

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

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ADVISORY BOARD ON RADIATION AND  
WORKER HEALTH

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PACIFIC PROVING GROUNDS WORK GROUP

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FRIDAY  
APRIL 21, 2017

+ + + + +

The Work Group convened via teleconference at 1:00 p.m., Eastern Standard Time, James E. Lockey, Chair, presiding.

PRESENT:

JAMES E. LOCKEY, Chair  
HENRY A. ANDERSON, Member  
R. WILLIAM FIELD, Member  
LORETTA R. VALERIO, Member

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

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ALSO PRESENT:

TED KATZ, Designated Federal Official  
BOB BARTON, SC&A  
HANS BEHLING, SC&A  
MARK FISHBURN, ORAU Team  
ROSE GOGLIOTTI, SC&A  
JIM NETON, DCAS  
MARK ROLFES, DCAS  
GENE ROLLINS, ORAU Team  
MUTTY SHARFI, ORAU Team  
JOHN STIVER, SC&A

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

2 1:02 p.m.

3 **Welcome and Roll Call**

4 MR. KATZ: This is the Advisory Board  
5 on Radiation and Worker Health, Pacific Proving  
6 Grounds Work Group and we are reviewing an updated  
7 Site Profile for Pacific Proving Grounds, just to  
8 give us some guidelines on how to go about dose  
9 reconstruction for that site. And the Board  
10 contacted SC&A and has reviewed their report and  
11 they -- and the review and guidelines themselves  
12 are posted on the NIOSH web site under this program,  
13 schedule of meetings, today's date. So you can see  
14 those documents, if you want.

15 So let's get the roll call.

16 (Roll call.)

17 MR. KATZ: Okay then. I'm assuming  
18 Dr. Field hasn't joined us. Let's just give him --  
19 if you don't mind, let's just give him five minutes  
20 and if he hasn't called in by then, we can get

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1 started.

2 (Whereupon, the above-entitled matter  
3 went off the record at 1:05 p.m. and resumed at 1:07  
4 p.m.)

5 MR. KATZ: So Dr. Bill Field has joined  
6 us. That completes our Work Group membership.  
7 And we can get rolling. I'd just remind everyone  
8 when you're not speaking to mute your phones to help  
9 with the audio quality for everybody else. And  
10 take it away. It's your meeting, Dr. Lockey.

11 **Opening Remarks**

12 CHAIR LOCKEY: Yes, thanks everybody  
13 for being on time and participating. Last time we  
14 met we had nine findings and one observation. We  
15 went through those and most things were in abeyance  
16 based on that meeting. I think a lot of it dealt  
17 with when we had operational badges versus mission  
18 badges, and I think a lot of these things have been  
19 resolved, so why don't we just start with the  
20 Findings 1 through 9 and the observation, then see

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1 if we can get done.

2 Mark or Hans, who wants to take off and  
3 lead?

4 **Review of July 2016 Revised Site Profile**

5 DR. BEHLING: Well, I guess it's going  
6 to be me who's going to do most of the talking here  
7 with regard to what we concluded regarding the  
8 findings that we were discussing during the last  
9 Work Group meeting and the report that was issued  
10 by SC&A in concurrence with the findings and how  
11 they were resolved. And that's I assume the  
12 discussion for today.

13 I just want to say, as you've already  
14 mentioned, the fact that during the Work Group  
15 meeting we had identified a total of nine findings  
16 and one observation. And in response to those  
17 findings and one observation, NIOSH issued an Issue  
18 Resolution Matrix for Pacific Proving Grounds  
19 Sites that was dated May 20th, 2014.

20 And just a quick overview for some

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1 people who may not be familiar with -- during that  
2 first Work Group meeting there was a sidebar  
3 discussion between Dr. Neton and the Federal  
4 Official here Mr. Katz and defined what is the  
5 difference between a resolution of a finding as  
6 opposed to in abeyance.

7 And I think the statement, if I read it  
8 correctly from the transcript that was dated  
9 January 16th, 2015, I believe we came to the  
10 conclusion that when you have a finding, as we were  
11 discussing at that time, when it's in abeyance you  
12 can essentially agree to it, but the final  
13 resolution to that finding has to be documented as  
14 a verification in the actual document that follows.

15 And that's normally what we did in  
16 response to that meeting, that SC&A received the  
17 revised TBD for the Pacific Proving Grounds and  
18 assessed that to Revision 1 of the TBD Site Profile  
19 in context with each of the nine findings and the  
20 one observation.

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1                   And so, today this is what I'm hoping  
2                   to do is to briefly discuss each of the findings  
3                   just to jog everyone's memory and in doing so I will  
4                   have John Stiver actually show the actual  
5                   Resolution Matrix for the simple fact that it  
6                   identifies the additional findings that we issued  
7                   our draft report regarding the PPG Rev. 1 Site  
8                   Profile. And of course NIOSH's response or  
9                   proposed resolution for that in their Resolution  
10                  Matrix and then go into terms of how this was --  
11                  this issue was resolved based on the inclusion of  
12                  the resolution into the revision of the TBD.

13                  Anyway, so if you -- unless somebody has  
14                  anything else to say, we can start with Finding No.  
15                  1. And I'm going to ask John Stiver to identify  
16                  page 1 of the Resolution Matrix so everyone can --

17                  MR. STIVER: Hans, I'm trying to view  
18                  this. I clicked on the "present" button here and  
19                  I'm not able to pull up that particular file for  
20                  some -- oh, wait. Never mind. Here it is. Okay.

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1           Everybody see that?

2                     DR. BEHLING:   Not yet.

3                     CHAIR LOCKEY:   I got it.

4                     MR. STIVER:   Okay.   We're on Finding 1  
5           right now, Hans.

6                     DR. BEHLING:   Yes, I'm not -- I'm  
7           getting -- I'm not getting this here.   Anyway, I  
8           don't really need it because I have a hard copy in  
9           front of me.   In the event that it doesn't come up  
10          on my screen, I'll just consult with the hard copy  
11          that's in front of me.

12                    Anyway, just an overview of what  
13          Finding 1 is.   I won't necessarily read the whole  
14          finding, only to capture the essence of the  
15          finding.   You can -- for those who have a picture  
16          of -- okay.   Maybe I'm getting it now.   I don't  
17          know.   Anyway, I'll proceed.

18                    Finding No. 1 stated that NIOSH needs  
19          to update ORAUT-TKBS-52, Rev. 00, with regard to  
20          the 250-workday requirement for SEC Class

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1 inclusion based on the EEOICPA Bulletin No. 06-15  
2 and No. 07-05. And those were unfortunate  
3 instances because the original Rev. 0 of the PPG  
4 Site Profile only predates the release of those two  
5 particular EEOICPA Bulletins by a few days.

6 And then in the process those changes  
7 were not introduced into the original PPG Site  
8 Profile, which basically converts the 250-day  
9 requirement for SEC inclusion to 83 days based on  
10 the fact that a 24-hour period on location at PPG  
11 is equivalent to 3 times 8 hours per day, and  
12 therefore the 250-day requirement for the SEC  
13 inclusion should have been reduced to 83. That was  
14 subsequently incorporated into the revision of the  
15 Site Profile.

16 And in terms of the resolution section  
17 1.3 of ORAUT-TKBS it was amended on pages 8 through  
18 9 in accordance with the provisions for those two  
19 particular EEOICPA Bulletins, and that basically  
20 converts to the 250-workday requirements and the

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1 83-day requirements. And as a result of that, the  
2 status of Finding 1 SC&A agrees with the text  
3 revision and recommends closure of Finding No. 1.

4 CHAIR LOCKEY: Do any Board Members  
5 have any questions about this?

6 MEMBER ANDERSON: I don't, no.

7 MEMBER VALERIO: I don't.

8 CHAIR LOCKEY: I read through it and I  
9 didn't either other than Jim Neton I guess as before  
10 the Department of Labor asked if there's no clear  
11 indication as to our end date, then that's a DOL  
12 issue, right?

13 DR. NETON: Correct.

14 CHAIR LOCKEY: Okay.

15 DR. BEHLING: Okay. I still haven't  
16 gotten my screen, but I assume that the screen also  
17 includes Observation No. 1. Is that correct? Is  
18 the screen up for you?

19 CHAIR LOCKEY: I don't have the screen  
20 either, so I can't tell you.

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1 DR. BEHLING: Okay. Observation 1 in  
2 our report stated the following: There's a need  
3 for more definitive guidance pertaining to the  
4 assignment of occupational medical dose in behalf  
5 of claimants who have no formal affiliations with  
6 a DOE or AWE facility. And that really is of some  
7 significance because I know for a fact having been  
8 very closely affiliated with the PPG issues here  
9 in the testing period between and '46 that '58 that  
10 were a lot of people who were hired who were not  
11 employees of either the DOE facility or the AWE  
12 facility necessarily.

13 There were people obviously out there  
14 who were contracted right on location, and that  
15 included people who were probably not even  
16 considered here. But there were also people who  
17 were contracted to work for EG&G -- EG -- EE&G, I'm  
18 sorry, and [Identifying information redacted], who  
19 were major contractors during that time. And that  
20 was our concern.

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1                   But NIOSH by and large responded with  
2                   the recommendation that these people, unless they  
3                   were affiliated with a DOE or AWE facility and the  
4                   medical X-rays were necessary, taken at a facility  
5                   that was considered under EEOICPA, there would be  
6                   no need to assess the medical exposure as is  
7                   described in ORAU-OTIB-0079. In other words, that  
8                   particular OTIB only addresses the need for medical  
9                   exposure that you have to address if the facility  
10                  was a covered facility. So the statement of  
11                  NIOSH's resolution to Observation 1 was that in  
12                  Section 3 it substituted protocols for the  
13                  ORAU-PROC-0061 for guidance now provided in the  
14                  updated version of ORAU-OTIB-0079.

15                  And so as a result of that change, SC&A  
16                  concur with the text revision in Section 3 and with  
17                  these recommendations closes Observation 1 since  
18                  obviously there's no need to even consider this  
19                  under OTIB-79.

20                  Are there any questions?

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1 CHAIR LOCKEY: Any questions about  
2 that?

3 MEMBER FIELD: This is Bill. No  
4 questions.

5 MEMBER VALERIO: No, no questions.

6 CHAIR LOCKEY: Okay. Good.

7 DR. BEHLING: Okay. Again, I will  
8 just briefly give you the overview of Finding No.  
9 2. Section 4 of the Occupational Environmental  
10 Dose ignores occupational environmental doses for  
11 PPG locations from fallout. And this was a very  
12 critical component in our thinking. We went  
13 through a lot of effort to clarify what the issues  
14 were.

15 It was eventually -- for those who want  
16 to go to -- back to the original document, it was  
17 reviewed in Section 6 of page 19, and a more  
18 detailed section -- in other sections, 7.2 in the  
19 report. And this really involves the following:  
20 Pre-1955 personnel were oftentimes only badged in

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1 a very, very limited fashion with mission badges  
2 as well as cohort badges where one person got the  
3 exposure for many people. And there had been a  
4 time when detonations that had been -- or that  
5 predates 1955, specifically Operation Greenhouse,  
6 resulted in significant fallout that exposed  
7 personnel on site. And those exposures were not  
8 properly accounted for up until that point in time.

9 And NIOSH's response to Finding 2 was  
10 that NIOSH agrees that the findings and Section 4  
11 of the next revision will actually revise that  
12 particular section in order to account for  
13 exposures that may have been received during those  
14 time periods from fallout for people who were  
15 obviously exposed, but not necessarily monitored  
16 for exposure.

17 So having made those changes, revisions  
18 to Section 6 in the revised TBD, we feel it's  
19 something that has been properly addressed and  
20 accounted for. And again, SC&A recommends closure

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1 to Finding 2 based on those changes.

2 CHAIR LOCKEY: Hans, essentially there  
3 is no environmental exposure. It's all  
4 occupational, right?

5 DR. BEHLING: Yes, we -- it was  
6 initially assessed as environmental, but the  
7 recommendation was that this really involves  
8 occupational exposure because it has obviously  
9 unique aspects of a facility that was really  
10 several atolls where people worked 24/7 or stayed  
11 there 24/7 in a given environment, and so therefore  
12 it really is not environmental, but really was  
13 regarded as occupational. And I think it was  
14 transferred to Section 6 of the revised PPG.

15 CHAIR LOCKEY: Any questions, anybody?  
16 Everybody's okay with this?

17 MEMBER ANDERSON: Yes.

18 MEMBER VALERIO: Yes.

19 DR. BEHLING: Okay. I guess we're --  
20 I don't know, again not having the screen, I assume

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1 we are on the next page of the Issues Resolution  
2 Matrix. Am I correct?

3 CHAIR LOCKEY: Yes, I think it's we're  
4 Finding 3, 4 and 8 and 9 are combined.

5 DR. BEHLING: Well, oh, in that case,  
6 I didn't think you were going to show this one. I'm  
7 actually still working with my original Issue  
8 Resolution Matrix. I'm really following the  
9 actual sequential numbers --

10 CHAIR LOCKEY: Okay.

11 DR. BEHLING: -- of the findings.

12 CHAIR LOCKEY: That's fine.

13 DR. BEHLING: And I'm -- at this point  
14 we are on Finding 3, but in the original matrix that  
15 I addressed I have Findings 3 and 4 sort of  
16 together. And this is due to the fact that the  
17 combination is based on shared deficiencies of  
18 SC&A's knowledge in Section 3 of our draft report.

19 And if you go over and look at the NIOSH  
20 response to Finding No. 3, you realize that NIOSH

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1 does understand there are serious deficiencies  
2 related to the Monitoring Program as expressed by  
3 the use of mission badges and cohort badging in some  
4 cases, that there was very limited monitoring that  
5 should have been done, but wasn't done.

6 And we acknowledge that actually in the  
7 report that SC&A wrote in Section 3 that we  
8 submitted under the relevant background  
9 information. In SC&A's review of that Site  
10 Profile for the Pacific Proving Grounds we stated  
11 the following: The purpose of presenting some of  
12 the information in that Section 3 is to point out  
13 the magnitude and dynamics of the PPG Testing  
14 Program and limitations based on personnel and  
15 resources that were further complicated by the  
16 remote, isolated location that characterized the  
17 four test sites at the PPG.

18 So we agreed with NIOSH that there were  
19 obviously serious deficiencies in terms of the  
20 approaches taken to assess personnel exposure, but

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1 it has not be recognized that this was the very  
2 beginning of the nuclear age. It follows at the  
3 heels of the Manhattan Project. There  
4 was a time when we had a poor understanding of the  
5 effect of radiation. And of course we were  
6 certainly not held to the actual rigid dose  
7 limitations as we know today, in addition to the  
8 fact that they were literally tens of thousands of  
9 people that had to be obviously addressed in terms  
10 of their exposure during this time frame. So we  
11 understand the limitations of the problems that  
12 obviously face the whole issue of a full accounting  
13 of exposures.

14 So resolution of Findings 3 and 4, when  
15 we looked at this, have generic limitations that  
16 are associated with personnel dosimetries, the  
17 limited use and assignments of personnel during  
18 select times and periods, and the procedural  
19 practices that were put in place at the time. And  
20 these are all deficiencies that are likely to be

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1 considered intractable. So to overcome these  
2 deficiencies NIOSH proposed the optional use of the  
3 95th percentile cohort doses as defined in  
4 Attachment A in the revision of the PPG Site  
5 Profile.

6 So in light of those deficiencies we all  
7 accept them and realize that we have to do something  
8 that at least makes an attempt to accommodate  
9 perhaps some of the deficiencies that are likely  
10 to result in lower assigned doses. And I think  
11 NIOSH did the right thing in essentially saying  
12 that we will assign a coworker dose that is defined  
13 in Attachment A that is based on a 95th percentile  
14 coworker dose that we can discuss a little more in  
15 detail.

16 So again, with regard to Findings No.  
17 3 and 4, we accept the idea that the changes that  
18 have been introduced into Appendix A address these  
19 inefficiencies, or deficiencies and we recommend  
20 closures to Findings No. 3 and 4.

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1                   Are there any questions on that?

2                   CHAIR LOCKEY:   Jim Lockey.  I just had  
3                   one question.  If the measured dose from the  
4                   mission badge is higher, NIOSH will use that, is  
5                   that correct?

6                   DR. BEHLING:    Yes, they will.  In  
7                   fact, they were collated.  If you look at Appendix  
8                   A, you will obviously see that NIOSH has introduced  
9                   50th and 95th percentile values of actual badges  
10                  that were collated and derived and used obviously  
11                  a formula to derive the 50th and 95th percentiles.  
12                  So they do represent real values.  But because of  
13                  the fact that when you have the incomplete  
14                  potential -- or potentially incomplete assessment  
15                  of all personnel that would have been exposed, the  
16                  recommendation was to obviously amend the data that  
17                  had been used previously in more than one way.  I  
18                  think going to that -- I think it's No. -- Finding  
19                  No. 9 that also adds another dimension to the data  
20                  in terms of acknowledging the 40 mR MDA values that

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1 it would have incorporated into the dose  
2 calculation.

3 CHAIR LOCKEY: Anybody have any  
4 questions?

5 (No audible response.)

6 CHAIR LOCKEY: Good. Let's move on.

7 DR. BEHLING: Okay. Finding No. 5.  
8 Finding No. 5 was stated as -- that the average  
9 photon energies associated with fallout are well  
10 above the 250 keV energy level. And depending  
11 on -- with the exposure John just assumed, the  
12 assault of the photon energy of 32-250 and AP  
13 geometry may not be claimant-favorable. That was  
14 the original finding.

15 And NIOSH in their Resolution Matrix  
16 later stated that, yes, the iso and rotational  
17 geometries might be more realistic than was assumed  
18 in the dose calculation. The general approach  
19 taken with EEOICPA claims is to apply the DCF using  
20 the highest PoC. So the driver here was to not

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1 necessarily be 100 percent accurate because of the  
2 fact that when we talk about exposures in the PPG,  
3 we're not talking about the conventional exposures  
4 that people would receive in a typical DOE  
5 facility.

6 I mean, we're talking about fallout  
7 that is basically isotropic because at the time  
8 there was obviously contamination on the ground.  
9 There was contamination in the palm trees above  
10 you. And so in essence the rotation of a patient  
11 or the isotropic exposure might have been more  
12 realistic, but they would not necessarily always  
13 give you the highest exposure dose. Also the AP  
14 geometry was obviously then considered a preferred  
15 option based on the fact that these had a higher  
16 assigned dose in addition to the assumption of a  
17 30 to 250 keV photon. But from what I remember from  
18 the work that I've done in there, the actual photon  
19 energy was 700 or so keV.

20 But anyway, with the exception of the

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1 lung, esophagus, red bone and bone surfaces, NIOSH  
2 concluded that the preferred and the higher derived  
3 dose would be from the assumption of a 30 to 250  
4 keV photon energy and the AP geometry.

5 I believe, let me see, there's also a  
6 statement in here that there is a potential option  
7 for -- to use the higher values if it turns out to  
8 be essential for a claim where the maximally  
9 accurate assessment has been done to actually use  
10 changes here that involve -- where am I, because  
11 I'm kind of lost here in my own stuff.

12 CHAIR LOCKEY: I think the way I read  
13 it was that if it's one of those three: esophagus,  
14 lung, bone marrow, they use whatever is higher, AP  
15 or rotational.

16 DR. BEHLING: Yes, okay. I think I  
17 have it in front of me now. Yes, it's that you have  
18 an option to use the higher value even if it turns  
19 out to be so that for these four organs the Revision  
20 Section -- okay, here, I found it on my documents.

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1 They are scattered. I didn't intend to use these  
2 documents as opposed to the actual information on  
3 the screen.

4 But anyway, for these four organs  
5 Revision Section 3.3 suggests an AP to ROT or  
6 rotational geometry ratio should be considered for  
7 claimant-favorability. With iso geometry for  
8 cases you find best estimates. So that was an  
9 option that would under situations being preferred  
10 over the standard assumption of 30 to 250 keV and  
11 AP geometry.

12 Anyway, given that additional option,  
13 SC&A finds the recommendation appropriate and  
14 again SC&A recommends for all of Finding No. 5 and  
15 recommends closure.

16 CHAIR LOCKEY: Very good. I agree.  
17 Anybody -- do Board Members agree? Questions?

18 MEMBER FIELD: This is Bill. I agree.

19 MEMBER VALERIO: I agree. This is  
20 Loretta.

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1                   MEMBER ANDERSON:    Oh, I think it's  
2                   fine.

3                   CHAIR LOCKEY:    Thank you.    Finding 6?

4                   DR. BEHLING:     Finding 6.    Finding 6  
5                   states that since claims involving the skin cancer  
6                   usually specify the locations on the body in a given  
7                   claim, then the critical variable of distance above  
8                   the source plane defined by Barss & Weitz in 2006  
9                   in their study should be included in the assignment  
10                  of beta-to-gamma ratios for PPG claimants.   And  
11                  the variability of the beta-to-gamma ratio is based  
12                  obviously not only on the source term relationship  
13                  or the spacing between the source flow at the ground  
14                  contamination and the location, but also the age  
15                  of the fallout.   And these were also identified by  
16                  Barss & Weitz in their study.

17                  And the NIOSH resolution to Finding 6,  
18                  NIOSH notes that the ratio of beta-to-gamma  
19                  associated with exposure to fallout is highly  
20                  variable with age of the fallout as well as the

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1 distance of the source plane. In the absence of  
2 dosimeter beta dose this variability is of critical  
3 importance for claims involving skin cancers and  
4 other surficial tissues.

5 And so in Section 6.1 of the revised PPG  
6 Site Profile, NIOSH eliminated the default NTS  
7 beta-to-gamma ratio of one-to-one in the revised  
8 guidance. That includes the beta-to-gamma ratios  
9 that were identified in the article by Barss & Weitz  
10 in 2006, the deficiency ratios that include the  
11 effect of weathering.

12 So in response to those changes, again  
13 SC&A recommends the closure of Finding No. 6  
14 because it does in fact specify the various issues  
15 that were identified in our original findings.

16 CHAIR LOCKEY: I agree. Board  
17 Members?

18 MEMBER VALERIO: I agree.

19 MEMBER FIELD: Yes, I do, too.

20 CHAIR LOCKEY: Impressive tables.

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1 DR. BEHLING: Okay. We're --

2 CHAIR LOCKEY: Dr. Anderson?

3 MEMBER ANDERSON: Sorry. I was on  
4 hold. Yes. I was on mute. Yes.

5 CHAIR LOCKEY: Okay.

6 DR. BEHLING: Okay. So we're on  
7 Finding No. 7, and Finding No. 7 states that NIOSH's  
8 guidance for the assignment of missed dose is based  
9 on assumptions that are not supported by the facts.  
10 And in the case of uncertainty are clearly not  
11 claimant-favorable.

12 This issue concerning missed dose was  
13 discussed by SC&A in Section 7.4.2, and centers  
14 around the previously acknowledged deficiencies  
15 that we already talked about pertaining to the  
16 external monitoring of personnel and the use of  
17 mission badges and the cohort badging. And again,  
18 NIOSH's response to Statement 7 is that the next  
19 revision will address the issue of mixed missed  
20 dose guidance and talks about how this was done.

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1 And also included is the external exposure that is  
2 now considered more or less occupational exposure  
3 from fallout during the time of Operation  
4 Greenhouse.

5 And the specific guidance by and large  
6 consisted of three specific elements; that is, the  
7 assigned missed dose must be based on a number of  
8 changes found in the dosimetry records, which they  
9 do.

10 No. 2, compare also the total of the  
11 recorded dose plus the missed dose to the 50th  
12 percentile dose in Attachment A. So you have an  
13 option of using either the empirical dose or  
14 default to the coworker model in Attachment A.

15 And thirdly, for cases where  
16 occupational exposures on the various islands is  
17 documented in the dosimetry records and their  
18 additional dose can be calculated in accordance  
19 with the data that was shown under Operation  
20 Greenhouse and shown in detail in the revision of

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1 the TBD Profile.

2 So again, with regard to the status of  
3 Finding No. 7 SC&A concurs with these revisions and  
4 recommends closure of Finding No. 7.

5 CHAIR LOCKEY: Board Members?

6 MEMBER ANDERSON: That's fine.

7 MEMBER FIELD: Sounds good.

8 MEMBER VALERIO: I agree.

9 CHAIR LOCKEY: I agree, too. Okay.

10 DR. BEHLING: Okay. Finding No. 8.  
11 Independent of other concerns/limitations that  
12 characterize the DNA dose distribution data in  
13 their accuracy and completeness use of the 50th  
14 percentile dose as a coworker dose is not justified  
15 for PPG participants for Operations up to and  
16 inclusive of Operation CASTLE and subsequent  
17 Operations where maybe dosimeter damage was an  
18 issue. And sometimes that is recorded in some of  
19 the documents, the DNA documents.

20 This issue centers really around

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1 earlier concerns about the use of coworker data  
2 involving the 50th percentile dose as a meaningful  
3 or accurate, or better yet claimant-favorable  
4 coworker dose. And NIOSH's response to that is  
5 that the Attachment A was revised, and in  
6 Attachment A the option exists to -- in addition  
7 to the 50th percentile dose to actually make use  
8 of the 95th percentile doses for coworkers where  
9 there is an absence of data or incomplete data.

10 As a result of that change to Attachment  
11 A, which was our concern that the 50th percentile  
12 based on some of the deficiencies that were  
13 identified in our report, the coworker dose at the  
14 50th percentile may not necessarily give the  
15 benefit of doubt to the actual exposures that may  
16 have been received, and SC&A believes that the 95th  
17 percentile as an option for a coworker dose who has  
18 incomplete or non-existent dosimetry data is a  
19 claimant-favorable approach and therefore agrees  
20 with the fact that Finding No. 8 has been adequately

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1 addressed and we recommend closure to Finding 8.

2 CHAIR LOCKEY: Thanks, Hans. I agree.

3 Board Members?

4 MEMBER VALERIO: I agree.

5 MEMBER FIELD: Agree.

6 MEMBER ANDERSON: Yes. Close it out.

7 CHAIR LOCKEY: No. 9?

8 DR. BEHLING: No. 9. Okay. I was  
9 just waiting. I wasn't sure whether all of the  
10 Members had voiced their opinion.

11 For No. 9 -- and I think we just briefly  
12 made reference to that earlier. No. 9 states that  
13 Operation-specific dose distribution defined by  
14 DNA must be adjusted to account for the minimum  
15 detected activity value of film dosimeters  
16 regardless of what percentile value is employed.  
17 And this finding was discussed in our earlier  
18 report in a couple sections as well as one of the  
19 figures, and really addresses the issue of which  
20 the actual doses that we were just earlier

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1       referencing that were used as coworker -- to  
2       actually estimate the coworker model.

3               In the original TBD we had only  
4       estimated 50th percentile value. And the means by  
5       which that dose values were derived ignores the  
6       fact that the missed dose was not incorporated into  
7       the method by which these doses were derived. In  
8       other words, only doses which were actually greater  
9       than 40 would have been accepted into that  
10      equation, meaning that a person with less than MDA  
11      value with a film dosimeter would not have been  
12      incorporated.

13              And it's a little more difficult to  
14      explain here, but the issue was resolved. In the  
15      revised TBD NIOSH incorporated the fact that the  
16      doses that should have been included in terms of  
17      the four divisions by which the estimates were  
18      categorized incorporate dosimeter values that were  
19      less than MDA into the equations and therefore  
20      raises the actual assigned doses, both at the 50th

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1 and the 95th percentile value. And as I said,  
2 these changes are looking for changes to the doses  
3 as defined in Appendix A. And those appear on page  
4 32 and 33 of the revised TBD and they do show that  
5 the coworker dose distributions acknowledge that  
6 change.

7 So again, it fully satisfies the  
8 original finding as we stated in our review and we  
9 recommend that this finding also be closed as a  
10 result of that.

11 CHAIR LOCKEY: Good. I agree.

12 Board Members?

13 MEMBER ANDERSON: Agree.

14 MEMBER FIELD: Agree.

15 MEMBER VALERIO: Agree.

16 CHAIR LOCKEY: Okay.

17 DR. BEHLING: So at this point I think  
18 we've gone through all of the findings and the one  
19 observation, and I believe that at this point my  
20 review of the revisions that occurred in the Draft

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1 1 of the TBD acknowledges each of the findings. I  
2 identified the locations for each of those  
3 revisions and assessed that against the findings  
4 and concluded that NIOSH has adequately addressed  
5 each and every one of the nine findings and  
6 observation, and collectively SC&A recommends  
7 closure to all findings and one observation.

8 CHAIR LOCKEY: Very good. Let's just  
9 have an overall vote for Board Members.

10 Dr. Anderson?

11 MEMBER ANDERSON: Yes.

12 CHAIR LOCKEY: Bill?

13 MEMBER FIELD: Yes.

14 CHAIR LOCKEY: Loretta?

15 MEMBER VALERIO: Yes.

16 CHAIR LOCKEY: And myself, yes, I  
17 agree.

18 Ted, is there any other business?

19 MR. KATZ: So, that was great. And,  
20 Hans, that was a very nice summary. Thank you.

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1                   And, no, the only remaining business  
2                   is, Jim, whether you want Hans to -- so we should  
3                   present this in August for the Board to close this  
4                   Site Profile review. And do you want -- would you  
5                   like Hans to -- or do you have it -- this adequately  
6                   from this meeting to prepare a draft PowerPoint  
7                   presentation that can be given to the Board?

8                   I think really the level that Hans used  
9                   is perfectly appropriate without much more ado.

10                  CHAIR LOCKEY: I agree.

11                  (Simultaneous speaking.)

12                  MR. KATZ: -- Board.

13                  CHAIR LOCKEY: Well, I'd recommend  
14                  that, Hans, you combine -- what was I going to  
15                  combine -- the 3, 4, 8 and 9 into one summary. If  
16                  you could -- and, Ted, you want him to present to  
17                  the Board, that's fine.

18                  MR. KATZ: So, well, no, I'm not saying  
19                  that. You are welcome as the Chair to present to  
20                  the Board. If you'd prefer that Hans present,

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1 that, too, is fine. In any event, Hans would  
2 attend by phone, at least, so that --

3 (Simultaneous speaking.)

4 CHAIR LOCKEY: I would -- Hans, I would  
5 prefer that you would prefer to the Board.

6 MR. KATZ: That's fine. Is that okay?  
7 Does that okay for you, Hans?

8 DR. BEHLING: Yes, it will work.

9 MR. KATZ: Okay.

10 DR. BEHLING: As I said, one of the  
11 problems when I look at it -- and you can actually  
12 look at the actual Resolution Matrix and look at  
13 column No. 2 and you realize so much of the -- or  
14 so many of the findings that; start with Finding  
15 basically 3 to 9, are identified in Section 7.4.2.  
16 And the resolution to those findings also almost  
17 occupy a cluster in the revision of the Revised PPG  
18 Site Profile. And sometimes they go back and forth  
19 because they all have to share conversations. And  
20 if I had to say anything collectively, it's the

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1 acknowledgement by NIOSH.

2 And as we already stated in our original  
3 draft report, this was a very difficult TBD to  
4 construct in terms of the complexity based on the  
5 fact that this occurred early in our time frame for  
6 the nuclear era that has a very limited information  
7 to go with in terms of how to protect people, and  
8 also the remoteness of the Marshall Islands out  
9 there in the middle of nowhere in the Pacific and  
10 the numbers of people.

11 And so many of the findings were really  
12 interconnected and have to be looked at such. And  
13 of course these findings all center around one  
14 thing, and that was the external exposure that was  
15 only monitorable by limited resources with film  
16 badges up until 1955 where we had mission badges  
17 where people were only given a badge for a specific  
18 activity that oftentimes may have meant nothing  
19 more than retrieval of some instrument off an  
20 island that was close to the ground zero for the

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1 measurement that it was able to give. And it was  
2 only for those very limited time periods that we  
3 had any assessment of individual exposures. So we  
4 know mission badges had limitations.

5 Then there was the issue of cohort  
6 badging. That was due to the sheer number of --  
7 thousands of people that were there for the  
8 Operation Crossroads. For instance, the first  
9 set, there were 10,000 people that needed to be  
10 monitored. And oftentimes a shortage of badges  
11 required that one person represented a group of  
12 people, like 50 or 100 people. And the question  
13 was always there that says do we have that assigned  
14 cohort badge that maybe a supervisor wore and then  
15 have that in file for the 100 people for whom that  
16 cohort badge was assigned?

17 And so, this was an issue that we all  
18 recognized and don't necessarily condemn or  
19 question the credibility of the data. It's just  
20 that these were the circumstances during which

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1 exposures were obviously restricted to a certain  
2 number of people who wore the badges and the  
3 documentation of those exposures was certainly not  
4 100 percent to the point where we would recognize  
5 this as acceptable protocol in today's world.

6 So under those circumstances, as I  
7 said, all of the concerns and findings we have are  
8 somewhat related to each other and therefore the  
9 resolution and the description by which NIOSH  
10 addressed this is sort of scattered throughout the  
11 documents, mostly in Section 6.

12 MR. KATZ: Well, I mean, Hans, yes, I  
13 don't think that will worry the Board much, because  
14 most of them probably won't read the document  
15 itself, the NIOSH Site Profile update. If they do,  
16 they'll read it in a very sort of summary way to  
17 prepare for the meeting.

18 But I mean, you're welcome to give some  
19 context up front when you give your presentation,  
20 Hans.

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1 DR. BEHLING: Yes, and, Ted, as you  
2 know, SC&A was engaged in the Marshall Islands for  
3 a period of six years. I personally have spent a  
4 good part of those six years between '98 and 2004  
5 at the various locations that we're talking about  
6 here today: Enewetak, Bikini and all of the major  
7 islands that were exposed to the fallout in the  
8 Northern Atolls.

9 So I speak from firsthand experience,  
10 the complexity and difficulties that obviously  
11 NIOSH had to address in addressing the concerns and  
12 the limitations that they faced with putting  
13 together a document that would be fair to the people  
14 who were exposed and assess then a certain measure  
15 of certainty, that hopefully are accommodated by  
16 assumptions that are claimant-favorable by such  
17 things as using the 95th percentile cohort, worker  
18 doses and other issues that they felt really were  
19 needed to address some of these uncertainties.

20 MR. KATZ: Okay. Well, Hans, the

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1 Board meeting is on the 23rd and 24th. I don't know  
2 which day this will be scheduled for at this point  
3 because I don't have a good sense of anything else  
4 that will be on the plate, but if you would just  
5 reserve those dates to be available. You don't  
6 have to come to the meeting. You could do it by  
7 phone, if you'd like. That's up to you.

8 DR. BEHLING: Okay. This is the 23rd  
9 and 24th of which month? This month?

10 MR. KATZ: Of August. August.

11 DR. BEHLING: Oh, August? Okay.

12 MR. KATZ: Yes.

13 DR. BEHLING: Great.

14 MR. KATZ: It's a away off, and certainly  
15 we'd like to get the presentation about a month in  
16 advance in this case since we have plenty of time  
17 for that to get done. But honestly, I mean, the  
18 level you presented to the Work Group today is I  
19 think very appropriate for the whole Board with  
20 whatever context you want to add, but because --

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1 if that works for you, then I think that's great.

2 And I think that takes care of business today.

3 DR. BEHLING: Let me ask you, Ted,  
4 where is the location for the Board meeting?

5 MR. KATZ: Well, it's up in the air  
6 because it depends on hotel availability, but in  
7 any case it's going to be in New Mexico.

8 DR. BEHLING: Okay. Yes. Okay.

9 MR. KATZ: You're welcome to come and  
10 present in person if that's more comfortable.  
11 Whatever your preference is.

12 DR. BEHLING: Yes, I won't make a  
13 decision now, but I will accommodate you either by  
14 teleconference calling or by being there in person.  
15 One or the other is going to be okay.

16 MR. KATZ: Okay. Good.

17 CHAIR LOCKEY: Hans and Mark and  
18 everybody, thanks for your really hard work on  
19 that. It's appreciated by everybody.

20 MR. ROLFES: Thank you.

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1 Thank you, Hans.

2 CHAIR LOCKEY: So, Ted, we're done?

3 **Adjourn**

4 MR. KATZ: I think so. I think you can  
5 adjourn. And thank you, everybody.

6 CHAIR LOCKEY: Have a good weekend,  
7 everybody.

8 (Whereupon, the above-entitled matter  
9 went off the record at 1:49 p.m.)

10