to cover those  
24           periods. And it certainly didn't pose a  
25           problem in this case. We successfully

1 completed the case with a POC greater than 50  
2 percent.

3 **MR. GRIFFON:** And this was --

4 **DR. ULSH:** The non-destructive testing  
5 technician. And, yes, there is a gap there.  
6 Without specific information on his locations,  
7 which I did not find in his file, I really  
8 can't comment on why there's a gap there.

9 **MR. GRIFFON:** What page are you in you  
10 comment --

11 **DR. ULSH:** Page 30.

12 **MR. GRIFFON:** Page 30.

13 **DR. ULSH:** I'm on page 30.

14 I'm going to move on to the next one  
15 unless there's some discussion necessary.

16 (no response)

17 **DR. ULSH:** The situation, the next situation  
18 that was raised in this comment --

19 **MR. GRIFFON:** Sorry, just to step back.  
20 This person had a POC greater than 50 percent.  
21 Was it with maximizing, I mean, was it with,  
22 because of assumptions or was it a best  
23 estimate case or probably you may not know  
24 that.

25 **DR. ULSH:** I can't really tell you that,

1 Mark. I know what kind of cancer it was. Is  
2 Liz on the phone?

3 **MS. HOMOKI-TITUS:** Yes, and you're getting  
4 very close --

5 **DR. ULSH:** That's why I asked. I think I'll  
6 stop there, Mark.

7 **MS. HOMOKI-TITUS:** We can have this  
8 discussion offline if you want to, Mark.

9 **MR. GRIFFON:** No, no, no. Okay.

10 **DR. ULSH:** The next situation described was  
11 the employee who, I think it was accidentally,  
12 ran his dosimeter through an x-ray machine,  
13 and the badge came back without a positive  
14 dose. That is entirely consistent with what  
15 you might expect.

16 On the next page, page 31, I provide  
17 an example. Now it's not this individual  
18 because I don't know who this individual is  
19 that appeared in SC&A's comment, but it's  
20 exactly this kind of a situation. If you look  
21 at the bottom of page 31, what you see, the  
22 text that's written in there, on experimental  
23 data it has been determined that multiple  
24 exposures to the portal x-ray devices would be  
25 required in order for a positive, detectable

1 reading to occur.

2 What we're saying here is that the  
3 dose delivered by a run through an x-ray  
4 machine would be below the limit of detection.  
5 And, in fact, the experimental data that's  
6 referenced there, we have tracked, I think  
7 we've tracked it down. We contacted a Jason  
8 Flora^ who we believe did this study, and let  
9 me see what he says here. I just got this  
10 morning that's why I didn't include it.

11 He says, "I did do a study with TLDs  
12 going through the x-ray machines during the  
13 early '90s. Thus, based on memory, we  
14 discovered that sending the TLD dosimeters  
15 through the x-ray security scanners that no  
16 measurable change occurred on the TLD." They  
17 could not tell the control badges from the  
18 exposed group.

19 In addition he says that he's pretty  
20 sure that they sent them through the x-ray  
21 machine multiple times, and he does not  
22 believe that this was written up anywhere  
23 except possibly in some memo that he wasn't  
24 able to provide. But the bottom line is it's  
25 entirely consistent that if a badge was run

1 through an x-ray machine, it could come back  
2 with a less than LOD.

3 **MS. DeMERS:** So you're saying Security x-ray  
4 systems?

5 **DR. ULSH:** Yes, the type of x-ray machine  
6 that was referenced in the SC&A comment wasn't  
7 clear, that those details weren't in there.

8 **MS. DeMERS:** I need to provide you with  
9 further details.

10 **DR. ULSH:** Okay.

11 **MS. MUNN:** It just said the portal x-ray.

12 **DR. ULSH:** No, Wanda, that wasn't from  
13 SC&A's comment, that was from the example that  
14 I provided which is not the individual, at  
15 least I don't think it's individual in SC&A's  
16 comment.

17 Okay, the next situation, I think  
18 we've kind of discussed this. This is the  
19 employee who was working around the annular  
20 tanks and there was a ten-minute stay time for  
21 this job, no dose was recorded.

22 **MR. GRIFFON:** Are we still within comment  
23 nine?

24 **DR. ULSH:** Oh, yes.

25 **MR. GRIFFON:** These all fall under comment

1 nine, okay.

2 **DR. ULSH:** It was a big one, Mark.

3 **MR. GRIFFON:** It started out as one specific  
4 one. I kind of, I'm trying to keep this  
5 matrix...

6 **DR. MAKHIJANI:** Mark, this is also the areas  
7 of high dose with low recorded dose.

8 **MR. GRIFFON:** Okay.

9 **DR. ULSH:** Yeah, I think that's the thread  
10 that ties them all together.

11 **MR. GRIFFON:** I just have this challenge of  
12 keeping this matrix up to date so I'm trying  
13 to -- anyway.

14 **DR. ULSH:** Do you want to go ahead?

15 **MR. GRIFFON:** Yep.

16 **DR. ULSH:** All right, next we come to the  
17 situation where the worker was working in an  
18 area with a ten-minute stay time. Again, this  
19 is the same argument as before. Stay time was  
20 typically calculated based on the maximum dose  
21 rate in the area. We cannot assume that that  
22 is representative of an average dose rate that  
23 a worker would have been exposed to.

24 I don't know the details of the  
25 annular tank area so I can't comment

1 specifically on that. But it's certainly  
2 plausible that a worker working in such an  
3 area could have had a less than LOD reading,  
4 but I don't have the details.

5 **MS. MUNN:** As a matter of fact, Mark, that's  
6 not the reason for posting things like a ten-  
7 minute stay to try to avoid any unnecessary  
8 radiation at all.

9 **MS. DeMERS:** Well, I guess what I would like  
10 to see is if people are concerned that in  
11 their dosimetry record they're getting zero,  
12 and they're saying, hey, the field data did  
13 not support that. Then that's what has to be  
14 answered.

15 **MR. GRIFFON:** I think all of our experience  
16 is that if you got down to calculating short  
17 stay times like that, there was hefty  
18 exposures going on.

19 **MS. MUNN:** Yeah, somewhere, somewhere in the  
20 room.

21 **MR. GRIFFON:** Somewhere where you're doing  
22 the work. I mean, I would argue why would you  
23 base it on somewhere where you're not doing  
24 the work?

25 **MS. MUNN:** That's true.

1           **MR. GRIFFON:** Like running in and out of a  
2 reactor core during a shutdown. I think  
3 that's when you have very short stay time, and  
4 you cycle people in and out to do, you know --

5           **MS. MUNN:** That's true. I wouldn't argue  
6 that.

7           **MR. GRIFFON:** So I would be surprised to, I  
8 mean, that surprises me a little assuming the  
9 allegation is accurate.

10          **DR. ULSH:** Mark, all the allegation says is  
11 that he was working the area, the general  
12 area, where there was a ten-minute stay time.  
13 It's possible that the area --

14          **MR. GRIFFON:** That he wasn't part of the,  
15 yeah.

16          **DR. ULSH:** Yeah, I just don't know. I don't  
17 have the --

18          **MR. GRIFFON:** We don't know, okay.

19          **DR. MAKHIJANI:** Mark, there may be like a  
20 sludge tank with americium or something like  
21 that where, a small area. I'm speculating  
22 obviously.

23          **MR. GRIFFON:** But what Brant's saying is he  
24 may not have been one of the individuals that  
25 was going down in the tank and doing something

1 or whatever.

2 **DR. ULSH:** Well, pure speculation, I'll  
3 admit that, and I don't have the details but  
4 I'm just saying that it's not a foregone  
5 conclusion that this necessarily have to  
6 represent a falsification of dosimetry.

7 **MS. DeMERS:** Well, all I'm saying is they're  
8 concern is that their dosimeter readings do  
9 not match the fields that they were in. And  
10 that's what has to be addressed.

11 **MS. MUNN:** Now we need a lot of detail in  
12 each case in order to address that.

13 **MS. DeMERS:** And the purpose for putting  
14 these examples in was to let you know that  
15 it's, you know, a fairly widespread concern.  
16 And I can go back to these people and get you  
17 all the details you want.

18 **DR. ULSH:** If the Board decides that we  
19 should run down these individual cases, and  
20 you can provide the details, then we will do  
21 it.

22 **MS. MUNN:** Might not be a bad idea to do at  
23 least one or two of them.

24 **MR. GRIFFON:** Right, and I understand your,  
25 I mean, you could absolutely be correct on

1 both, the one I'm thinking back to is the  
2 radiation technician with the zeros. That  
3 could certainly be true, you know, if the  
4 thing that he mentions, or her or she.

5 I don't know if it's a, but the thing  
6 that's mentioned that's also interesting to me  
7 is that he says in that area other workers  
8 were cycled out constantly. Now it could be  
9 that the rad tech was working, like you said,  
10 at the perimeter but then occasionally making  
11 readings, but that is an interesting fact in  
12 that situation, too.

13 **DR. ULSH:** I'm not, again, I mean, we are  
14 willing to run this down if the Board  
15 determines that we should, and we can get  
16 adequate detail. If Kathy can provide that,  
17 that'd be great.

18 **MR. GRIFFON:** But we also have to think how  
19 it's going to help us if, you know, if you  
20 find X then what's that going to prove or  
21 disprove or whatever?

22 **DR. ULSH:** Now I would point out that there  
23 are a couple of specific instances where we  
24 have run these down. I've just shown you one,  
25 but certainly, if you feel that you would like

1 to see additional ones and details, sufficient  
2 details are provided, we will do what we can  
3 to run it down.

4 **MS. DeMERS:** The individual that you ran  
5 down?

6 **DR. ULSH:** I'm talking about the rad control  
7 tech with the dosimetry, and there were a  
8 couple of other ones in the previous meetings,  
9 the individual that said he was receiving dose  
10 while he was in Korea. That one didn't pan  
11 out.

12 **MS. DeMERS:** Okay, the question is, that the  
13 petitioners have is does the field data  
14 support that reading on the dosimeter?

15 **DR. NETON:** But Kathy, this is Jim Neton.  
16 That's almost impossible to determine. I  
17 mean, you would have to go and get the exact  
18 RWP that the person worked on during that  
19 period if they were even on that RWP. And  
20 then figure out their time and motion study  
21 within the fields. I mean, I don't know, I'm  
22 not against doing this, but I just feel that  
23 it's a wild goose chase.

24 **MR. GRIFFON:** I don't know where it's going  
25 to get us, that's the problem.

1           **DR. NETON:** I mean, it's an assertion --

2           **MS. DeMERS:** You have to answer the question  
3 for them.

4           **MR. GRIFFON:** But even if we go back, for  
5 this radiation technician, I mean, certainly -  
6 -

7           **MS. DeMERS:** What if you go back and he has  
8 the, and he spent ten minutes in the AR per  
9 hour field?

10          **DR. NETON:** We wouldn't know that because if  
11 the AR per hour field is in the right-hand  
12 corner of the room, and he walked into the  
13 entryway that was substantially west, he just  
14 -- you're not going to get that time/motion  
15 information from the RWP for sure. It's just  
16 recommendations as to where to avoid and where  
17 the hotspots are. I don't know how you would,  
18 you can reconstruct a dose from an RWP.

19          **MS. DeMERS:** Well, I guess what the bottom  
20 line is that that's the concern. They don't  
21 think their dosimeters are reflecting what  
22 they've received in the field, and that's the  
23 question that you're going to have to answer  
24 for them.

25          **MR. GRIFFON:** Well, I guess, let me try to

1 ask this question on the radiation technician  
2 again. I'm trying to understand that when  
3 this no data available, how did that, that  
4 form went to the supervisor or where did that  
5 terminology come from and then how did we get  
6 to a zero, or where did that terminology come  
7 from I guess is what I'm trying to understand.

8 **MR. LANGSTED:** This is Jim Langsted. That  
9 was the phrase that was used on the report  
10 that was printed out from the dosimetry system  
11 and sent to the supervisors. And so they  
12 would, if their group was exchanged on a semi-  
13 monthly basis, every two weeks they would get  
14 a report after the badges were read with  
15 everybody in their group on it.

16 **DR. ULSH:** And didn't you say, Jim, that  
17 sometimes that was posted where employees  
18 could look at those results.

19 **MR. LANGSTED:** Yeah, back in those days  
20 sometimes it was, you know, some supervisors  
21 didn't show them to their group, some showed  
22 them to their group, some posted them on the  
23 bulletin board.

24 **DR. ULSH:** So it is possible that workers  
25 would have seen the results of their dosimeter

1 in these reports and saw no data available.

2 **MR. GRIFFON:** And so when they saw no data,  
3 when he or she again saw no data available for  
4 several cycles, it could have just been that  
5 he was falling within the, it was processed  
6 yet? Is that --

7 **MR. LANGSTED:** You know, as we discussed  
8 before, the report would have to be run  
9 sometime and sent in. If a badge was held up  
10 because of a, either not getting exchanged or  
11 because of some issue with trying to resolve a  
12 problem, sometimes the report was printed and  
13 sent out in a timely manner and all the data  
14 wasn't on it.

15 That doesn't mean that the data didn't  
16 ultimately get in a worker's record, but they  
17 may not have seen that. If they didn't  
18 exchange it, it would show up as a no data  
19 available, but they'd still be wearing the  
20 badge. But that no data available phrase does  
21 not show up in the records that are in the  
22 claimants' files, the employees' files today  
23 or in the electronic database. That was a  
24 phrase that was on that printed report.

25 **MR. GRIFFON:** But within this employee's

1 file it may be that their, if they had  
2 particular badges that were being held back  
3 or, you know, if there was an investigation or  
4 something like that, a note or something might  
5 show up in the employee's record on that? Or  
6 not necessarily until later years probably,  
7 right?

8 **MR. LANGSTED:** Well, Mark, that depends on  
9 the timeframe and back in this '82, '83  
10 timeframe it's unlikely that there was a  
11 formal report or anything.

12 **MR. GRIFFON:** I'm just trying to think  
13 through where we could possibly go with this,  
14 and I'm not sure that you could take it much  
15 farther, you know? But just my opinion  
16 anyway.

17 Brant, I'll turn it back over to you.  
18 I'm not sure where we left off.

19 **DR. ULSH:** We're still on this same comment.  
20 We just talked about the annular tank one. I  
21 think, let me make sure, I think the last one  
22 in this comment, yes, it is the last one, is,  
23 here's what the comment states, "Certain high-  
24 dose projects would result in film badges that  
25 were reported as black. The employees

1           involved indicated that their dose was  
2           reported as zero."

3                       That is possible. It's a  
4           characteristic of film badges that if they  
5           were exposed to light, it could blacken their  
6           badge. So this could be light contamination.  
7           That's entirely possible. We would have to  
8           review the specifics of the situation.

9                       I mean, again, we're in the same  
10          situation as with the annular tank guy. We  
11          don't have the details to run that one down,  
12          but it is certainly possible that exactly what  
13          is being asserted in the comment could have  
14          happened. Certain film badges could have been  
15          blackened and that could have been the result  
16          of light contamination.

17                      **MS. DeMERS:** In one of the records I've been  
18          trying to pursue is the procedure for how  
19          those, in those situations, how the dose is  
20          assigned.

21                      **DR. ULSH:** Keep in mind you're talking about  
22          the film badge era, so I think you're talking  
23          pre-'69? Do I have the right year? Yes, pre-  
24          '69, and it's unlikely that, and we're running  
25          up the same problem that we had with the

1 previous procedures that we referenced.  
2 There's just not a lot of, not a lot available  
3 in terms of written documentation back in the  
4 timeframe. If you find something like that,  
5 that'd be great. We'd look at it, but we're  
6 not aware of anything.

7 **MS. DeMERS:** It's one of those records that  
8 has not been provided.

9 **DR. ULSH:** So that's our answer, Mark.  
10 That's all we have to provide unless there's  
11 more that needs to be discussed.

12 **MR. GRIFFON:** Let's just go on to 21 if you,  
13 the matrix or I guess it's ten in your --

14 **DR. ULSH:** Twenty-one in the matrix and ten  
15 in the comment responses. This issue is  
16 bioassays redone when they indicated high  
17 exposures. And in the matrix it says there  
18 are two examples cited. The claimant  
19 bioassays were redone or individuals were  
20 recounted when the readings were high and  
21 subsequent results were declared as having no  
22 exposures or false positives.

23 Now really if you look at our response  
24 on page 32, the nuts and bolts of the whole  
25 thing is at the bottom of the page, and I

1 don't know why this didn't occur to me  
2 earlier, but it didn't. We typically receive  
3 the raw bioassay data from a site for a  
4 claimant. And that would include results that  
5 the site had determined to be false positives.  
6 We don't rely on that determination.

7 I've had conversations with dose  
8 reconstruction personnel, people who do the  
9 dose reconstructions, and they indicated that  
10 it would be extremely unusual for us to  
11 exclude a bioassay result even if the site had  
12 determined it was false positive. Now, I  
13 won't say that it has never happened, but we  
14 sure couldn't come up with a situation and the  
15 bottom line is we would not rely on the site  
16 to make that determination. We would make  
17 that determination ourselves. And in almost  
18 all cases if not all cases, we would just  
19 include it as another bioassay plan.

20 **MR. GRIFFON:** Assuming that the false  
21 positive was included in the records I guess,  
22 which may be reason not to believe.

23 **DR. ULSH:** That's correct, we have no  
24 indication of that. So I really think that's  
25 all I've got to say about that one right now.

1           **MR. GRIFFON:** Okay, and SC&A, any comment  
2 back on that?

3           **MS. DeMERS:** No, I've got some information  
4 that I will roll into the report.

5           **DR. ULSH:** Next one, Mark, 22?

6           **MR. GRIFFON:** Yep.

7           **DR. ULSH:** Twenty-two on the matrix. It  
8 corresponds to page 33 in write up, data  
9 integrity comment number 11, instances of  
10 noted available in situations of high  
11 exposure. I'm looking at this one. Oh, okay,  
12 okay. Here's what went on. SC&A says in  
13 their comments that they have addressed this  
14 issue under data integrity comment number  
15 nine. And I think our notes agree with that  
16 that this issue was not closed but merged  
17 under nine. So I don't know if we need to  
18 talk about that again. It's the same issue,  
19 no data available.

20           **MR. GRIFFON:** Now this is affidavit number  
21 22 are we on?

22           **DR. ULSH:** We are on number --

23           **MR. GRIFFON:** And there was, this again is  
24 no data available, but this is a specific  
25 affidavit, I think, and I asked that you track

1 back a specific case again?

2 **DR. ULSH:** Oh, oh, oh, okay, I just read the  
3 next part of it, Mark, on the next page. This  
4 was the individual who worked in Korea, I  
5 mean, I'm sorry, who was in Korea. There  
6 might have been two concerns on his affidavit.  
7 I think the Korea one we discussed when we  
8 dealt with it last time.

9 **MR. GRIFFON:** Yeah, we did. We touched on  
10 that.

11 **DR. ULSH:** I don't know that we've done any  
12 more on that at the moment.

13 **MR. GRIFFON:** I didn't think, is this the --

14 **DR. ULSH:** Yes, if you look at the next --

15 **MR. GRIFFON:** Korea.

16 **DR. ULSH:** If you look at the next page,  
17 Mark, of your matrix, ten of 13 continues  
18 comment 22.

19 **MS. MUNN:** It's unclear to me whether that  
20 was one individual or two.

21 **DR. ULSH:** I think it's one individual,  
22 Wanda.

23 **MR. GRIFFON:** Okay, I wasn't sure about that  
24 either.

25 **MS. MUNN:** Blackened film was one, I was

1 thinking blackened film was one, was the  
2 second individual.

3 **DR. ULSH:** I think it's one individual  
4 raising two issues, the blackened film and the  
5 Korea.

6 **MR. GRIFFON:** So it's the same individual  
7 but you didn't, you tracked back the Korea  
8 aspect but not the other.

9 **DR. ULSH:** Yeah, again, back in the film era  
10 I don't know that there, I mean, we wouldn't  
11 expect there to be an incident report -- I'm  
12 sorry, an investigation report in his file  
13 during that period. I don't know what more we  
14 can provide other than the explanation of how  
15 that would be possible for a person to have a  
16 blackened film and get a zero read.

17 **MR. GRIFFON:** I don't know if you gave a  
18 specific timeframe for that.

19 **DR. ULSH:** I don't know. I don't have the  
20 affidavit in front of me.

21 **MR. GRIFFON:** I don't know either. Can we  
22 leave that open to the extent you can make  
23 what comment on that you can?

24 **DR. ULSH:** Okay.

25 **MR. GRIFFON:** I mean, it may be inconclusive

1 or whatever but --

2 Twenty-three.

3 **DR. ULSH:** Twenty-three, most worker, most  
4 exposed workers were not monitored for  
5 neutrons. This corresponds to comment number  
6 12 on page 33 of the comment responses. Let's  
7 see, now our notes indicate that this issue  
8 was closed, but I didn't have the matrix in  
9 front of me when I wrote that. I don't know  
10 if we agree with that, Mark. Let me see.

11 **MS. DeMERS:** There's a question to be  
12 answered here.

13 **DR. ULSH:** Okay, there are -- SC&A has  
14 raised some new, well, expanded on this issue.  
15 Okay, on page 35 of the comment responses, I  
16 think we're getting into the stuff that Kathy  
17 might be referring to. And that was in the  
18 comment they talked about when fluoride was  
19 added to the molten salt extraction process,  
20 neutron dose rates increased significantly.

21 **MS. DeMERS:** Those comments were just to  
22 alert you where they were saying there were  
23 neutron levels.

24 **DR. ULSH:** Well, I'm wondering if there  
25 might be some confusion here because we're not

1           aware that fluorination was ever added to the  
2           molten salt process. And I'm wondering if  
3           they might be thinking of the fluorinator. I  
4           mean, I'm just guessing, but that's the only  
5           area that we know where that would be an  
6           issue. And that would have been in the  
7           plutonium-fluoride process. Now if that  
8           speculation is true, first of all that was  
9           originally a remote operation. Operators were  
10          in a control booth and protected by a water  
11          shield. But in any case, the fluorinator, if  
12          that's what we're talking about here, was  
13          covered by the NDRP. Like I said, we're not  
14          aware of any evidence that fluoride was ever  
15          added to the process. I'll most certainly  
16          look at it.

17           **DR. MAKHIJANI:** What was the molten salt?

18           **DR. ULSH:** That is the issue, that's a  
19          process --

20           **DR. MAKHIJANI:** No, no, I'm not talking  
21          about what the process was. What was the  
22          chemical? What was the molten salt?

23           **DR. ULSH:** Molten salt was a mixture of  
24          potassium chloride, magnesium chloride and  
25          calcium chloride salt.

1                   **DR. MAKHIJANI:** So it was chloride?

2                   **DR. ULSH:** Correct.

3                   **DR. ULSH:** Oh, I see what you're saying. I  
4 wonder if maybe that's --

5                   **DR. MAKHIJANI:** Yeah, I'm wondering whether  
6 there might be a, is there an alpha chlorine  
7 reaction in the same way? I don't know off  
8 the top of my head.

9                   **MR. FALK:** I don't think it is a very  
10 efficient process. I do not recall any of the  
11 molten salt operations being identified as a  
12 high neutron exposure area.

13                   **DR. MAKHIJANI:** But if whatever neutrons  
14 were there from the description would be  
15 because of the shield, right? Or am I mixing  
16 up two things?

17                   **DR. ULSH:** I think you're mixing up two  
18 things, Arjun.

19                   **DR. MAKHIJANI:** I thought maybe I was.

20                   **DR. ULSH:** The fluorinator, what we're  
21 talking about with the water shield, that was  
22 remote operation in the early years, in the  
23 '50s.

24                   **DR. MAKHIJANI:** Okay.

25                   **DR. ULSH:** That was the fluorinator. That's

1 not the molten salt.

2 **DR. MAKHIJANI:** Okay, sorry, I mixed up  
3 those two things.

4 **DR. ULSH:** So I don't know. That's all I  
5 can say about that particular issue. With  
6 regard to other areas, other neutron areas,  
7 our contention that there were very few  
8 sources of neutrons at Rocky Flats that were  
9 not associated with plutonium operations. The  
10 chemistry of the uranium process that was  
11 performed in Building 881 until 1964 produced  
12 significantly less neutrons in the plutonium  
13 processing.

14 And if you compare the neutron yield  
15 of the enriched uranium fluoride versus the  
16 plutonium fluoride, it's about a factor of one  
17 times into the negative five. So it's not  
18 clear to us how this would be a significant  
19 neutron exposure hazard. I would contend that  
20 it's insignificant.

21 **MR. GRIFFON:** I think that at this point  
22 we've got, this is one of those ones where we  
23 have your response and the evaluation report  
24 and SC&A is going to provide a review report  
25 and can include comments there unless there's

1 any other clarification from SC&A's side.

2 **DR. MAKHIJANI:** No, I think we need -- Joe's  
3 area.

4 **DR. ULSH:** All right, Mark, I think, does  
5 that take us to number 24 on the matrix?

6 **MR. GRIFFON:** I think so, yeah. Almost  
7 there.

8 **DR. ULSH:** I'm getting a little tired. I  
9 don't know about anyone else.

10 **MR. GRIFFON:** I think all of us are, yeah.

11 **DR. ULSH:** The issue here, neutron badge  
12 reading was defective and just cites, if I  
13 have this correct, my brain's getting a little  
14 mushy now.

15 **MR. GRIFFON:** I think we have no further  
16 action required on this.

17 **DR. ULSH:** I think that's the case. Let me  
18 see --

19 **MR. GRIFFON:** If that's agreeable with SC&A.

20 **DR. ULSH:** Yeah, we're going to stand by our  
21 previous response. I think no action.

22 **MR. GRIFFON:** And the next one as well  
23 unless there's something new from SC&A's side.

24 **DR. ULSH:** Well, let me go into that one a  
25 little, the security guard issue. Data

1 integrity comment number 14, page 36. And  
2 SC&A says that they have not yet located  
3 security guards to verify the lack of  
4 monitoring among this worker category.  
5 Neither have we, so we're in agreement with  
6 that. In fact, during the post-1991 period  
7 dosimetry was required to gain access to  
8 radiation areas.

9 And in their expanded comment SC&A  
10 contends that assignment of coworker dose of  
11 unmonitored security guards may or may not be  
12 bounding. Let's think about this for just a  
13 minute. Unmonitored workers with the  
14 potential for significant exposure, what we  
15 typically do is assign the 95<sup>th</sup> percentile  
16 value of monitored workers. So in order for  
17 this approach to not be bounding, we have to  
18 have a couple of things happen.

19 First of all, keep in mind that only  
20 people who were judged to have an exposure  
21 potential of greater than 100 millirem were  
22 badged. Now, we do not contend that that was  
23 entirely, 100 percent reliable. In other  
24 words, we're not saying that if a person was  
25 unbadged, necessarily they wouldn't have

1                   gotten a dose higher than 100 millirem. We'll  
2                   grant you that that might have happened in an  
3                   individual case or two or more. I don't know.

4                   But what we're saying is that people  
5                   who were judged to have this exposure  
6                   potential, number one, that would have to be a  
7                   mistaken judgment, that's possible. They  
8                   would also have to have entered a radiation  
9                   area with dosimetry which was contrary to the  
10                  radiation control policies in place at the  
11                  time.

12                 And then finally, they would have had  
13                 to have received doses that were higher than  
14                 95 percent of the monitored workers in order  
15                 for this not to be a bounding approach.  
16                 Personally, I don't see how that's a credible  
17                 scenario.

18                 **MR. GRIFFON:** Well, I guess the other, that  
19                 may clarify one thing is that are you assuming  
20                 that security guards would get the 95<sup>th</sup>  
21                 percentile in a coworker?

22                 **DR. ULSH:** If it was possible for a security  
23                 guard to get a significant exposure potential  
24                 then we would treat them just like any other  
25                 unmonitored radiation worker.

1           **MR. GRIFFON:** Okay, because in some models  
2 you, I mean I could see an argument for not  
3 treating them like ^ necessarily.

4           **DR. NETON:** Yes, that would have to be  
5 addressed on almost a case-by-case basis.

6           **MR. GRIFFON:** Right, right. So if it's  
7 case-by-case, then, Brant, your position  
8 doesn't hold there, that they wouldn't have to  
9 be higher than the 95<sup>th</sup>. Because sometimes you  
10 might assign them the 50<sup>th</sup>. That's different.

11           **DR. ULSH:** That's true, but that would be an  
12 issue with that specific dose reconstruction.  
13 In other words, let's say SC&A reviewed one of  
14 our dose reconstruction, and we had assigned  
15 the 50<sup>th</sup> percentile. And SC&A would say, no,  
16 this person actually had a significant  
17 exposure potential, and you know, we discussed  
18 it, and at the end of the day maybe we agree  
19 with SC&A. We go back and assign 95<sup>th</sup>  
20 percentile, not an SEC issue.

21           **MR. GRIFFON:** I guess you're right. It's  
22 more of a site profile, yeah, it's a site  
23 profile issue.

24           **DR. ULSH:** Moving on. Shall I move on?

25           **MR. GRIFFON:** Certainly.

1           **DR. ULSH:** We're up to matrix comment number  
2           26, I believe which the essence of it is that  
3           many incidents were not recorded, and that  
4           picks up on page 37 of the comment responses.

5                   SC&A's expanded on their previous  
6           comment talking about the atmosphere at Rocky  
7           Flats that was such that incidents may not  
8           have always been reported. And they say the  
9           Operations personnel simply cleaned up spills  
10          and continued with their work.

11          **MR. GRIFFON:** I think did we not address  
12          this by saying that you'll provide a coworker  
13          approach? I mean that you believe the  
14          coworker approach is going to be bounding of  
15          this?

16          **DR. ULSH:** Let me look, Mark. Let me look  
17          at our response. We do grant that some of the  
18          smaller incidents and minor spills may not  
19          have been reported. And we also grant that it  
20          may not always be possible to tie an intake to  
21          a particular incident. However, what we said  
22          at the last Board meeting was that if we would  
23          detect an intake in a bioassay, what we  
24          typically do is assign a chronic intake  
25          scenario that fits bioassay data.

1                   And there seems to be some concern  
2                   that if an incident was unrecognized, then it  
3                   may not, special bioassay may not have always  
4                   been performed. We grant that. That might  
5                   make it difficult for us to tie an intake to a  
6                   particular incident. We grant that, too.  
7                   That does not prevent us from doing a  
8                   sufficiently accurate and claimant favorable  
9                   dose reconstruction. That's the point.

10                  **MR. GRIFFON:** Right, and I think we've been  
11                  through this before. I'm not sure, but --

12                  **DR. MAURO:** Yeah, this is John. When we  
13                  were talking about the high-fired plutonium,  
14                  this subject came up, and you provided many  
15                  examples of how you would go about placing a  
16                  plausible upper bound for, not only chronic,  
17                  but also acute exposures to an incident.

18                  So I think to a large extent as you  
19                  move into the more technical issues, a lot of  
20                  them have been addressed thoroughly, and we're  
21                  going to keep returning to the data  
22                  reliability issue as being the underpinning.  
23                  I think from a technical point of view, going  
24                  back into this issue again, you know, you've  
25                  covered it thoroughly, and I guess I'll

1 reiterate. It's data reliability that's going  
2 to be center stage.

3 **DR. ULSH:** Okay, well, that's good. Can I  
4 dare to hope then that we don't have to talk  
5 about this particular issue again because it  
6 seems to keep popping up.

7 **DR. MAURO:** Yeah, this is John. I think  
8 that Jim and his examples in our last meeting  
9 in the handouts covered this subject.

10 **DR. ULSH:** Okay, I do feel compelled that,  
11 you know, even on an issue, several issues  
12 have been designated as closed at the last  
13 meeting and then SC&A's expanded on these  
14 comments. And I do feel compelled to respond  
15 to those. I'd sure like not to have to do  
16 that.

17 **MR. FITZGERALD:** Well, let me make a point,  
18 okay? Kathy was doing this onsite visit  
19 during the time that we were having the  
20 meeting. So our discussion was completely  
21 devoid from her review. We provided the trip  
22 report pretty much as was. I mean, it's not  
23 an attempt to re-open issues as much to convey  
24 that information she was able to collect. But  
25 recall again the timing of this, that her

1 review was happening at the very same time  
2 that we were meeting in Cincinnati, so there  
3 is a reason why these issues aren't linked  
4 together as tightly as they might be.

5 **DR. ULSH:** I understand what you're saying,  
6 but when this came over, like I said, I did  
7 feel compelled to spend quite a lot of time  
8 and resources to address them.

9 **MR. FITZGERALD:** We were trying to give you  
10 the benefit of what was identified as was  
11 requested but I do understand why there's a  
12 little bit of overlap.

13 **DR. ULSH:** Okay, Mark, would you like me to  
14 move on to the next one?

15 **MR. GRIFFON:** I think so, yeah.

16 **DR. ULSH:** This is estimating ingestion  
17 doses. I think we've already talked about  
18 this one. It seems to be similar to -- hold  
19 on, now -- seems to be similar to the issue  
20 that was raised earlier when we talked about  
21 ingestion.

22 **MR. GRIFFON:** Yeah.

23 **DR. ULSH:** My comment, you've probably seen  
24 that text before because I think I cut and  
25 pasted it. I would just reiterate that we

1 have the ability to model ingestion intakes if  
2 it's a feasible scenario and it's claimant  
3 favorable to do so.

4 **MR. GRIFFON:** The comment I had before in  
5 the matrix, and I remember Jim Neton offering  
6 this, that you would re-evaluate the ingestion  
7 model to be used.

8 Jim, do you remember saying that?

9 **DR. NETON:** Re-evaluate the ingestion model  
10 to be used?

11 **MR. GRIFFON:** Yeah.

12 **DR. ULSH:** Here's what I have on the matrix,  
13 Jim. This is comment number 27, page 11 of  
14 13. Workers ate in workplaces. One  
15 investigation concluded that there was  
16 ingestion via inhalation. However, bioassay  
17 data to be interpreted in light of this  
18 problem --

19 **MR. GRIFFON:** And I think hearing Brant's  
20 explanation from earlier, it seems to suffice,  
21 but I don't know why --

22 **DR. NETON:** I think what, it was a question  
23 that was ambiguous in the sense that was it an  
24 ingestion from eating in the workplace or was  
25 it ingestion from potentially from

1 resuspension?

2 **MR. GRIFFON:** Right, that's the way, it was  
3 in two parts.

4 **DR. MAKHIJANI:** I think it might have been  
5 eating in the workplace, right, Kathy?

6 **MS. DeMERS:** Yes.

7 **DR. NETON:** Eating in the workplace, Brant,  
8 I think addressed the issue fairly well. I  
9 think the resuspension issue is what wasn't  
10 clear in my mind. But that, I think, would  
11 have been a site profile comment.

12 **MR. GRIFFON:** Right.

13 **DR. NETON:** And we certainly have come to  
14 some consensus with SC&A on how we're going to  
15 deal with resuspension in the workplace. At  
16 least if we ^ sampling data.

17 **MS. MUNN:** And when we wrote this, we still  
18 hadn't completely put the Super-S question to  
19 bed, had we?

20 **DR. NETON:** And of course, it's late in the  
21 day, and having said what I just said, I just  
22 remembered that we are reconstructing doses  
23 based on bioassay data not air sampling data,  
24 so the resuspension issue really kind of come  
25 out.

1           **MR. GRIFFON:** Yeah, it really, yeah, it  
2 does. It does now that I, yeah, I think we  
3 did this late in the day last time, too.

4           **DR. NETON:** Using air sample data to  
5 reconstruct doses in suspension is not --

6           **MR. GRIFFON:** We still weren't sure, I  
7 guess, last time.

8           **DR. NETON:** Now that we have a coworker  
9 approach outlined, what we're proposing here  
10 in data I don't see this as a player.

11          **MR. GRIFFON:** The last sentence to me is  
12 interesting, and I think it might overlap in  
13 some of the samples or examples that you're  
14 going to do. The relevance of this is in the  
15 deposition of high-fired, in large parts of  
16 the plant due to the fires.

17                   And this gets into the question, I  
18 guess, one question anyway, of the exposure to  
19 a mixture of solubilities or different kinds  
20 of plutonium in different areas and how that  
21 would be addressed. But that's really, I  
22 think we all agree that that was really  
23 something that we want to see in an example.  
24 But 27's closed I think, from my standpoint.

25          **DR. ULSH:** Okay, that brings us to 28 then.

1                   And I think, unless SC&A tells me differently,  
2                   I think we're in agreement that this is not an  
3                   SEC issue? This is the work week. The length  
4                   of the work week was 45 hours instead of 40  
5                   hours.

6                   **DR. MAURO:** Not an SEC issue.

7                   **MR. GRIFFON:** Right.

8                   **DR. ULSH:** Oh, oh, shoot. I thought we were  
9                   done, okay there were two issues raised in, I  
10                  guess it was Kathy's write up. They were  
11                  characterized as additional issues, and in our  
12                  response to the first issue which dealt with  
13                  other radionuclides at Rocky Flats, I kind of  
14                  left in there, I took the liberty of leaving  
15                  in there a question that I think Arjun had  
16                  raised if my recollection is correct, about  
17                  some 40 Plutonium-238 sources and one  
18                  strontium source at Rocky Flats. And my notes  
19                  aren't real clear on this, what the reference  
20                  was, but I think it was 1990 D&D document.

21                  Arjun, does this ring a bell?

22                  **DR. MAKHIJANI:** That's correct. It was  
23                  after the site had been renamed, I think.  
24                  There were maybe 90 or 92 orphan sources that  
25                  were at the site.

1           **DR. ULSH:** So I think the question was we  
2 weren't clear whether those were sealed  
3 sources at the time we discussed it. Is that  
4 right?

5           **DR. MAKHIJANI:** Or made at the site or  
6 imported.

7           **DR. ULSH:** Okay. We checked this out this  
8 issue of other radionuclides. We already  
9 talked about some of them in earlier comments.  
10 Let me walk through them. The Chem Risk Task  
11 One report is a reference that we relied on  
12 pretty heavily for this. And that report  
13 contains a comprehensive list of the  
14 radionuclides present at the Rocky Flats site.

15                   Plutonium-238 was present as a  
16 contaminant in weapons-grade plutonium. That  
17 is true. And intakes of that radionuclide  
18 would be measured using plutonium-specific  
19 bioassay. And if it wasn't clear which  
20 isotope we were dealing with, we would choose  
21 the most claimant favorable among the  
22 plausible choices.

23                   Oh, the Strontium-90, that was listed  
24 in the Chem report as having been present at  
25 Rocky Flats as a sealed source, plated source,

1 liquid source or analytical stock solution in  
2 small quantities used for research, analytical  
3 and calibration activities. So I think it was  
4 what we suspected, Arjun, that it's one of  
5 these small, sealed sources that's used in a  
6 lab or in a stock solution or something like  
7 that.

8 Let's see, I think Kathy's report  
9 reads the tritium and noted that the tritium  
10 bioassay was performed at Rocky Flats. So  
11 that's how we would cover that.

12 **MS. DeMERS:** Well, it was performed, but  
13 what I have not been able to figure out is was  
14 it frequent enough to cover the exposures of  
15 the people involved.

16 **DR. ULSH:** Don't have an answer for that  
17 right at the moment.

18 The next one was Americium-241  
19 processing methods. And when we covered that  
20 pretty much at length unless someone wants to  
21 go into that some more.

22 U-233 was mentioned. Again, that one  
23 would have been detectable through either  
24 uranium-specific bioassay or through gross  
25 alpha bioassay depending on the time period.

1 We agree with SC&A with the comment that  
2 curium and neptunium were used as tracers then  
3 were handled in small quantities. We're not  
4 aware of credible intake scenarios for those  
5 elements that would result in a significant  
6 internal exposure hazard.

7 Polonium-210 falls into the same  
8 category as Strontium-90. It was one of these  
9 small laboratory sources according to the Chem  
10 Risk report.

11 **MS. DeMERS:** In what time period?

12 **DR. ULSH:** For polonium?

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

14 **DR. ULSH:** I don't know, Kathy. I don't  
15 have it in front of me. It was just listed in  
16 the Chem Risk report. It was a comprehensive  
17 list that listed polonium only under that  
18 category, but I assume that that would cover  
19 all time periods.

20 **DR. MAKHIJANI:** Could I ask a question about  
21 this Chem Risk report? My memory of, this is  
22 far back and my memory of it is foggy. But  
23 wasn't it very heavily criticized as not being  
24 a good report or was that a different Chem  
25 Risk report or a different contractor perhaps?

1 I don't want to be unfair to Chem Risk here  
2 because this is from vague memory. There was  
3 one of these kind of reassessment source term  
4 type of reports that was done that made  
5 reviewers very unhappy, and I don't know that  
6 it was the Rocky Flats one to be fair, but it  
7 may have been. Does anybody have any memory  
8 of that?

9 **DR. ULSH:** I'm looking around the table here  
10 in Cincinnati, Arjun, and no one's aware of  
11 that for this document.

12 **MR. MEYER:** Brant, this is Bob Meyer. That  
13 report was actually the beginning of the  
14 environmental dose reconstruction study and  
15 put a lot of time and effort into establishing  
16 the radionuclides present at the site. We've  
17 got all the details on that in addition to  
18 records review and classified records review.  
19 They also did a lot of interviews, and it's  
20 the basic document that was used then for the  
21 rest of the, of that dose reconstruction.

22 **DR. MAKHIJANI:** Okay, so I must be  
23 remembering something else. So thank you for  
24 correcting that record. I'll withdraw that  
25 comment.

1           **DR. ULSH:** I think we have reached the last  
2 issue, I hope.

3           **MR. GRIFFON:** There's one more there I  
4 think.

5           **DR. ULSH:** This issue that we're about to  
6 talk about is the last one. And this was the  
7 second of the additional comments that were  
8 sent --

9           **MS. DeMERS:** You didn't really get back to  
10 the issue of, that I've been discussing before  
11 that the field indications do not represent  
12 what's coming out on the dosimetry. And we've  
13 already beat this to death.

14           **DR. ULSH:** Okay, I think we're in agreement  
15 there. I would just mention that there are a  
16 couple of references that SC&A would like to  
17 see. They're listed there on the bullets on  
18 page 41. And I have those in a folder on my  
19 computer, and I'm going to burn a disk and  
20 send them over to you directly. So I'll send  
21 them to Joe. Well, the ones that are listed  
22 there.

23           **MR. GRIFFON:** With this last point, Brant, I  
24 think the one thing that we spent a lot of our  
25 afternoon on here was these specific

1            affidavits within the petition and the  
2            allegations. And to the extent you could, we  
3            did, you know, you were able to track back  
4            some, at least partially for some of these  
5            cases. I guess the thing I think that's going  
6            to be important for this evaluation is, in the  
7            evaluation report if I, you know, one thing  
8            that we talked about this morning was the  
9            external database data and the internal  
10           database data. And I think it was mentioned  
11           that Kaiser-Hill indicated to NIOSH that they  
12           reviewed these cases and they matched pretty  
13           well. I think what this brings to light and  
14           makes even more important from my standpoint  
15           is that we need NIOSH to track that back as  
16           well and report on that fully. I don't think  
17           we can just take the word of an individual  
18           from Kaiser-Hill that says it looks like  
19           everything matched up pretty well especially  
20           with these allegations hanging out here from  
21           many of the petitioners.

22            **DR. ULSH:** And Mark, are you talking about  
23            external data?

24            **MR. GRIFFON:** I think external and internal.

25            **DR. ULSH:** Well, for external, Craig Little

1 did talk about what we've done.

2 **MR. GRIFFON:** Right, you did some specific  
3 analysis there so I guess more for internal is  
4 where the real gap is if you think that you  
5 did enough on external. I mean, that's up to  
6 you to judge.

7 **DR. ULSH:** I agree with you on internal.

8 **MR. GRIFFON:** Yeah, you have to support  
9 case, you know, for the data being reliable.  
10 And if you think you've taken that far enough,  
11 that's just your decision.

12 **DR. NETON:** Mark, this is Jim. I think that  
13 these assertions by, in the affidavits are  
14 somewhat of a different issue. In fact, one  
15 would argue that if the badge read zero and  
16 the database says zero, the claimants or  
17 petitioners are still asserting that those  
18 zeros are not, except for sections, the zeros  
19 are inappropriate.

20 **MS. DeMERS:** Yes, that is true.

21 **DR. NETON:** That's a different issue, and  
22 I'm not really sure how one deals with  
23 assertions that cannot really be  
24 substantiated, you know, 30 years, 40 years  
25 later. I've just been told that there were no

1 RWPs in this timeframe so even if we wanted to  
2 and had the resources, couldn't go back to  
3 them.

4 **MR. GRIFFON:** I guess to me, Jim, it just  
5 raises the importance that where possible we  
6 check these databases back to the raw --

7 **DR. NETON:** I totally agree with you. I'm  
8 trying to think about the other broader issue.  
9 And in my mind if I can't go back because  
10 there's no ^ or whatever, I think the only  
11 other approach then is to document the  
12 integrity of the dosimetry processing system,  
13 and to the extent possible, that there is no  
14 evidence of fraud where these numbers would  
15 have been altered. Because if a dosimetry  
16 system is capable of reading the dose on the  
17 badge, then one would have to assert that they  
18 were fraudulently made zeros.

19 **DR. MAKHIJANI:** Yeah, I think, Mark, Jim,  
20 Jim is right and that there are two different  
21 questions here. The one question is about the  
22 transcription from the raw records into  
23 electronic databases. And I think NIOSH has  
24 done quite a bit of work on that transcription  
25 with Rocky Flats to show that it's reasonably

1 good so far as I understood the discussion  
2 this morning. I haven't looked at it in  
3 detail, but at least from the discussion.

4 But the second issue is the one that  
5 Jim was talking about and there it seems to me  
6 is it is very difficult because you've got  
7 sworn affidavits on one side, and then you've  
8 got people who were there on the other side or  
9 a contractor currently saying, so you've got  
10 somebody's word against somebody's word. And  
11 there may be safety complaints and, you know,  
12 some documentation that could settle the issue  
13 because otherwise you've got dueling hearsay.

14 **MR. GRIFFON:** I'm not sure what you mean by  
15 dueling. I mean --

16 **DR. MAKHIJANI:** Well, not really dueling  
17 hearsay. The workers who were present that's  
18 unfair I guess to, to the people who've done  
19 affidavits in a way. There's the people who  
20 were there who say, you know, they experienced  
21 X, and they don't believe their data records  
22 because they may have been, they were  
23 falsified. I mean, that's clearly the spirit  
24 in all of the allegations.

25 And then you've got people who were

1                   there in the health physics program or  
2                   contractors who are saying, no, there was  
3                   integrity in the program, and data were not  
4                   falsified. So you've got dueling statements  
5                   essentially. ^ statement without the  
6                   historical information settle the question.

7                   **DR. ULSH:** Arjun's characterization there  
8                   where you've got dueling opinions, I mean,  
9                   you've got workers saying that they falsified  
10                  my dosimetry, and we've got workers who worked  
11                  in the dosimetry department saying, no, we  
12                  didn't. So you do have dueling assertions  
13                  here.

14                 **MS. MUNN:** This is Wanda.

15                 **MR. GRIFFON:** You've interviewed dosimetry  
16                 people that have said in statements that none  
17                 of this went on?

18                 **DR. ULSH:** Yes.

19                 **DR. MAKHIJANI:** Do you have sworn statements  
20                 from them?

21                 **DR. ULSH:** No, not sworn statements. I  
22                 can't remember whether they were phone  
23                 conversations or e-mails.

24                 **MR. GIBSON:** This is Mike, and I just, I  
25                 mean, who's going to admit that, the fact that

1                   it's true, you know?

2                   **MS. MUNN:** Well, who's going to admit that  
3 they doctored their badge, but several of them  
4 have maintained that that was true.

5                   **MR. GRIFFON:** Quite a few of them admit that  
6 actually.

7                   **MR. GIBSON:** There is these dual opinions  
8 here, but let's not say, well, let's not  
9 believe the worker because he doctored his  
10 badge or --

11                   **MS. MUNN:** No, no.

12                   **MR. GIBSON:** -- so by that same token, you  
13 know, I have seen people, have seen health  
14 physicists fired for doctoring records at the  
15 facility in Mound.

16                   **MR. GRIFFON:** I mean, part of what you have  
17 to consider, I guess, is the overall, you  
18 know, how many allegations were, I don't know  
19 if we have an opportunity for that kind of  
20 thing here. We've got some affidavits, but  
21 not, you know.

22                   **MS. MUNN:** Is Kathy still on?

23                   **MS. DeMERS:** Yeah, I am.

24                   **MS. MUNN:** Kathy from the documents that you  
25 saw while you were onsite, do you have any

1 confidence that the field records that you're  
2 talking about would really give the  
3 investigator at this stage of development a  
4 good feel for what the backgrounds were in the  
5 areas that our claimants are concerned about?  
6 I guess the bottom line question is even if we  
7 get the records and look at them, are we going  
8 to have, are we really going to have better  
9 information then?

10 **MS. DeMERS:** I don't know how to answer that  
11 because --

12 **MR. GRIFFON:** Well, I guess that's what I  
13 asked John and you, Kathy, but SC&A to deliver  
14 to us is sort of, I forget how we said it, a  
15 more crisp recommendation on this. That if we  
16 ask NIOSH to look at these, SC&A expects that  
17 you might be able to look at what could be  
18 concluded from this potentially. And I don't  
19 think you need to answer that on the fly here,  
20 but I guess that's what we want to know is it  
21 worth --

22 Right, Wanda, is that what you're  
23 asking, is it worth pursuing these and to what  
24 end kind of?

25 **MS. MUNN:** I think what I'm really asking is

1 is there truly any way that we could in some  
2 way reduce the anxiety that the claimants have  
3 with respect to this data. Regardless of what  
4 information we get, is it going to be valid  
5 enough to be accepted?

6 **MS. DeMERS:** The path that I laid out, I ran  
7 through with some of the site experts because  
8 I wanted to know whether I was going in the  
9 right direction. They felt I was going in the  
10 right direction. I have not seen one of these  
11 logbooks because they were not pulled for me  
12 so the exact contents of those logbooks are  
13 essentially, I can't tell you exactly what's  
14 in them.

15 **MS. MUNN:** They're still a mystery to  
16 everybody.

17 **MS. DeMERS:** But I know what I'm being told.

18 **DR. MAURO:** And Kathy, you said something  
19 very important. The folks that you talked to  
20 said you're on the right direction. The  
21 implications being if you were to pursue that  
22 direction, it would enhance credibility. That  
23 is, it sounded like, yeah, that's the kind of  
24 thing you need to do in order to find out or  
25 whether or not there's a problem here. So I

1 mean, in a way they're telling you if you want  
2 us to believe you, you've got to go look, you  
3 know, if you really want to get to the bottom  
4 of this, you have to do X, Y and Z. Sounds  
5 like we have no choice but to do at least some  
6 X, Y and Z. And the ball is in our court  
7 right now to lay out a crisp recommended plan  
8 of action that would do those things that the  
9 folks you interviewed feel need to be done and  
10 why, and what NIOSH might gain by looking into  
11 these matters. So I mean, I think the ball's  
12 in our court right now to turn over something  
13 to the working group and NIOSH --

14 **MR. GRIFFON:** That's my sense, John. And I  
15 was just saying, on the flip side of that, I  
16 think NIOSH should be pursuing the database  
17 versus raw records issue. Especially with  
18 regard to internal. I think that's an opening  
19 right now which you're well aware of. I mean,  
20 you brought it up earlier.

21 **DR. ULSH:** We agree completely.

22 **MR. GRIFFON:** But I think, John, I think  
23 that's the path forward here is that SC&A if  
24 you could provide this crisp sort of  
25 recommendation back to us and then we need to

1 say is it worth going further? And if so, in  
2 what direction or to do what, to what end? Is  
3 this a fair point right now that we can leave  
4 this?

5 **MS. DeMERS:** Yeah.

6 **DR. MAKHIJANI:** Yep.

7 **DR. ULSH:** Yep.

8 **MR. GRIFFON:** Okay, plus we're all getting  
9 tired. At least I'll speak for myself.

10 **MS. MUNN:** Yeah, can't think much more.

11 **DR. ULSH:** Okay, so what now, Mark?

12 **SAMPLE DOSE RECONSTRUCTIONS**

13 **MR. GRIFFON:** Well, what now, I guess I  
14 don't know how much we want to go over these  
15 cases, but I would like to, if you could go  
16 through the cases --

17 **DR. ULSH:** Okay, how about this --

18 **MR. GRIFFON:** -- and tell at least what  
19 kinds of cases you have there and give a quick  
20 snapshot.

21 **DR. ULSH:** I provided a table, at this point  
22 in the day I can't remember the name of the  
23 file.

24 **MR. GRIFFON:** Yeah, Guide or something like  
25 that.

1           **DR. ULSH:** Yeah, that's it. It lists  
2 examples by number, one through six. Now I'd  
3 like to caution you that these numbers  
4 correspond to the folders on the O drive and  
5 the folder that I mailed you, but I discovered  
6 that when I opened up the actual example dose  
7 reconstruction report, the titles of them  
8 didn't always match the numbers. Sorry, that  
9 was a late night error on my part.

10           **MS. MUNN:** They all got here.

11           **DR. ULSH:** Example one, I'll just walk  
12 through this table and then, Mark, maybe you  
13 can let me know if you want me to go any  
14 further. Example one covers a hypothetical  
15 neutron dose assignment for monitored workers  
16 pre-'70, and it also considers missed dose  
17 zeros assigned for blanks and reported zeros.  
18 Those are the two issues that are covered in  
19 that one.

20                   Example number two is an example of a  
21 geometry correction factor for external  
22 dosimetry. That was performed using the glove  
23 box TIB. That was an issue that was raised so  
24 we thought that would be an appropriate one to  
25 include.

1                   Example number three is coworker  
2                   unmonitored external dose and also lead  
3                   aprons. It demonstrates our approach for  
4                   those situations, and I would also point out  
5                   that the table of distributions that we are  
6                   going to use for coworker external dose is  
7                   provided with that example.

8                   Number four, hypothetical internal  
9                   coworker assignment for unmonitored uranium  
10                  worker. Again, I have to point out though  
11                  both three and four are hypothetical because  
12                  as we've discussed, the need for coworker data  
13                  is pretty minimal at Rocky. I can't say it's  
14                  zero, but it's pretty minimal so let's keep  
15                  that in mind.

16                  Example number five is an ingestion of  
17                  depleted uranium. This is an issue that seems  
18                  to be a concern so we included a dose  
19                  reconstruction showing that.

20                  And finally, the last one, number six,  
21                  is our Super-S for a monitored plutonium  
22                  worker, monitored meaning he had bioassay. He  
23                  did not have chest count. He had some  
24                  urinalysis results, some that were positive.  
25                  Just to illustrate the range of possibilities

1 we covered four target organs, so this is  
2 really actually four examples in one. We  
3 covered the lung, of course, the GI tract, we  
4 modeled a colon for that, a systemic cancer  
5 that was a liver cancer and a systemic non-  
6 metabolic which we took as the prostate as an  
7 example.

8 So that's what's included in there.

9 **DR. NETON:** Let me just fill in a little bit  
10 on number six. Those dose reconstructions  
11 were performed using the TIB-0049 document and  
12 the associated approach document that we  
13 discussed earlier in the day.

14 **DR. ULSH:** So that might help SC&A in  
15 interpreting what we did if they refer to  
16 those documents in their review.

17 **MR. GRIFFON:** And let me ask a couple of  
18 questions on those types of examples we might  
19 want to see, and I mean, it's up to you what  
20 you want to provide, but this question, and  
21 it's not, this is a hard time of day to  
22 discuss this because it's not clear in my  
23 mind, but I know we talked about a potential  
24 for individuals to be in areas where they  
25 would be exposed to mixed solubilities of

1 plutonium including S or Super-S and how that  
2 was going to be handled in the dose  
3 reconstruction process.

4 **DR. NETON:** Mark, this is Jim. We did one  
5 of those examples in the Y-12 case, and it  
6 turns out it's not that difficult an issue.  
7 We just pick the one, if truly we can't tell  
8 what the worker was exposed to, we pick, you  
9 know, you run the scenarios through the models  
10 and pick the one that gives the highest dose  
11 to the individual organ.

12 **MR. GRIFFON:** So you would just, at the end  
13 of the day, if Super-S was going to give the  
14 highest dose, you'd always assume Super-S?

15 **DR. NETON:** Yes, if Super-S is a credible  
16 exposure scenario and we couldn't tell, yes.  
17 If a person was working with a tank of  
18 plutonium nitrate, we might not do that, but  
19 yeah, sure. So that's not that, unless I'm  
20 missing something, those examples are not that  
21 difficult for us to do. We could certainly do  
22 it, but --

23 **MR. GRIFFON:** Yeah, no, I guess it's more of  
24 understanding our explanation especially when  
25 you have a lot of less than detectable values.

1           **DR. NETON:** Yeah, well, that's standard. We  
2 define the half of the detection limit, assign  
3 a chronic intake and pick the most claimant  
4 favorable solubility --

5           **MR. GRIFFON:** Even including Super-S. I  
6 mean, I thought for Y-12 we didn't have the  
7 Super-S possibility.

8           **DR. NETON:** No, but Super-S is really just  
9 one more choice in the dose reconstructor's  
10 toolbox for plutonium, and it turns out,  
11 actually, it's kind of interesting. The  
12 Super-S approach did not substantially in my  
13 mind, you can look at the example. I looked  
14 at it briefly this morning. Does not  
15 substantially alter the compensation profile  
16 for the cases as we kind of expected.

17                   In other words the lung dose went up  
18 dramatically, the liver dose increased, both  
19 of those would have likely been contestable  
20 under the S scenario. And the prostate dose  
21 is in the five percent range. Well, it's kind  
22 of interesting how that worked out.

23           **MS. MUNN:** It was interesting.

24           **DR. ULSH:** Okay, Mark, that's my description  
25 of the dose reconstructions.

1           **MR. GRIFFON:** And the only other questions I  
2 have was we raised thorium this morning a  
3 little more, and I understand gross alpha,  
4 really I don't know if there's a need to see  
5 any kind of thorium reconstruction especially  
6 if you're going to assume worst case nuclide  
7 if you don't know.

8                     Other people have opinions on that  
9 though? Arjun or John?

10           **DR. MAURO:** I don't. It sounds like that is  
11 a bounding assumption.

12           **DR. MAKHIJANI:** I don't know. I'm very  
13 tired.

14           **MR. GRIFFON:** And then the other thing I  
15 didn't see on here was americium, but again --  
16 and I don't know if this, that is sort of the  
17 policy within the evaluation report, the  
18 approaches that when in doubt, we'll assume  
19 any of these radionuclides that will deliver  
20 the highest potential dose to the organ of  
21 interest? Because you've got the americium  
22 separation workers theoretically that could  
23 have been working solely in that americium  
24 area prior to americium-specific urinalysis.

25           **DR. ULSH:** Right, that's sort of a program-

1 wide policy that we have that if we lack  
2 information to pin it down specifically, and  
3 there are numerous, plausible choices, we'll  
4 pick the one that claimant favorable. I mean,  
5 Mark, if you'd like to see an americium dose  
6 reconstruction example, we can do that.

7 **MR. GRIFFON:** I don't know. I'm just noting  
8 that these things aren't within the cases and  
9 just exploring whether they need to be. I'm  
10 not, it sounds like probably they don't need  
11 to be, but I'm just --

12 **DR. ULSH:** And we took our best shot at  
13 guessing what you'd want to see. If we've  
14 missed any, and you'd like us to do them, we  
15 can do it.

16 **DR. MAURO:** This is John. I think that the  
17 way to proceed is as we work through putting  
18 our report together and then drawing upon your  
19 examples, if we feel that completing our  
20 report, that the report would benefit from a  
21 few more examples, we'll give you a call and  
22 say, and explore other examples with you. But  
23 right now we have plenty on our plate.

24 **MR. GRIFFON:** Well, I guess we're, in this  
25 situation I know what you're saying, Brant,

1 and that's true, and I think in other  
2 situations we had dealt with facilities that  
3 were primarily uranium and then to just make  
4 blanket assumptions that, yeah, we can, if we  
5 didn't know we'd assume americium, thorium or  
6 plutonium. That would very much shift the  
7 dose profiles for individuals, but in this  
8 situation you're dealing primarily with  
9 plutonium so shifting to thorium or americium  
10 is really no big deal probably.

11 **MS. MUNN:** Yeah, it's almost pointless,  
12 isn't it?

13 **DR. MAKHIJANI:** I think that the actual --

14 **MR. GRIFFON:** I think that's the difference.  
15 I mean for instance Mallinckrodt or Y-12, you  
16 know.

17 **MS. MUNN:** Whole different ballgame.

18 **DR. MAKHIJANI:** If you have the bioassay  
19 results, I think the dose conversion factors  
20 are close enough. You know, they are  
21 different, but what I think might be useful  
22 since there's been a lot of discussion of  
23 americium data is to, if you can communicate  
24 some case of claimant numbers to us or show  
25 us, since all of us have done our Privacy Act

1 training and signed the papers and so on, to  
2 be able to actually see some of these bioassay  
3 data. Do you have any positives?

4 You know, the petition deals with  
5 high-fired from non-plutonium transuranics  
6 radionuclides. So since americium was being  
7 processed, I don't know if it was being  
8 processed into oxides. It would be useful to  
9 see some real data, and I haven't tried to  
10 actually go and look at claimant information  
11 to try to find it so it might be easier for  
12 you to find.

13 **DR. ULSH:** So Arjun, are you asking for  
14 claim numbers that might contain, or the  
15 worker's dosimetry file might contain  
16 americium-specific bioassay or gross alpha  
17 bioassay? Is that what you're asking?

18 **DR. MAKHIJANI:** Yeah, and if you've already  
19 done a dose, since you've done so many dose  
20 reconstructions already, if you handled a case  
21 like that already it might be more useful just  
22 to look at that rather than setting up a  
23 schematic, and also there's very little time.

24 **DR. ULSH:** Okay, we'll try to find something  
25 like that.

1           **MS. MUNN:** It's simpler, I think.

2           **MR. GRIFFON:** And I think, I guess the last  
3 thing we need to discuss unless there's more  
4 discussion on the case is that the sort of  
5 timeline or path forward. We are looking at  
6 two weeks out from an Advisory Board meeting.

7           **DR. MAKHIJANI:** Less than two weeks.

8           **MR. GRIFFON:** Yeah, less than two weeks.  
9 Okay, less than two weeks. And my sense,  
10 well, I think we have maybe a few more loose  
11 ends in this than we did in Y-12, and I'm  
12 wondering just about the timeline or  
13 deliverables. We have many of the same people  
14 especially from SC&A's team that are going to  
15 have to do a review of the petition. And I'm  
16 just wondering what we can expect for the work  
17 group to deliver to the Board by the time of  
18 the Board meeting.

19           **DR. WADE:** Well, this is Lew, let me just  
20 talk out loud. I mean, next week is our week,  
21 obviously, so if we could imagine an exchange  
22 of information the middle of the week,  
23 Wednesday. I know when we talked yesterday,  
24 we had asked John to put his shoulder to  
25 trying to share the report on Y-12 by the

1 middle of the week. If we can do that to the  
2 maximum degree possible, and it's possible for  
3 the work group to get together by phone  
4 Thursday, Friday to have one more discussion.

5 I don't know that at this point we're  
6 not all so tired that we might not be able to  
7 sort the issues exactly now, but it would seem  
8 to me there might be benefit from as much  
9 information exchange as possible, as much  
10 dialogue as possible, and then one follow-up  
11 opportunity. You know, three or four hours to  
12 try deal with remaining issues.

13 **MS. MUNN:** Well, the e-mail inquiry today  
14 was asking whether we were available on the  
15 20<sup>th</sup>.

16 **DR. WADE:** What day was, I don't have a  
17 calendar in front of me.

18 **MS. MUNN:** That's Thursday.

19 **MR. GRIFFON:** Thursday.

20 **DR. WADE:** I think there were some people  
21 who were suggesting Thursday was better for  
22 them.

23 **MS. MUNN:** Yeah, and there's an inquiry out  
24 asking are we available on Thursday.

25 **MR. GRIFFON:** I'm also thinking about we

1           have I think more significant pieces,  
2           especially I'm thinking about the data  
3           reliability question. You know, we've asked  
4           John, SC&A, to deliver a product to us about a  
5           path forward on some of these specific  
6           allegations about no data available, et  
7           cetera, you know, that general category. And  
8           I would expect that if we're lucky, they might  
9           be able to complete that by the end of the  
10          week. I don't know that we really can expect  
11          a full review of this report and Y-12 by the  
12          middle of next week by SC&A. I think, I'm not  
13          sure that we're ready to push this forward in  
14          the full Board meeting. That's my opinion  
15          anyway. Push this forward to a vote in a full  
16          Board meeting, I think we also have the  
17          outstanding question of the database data  
18          versus the raw data especially for the  
19          internal or the bioassay side of the equation.  
20          Brant says that they're in the middle of  
21          working on that.

22                 **DR. WADE:** Well, this is Lew again. Let me  
23                 just sort of talk through generically the  
24                 issues, and I don't take any exception to what  
25                 you've said. I would imagine that by the end

1 of next week based upon whatever information  
2 has been shared and made available NIOSH will  
3 have to make the decision as to whether or not  
4 it wants to present the evaluation report  
5 formally to the Board.

6 I assume NIOSH, and I'll depend upon  
7 their integrity, if they feel that they have a  
8 case to make, they'll make the case. The  
9 Board then, assuming NIOSH presents, then the  
10 Board has its option as to whether to act on  
11 that positively, negatively or the rule does  
12 allow for the Board to ask for additional  
13 information upon which to make its decision.  
14 So I think that's a path we're likely to take  
15 forward. The working group could strongly  
16 recommend to the Board that these things be  
17 pursued. It could only be at full Board  
18 meeting that we could make that decision.

19 **MR. GRIFFON:** Correct.

20 **DR. WADE:** So I think, you know, what I  
21 would like to see happen is we work as hard as  
22 we can through the week. NIOSH will have to  
23 make a decision as to whether or not it wants  
24 to go forward and make a presentation.  
25 Assuming it does, then the Board will have to

1           deliberate and hear from the working group and  
2           then make its decision.  If NIOSH decides to  
3           not present, then it becomes a moot point save  
4           for the decision as to how to go forward to  
5           fill the gaps that NIOSH would bring.  So I  
6           think that's --

7           **MR. GRIFFON:**  That sounds reasonable.

8           **DR. WADE:**  So I think that's likely what  
9           will happen.  The question is what do we want  
10          to do in the time available?  We could put our  
11          efforts to Y-12 or we could try and do as much  
12          as we could on Y-12 and also do some things on  
13          Rocky.  That's a decision for the working  
14          group to take now.

15          **MS. MUNN:**  My personal feeling is that we're  
16          totally committed to Y-12.

17          **MR. GRIFFON:**  That's my sense, too.  I would  
18          like to see one complete rather than two not  
19          quite complete.  So I would say from a  
20          priority standpoint anyway, I think we should  
21          try to hone in on Y-12 and then it doesn't  
22          mean that we completely stop these actions  
23          that we've outlined for Rocky, but the  
24          priority would be to complete the review of Y-  
25          12.  If we're trying to set priorities,

1 especially for SC&A.

2 Wanda, I'm sorry.

3 **MS. MUNN:** That was my statement.

4 **MR. GIBSON:** This is Mike. I feel the same  
5 way, but on one hand though it's like we're  
6 hitting these towns for these meetings --

7 **MR. GRIFFON:** I know.

8 **MR. GIBSON:** -- behind the eight ball, and  
9 so that's just another perspective look at, I  
10 agree with, you know, there's just of work we  
11 have to do, and we need to close these issues,  
12 but I keep going to these towns to towns and  
13 not have something done.

14 **MR. GRIFFON:** No, I agree, and I think we,  
15 if nothing else, we need a thorough status  
16 report in Denver. And the other thing I would  
17 say is that John, you know, SC&A should  
18 definitely try to complete crisp or mini  
19 report on that one issue that we've talked  
20 about in the very near future.

21 And that NIOSH should pursue the  
22 internal bioassay reliability question so that  
23 we can show at least progress on the matrix  
24 and outstanding actions definitely. But, and  
25 I'm not saying maybe we will have time to wrap

1 up both, but I would say let's prioritize Y-12  
2 because my feeling is I think we're closer to  
3 completion on that.

4 **MS. MUNN:** I hope that's true. It's  
5 unfortunate from my point of view that we have  
6 so many of the same people working on both  
7 sites.

8 My feeling is that we actually are  
9 much further along here on Rocky than it looks  
10 like we are right now. I'm really sorry that  
11 we don't have access to those, to the data  
12 that Kathy has tried to get her hands on  
13 earlier. That would be very helpful, but --

14 **MR. GRIFFON:** Yeah, I guess the biggest  
15 thing, as John stated earlier, probably the  
16 biggest item is the data reliability, and I  
17 think that's one item that's definitely high  
18 on the petitioners' mind. So I think we'd be  
19 remiss if we didn't at least try to go a  
20 little farther with that.

21 **MS. MUNN:** I agree.

22 **MR. GRIFFON:** I don't want to not appear in  
23 Denver and try to close this out without at  
24 least taking that a little father.

25 **MR. FITZGERALD:** Yeah, Mark, this is Joe. I

1 just wanted to clarify because this is pretty  
2 important schedule wise, clearly by the middle  
3 of next week as we said yesterday, the Y-12  
4 review of the review by SC&A should certainly  
5 be available and ready for discussion.  
6 Perhaps at the same time --

7 **MR. GRIFFON:** Review of the evaluation  
8 report, right?

9 **MR. FITZGERALD:** Right. And certainly by  
10 then, if not before then, to have this hand-  
11 off review if you want to call it that, the  
12 passing of the torch, the mini-review with  
13 very clear, sharp, proposed things that could  
14 be done, have that ready for the data  
15 integrity issues certainly early next week no  
16 later. That's what I'm kind of hearing. Not  
17 the whole thing in terms of Rocky, certainly  
18 that piece.

19 **MR. GRIFFON:** I think that seems, as  
20 priorities that seems like what I'm, that's my  
21 feeling anyway.

22 **DR. WADE:** Then I would propose that the  
23 working group have a call on Thursday and  
24 attempts to close its business on Y-12, and  
25 then possibly take a small amount of time just

1 to assess the situation with regard to Rocky.  
2 And then the working group can decide if it  
3 wants to meet before the Board meeting in  
4 Denver or whether or not the call on Thursday  
5 would be their preliminary discussion of what  
6 they'd present to the Board.

7 **MR. GRIFFON:** And we can figure that out on  
8 Thursday I guess.

9 **DR. WADE:** What time? Let's just while  
10 we're all here, what time, ten a.m.?

11 **MS. MUNN:** That'll be fine with me. My  
12 response was I'm available anytime preferably  
13 after eight my time, but I can do ten.

14 **DR. WADE:** You want to try, let's do 11.

15 **MR. GRIFFON:** No, earlier would be better  
16 for me, so I'll compromise on ten.

17 **DR. WADE:** Okay, ten.

18 Let me just, quick roll call, Mark,  
19 that's okay with you?

20 **MR. GRIFFON:** Yeah.

21 **DR. WADE:** Mike, ten a.m.?

22 **MR. GIBSON:** Yeah, that'll be okay.

23 **DR. WADE:** Robert?

24 **MR. PRESLEY:** I will not be available  
25 Thursday.

1           **DR. WADE:** Well, since we're going to be  
2 doing mostly Y-12, with your permission, we'll  
3 go ahead and meet.

4           **MR. PRESLEY:** You're going to have to.

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

6                       So ten a.m. eastern time next  
7 Thursday. I'll make the arrangements with the  
8 call-in number. And I really pushed today so  
9 I could get things posted on the website and  
10 let people know so thank you. I'll stop  
11 talking, and you guys can conclude your  
12 business.

13           **MR. GRIFFON:** I think we're concluded if  
14 any, unless anyone else has any comments, I  
15 think that should wrap it up.

16           **DR. MAURO:** This is John. I just want to  
17 make sure that I understand. We have two  
18 deliverables to have in your hands prior to  
19 that conference call on the 20<sup>th</sup>. That is  
20 SC&A's full evaluation, review of the  
21 evaluation report for Y-12 and the other, I  
22 guess, crisp report that we'll try to get to  
23 you before then.

24           **MR. GRIFFON:** Yes.

25           **DR. MAURO:** We won't have in your hands

1 anything related to the technical issues  
2 associated with Rocky. In other words, we  
3 won't, even though we are right now in a  
4 position where we can probably put material  
5 together related to the three major technical  
6 issues that were raised on Rocky, mainly,  
7 high-fired plutonium, chest counts and neutron  
8 dosimetry, though the information is there.

9 We have the information in our hands.  
10 We have the wherewithal to address those.  
11 It's just really a matter of that would dilute  
12 our ability to go and deliver a complete  
13 product for Y-12. That's basically how I see  
14 it right now.

15 **MR. GRIFFON:** I agree, John, yeah.

16 **DR. MAURO:** And assume that we have time, of  
17 course, we'll move forward to work on those  
18 issues if we get the first two priorities  
19 finished by then.

20 **DR. WADE:** Yeah, I would, again, this Lew  
21 speaking, the technical project officer. If  
22 you can do it without diluting the effort, I  
23 think the process is best served, even if it's  
24 for the Board to be able to consider most  
25 fully its decision which could well be to

1 delay. I think the process is served with  
2 complete work if it's doable.

3 **MR. GRIFFON:** Right, we agree. If you've  
4 got time on your hands, John, then go ahead  
5 and give us the whole kit and caboodle.

6 **MS. MUNN:** Squeeze time out of your hands.

7 **DR. MAKHIJANI:** Mark and John, I think I  
8 hope complete doesn't mean long.

9 **MR. GRIFFON:** I hope it doesn't, too. We're  
10 all in agreement there.

11 **DR. MAURO:** Yes, if we could keep it brief,  
12 yes.

13 **DR. MAKHIJANI:** I was thinking sort of like  
14 a letter report.

15 **MR. GRIFFON:** Yeah, we've got a lot of  
16 documents out there already so to the extent  
17 you need to cross, you know, refer to other  
18 documents that already exist, don't be  
19 redundant.

20 **DR. MAKHIJANI:** One other question is in  
21 regard to the sample dose reconstructions on  
22 Y-12. I mean, in the essentials if they  
23 illustrate things that don't need, I think at  
24 this stage to try to reproduce a calculations  
25 and so on that doesn't seem to me the

1 priorities, the principles that have been  
2 discussed in those things as they might apply  
3 to what the Board has to consider might go  
4 into a short report because otherwise it'll  
5 get pretty out of hand, and we might get  
6 buried in the weeds in the details if you  
7 expect that. So I just want a little  
8 clarification.

9 **MR. GRIFFON:** No, I guess, the way I  
10 consider those is we're looking for proof of  
11 principle.

12 **DR. MAURO:** Right.

13 **MR. GRIFFON:** So that's the way we expect  
14 you to review them as well.

15 **DR. MAKHIJANI:** Okay, so we won't try to  
16 reproduce the numbers.

17 **MR. GRIFFON:** That's not my expectation.  
18 Wanda or Mike?

19 **MS. MUNN:** It's certainly not mine, no. The  
20 more concise the better.

21 **DR. MAKHIJANI:** Mike?

22 **MR. GIBSON:** Right.

23 **DR. MAKHIJANI:** Would that be all right?

24 **MR. GIBSON:** Yes.

25 **DR. WADE:** Thank you all for just a

1 Herculean effort today, and certainly the  
2 effort is appreciated and we'll be back  
3 together at ten a.m. eastern time Thursday  
4 next.

5 **MR. GRIFFON:** And Ray will have those  
6 transcripts for us before then, right? That's  
7 another action item which was addressed.

8 No, I'm kidding a little bit, but all  
9 kidding aside I think we did state earlier if  
10 these transcripts could be ready, you know. I  
11 think these will be very important, especially  
12 prior to the Board meeting.

13 **DR. MAURO:** And especially the Y-12 portion.

14 **MR. GRIFFON:** Yeah. Since we're  
15 prioritizing that, yeah.

16 **DR. WADE:** We've heard you.

17 **MR. GRIFFON:** John, do you want a conference  
18 call? We were all on for the record  
19 yesterday, we were just on mute.

20 **DR. MAURO:** Yesterday I called a conference  
21 call and everyone else was on mute so we  
22 didn't hear, no one reacted.

23 **DR. MAKHIJANI:** I'm here today so we can  
24 talk.

25 **MR. GRIFFON:** Good work today, everyone.

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It's been a long day on the phone. Thanks a lot.

(Whereupon, the working group teleconference concluded at 5:50 p.m.)

1

**CERTIFICATE OF COURT REPORTER****STATE OF GEORGIA****COUNTY OF FULTON**

I, Steven Ray Green, Certified Merit Court Reporter, do hereby certify that I reported the above and foregoing on the day of April 12, 2006; and it is a true and accurate transcript of the testimony captioned herein.

I further certify that I am neither kin nor counsel to any of the parties herein, nor have any interest in the cause named herein.

WITNESS my hand and official seal this the 14th day of July, 2006.

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