

UNITED STATES OF AMERICA
CENTERS FOR DISEASE CONTROL AND PREVENTION

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NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY
AND HEALTH

ADVISORY BOARD ON RADIATION WORKER HEALTH

+ + + + +

NEVADA TEST SITE WORK GROUP

+ + + + +

TUESDAY,
DECEMBER 15, 2009

+ + + + +

MEETING

+ + + + +

The Work Group convened, in the Zurich Meeting Room at the Cincinnati Airport Marriott Hotel, 2395 Progress Drive, Hebron, Kentucky, at 9:30 a.m., Robert Presley, Chair, presiding.

BOARD MEMBERS PRESENT:

ROBERT W. PRESLEY, Chair
BRADLEY P. CLAWSON
WANDA I. MUNN
GENEVIEVE S. ROESSLER
PHILLIP SCHOFIELD

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IDENTIFIED PARTICIPANTS:

TED KATZ, Acting Designated Federal Official
NANCY ADAMS, Contractor to NIOSH*
ISAF AL-NABULSI, DOE*
LYNN ANSPAUGH, SC&A*
BOB BARTON, SC&A
HARRY CHMELYSKI, SC&A*
JEFF COATES, DOL*
JOHN FUNK, Petitioner*
STU HINNEFELD, OCAS
EMILY HOWELL, HHS
BONNIE KLEA, Santa Susana Field Lab*
JENNY LIN, HHS*
JOYCE LIPSZTEIN, SC&A*
ARJUN MAKHIJANI, SC&A
JOHN MAURO, SC&A
JAMES NETON, OCAS
KATHLEEN ROSNER, Office of Sen. Harry Reid*
LEW WADE, NIOSH

*Participating via telephone

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

2 (9:30 a.m.)

3 MR. KATZ: Good morning, everyone
4 in the room and on the phone.

5 This is the Advisory Board on
6 Radiation Worker Health, the NTS Work Group.
7 We are just ready to get going now, beginning
8 with roll call, Board members in the room.

9 Please, everybody, for roll call,
10 please address your conflict-of-interest
11 situation.

12 CHAIR PRESLEY: Robert Presley,
13 Chairman, NTS Working Group. No conflict.

14 MR. KATZ: Board members.

15 MEMBER ROESSLER: Gen Roessler, NTS
16 Work Group. No conflict.

17 MEMBER SCHOFIELD: Phil Schofield,
18 NTS Work Group member. No conflict.

19 MEMBER CLAWSON: Brad Clawson, NTS
20 Work Group member. No conflict.

21 MEMBER MUNN: Wanda Munn, Board
22 member. No conflict.

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1 MR. KATZ: And on the telephone, do
2 we have any Board members in attendance?

3 MR. FUNK: This is John Funk of Las
4 Vegas. No conflict.

5 MR. KATZ: Hello. John, thank you.
6 You're later, but right now we're just doing
7 Board members.

8 MR. FUNK: Sorry, Ted.

9 MR. KATZ: It's okay.
10 Any Board members on the phone?

11 (No audible response.)

12 Then, the NIOSH ORAU team in the
13 room?

14 MR. HINNEFELD: Stu Hinnefeld,
15 Interim Director of OCAS. I don't have a
16 conflict at NTS.

17 DR. NETON: Jim Neton, OCAS. No
18 conflict at NTS.

19 MR. KATZ: And on the telephone,
20 NIOSH ORAU team? Any?

21 (No audible response.)

22 Are you expecting any, Jim?

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1 DR. NETON: No.

2 MR. KATZ: Oh, okay.

3 SC&A, in the room?

4 DR. MAURO: John Mauro, SC&A. No
5 conflict.

6 DR. MAKHIJANI: Arjun Makhijani,
7 SC&A. No conflict.

8 MR. BARTON: Bob Barton, SC&A. No
9 conflict.

10 MR. KATZ: And then SC&A on the
11 line.

12 MR. ANSPAUGH: This is Lynn
13 Anspaugh. Conflicted.

14 MR. KATZ: Welcome, Lynn.

15 Okay, that's SC&A.

16 Then let's go with other HHS or
17 federal officials, DOE, DOL, or contractors to
18 federal agencies in the room.

19 MS. HOWELL: Emily Howell, HHS.

20 MR. WADE: Lew Wade. I work for
21 NIOSH.

22 MR. KATZ: And on the line?

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1 MR. FUNK: John Funk.

2 MS. AL-NABULSI: Isaf Al-Nabulsi,
3 DOE.

4 MR. KATZ: Welcome.

5 Any other government employees,
6 contractors, on the line?

7 MS. ADAMS: Nancy Adams,
8 contractor, NIOSH.

9 MR. KATZ: Welcome, Nancy.

10 MR. COATES: Jeff Coates,
11 Department of Labor.

12 MR. KATZ: Welcome, Jeff.

13 MS. LIN: Jenny Lin with HHS.

14 MR. KATZ: Hi, Jenny.

15 MS. LIN: Hi.

16 MR. KATZ: Okay. Then, members of
17 the public or staff of congressional offices
18 on the line?

19 MS. ROSNER: Kathleen Rosner from
20 Senator Harry Reid's office.

21 MR. KATZ: Kathleen Rosner?

22 MS. ROSNER: Yes.

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1 MR. KATZ: Welcome.

2 Any other members?

3 John Funk, you're with us still?

4 MR. FUNK: Yes, sir.

5 MR. KATZ: Welcome, John.

6 MS. KLEA: Bonnie Klea, Santa
7 Susana Field Lab.

8 MR. KATZ: Hi, Bonnie. Welcome.

9 MS. KLEA: Good morning.

10 MR. KATZ: Okay, then, let's just
11 remind folks on the phone, please mute your
12 phones except when you're addressing the
13 group; *6 if you don't have a mute button; *6
14 again to take it off of mute. Please do not
15 put your phone on hold at any point. Just if
16 you have to leave the call, hang up and dial
17 back in.

18 And it's all yours, Bob.

19 CHAIR PRESLEY: Okay. What I would
20 like to do is set the stage this morning.
21 What we plan on doing is letting Jim go
22 through his findings, and I would like to have

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1 John and Arjun do SC&A's rebuttal. Then I
2 would like to talk about the two remaining
3 issues that we have.

4 John put a letter out stating their
5 position on these. I would like for him to
6 state that.

7 Then we will go into new business
8 after that.

9 Jim?

10 DR. NETON: Okay. Well, I am going
11 to be speaking from a White Paper that NIOSH
12 issued on November 25th, 2009.

13 CHAIR PRESLEY: Does anybody need a
14 copy of that? Has everybody got it?

15 MEMBER CLAWSON: If we had a spare,
16 I would --

17 CHAIR PRESLEY: I have copies.

18 DR. MAURO: It's easy for me to
19 work from this and move back and forth.

20 DR. NETON: It's a very short
21 paper, and I just intend to do a brief
22 synopsis of what is in here.

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1 This has been cleared for the
2 Privacy Act and other things. So it is
3 available to be shared with the public. I
4 believe it is possibly on our website by now.

5 CHAIR PRESLEY: This is the cleared
6 version.

7 DR. NETON: There was an earlier
8 version. It was not Privacy-Act cleared, but,
9 in fact, there are no differences. Nothing
10 was considered to be Privacy Act-protected in
11 the original.

12 So we have been discussing SEC
13 Petition 84 for quite some time now with this
14 Working Group. We presented that in April
15 2007, and it was our position at that time
16 that we could plausibly bound all internal and
17 external exposures at NTS after January 1st of
18 63.

19 There has been a lot of technical
20 discussions gone on since then, and through
21 the detailed review by SC&A, there was a
22 number of findings that were identified that

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1 required further investigation.

2 After a lengthy amount of debate,
3 the remaining issue of concern boils down, at
4 least in NIOSH's opinion, to the ability to
5 bound internal exposures for unmonitored
6 workers. I call it one issue. Really, I
7 think SC&A considers it two.

8 There's two pieces to that. One is
9 the ability to construct a coworker model for
10 internal exposure for those who weren't
11 monitored, and the other one is for people who
12 are, like, sort of in the field doing
13 operations, not necessarily working with very
14 well defined source terms. But, for our
15 purposes, I considered them to be one source
16 term.

17 So we had originally proposed the
18 use of the claimant data. We didn't have any
19 real extensive bioassay data for workers from
20 NTS. So we proposed the use of the coworker
21 dataset that we had or the claimant dataset
22 that we had, and used the highest 100 exposed

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1 workers as our dataset of a coworker model.

2 SC&A did some very serious review
3 of that dataset and identified what we
4 considered to be some issues of
5 representativeness. So, to address those
6 questions, we felt that it was important to go
7 back and review the site procedures and
8 documents that indicated why people might have
9 been monitored.

10 And in addition, at about that same
11 time, we had learned of the existence of this
12 electronic database of all of the bioassay
13 data that had been taken over an extended
14 period of time at NTS. So we undertook a
15 review of both the documentation that reported
16 why bioassay samples were taken as well as a
17 review of the new dataset.

18 Briefly, the electronic dataset; we
19 originally thought it had somewhere around a
20 quarter million records. I believe now it is
21 something about half that. It's 125,000
22 records, is my best recollection. The dataset

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1 was included in about four different tables,
2 and it is out there on the O: drive or the K:
3 drive for people to review.

4 We took a look at that dataset and
5 characterized it. And indeed, there were a
6 large number of samples for plutonium,
7 tritium, gamma measurements and beta
8 measurements, all in urine, over the entire
9 time period that we were interested in.

10 Interestingly enough, though, the
11 dataset did contain the name of the person,
12 the Social Security number, but there was no
13 indication of the job title or why the sample
14 was taken, or where the worker was. So it
15 didn't really give us a good, comfortable
16 feeling that we could really better define who
17 was monitored and why, based on that dataset,
18 in spite of the fact that we had a large
19 number of samples.

20 To make a long story short, after
21 our analysis of the dataset and the
22 documentation that was available to support

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1 the bioassay program, we ended up with four
2 issues of concern. Those are:

3 The first one is that we have
4 identified scenarios where there were a lot of
5 job titles and work activities, a lot of
6 varied activities that had been undertaken at
7 the Nevada Test Site, drill-backs,
8 construction, post-test work activities, those
9 sort of things.

10 But, prior to 1993, we could find
11 no documentation to confirm the rationale
12 behind why those samples were actually taken.

13 In other words, we were looking for a
14 document that said, okay, we monitored the
15 people that are in the database because they
16 had the highest potential for exposure, and
17 they were routinely monitored, and those sorts
18 of things, the things you would like to see
19 for a good, robust monitoring program.

20 Further, we looked at the available
21 data itself, and to the extent we could, we
22 attempted -- and SC&A had done this before --

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1 to characterize the types of people that were
2 sampled. Even though the database didn't
3 contain those identifiers, we went back into
4 the NOCTS database, looking at claimant
5 populations to try to now get a better
6 correlation for who was sampled and why.

7 The same pattern had emerged that
8 SC&A observed in the review of the 100 or 120.

9 That is, there is a large number of
10 radiological technicians and security
11 personnel that were sampled. That makes some
12 sense. These people were all over the site
13 doing various activities.

14 But the fact remains that you
15 cannot, sort of a priori, assume that these
16 people were the highest-exposed workers. They
17 were convenient people to sample to get a
18 sense, was the Rad Control program functioning
19 as it should. But, nonetheless, it wouldn't
20 give you a good feeling that the highest-
21 exposed people were sampled.

22 There were a lot of other job

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1 duties and titles represented, but those
2 samples appear to have been more incident-
3 driven samples as opposed to routine samples.

4 In other words, there might have been some
5 evidence of an elevated airborne area or a
6 campaign started up where they drill-back, and
7 then you would see a large number of samples
8 collected on one day. That is not a
9 distinctive mark of what I would call a
10 routine monitoring program.

11 The second issue we identified was
12 that there were some data gaps, even in the
13 electronic database. We could only find 300
14 bioassay records for uranium up until 1992.
15 That, in and of itself, is not, maybe, a
16 tremendous shock, but we really couldn't
17 correlate, was that really the right number of
18 samples based on what was done at the site.
19 We just don't have a feel if that was the
20 appropriate number.

21 And secondly, in that area of the
22 data gaps, there is only tritium -- I mean

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1 beta analyses and gamma analyses for the
2 fission products, of which there could be a
3 very different mix, depending upon when the
4 sample was taken. This was, after all, a
5 nuclear weapon that had been detonated, and
6 there's a lot of short-lived decayed fission
7 productions that decay over time. Depending
8 on where that sample was taken in relation to
9 the actual weapons detonation, you could come
10 up with some fairly significant differences in
11 dose conversion factors.

12 Our third concern was the nature of
13 the work at NTS. It is sort of a large
14 geographic area over which the work was
15 conducted.

16 Unlike many production sites, like
17 a Fernald or a Savannah River that has
18 stationary operations, where routine samples
19 were taken -- for example, there's hundreds of
20 thousands of samples at some of these larger
21 sites -- NTS was largely an episodic-driven
22 program. There would be a weapons test on one

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1 day, and then there would be some operations
2 over the subsequent weeks to try to
3 characterize how well the weapon functioned by
4 doing drill-backs and that sort of thing.

5 So there was really, from our
6 perspective in this time period, no real
7 evidence of what I consider a routine
8 monitoring program, except for the
9 radiological technicians and the security
10 guards, who were not necessarily the highest
11 exposed.

12 Because of the episodic nature of
13 that work, which was almost an acute-type
14 exposure scenario, NIOSH was not comfortable
15 saying that we could develop a coworker model
16 which largely is based on a chronic exposure
17 situation. So the question is, how do you
18 take an acute sampling program and convert it
19 into a chronic coworker model to bound
20 exposures.

21 And lastly, there was a variety of
22 nuclides that were generated on the Site, in

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1 addition to the ones that were in the
2 database. These would include, but not
3 limited to things like americium, thorium,
4 radium, iodine, and, of course, the fission
5 products, which were sort of captured with the
6 generic gamma and beta analyses.

7 So, with no bioassay records, these
8 other nuclides that were not monitored, one
9 would also have to establish some sort of
10 ratios to come up with the intakes of the
11 other nuclides based on the plutonium
12 sampling, which would also have been
13 problematic for us.

14 So, given those four main areas of
15 concern that weren't addressed by either
16 looking at the bioassay records themselves or
17 the documentation, we really could find no
18 strong documentation for a routine program.
19 That is not to say it was a bad program. I
20 mean one needs to consider that during this
21 timeframe they were largely operating under
22 the concept, the internal dosimetry concept of

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1 ICRP 2, Publication 2, which basically said,
2 as long as you stay below a certain maximum
3 permissible concentration in air over the
4 entire year, then the program was behaving
5 satisfactorily. There were limits above which
6 one shouldn't go: maybe 25 or 50 percent. I
7 have forgotten what the limits were.

8 But that was the nature of the way
9 the programs were designed in that timeframe,
10 and it appears that NTS did a good job doing
11 that. Unfortunately, what they have collected
12 is not useful for us in the dose
13 reconstruction area that we are trying to do
14 now.

15 Lastly, though, I would like to say
16 that, after 1992, it did appear to us that the
17 condition was a little more robust because 10
18 CFR 835 came into effect at that time period,
19 and that was where programs were under civil
20 and criminal penalties for not following 10
21 CFR 835, which is a regulation.

22 Sure enough, in 1993, through the

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1 existence of a fairly large Technical Basis
2 Document for internal dosimetry -- it does
3 contain documentation as to who was
4 potentially exposed, why, and what the basis
5 for the monitoring programs were for those
6 workers.

7 So, based on that review and
8 looking at some of the data after 92, we
9 believe that, for two reasons, 92 is a good
10 stopping point. One is that that is the
11 cessation of underground testing at the site.

12 And secondly, 10 CFR 835 was in effect, and
13 the program appears to have embraced that to a
14 large degree.

15 And that's it. I would be happy to
16 answer any questions.

17 DR. MAKHIJANI: Could I ask a
18 question? So, Jim, you actually did a similar
19 analysis to what we have done in that, I know.

20 DR. NETON: Yes. I have not
21 presented here in the timeframe --

22 DR. MAKHIJANI: Yes.

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1 DR. NETON: -- but we went back and
2 looked at --

3 DR. MAKHIJANI: Okay.

4 DR. NETON: -- the
5 representativeness of what we had, given the
6 restrictions on the number of data points we
7 could find.

8 DR. MAKHIJANI: Okay. Right.
9 You're right.

10 DR. NETON: We feel very confident
11 that that same pattern persisted into the 70s
12 and 80s --

13 DR. MAKHIJANI: Okay.

14 DR. NETON: -- which is rad techs,
15 security guards, that sort of thing, but no
16 good evidence of a routine program for other
17 sort of first-line workers.

18 MEMBER MUNN: Jim, your report here
19 focused pretty much on a new electronic
20 database that had come to the fore recently.
21 From many months back in our deliberations, I
22 recall seeing photographs and hearing

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1 discussions about dosimetry programs that were
2 focused specifically on drill-backs and the
3 folks who had tunnel entries. I recall seeing
4 photographs of workers coming out of their
5 drill shaft dropping their badges into a
6 bucket so that they could be read.

7 It is difficult for me to reconcile
8 what I'm hearing with respect to the
9 electronic database and a lack of information
10 in prior databases that we have looked at
11 which seemed to give a much broader view of
12 types of activities that might have gone on
13 and individuals who might have been badged
14 doing entirely different things that we knew
15 were well described and defined.

16 So I am a little puzzled as to how
17 this new information brings us to the
18 conclusion that the prior information was not
19 more robust than we thought it was.

20 DR. NETON: I think the prior
21 discussions we had were focused on the
22 external dosimetry monitoring program.

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1 MEMBER MUNN: Yes, but --

2 DR. NETON: We still believe that
3 to be a fairly good representation. You know,
4 almost everybody was badged that went into
5 radiological areas, as far as we know. We
6 discussed that extensively.

7 MEMBER MUNN: Yes, we did.

8 DR. NETON: And we did this -- SC&A
9 engaged in this analysis of badges not worn,
10 and could not find any evidence that that was
11 really going to bias our results.

12 MEMBER MUNN: Correct.

13 DR. NETON: So we feel fairly
14 comfortable that we can reconstruct external
15 exposures for workers. What we focused on in
16 this position paper is internal exposures.

17 Up until we retrieved this
18 electronic database, we had no internal
19 monitoring program except for the results that
20 were forwarded to us for claimants under NTS.

21 So, anyone who was a claimant, the Site would
22 forward us some data. We would have it in

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1 there, and that was what our analysis was
2 based on.

3 We believe that there was a
4 correlation between the highest 100 people who
5 were exposed externally and their internal
6 exposures. That was our previous coworker
7 model.

8 MEMBER MUNN: Yes.

9 DR. NETON: SC&A correctly
10 identified; those data points were not
11 necessarily representative of all categories
12 of workers who were exposed. There's a
13 persistent pattern of radiological technicians
14 and security guards being, I don't want to say
15 oversampled, but principally, largely sampled,
16 to the exclusion of what we call the first-
17 line workers, the people who were actually
18 doing the drill-backs. There are some of
19 those, but it is not obvious that those people
20 were involved in routine monitoring programs.

21 In other words, from the startup --

22 MEMBER MUNN: And routine

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1 biological monitoring --

2 DR. NETON: Yes. I'm sorry.

3 MEMBER MUNN: Yes, yes.

4 DR. NETON: I mean, to be clear.

5 MEMBER MUNN: Yes, that is a point
6 which gets lost in the discussion.

7 DR. NETON: Right. So there
8 certainly were samples from people doing
9 drill-backs and the construction workers and
10 those types, but it is not clear why those
11 samples were taken.

12 We will see a sample and then
13 nothing for a while. There will be another
14 event, another operation, maybe another
15 sample. They seem to be largely based, either
16 incident-type-driven samples -- they were in
17 an area --

18 MEMBER MUNN: Which you would
19 expect.

20 DR. NETON: Which you would expect.
21 There's nothing wrong with that.

22 But to take those incident-based

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1 samples and to reconstruct a coworker model
2 that assumes a chronic exposure pattern is not
3 realistic, in our opinion.

4 The other sites, like a Savannah
5 River or a Hanford where you have an operator,
6 a chemical operator or someone running a lathe
7 who had, every quarter, a uranium urine sample
8 or a plutonium sample, that gives you some
9 confidence that you can get an idea of what
10 their actual exposure was over a period of
11 time.

12 MEMBER MUNN: A pretty broad
13 sampling program.

14 DR. NETON: And it is partly the
15 unique nature of NTS that is driving this. If
16 you think about it, all monitoring programs
17 run with this ICRP 2 requirement. So it is
18 just interesting that NTS had these episodic
19 events, the unique conditions that don't allow
20 for routine programs, where the other sites
21 did because it was just constricted and
22 confined to certain areas where they could

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1 easily collect a lot of routine samples.

2 MEMBER CLAWSON: Where did we
3 finally find this database at?

4 DR. NETON: Well, NTS had the
5 database all along and, to be clear, we were
6 aware of the existence of the database. We
7 were not aware that the database file
8 contained the complete set of bioassay samples
9 by workers.

10 It was our understanding that the
11 database was there, but to get the samples,
12 one would have to go to microfilm records to
13 retrieve the information to get a complete
14 picture of a name, Social Security number,
15 result.

16 It turns out that that was in there
17 all along. We were getting additional
18 information from the site to supplement what
19 is in the electronic database, and it was just
20 not clear to us that the electronic database
21 existed where at least there was name and
22 sample all in one location. But it was

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1 provided to us by the Nevada Test Site.

2 CHAIR PRESLEY: Any more questions?

3 (No audible response.)

4 John?

5 DR. MAURO: Sure. I'll get
6 started.

7 I guess a good point of departure
8 is when we prepare a summary of the state of
9 the issues, and this is just prior to when you
10 submitted your report. From my recollection
11 -- I don't have it in front of me -- but it
12 really came down to three issues, only one of
13 which was really of great significance.

14 One was, if you recall, the badges-
15 left-behind issue. That goes to external
16 exposure. We did a lot of work on that. Our
17 main goal in looking at that data was to see
18 if the badges-left-behind issue could somehow
19 bias the distribution of exposures, so that
20 you really couldn't build a coworker model
21 where you would have a degree of confidence
22 that the upper end was captured.

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1 For example, the concern was, well,
2 if people left their badges behind
3 deliberately, in order to avoid experiencing
4 high exposures which would have them be
5 replaced from their job, the implication being
6 that that was widespread, the upper end of the
7 tail would be cut off. And if you build a
8 coworker model, it wouldn't capture the true
9 upper end of what people's exposures were.

10 So we did a lot of work to see the
11 extent to which that practice took place and
12 the extent to which that practice might have
13 biased distribution.

14 MEMBER MUNN: John, you're speaking
15 very softly.

16 DR. MAURO: I'm sorry. I will
17 speak up a little louder.

18 MEMBER MUNN: Thank you.

19 DR. MAURO: So we did a lot of
20 work. The real question we asked ourselves
21 was, one, what's the extent to which badges
22 left behind appear to have occurred; and two,

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1 was it of such a nature that you really
2 couldn't construct a coworker model because
3 the upper end of the tail was lopped off.
4 Because the badges that got left behind were
5 the badges -- the people that had the highest
6 potential for exposure.

7 We looked real hard at that, and
8 the bottom line is that there's absolutely no
9 doubt that there was a lot of badges left
10 behind. This was as a result of lots of
11 interviews that took place following one of
12 our meetings at NTS.

13 If you recall, at one of the
14 meetings, Harry Reid was there with a large
15 number of workers who stood up and claimed,
16 yes, we left our badges behind. We
17 interviewed those and many other folks.

18 We did that. We also looked at
19 badges, film badge records and pocket
20 dosimeters. Remember, that was, like, an idea
21 that came up real early in the process. If
22 there was a disparity, a clear disparity,

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1 between the film badge record, which let's
2 say, for example, the person left out in his
3 pickup truck, but he left his pocket dosimeter
4 on, something would show up that said
5 something isn't right.

6 Well, to make a long story short,
7 we could not find what we have called the
8 smoking gun. Now it was clear that the
9 badges-left-behind was of such a nature and to
10 such an extent that you could not build a
11 coworker model.

12 So where we stopped -- and we did
13 the best we could -- we looked at a lot of
14 data. It certainly wasn't a complete
15 statistical analysis of all the data. But we
16 did a lot of work; we've got a lot of pages.

17 By the way, this is all hard-copy
18 work. This is really not electronic work. So
19 we had to pull tens of thousands of pieces of
20 paper out.

21 The bottom line, and this is what
22 we reported back to the full Work Group at the

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1 time, is that we can't sit here and say that
2 the data are biased. We believe that we did
3 not find the smoking gun. We believe that,
4 based on the information we have here, it
5 appears that you could build a coworker model
6 that would be representative of the full
7 distribution of exposures that workers
8 experienced.

9 And at that point in time, that's
10 what the results came back. At that point in
11 time, the Work Group said, good enough; I
12 think we will stop at this point. Let's move
13 on to the other issues. So that is where that
14 issue is.

15 The second issue had to do with
16 workers that worked out in the Flats, not in a
17 post-test mode, but just were out there all
18 the time doing prep work, and it wasn't part
19 of, let's say, the post-test movement where
20 you mobilized a team of workers to go into a
21 controlled area under controlled
22 circumstances. This was folks, ongoing all

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1 the time, doing work, moving equipment.

2 NIOSH had an approach. In fact,
3 there's some history here. I think it is
4 important that we recapture this because I
5 think we are in the home stretch here.

6 NIOSH originally had an approach
7 that said, listen, we have a lot of data
8 characterizing the amount of residual
9 radioactivity. It was called the McClellan or
10 the name of the fort. It started with an M,
11 M-C. Anyway, there is a fellow that wrote
12 this, gathered all the data, where you know
13 the becquerels per meters squared across the
14 entire complex. If you actually make contours
15 of plutonium and a whole mix of radionuclides,
16 you could actually reconstruct what the
17 patterns of the surface contamination were on
18 soil post-above-ground testing now. This is
19 what was left on the ground.

20 Now NIOSH's original approach for
21 reconstructing the doses to those workers from
22 inhalation, internal dose, was to say, okay,

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1 we know what the pattern looks like and we
2 know that the worst location -- it was broken
3 up in different areas. And there was one
4 particular area -- I don't remember the number
5 -- there was an area, and it might have been
6 Area 3, I'm not sure.

7 We looked at the data, and there
8 was one area that was clearly the worst area.

9 We said, okay, do you know what we're going
10 to do? In order to place a plausible upper
11 value, since we don't really know where all
12 the people worked all the time, we will simply
13 assume that the exposures were to people that,
14 when we construct exposures from that
15 scenario, and workers working out in the
16 general area, we are going to assume that they
17 were working in this area that had the highest
18 concentration and assume that they were
19 chronically exposed to a dust loading of 5
20 milligrams per cubic meter. So that is a very
21 high dust loading for chronic exposure.

22 Certainly, there's times when for a

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1 short period of time you could get 5, but to
2 assume you are chronically exposed to 5
3 milligrams per cubic meter all the time to all
4 the workers, in our opinion, that was more
5 than claimant-favorable. That was the
6 approach that was going to be taken.

7 But, somewhere along the time, it
8 was decided, well, that might be just too --
9 not us, but NIOSH, and correct me if I'm
10 wrong, NIOSH felt that that was just a little
11 bit over the top. So they moved to a
12 different method, which is based on air
13 sampling data that was taken from a number of
14 air sampling towers. There were 15 or I don't
15 know how many. They were all over the Site.

16 But that started in the 1970s.
17 From that data, they, through the 63, 64, 65
18 time period, using a fairly sophisticated set
19 of adjustment factors, after that was done, a
20 report was written by Lynn Anspaugh that
21 basically showed that that approach isn't
22 going to work. You can't do it. You just

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1 can't do it. And we left it at that.

2 Well, no. At that meeting, Jim
3 pointed out he understood the concerns we had.

4 And correct me if I'm wrong, the position
5 that you took at that time was that, yes, we
6 are going to have to do something about that,
7 and we have a number of options.

8 I think one option was to go back
9 to the resuspension factor approach, which we
10 already aired out and agreed it was a good
11 approach. Or, alternatively, perhaps use what
12 we are going to talk about next, which is the
13 Table 7-1 approach, and assign that to
14 everyone.

15 So that is where we left that
16 issue. That is, and please correct me if I
17 have it wrong, but we left it at that.

18 There was general agreement that
19 the air sampling approach really isn't going
20 to work, and that NIOSH would look at other
21 strategies, including returning to the old
22 resuspension factor approach, as a way to come

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1 to grips with that.

2 So, in my mind, those two issues,
3 the badges-left-behind and the exposure to the
4 general outdoor areas, are what I would say,
5 well in hand. Okay?

6 Then it comes to what I consider to
7 be the single major issue. That was Table 7-1
8 in the DR. Okay?

9 Jim did an excellent job in
10 summarizing the issues. Basically, the
11 summary you presented was, to a large extent,
12 similar to the kinds of things that, in fact,
13 it's even richer. You looked into looking for
14 reasons why they picked these people.

15 So, in effect, where we are right
16 now is the major issue, in my mind, really the
17 only issue that is left on the table is Table
18 7-1. Jim, basically, has agreed that, well,
19 you really can't use Table 7-1, and it sounds
20 like that you don't really have an alternative
21 as a way of coming to grips with this problem.

22 Now that all happened over the last

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1 month. A week ago last Friday, in fact, at
2 the meeting where we were meeting and greeting
3 the new four Board members -- it was a week
4 ago on Friday -- that Ted said, John, I would
5 like to direct you to go ahead and take a look
6 at Jim's paper. So, that was about 10-12 days
7 ago, I imagine.

8 MR. HINNEFELD: December 4th.

9 DR. MAURO: December 4th. There
10 you go.

11 And I said, sure. As soon as I get
12 back.

13 So what I did is that weekend I
14 rounded the crew up. We had a big, long
15 conference call over the weekend. That
16 Monday, we launched into quite a large effort
17 to look very closely at the data, at Jim's
18 report, to see, to come to our own conclusions
19 regarding the strengths and limitations of
20 that 125,000 bioassay data. That is the work
21 that has taken place intensively.

22 We had, I would say, five or six

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1 folks working the problem.

2 Bob Barton, first of all, thank you
3 for working day and night on this with Arjun.

4 At that point, I would like to hand
5 it over to Arjun and Bob to let you know what
6 we found out.

7 DR. MAKHIJANI: Thank you, John.

8 Are Harry and Joyce on the phone?

9 MR. CHMELYNSKI: Yes, I'm here.

10 DR. MAKHIJANI: Joyce, are you on?

11 MS. LIPSZTEIN: I am on the phone,
12 Arjun.

13 DR. MAKHIJANI: Oh, thank you.

14 John handed this over to me. There
15 were two things that we needed to look at.
16 There wasn't a lot of time, so we couldn't
17 look at everything in Jim's paper in detail.
18 We would be happy to, if the Working Group
19 asked us.

20 But just to remind you, what we did
21 before on this question was a little bit
22 different than what we have done at other

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1 sites. By focusing on Table 7-1, and NIOSH
2 saying we can build a coworker model, we
3 actually focused on the areas where there was
4 the most internal monitoring data, which was
5 plutonium, beta, gamma, and tritium.

6 We did not seriously look at all
7 these other radionuclides: americium, thorium,
8 and so on, which we are often doing at other
9 sites. We had left that aside, presumably,
10 until the main issue was settled. Now it is
11 sort of moot.

12 NIOSH had revised their
13 radionuclide list when they revised their TBD.

14 We didn't look at that big, new radionuclide
15 list. In this review also, we didn't go there
16 because we just didn't have the time.

17 And as I said, this a work in
18 progress. So we just wanted to see the core
19 analysis that Jim talked about, and I'm very
20 glad that he actually did the same thing that
21 we did, was correct and whether the new data
22 corresponded with the data we had previously

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1 examined.

2 Now, previously, we had not only
3 looked at the NIOSH 100, but, to remind you,
4 we picked six job categories with 20 workers
5 in each category at random. I'll start with
6 the plutonium Word file. So, if you will just
7 click on that and bring up page 1, you will
8 see the job categories: RadSafe, laborers,
9 welders, wiremen, miners, security. Of
10 course, there are lots of other job types. So
11 you see the total number of claimants that you
12 find are more than the claimants in these job
13 categories.

14 So what I wanted to do was to see
15 whether the broad pattern that emerged --
16 RadSafe were the most monitored. Then
17 security were also monitored, but, really,
18 security was monitored only, not only, but
19 primarily in the 1980s.

20 Also, we wanted to see whether any
21 new patterns or new information would emerge
22 from this admittedly much larger database.

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1 So, since there were no job types in this, we
2 wanted to sort this in conjunction with the
3 NOCTS database.

4 I handed this to our number-
5 crunching man, Bob Barton, and I also asked
6 Harry to look at it, the statistics of it. We
7 had Joyce, as before, look at the quality of
8 data. If you remember, Joyce had a number of
9 issues in Attachment B of our prior report
10 regarding quality of data.

11 So we wanted to revisit the issues
12 that we had conclusions about before to see if
13 we needed to change any of our conclusions or
14 whether we could reaffirm, and whether
15 anything new emerged.

16 We also had Rich Leggett, who is
17 the expert's expert in many ways. It was a
18 fresh pair of eyes. He had not been involved
19 previously in our NTS work. I'm very glad
20 that John brought him on because I felt having
21 a new pair of eyes, you know, very much
22 respected in the health physics community, if

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1 we could arrive at a reasonable conclusion
2 together, that we could present you with a
3 strong result.

4 With that, let me just hand it over
5 to Bob to tell you how he sorted the data and
6 what you are looking at.

7 MR. BARTON: Okay. Like Arjun
8 said, there weren't actually any job title
9 data contained in this new database. So we
10 had to figure out a way to try to figure out
11 who these people were. The only way we could
12 really do that was to identify who the
13 claimants were in the database.

14 So what we did was we matched up
15 Social Security numbers from NOCTS, which have
16 job titles listed, carried that over to the
17 database. So, then, now we have a subset of
18 workers in this database who are also
19 claimants who we can identify the job
20 categories with.

21 As you can see, in the first two
22 lines of this plutonium table we have

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1 approximately 40 RadSafe claimants that we
2 were able to identify in the database. There
3 were 21 in security.

4 DR. MAKHIJANI: There are 40
5 RadSafe claimants who had plutonium
6 monitoring.

7 MR. BARTON: With plutonium
8 monitoring, that is correct.

9 DR. MAKHIJANI: That is the
10 interpretation.

11 MR. BARTON: Yes. Thank you for
12 revising that.

13 We found 468 samples for those
14 RadSafe workers. As you go along and look at
15 who we were able to identify and how many
16 samples for each job category, you can see
17 that approximately 70 percent of the samples
18 that we identified for claimants were for
19 RadSafe and security. So that sort of affirms
20 what our earlier analysis had found, was that
21 it was primarily geared toward those two
22 groups of workers.

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1 You can see there's some samples
2 for the others. There's 25 samples we were
3 able to identify for miners, 18 for laborers,
4 and so on.

5 MEMBER MUNN: But, Bob, let me
6 interrupt you for just a moment. Let me be
7 clear in my own mind.

8 The RadSafe workers and the
9 security workers were the individuals who were
10 most likely to spend the most time, day after
11 day after day, on the site itself, correct?

12 DR. MAKHIJANI: No. No, no.

13 MEMBER MUNN: No?

14 DR. MAKHIJANI: They were people
15 who were likely to have been all over the
16 site, but not necessarily spend the most time.

17 It is our understanding, for instance -- I
18 mean RadSafe was there initially to check out
19 the conditions, but, you know, miners may have
20 spent a lot more time in the most
21 contaminated.

22 Let me talk about the actual

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1 measurements a little bit later because we
2 have some new evidence --

3 MEMBER MUNN: Okay. I didn't want
4 to interrupt the flow of thought. I was just
5 trying to get something clear.

6 DR. MAURO: But I think you bring
7 up the heart of the matter.

8 DR. MAKHIJANI: Yes, and we have
9 some, actually, new information about that.

10 DR. MAURO: But if I understand
11 your question, and it is a question that,
12 otherwise, we have a lot of data on RadSafe
13 workers, plutonium data, which basically says
14 you probably could reconstruct exposures to
15 RadSafe workers to plutonium.

16 The question becomes, is that
17 bounding for everybody else?

18 MEMBER MUNN: I understand.

19 DR. MAURO: Is there any evidence
20 that says, wait a minute, maybe welders or
21 wiremen could have had a greater potential for
22 exposure than RadSafe workers?

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1 In other words, for us to say, yes,
2 you could use the RadSafe workers as a
3 coworker for all other categories of workers,
4 there's got to be some argument that could be
5 made as to why that would happen. And as Jim
6 pointed out, we really couldn't find anything.

7 We actually, to the contrary, which
8 you will hear more from Arjun about, found
9 that there's some evidence that there are
10 other categories of workers that may very well
11 have had higher exposures than RadSafe workers
12 internal.

13 But, I mean, your question goes
14 right to the issue.

15 MEMBER MUNN: My question, really
16 and truly, was, were these not truly the most
17 chronically exposed ones? And I'm hearing
18 probably not, that that comes later.

19 DR. NETON: What really surprised
20 me, and you are probably going to get into
21 this, is the number of positive plutonium
22 results that there were in the database.

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1 DR. MAURO: Nine thousand.

2 DR. NETON: I originally thought
3 that we would see this and say, well, they are
4 all less than or something like that, so
5 there's really no potential for exposure.
6 But, somehow, there apparently was a large
7 potential for plutonium exposure, which really
8 took me by surprise.

9 DR. MAKHIJANI: Yes, it surprised
10 me, too. And in all categories, there is
11 quite a large number of positive results.

12 MR. BARTON: And as Jim was just
13 saying, in that first line of sort of the
14 second section of the table, under Data
15 Characteristics, you can see the number of
16 positive samples there were generally ranged
17 from between 50 to 70 percent.

18 I will warn you that I noticed the
19 percentages for all workers in that part got
20 lost in translation somewhere. I have
21 actually just fixed it. But that figure of
22 6,598 positive samples for all the workers in

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1 the plutonium database, that represents about
2 71 percent of the total --

3 DR. MAKHIJANI: Yes, I didn't
4 notice that.

5 MR. BARTON: Yes.

6 DR. MAKHIJANI: I missed that.

7 MR. BARTON: If you reopen the file
8 now, it will have the correct numbers in
9 there.

10 DR. MAKHIJANI: That's why I don't
11 want you to download that.

12 (Laughter.)

13 MR. BARTON: Yes. I certainly
14 apologize for that, the short notice and
15 everything.

16 But you can see that for all
17 workers it was fairly comparable to the
18 RadSafe workers, which had 77 percent positive
19 samples. It got a little bit lower for the
20 welders and the miners. We only had one entry
21 for plutonium that we could identify with a
22 wireman. It was a whole body count, which in

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1 this database, when there was a whole body
2 count entry, there was never a result attached
3 to it. It was just a blank entry.

4 Arjun, did you want to comment?

5 DR. MAKHIJANI: Yes. Let me kind
6 of make one comment.

7 This database, this analysis is
8 different in one very important way than our
9 previous analysis. Our previous 120 took a
10 random sample of 20 workers in each of six job
11 categories. So we had a number of workers who
12 have no bioassay monitoring, and NIOSH wrote
13 in their evaluation report about a third of
14 NTS workers had some internal bioassay data.

15 And we found -- I don't remember.
16 We calculated a percentage, but we found that
17 many workers had bioassay data and many
18 workers had no bioassay data.

19 In this set of claimants you're
20 looking at, 144, and the subsets for these six
21 workers, these are all workers who are
22 preselected in this database who actually all

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1 have bioassay data. So we have no workers in
2 this database who did not have bioassay data,
3 but may have had exposure potential.

4 We haven't had time to go back and
5 sort our previous database and eliminate
6 people who did not have bioassay data and make
7 that old 120 comparable to this, whatever it
8 is, maybe close to 100 that are in this
9 database.

10 So it is not fully comparable, but
11 I did some back-of-the-envelope work with
12 this. The number of samples per worker are
13 broadly comparable, and the pattern of samples
14 is broadly comparable.

15 If you go to page 2, which is
16 actually in some ways the most important page,
17 where it says, plutonium data samples by
18 period, you will see that in the 60s and 70s
19 there were several categories of workers who
20 had no samples or almost no samples.

21 Most of the plutonium sampling,
22 except for RadSafe, was focused in the 1980s,

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1 and then, to a lesser extent -- yes, except
2 for RadSafe, most of the plutonium sampling
3 was focused in the 1980s.

4 If you go to the spreadsheets,
5 please don't open it now because the
6 spreadsheets are very big and huge, and I will
7 go through it in a minute.

8 But if you look at that, you will
9 see that the exposures tended to be higher in
10 the earlier years, where there were more
11 tests; there were more events. So you would
12 expect that the exposures would tend to be
13 higher in the earlier years.

14 So the time, we had previously
15 selected four time periods to look at. One of
16 the things that this new data showed us was
17 that, while you can argue about where the
18 cutoff should be for the time periods, that it
19 is very important to look at this in time
20 periods. You can't just say we have a lot of
21 data and most of the data will be from the
22 1980s and then use that to reconstruct doses.

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1 I will go through those spreadsheets after a
2 while.

3 Do you want to comment?

4 MR. BARTON: Sure, just to kind of
5 expand on what Arjun is saying with the 1980s,
6 if you look at the security guard category,
7 almost 90 percent of the samples we identified
8 for them were from 1981 and onward. In the
9 other categories, you can also see that the
10 percentages are just much higher in the 1980s,
11 and I am not sure if that is just how the
12 database is put together.

13 One thing we haven't been able to
14 investigate yet is, how complete is this
15 actual database.

16 DR. MAKHIJANI: Well, we know it is
17 incomplete. Joyce actually looked at it a
18 little bit.

19 Joyce, do you want to give us a
20 couple of examples? Joyce?

21 MS. LIPSZTEIN: Hello. Yes. Now
22 can you hear me?

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1 DR. MAKHIJANI: Yes, thank you.

2 MS. LIPSZTEIN: Okay, because I was
3 on mute.

4 I just compared the data that we
5 had from the 120 records that we have from
6 claims. I saw that there were some people
7 that we analyzed and that these people, those
8 workers, were not on the new electronic
9 database for plutonium. So this is not a
10 complete report because we didn't look at all
11 the claimants from NTS.

12 But from the 120, for example, in
13 1965, there was one worker that was analyzed
14 from June until October '65. He had 18
15 measurements, and there is no data on this
16 worker on the new electronic database. Also,
17 the data from 65 goes up to June 1965, when
18 only the 120 database that we had -- we had
19 data until October 65. So this means that it
20 is incomplete.

21 DR. MAKHIJANI: We are fairly
22 comfortable with the idea that this database

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1 does not represent all workers who have
2 bioassay data, but we don't know how
3 incomplete this database is.

4 DR. NETON: That is interesting
5 because that is not what the site that
6 provided the data is portraying it as.

7 DR. MAKHIJANI: Well, we have one
8 example of a person who was pretty frequently
9 monitored in 65, and none of those bioassays
10 have --

11 DR. NETON: That surprises me.

12 DR. MAKHIJANI: But we have not had
13 time to put a fine point on it.

14 I did ask Bob to sort how many of
15 the claimants are in this database. And what
16 did you find, 20?

17 MR. BARTON: It was 20 percent.

18 DR. MAKHIJANI: Yes, about 20,
19 maybe 22 percent, something. Roughly, 20
20 percent of the claimants are in this database,
21 but the claimants are, more or less,
22 representative of how many were monitored.

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1 You would expect to find more of the claimants
2 in this database.

3 I think that we should go to our
4 120 and sort that. It won't be hard to see
5 how many of those 120 are in this electronic
6 database, so we can get some idea.

7 DR. NETON: I am not sure how much
8 extra work needs to be done. If it's not
9 appropriate, it's not appropriate.

10 DR. MAKHIJANI: Right. I mean it
11 depends on how detailed a report from us the
12 Working Group wants in order for the Board to
13 have its comfort level in considering the
14 matter. This is completely up to the Working
15 Group, the Board, Ted, and what you feel.

16 I am just putting stuff out there,
17 not that I think necessarily it should be done
18 because our conclusion is pretty firm, as I
19 will come to it.

20 MEMBER MUNN: Arjun, you just made
21 a statement that I'm wondering about your
22 basis for.

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1 DR. MAKHIJANI: Yes.

2 MEMBER MUNN: You said that you
3 would expect more than 20 percent of the
4 database to be claimants. I am wondering why
5 you would expect that.

6 DR. MAKHIJANI: No, no, no. I
7 would expect more than 20 percent of the
8 claimants to be in the database if the
9 claimants are broadly representative of people
10 who worked at NTS. Then about a third of
11 them --

12 MEMBER MUNN: But we don't know --

13 DR. MAKHIJANI: We don't know that.

14 MEMBER MUNN: No.

15 DR. MAKHIJANI: This is something,
16 if there is a large number of claimants, this
17 is something you would normally statistically
18 expect, that if you have a large enough
19 sample, they should be representative of the
20 whole population. And it is something that
21 NIOSH has also kind of relied on in other
22 contexts, right, Jim?

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1 So I am not saying that it should
2 be so. I'm just saying I suspect that, based
3 on what Joyce has told you and based on
4 NIOSH's count previously, that about a third -
5 - I presume a third of the claimants had had
6 bioassay data, that you should find more than
7 20 percent of the claimants in this database.

8 But I don't know for a fact what
9 the reasons are. That is part of the reason I
10 would suggest that, as a very simple exercise,
11 we actually --

12 DR. NETON: Was that a match based
13 on Social Security number?

14 MR. BARTON: Yes.

15 DR. MAKHIJANI: Yes, that we
16 actually complete this exercise because it
17 will just take a couple of hours or three
18 hours.

19 It will kind of, since we have
20 raised the question of the completeness of
21 this database -- I think there are also -- how
22 many workers are in this database? Do you

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1 have a rough count?

2 MR. BARTON: Let me see if I can
3 get that for you.

4 MEMBER MUNN: Originally, we were
5 told 125,000.

6 DR. MAKHIJANI: That is the number
7 of samples --

8 MEMBER MUNN: Samples.

9 DR. MAKHIJANI: -- in the SEC
10 period.

11 MEMBER MUNN: But I saw the number
12 somewhere.

13 MR. BARTON: It was about 15,000
14 workers.

15 DR. MAKHIJANI: Fifteen thousand
16 workers.

17 I mean I don't know how
18 incomplete -- we have an idea that there are
19 some workers who are not in this database.
20 But it may be fairly complete. It may not be.
21 I don't have an opinion on that at this time.

22 MEMBER CLAWSON: Arjun, you made a

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1 comment a little bit earlier that it showed
2 the timeframe of 1991 and 1992, that, you
3 know, there was more information. That goes
4 to show the exact same thing, though, that we
5 have found at all the other sites; that as the
6 RadCon practices had improved, and so forth --
7 remember, we call it the pre-Tiger Team or
8 after-Tiger Team -- all of a sudden, we start
9 to see a lot more broader spectrum of people
10 being monitored and so forth like this. This,
11 basically, shows the exact same thing.

12 DR. MAKHIJANI: Well, yes. We
13 haven't looked at why. I mean we don't know
14 where that cutoff is, but it is a real knee in
15 the curve, number of workers who were
16 monitored, and what that exact date is.

17 But in this sorting, it definitely
18 looks like the monitoring went up drastically
19 in the 1980s sometime.

20 MR. BARTON: Well, if we move on to
21 the next chart, it will show you the number of
22 workers sampled for plutonium by year. So, in

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1 that one, you can definitely see, as the 80s
2 come around, the number of workers who are
3 submitting samples goes up.

4 DR. MAKHIJANI: Right.

5 MEMBER CLAWSON: There it is.

6 DR. MAURO: Which file is that?

7 MR. BARTON: It will be on the next
8 page or page 3.

9 DR. NETON: Part of that could be
10 the amount of activity going on at the site.
11 I mean if it's got more work going on, more
12 shots, more --

13 DR. MAKHIJANI: Well, the number of
14 tests, I think the number of tests overall in
15 the 1980s were lower, but I think in the first
16 part of the 1980s there were more tests, and
17 then it tapered off. So we haven't looked at
18 it year by year.

19 MEMBER MUNN: There is probably a
20 budgetary factor in there, too, if you want to
21 really think about it.

22 CHAIR PRESLEY: There's a few test

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1 bands in there, too. That has a lot to do
2 with it.

3 DR. MAKHIJANI: Do you want to go
4 over the rank order? Then I can take over.

5 MR. BARTON: Sure. Okay. If we
6 can move on to the next chart there, we show a
7 rank order --

8 DR. MAKHIJANI: On page 2. Also on
9 page 2.

10 MR. BARTON: As you can see here,
11 we have several different job categories. The
12 yellow line there represents all the workers
13 in the database. They follow along fairly
14 closely, but we can see that your RadSafe
15 group, in general, is a little bit higher than
16 the overall worker average, and in this case
17 security guards is a little bit higher on
18 certain points in the graph. Once you get
19 above about the 70th percentile, the security
20 guard concentration kind of falls off a little
21 bit.

22 You also have some laborers in

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1 there that were showing higher concentrations
2 in urine at various points, especially when
3 compared to the all worker average, and in
4 some cases compared to the RadSafe and the
5 security guards as well.

6 DR. MAKHIJANI: Now one very
7 important thing about limitation of this chart
8 is that this mushes all the periods together.

9 This does not tell you anything about what
10 happened when.

11 Actually, if you can go to the
12 Excel file and open the spreadsheet that says,
13 plutonium data scrubbed for chart --

14 MR. BARTON: Before we get into
15 this, let me just explain what that actually
16 means.

17 DR. NETON: Could I ask just a
18 question? On this rank order, where is the
19 detection limit on this?

20 DR. MAKHIJANI: The detection limit
21 is 1.5 times 10 -- Joyce, what is the
22 detection limit?

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1 DR. NETON: It's all years. So
2 maybe it has changed over time.

3 DR. MAKHIJANI: Right.

4 DR. NETON: But just to get a rough
5 idea --

6 DR. MAKHIJANI: If I remember what
7 Joyce said yesterday during our conference
8 call, it was 1.5 times 10 to the minus 11, is
9 what is in the TBD.

10 DR. NETON: And, remember, they had
11 a practice of reporting all data. They didn't
12 censor their data to any extent.

13 DR. MAKHIJANI: Right.

14 DR. NETON: So you have a lot of
15 data that are below the detection.

16 DR. MAKHIJANI: That's right.

17 DR. NETON: You really have
18 several -- I've always felt there's a normal
19 distribution about the non-detectables layered
20 on top of the log-normal distribution. So I
21 think you've really kind of got two things
22 going on here.

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1 DR. MAKHIJANI: Yes.

2 CHAIR PRESLEY: Let me ask a
3 question. This is Bob Presley.

4 Where you have --

5 MS. LIPSZTEIN: Jim?

6 CHAIR PRESLEY: Go ahead, Joyce.

7 MS. LIPSZTEIN: My phone was on
8 mute, so I was trying to answer.

9 From 77 to 87, the detection limit
10 was 5E to the minus 11 microcuries per mL.
11 Then from 88 to 2000, it was 1E to the minus
12 11 microcuries per centimeter probably, mL.

13 The problem is from 61 to 76, we
14 have a limit of detection in microcuries per
15 sample instead of per volume. So we don't
16 know how to deal with it.

17 CHAIR PRESLEY: Okay. Thank you,
18 Joyce.

19 DR. MAKHIJANI: Joyce, did you say
20 5 times 10 to the minus 11 from 77 to 87?

21 MS. LIPSZTEIN: Yes.

22 DR. MAKHIJANI: Okay. That's on

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1 the occupational internal dosimetry.

2 DR. NETON: So it is up around the
3 median value of the rank order, which is
4 interesting.

5 CHAIR PRESLEY: Question: each one
6 of the little dots, triangles, you've got one
7 area here where the laborers are very, very
8 high. Is that one person or is that --

9 DR. MAKHIJANI: One sample.

10 CHAIR PRESLEY: That's one sample?
11 Okay. That's what I wanted to make sure.
12 That's one sample.

13 DR. MAKHIJANI: Laborers had only
14 five or six non-zero samples, and there were
15 very few samples all together. So you don't
16 expect a lot of --

17 CHAIR PRESLEY: Right. I just
18 wondered if that was one or if that was a
19 number.

20 DR. MAKHIJANI: If you actually had
21 many samples for these workers' categories,
22 then we would be in a fairly different

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1 situation, at least in regard to plutonium.

2 CHAIR PRESLEY: Okay.

3 MEMBER SCHOFIELD: I've got a
4 question. Going back to the dust loading,
5 particularly those people who were working out
6 in the piler areas of the facility, it seems
7 like the dust loading out there could be
8 substantially higher if they are trying to
9 look at the coworker model and trying to
10 calculate the amount of dust these people
11 might be exposed to versus the people who were
12 up near the tunnels, which usually is around
13 the mesas, in that area.

14 Can they actually break those
15 workers out? Or is there any way of knowing?

16 DR. NETON: No, that's one of the
17 problems. That is one reason we abandoned
18 this soil mass-loading model, is I didn't
19 feel, we didn't feel that we could partition
20 those workers to any large extent.

21 Just to elaborate a little bit on
22 what John was saying, originally, we proposed

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1 that mass-loading model for all workers.
2 SC&A's comment was that it appeared to be on
3 the high side, and we agreed.

4 We went back to this environmental
5 sampling model. Then the Lynn Anspaugh report
6 questioned that for people who were engaged in
7 activities that disturb soils. In other
8 words, if you were just sort of walking around
9 the site, maybe the environmental model works.

10 But if you are out there with a bulldozer or
11 a grader or something, and you're kicking up
12 dust, that is when we had proposed maybe this
13 mass-loading model for that category of
14 workers, for people who are actually in
15 contaminated areas disturbing soils.

16 But, at the end of the day, we
17 couldn't figure out a way to partition those
18 versus the coworker model ones. So that is
19 why we ended up where we are.

20 DR. MAKHIJANI: Yes. I mean, just
21 to supplement what Jim said now and in his
22 earlier presentation, the nature of the work

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1 at the Site is that, if you don't know who was
2 doing what when, the whole matter becomes very
3 difficult or impossible.

4 MEMBER SCHOFIELD: I would think in
5 those areas where the pilers were, there
6 people would, even just being in that area
7 would have a much higher, a substantially
8 higher probability of dust loading, and high
9 dust loading, because there's no vegetation to
10 hold that soil down when you get a dust level
11 going through there.

12 DR. MAKHIJANI: Also, you will
13 actually see some -- when we get off of
14 plutonium, where there are almost no samples
15 for laborers and wiremen, and so on, when we
16 go to other categories where these groups of
17 workers have some more samples, we will
18 actually see a pattern like that indicated,
19 but we don't have enough samples to make any
20 definite opinion.

21 DR. NETON: And again, you really
22 don't know whether these are incident samples

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1 or routine samples.

2 DR. MAKHIJANI: That's right.

3 DR. MAURO: The model I have in my
4 head about it is I make a clean distinction
5 between the exposures that people get not when
6 there was a test, on the ground test. You
7 know, we're in the post-1962 time period now.

8 And let's make believe there were no more
9 tests. Let's say there were no tests starting
10 in 63, on the ground or otherwise. Okay?

11 And the only thing you really had
12 to do now was say what type of internal
13 exposures workers might have gotten who were
14 out there doing things. You know, no tests
15 now.

16 Well, in my mind, the resuspension
17 factor or function will work. And you could
18 reconstruct what is the upper bound for
19 inhalation by going with the 5 milligrams, but
20 that's not what we have. What we actually
21 have is that work is going on, but
22 superimposed on that are these underground

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1 tests.

2 Now the way I see these underground
3 tests in my head is that, okay, the test
4 occurs. Some RadSafe workers come in, perhaps
5 wearing respiratory protection, go in to check
6 if there's a problem. Before they let the
7 rest of the crew in to do the work they do,
8 they come in, they check it.

9 Let's say they give it a green
10 light. We can have people go in. In my mind,
11 I could even envision that maybe many of the
12 RadSafe workers were wearing respiratory
13 protection, maybe not. I don't know.

14 Then they sort of step aside. They
15 have done their job, and now a team comes in
16 behind them. Now we are talking a controlled
17 area now. It is not just a general area.
18 This is the area where the test took place,
19 and they are doing their job.

20 Now these could be welders,
21 carpenters, various trades, crafts. They come
22 in and are doing the work that needs to be

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1 done, which could last, I guess, several weeks
2 at that location.

3 Now, during that time period, I'm
4 envisioning that -- and this comes, to some
5 extent, from information that John Funk
6 provided. He said, well, there could have
7 been some leakage. Sometimes leakage occurs
8 later. Sometimes there's subsidence, where
9 some radionuclides could escape.

10 Also, he had mentioned that there
11 were also -- and this is all out in the Flats
12 now -- there's also these coaxial cables that
13 ran down that were true coaxial cables with an
14 opening before they were plugged.

15 So the model I have in my head is
16 that there are these scenarios one could
17 envision that the crafts and trades and other
18 specialists that come in after the RadSafe
19 workers, working at the site, where they, in
20 theory, could have experienced some internal
21 exposures that were not experienced by the
22 RadSafe workers.

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1 So it creates a situation where
2 there are questions whether the RadSafe
3 workers truly were the ones that had the
4 highest potential for exposure. In other
5 words, that is sort of the model I have in my
6 head as I go through this material.

7 And that's why I guess the sense
8 being that it is possible that welders,
9 laborers could very well have experienced
10 exposures that could have been higher than the
11 RadSafe workers. I'm not saying they were.
12 We have no way to really know that. But there
13 is certain reason to think they could have
14 been, and that's the picture that emerges for
15 me.

16 MEMBER MUNN: That is always the
17 final question, the difference between
18 possibility and probability.

19 DR. MAURO: Well, we have some
20 data.

21 DR. MAKHIJANI: As I said, we have
22 some more data than we did before. Before we

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1 had no idea. Bob, can we open that
2 spreadsheet?

3 MR. BARTON: Sure, yes.

4 DR. MAKHIJANI: If you go to that
5 plutonium spreadsheet, the one that says,
6 plutonium data scrubbed for chart, and open
7 that --

8 MR. BARTON: And let me just
9 explain what is meant by the word scrubbed.
10 You couldn't just simply take this data and
11 throw it in a chart and expect it to tell you
12 what is really going on there. There had to
13 be some work for it for samples that couldn't
14 be converted to microcuries per cc. There
15 were some there that would be simply in
16 microcuries that we didn't have a sample
17 volume with it to be able to normalize it to
18 microcuries per cc.

19 So those samples that I couldn't
20 correlate to that particular unit were removed
21 for the purposes of doing this rank ordering.

22 Now what we have just looked at, this

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1 scrubbing, so to speak, only applies to the
2 rank order charts. All the other counting
3 statistics we were looking at earlier include
4 all of the samples.

5 Other things I had to do was, for
6 instance, remove the whole body scans because
7 they were blank and not relatable to a urine
8 sample. Also, if a sample was just simply
9 blank, it didn't have a less-than or no-
10 detects tag next to it, that was removed. If
11 it did have a less-than tag, those samples
12 were always either less than zero or less than
13 a blank cell. So, if it has a less-than tag
14 next to it, it was entered as zero for the
15 purposes of rank ordering.

16 So that is what is meant by
17 scrubbing of the data, just so all the samples
18 in there are relatable and indicate a urine
19 sample in microcurie per cc.

20 DR. MAKHIJANI: I just wanted you
21 to look at this for one reason only. I mean
22 some massive numbers. There's almost 8,000

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1 rows in here.

2 But if you look at the Column G,
3 that is the date of the sample. If you look
4 at Column K, that is the rank order, not in
5 percentage, but in fraction. And if you look
6 at Column L, that is the value in microcuries
7 per cc. Obviously, a lot of the initial
8 values are just zeroes.

9 If you scroll down rapidly, you
10 will see -- and you have to scroll down very
11 rapidly because there are lots and lots of
12 zeroes --

13 MEMBER MUNN: There sure are.

14 DR. MAKHIJANI: -- you will be able
15 to see that the lower values, as you scroll
16 down, are generally in the 80s and 90s. You
17 know, you have ones that go up to 1.6 times 10
18 to the minus 11, which is below the detection
19 limit. You are now at a rank order of 25, 26,
20 30 percent.

21 This is partly because there were
22 more samples taken in the 80s and 90s, but,

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1 also, as I will show you, the lower end of the
2 numbers were in the 80s and 90s.

3 So, if you scroll down --

4 DR. MAURO: Just give me a line
5 number where we should be.

6 DR. MAKHIJANI: Well, I'm at near
7 3,000.

8 DR. MAURO: Oh, okay. So you're
9 way down. Okay.

10 DR. MAKHIJANI: Yes. Well, because
11 it goes very slowly, most of the samples,
12 almost all of the initial samples are from the
13 80s and 90s until you get well above 50
14 percent. So you have to go very deep down.

15 You know, there are occasional --
16 of course, there are samples from the 60s and
17 70s that are also below detection limit or
18 zero.

19 But now, if you go to the very
20 bottom of the database, in the 7,000s, more
21 than the 7,000s, line numbers like 7700
22 downward, you will see that the -- I'm at

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1 7700, yes, 7700. You'll go down. You'll see
2 like from 7720, 21, you will see very, very
3 many more samples from the 60s that are in the
4 higher percentile of readings.

5 Harry, actually, had done this by
6 period. Right, Harry? Are you on the line?

7 MR. CHMELYNSKI: Yes, I'm here,
8 Arjun.

9 DR. MAKHIJANI: And Harry worked up
10 these plutonium data. They are not ready for
11 even sort of semi-primetime here.

12 But you can see that most of the
13 high readings are concentrated in the early
14 periods. And this is why you actually need to
15 parse this data by period, and you can't just
16 aggregate the whole data and say, I can
17 construct a coworker model out of this.

18 DR. NETON: I have always
19 constructed coworker models by time period.

20 DR. MAKHIJANI: Yes, right. You
21 know, I'm not saying that you haven't done
22 that. I'm just illustrating that in this case

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1 there are actually very dramatic differences
2 between the place where we have the mass of
3 data and the place where we have most of the
4 exposure.

5 And that is the only reason.
6 Because now we have been looking at this
7 plutonium data chart in the Word file, which
8 has no time periods in it. But Harry actually
9 did a little bit of analysis corresponding to
10 time period. Right, Harry?

11 MR. CHMELYNSKI: Yes, Arjun. I
12 tried to do what I would assume NIOSH would do
13 if they were to build a coworker model, which
14 was to go into the same data you are looking
15 at for plutonium and to separate it out by
16 decade and by job category.

17 When I did that, it turns out that
18 in the early years really all you have to look
19 at are RadSafe workers. Later, there's other
20 groups that enter in, but mainly they are the
21 security workers in the 80s. Between those
22 two groups, that is three-quarters of the

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1 data.

2 Now, when I tried to fit log-normal
3 distributions, the first thing you see is the
4 distributions are very irregularly shaped.
5 They have very long tails, in particular, in
6 the RadSafe, in the early years, most likely
7 due to incident data being defined in the
8 database with no identifiers as to why the
9 samples were taken.

10 When I do fit a log-normal
11 distribution, even though they don't fit very
12 well, the numbers in the 60s ended up being
13 somewhere in the neighborhood of -- well, if
14 you looked at the 95th percentile, it was in
15 the neighborhood of about 400 times higher
16 than in any of the other decades for the
17 RadSafe people, which is the only group where
18 we have data in all the decades to look at.

19 The security folks had about the
20 same numbers as the RadSafe people for the
21 95th percentile when you look in the data in
22 the decades where we had data for the security

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1 people, which was after 1980.

2 And the other groups, there were
3 just too few samples to really fit log-normal
4 distributions that you could depend on.

5 DR. MAKHIJANI: Yes. So this is
6 just sort of to put a fine point on something.
7 I agree with Jim. I mean NIOSH normally does
8 it by year even, I think, when they estimate
9 doses, not by decade, if possible.

10 And just to kind of illustrate the
11 limitations of this chart, so you can actually
12 go from this chart to a coworker model, so
13 that is plutonium. I would like to
14 illustrate, just quickly go through the other
15 three files on tritium.

16 See, if you open the tritium Word
17 file -- I don't think we need any more
18 spreadsheets.

19 DR. MAURO: There's a scrubbed one?

20 DR. MAKHIJANI: No, no, not a
21 spreadsheet. The Word file. It's in the
22 Working Group --

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1 DR. MAURO: Oh, I've got to back
2 out of here. Okay.

3 DR. MAKHIJANI: No, no, no, you
4 have to go there.

5 DR. MAURO: I've got go here, okay.

6 DR. MAKHIJANI: Go to the Working
7 Group subdirectory.

8 DR. MAURO: Got it.

9 DR. MAKHIJANI: And you can open
10 the tritium data.

11 DR. MAURO: Back home again.

12 DR. MAKHIJANI: And you see there
13 are more tritium data, especially in the miner
14 category. Miners did have a fair amount of
15 tritium monitoring.

16 I don't think we found any quality
17 problems with the tritium-monitoring data
18 before or now?

19 MS. LIPSZTEIN: No.

20 DR. MAKHIJANI: Okay.

21 DR. MAURO: I am sorry to
22 interrupt, but, Joyce, we started talking

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1 about, a little earlier, possible quality
2 problems related to the plutonium data, but we
3 really never got there. I mean I guess I
4 don't --

5 DR. MAKHIJANI: Let me just go over
6 the quantity issues, and then I will get to
7 the work that Joyce --

8 DR. MAURO: Okay. Sure. Okay.

9 DR. MAKHIJANI: -- for a fuller
10 view of the quality.

11 So, if you go to page 2 of the
12 tritium data, you will see that for miners we
13 actually have samples in all periods. And we
14 have more samples for our other worker
15 categories except welders and wiremen. Up to
16 1970, we really don't have significant data.
17 We don't have much data for welders and
18 wiremen. We have a little more for laborers.

19 If you go to the chart on page 4,
20 you will see this is very different than the
21 plutonium chart. Clearly, miners had more
22 exposure, at least if you leave out the

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1 periods, miners had more exposure than all
2 other worker categories, including RadSafe.

3 Now this may be partly because it
4 is incident-driven and they were going in a
5 particular time and they were being monitored
6 immediately after they had exposure because
7 tritium monitoring would be very sensitive to
8 that.

9 This, again, raises the question
10 of, how much do you know about what the
11 monitoring regime was and what can you say
12 about dose reconstruction.

13 But here you can see there are
14 three, four worker categories where much of
15 the -- if something is to the right of the
16 RadSafe, which is the magenta -- would you
17 call that color magenta?

18 MEMBER MUNN: Yes, that's magenta.

19 DR. MAKHIJANI: Thank you, Wanda.

20 MEMBER MUNN: Yes.

21 (Laughter.)

22 DR. MAKHIJANI: If you go

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1 horizontally across the chart, anything that
2 is to the right of the magenta line would
3 indicate that, for that cumulative
4 probability, that that group of workers is
5 more exposed than RadSafe.

6 So you can see that there are a
7 number of categories of workers that were,
8 overall, more exposed to tritium or at least
9 had higher -- more precisely, we should say
10 they had higher monitoring results.

11 So, in this case, you have a little
12 bit more of a systematic indication that, for
13 tritium at least, RadSafe was not the most
14 exposed category, if you used monitoring data
15 as a proxy for exposure, which is the only
16 thing we can do, actually. If you go to gamma
17 data, which is the next Word file --

18 MEMBER MUNN: But security, on the
19 other hand --

20 DR. MAKHIJANI: Security, yes, and
21 that's the other thing to look at, Wanda,
22 you're quite right.

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1 Security -- the samples from
2 security indicate less exposure, at least
3 lower samples, depending on when they were
4 monitored. Now, if they were on a routine
5 monitoring regime, they might have been
6 exposed, but --

7 DR. NETON: It is a little
8 confusing because that is all-years aggregate.

9 DR. MAKHIJANI: It is all-years
10 aggregate. We actually have the year-by-year
11 data, and in order to see when this
12 happened -- yes, security will be dominated by
13 the 80s. So, to do a security worker exposure
14 comparison with the other categories, you
15 really have to eliminate everything except the
16 1980s to do that.

17 MEMBER CLAWSON: Well, what I find
18 interesting is that the welders is almost
19 pretty close to what the RadSafe was on it.

20 DR. MAKHIJANI: Wiremen, yes.

21 MEMBER CLAWSON: The welders. The
22 welders are the black triangles.

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1 MEMBER MUNN: The welders are very
2 different than the welders --

3 DR. MAKHIJANI: Are you in tritium
4 or gamma?

5 MEMBER MUNN: Tritium. We're in
6 tritium.

7 DR. NETON: I guess the point,
8 though, that I was making earlier is that we
9 couldn't tell -- the coworker model is really
10 to substitute data for people who are
11 monitored -- not monitored, but should have
12 been. So it is a little different
13 distribution.

14 If you believe that all the highest
15 workers were monitored to begin with, you
16 could establish that, which we couldn't
17 here --

18 DR. MAKHIJANI: Right, we couldn't.

19 DR. NETON: Then the coworker model
20 would only fill in for those who were not
21 monitored but should have been, but were not
22 among the highest exposed workers.

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1 DR. MAKHIJANI: That's right.

2 DR. NETON: So that's a little --

3 DR. MAKHIJANI: Right. We're just
4 reinforcing that conclusion of yours. I mean
5 the bottom line is we agree with you -- but we
6 tried to kind of make sure that we had gone in
7 enough detail in the data to be comfortable in
8 our own minds that your paper -- that we could
9 agree with it or say partly or we need to do
10 more work, or we don't agree with it. We just
11 wanted to be sure that whatever we said was
12 clearly done.

13 If you go to the gamma Word file,
14 you will see the similar pattern. There is
15 more data on gamma than for plutonium. More
16 worker categories have data. That is on page
17 1. So you have more claimants represented in
18 the gamma.

19 We agree with Jim that this data,
20 even if it were complete, would be very hard
21 to interpret and do anything with. Just
22 proceeding along the quantity of data and

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1 taking the data at face value, and then if you
2 go by period, you see, again, that RadSafe was
3 monitored in all periods, but most of the
4 monitoring is focused in the latter periods.

5 If you go to page 3, 4, you will
6 see a comparison. And you see a similar
7 pattern to tritium here, except it is not
8 miners who are the right-most. This time it
9 is laborers and welders.

10 This, again, has the limitation
11 that you are mashing all periods together. So
12 security looks like they have at least
13 exposure potential, but you shouldn't
14 interpret it that way. This is because
15 security data are focused on the 80s, and the
16 others are more evenly distributed.

17 So this, again, indicates that, you
18 know, RadSafe was everywhere. They may be
19 convenient to monitor, as Jim said. We think
20 that is probably what happened.

21 We agree with Jim that they were
22 monitoring people and they were monitoring

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1 people who were convenient to monitor to
2 maintain some kind of regime and protocol, but
3 not necessarily monitoring the people who were
4 most exposed.

5 And data is a similar pattern.

6 MR. BARTON: Arjun, if I could just
7 point to one thing?

8 DR. MAKHIJANI: Sure.

9 MR. BARTON: When we are talking
10 about the gamma graph, if you look at that
11 yellow line, which is the all-worker rank
12 order, from about the 50th percentile onward,
13 the all-worker concentration here was higher
14 than the RadSafe category.

15 DR. MAKHIJANI: So the average of
16 all workers was higher.

17 MEMBER MUNN: Well, of course, you
18 have a much larger number of individuals in
19 the laborers, welders, wiremen, miners
20 category --

21 DR. MAKHIJANI: That's right.

22 MEMBER MUNN: -- in the gamma --

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1 DR. MAKHIJANI: Right. So that's
2 what --

3 MEMBER MUNN: -- than you do in the
4 others. So that larger number of individuals
5 gives you, would be expected to give you a
6 quite different picture.

7 The question then arises as to
8 whether or not the gamma exposure records are
9 not the most reliable and the most
10 informative.

11 DR. MAKHIJANI: Well, they are
12 informative in the sense that they indicate
13 that RadSafe wasn't necessarily the most
14 exposed. So you can actually build a coworker
15 model out of the group that has the richest
16 amount of data for all periods, and we agree
17 that they were monitored in all periods.

18 But, with gamma, you have this
19 problem of how you are going to interpret that
20 data with beta and gross fission products.
21 Unless you know the time of the monitoring and
22 the reason for the monitoring, you are not

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1 going to be able to interpret this data to do
2 any dose reconstruction with. I mean we agree
3 with Jim on that. And we did explicitly
4 discuss that yesterday.

5 Joyce is on the line.
6 Unfortunately, Rich Leggett could not be on
7 the line, but he did send me a written summary
8 of his opinion. He would agree with NIOSH
9 that this gamma data are such that -- I
10 actually have it open on my regular computer,
11 and I can read what he said.

12 But, broadly, he agreed that this
13 is not a dataset that is easily manipulable to
14 get a reliable dose estimate out of it.

15 MEMBER ROESSLER: Could you send us
16 Dr. Leggett's report?

17 DR. MAKHIJANI: Well, Dr. Leggett -
18 - as I said, this is not ready for primetime.
19 It is informal conversations between us.

20 I did check with him whether I
21 could represent him, and he did send me kind
22 of an informal thing to guide me. Dr. Leggett

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1 will be involved in finishing this product, if
2 the Working Group wants us to do something.

3 And, yes, he explicitly authorized
4 me to say this.

5 MR. HINNEFELD: I should have asked
6 this earlier, but what are the units, MI per
7 cc?

8 MR. BARTON: Microcuries per cc,
9 yes.

10 MEMBER SCHOFIELD: I would assume
11 where they are going back in after a test
12 shot, going back into these areas, that if it
13 is typical of most facilities, you have a pool
14 of RadSafe workers. When you're going back
15 in, you're going to have these laborers, these
16 miners, whatever they are going back into that
17 area with. There's only going to be x number
18 of RadSafe workers at a shot.

19 So you've got this large pool of
20 RadSafe workers, but a lot of them aren't even
21 involved directly at that time. They're
22 rotated in and out, depending on where their

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1 work area is for the day.

2 That is going to also bias these
3 numbers because you are going to say, well,
4 yes, they were all monitored, but how many
5 were actually there when they were going back
6 in or doing a drill-back or anything else?

7 We know you don't have a one-on-one
8 ratio of RadSafe workers to any other kind of
9 workers.

10 MEMBER MUNN: No, but based purely
11 on the conversations we have had with workers
12 themselves, and that we have heard from them,
13 these folks seem to have a tendency to work on
14 a project and not be quite as controlled by
15 shifts as many of the other sites seem to have
16 been.

17 They gave us the impression, many
18 of the workers gave us the impression, when we
19 talked to them, that once they went out to
20 work on this job, they stayed there. There
21 wasn't a lot of --

22 MEMBER SCHOFIELD: No, I'm saying

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1 they do. It's just, when you look at the
2 numbers of RadSafe workers in this pool, I
3 mean they have various jobs, and we know some
4 of them sat at the entrance to these tunnels
5 when they were going back in.

6 MEMBER MUNN: Yes.

7 MEMBER SCHOFIELD: And you might
8 have 50-60 people sitting in that tunnel
9 working. You might have two or three RadSafe
10 workers in the tunnel with them. Then you
11 have one or two sitting on the outside to
12 monitor people as they come out.

13 But those pools typically are
14 rotated around. They are not assigned to a
15 tunnel the whole time. So you've got this
16 large pool of RadSafe workers who are,
17 obviously, moved where they are needed or
18 where they're suspected they are going to be
19 needed.

20 Then you have these miners and
21 these other people who are going, at least
22 until they got in whatever they need to do at

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1 that particular drill-back or re-entry, until
2 they are done, they are going to be there on a
3 daily basis.

4 So that would bias the total amount
5 of exposure these RadSafe workers are going to
6 get. Some of them are going to have higher;
7 some of them are going to have lower,
8 depending on the particular shop they are
9 going back into. But they are not going to be
10 assigned to, typically, a RadSafe pool, and
11 assigned to where they are needed. It is not
12 like a facility like Rocky or somewhere that
13 they are assigned to a building.

14 At Nevada, I mean even by the
15 pictures, you can see some of them within the
16 tunnels in protective gear; others sat outside
17 the tunnels to monitor those coming back out.

18 MEMBER CLAWSON: This is Brad.

19 The bottom line, though, it comes
20 down to, just as the claimants have said, that
21 by using the RadSafe as supposedly the highest
22 exposed, that's not the fact. And it has been

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1 seen on this data here.

2 DR. MAKHIJANI: Yes. The caveat to
3 that is that should be regarded as indicative
4 in this data because of its problems, that we
5 don't know why this was done. But, certainly,
6 this data indicates if you are going to do a
7 coworker model, you cannot use RadSafe as the
8 reference population. You can't do that.

9 You can, on the other hand,
10 conclude that there was some other group that
11 was. So that also, because different groups
12 emerge in these different monitoring datasets,
13 so there is a different group that emerges
14 when you look at tritium and a different group
15 that emerges when you looked at gamma, you
16 don't actually have a consistent pattern that
17 emerges that you can say, okay, I'm going to
18 use this.

19 Just to clarify a little bit, in
20 regard to the second point that Jim made in
21 his paper, which was NIOSH identified data
22 gaps exist in the electronically available

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1 database, and specific analysis for fission
2 products are not available to NIOSH, and given
3 that fission products were the most likely
4 source of potential exposure and make-up
5 fission products, source term was project- and
6 time-dependent, this brings into question the
7 ability to reconstruct a representative
8 distribution of NTS fission products. This is
9 what is in the NIOSH report.

10 As a preliminary response, Dr.
11 Leggett asked to me say that we have generally
12 agreed with this, although, you know, there
13 are situations where you can use mixed fission
14 products to extract dose information. I just
15 wanted to put that caveat, but, in general, he
16 was in agreement with you on this.

17 The beta data are the same.
18 Yesterday, we had a conference call to review
19 Bob's analysis, also review the analysis that
20 Harry has done. And I, actually, because Dr.
21 Leggett was the new fresh eyes and much
22 respected by everyone, I asked him first

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1 whether he thought the bottom line in Jim's
2 paper, whether he would agree with that, that
3 looking at this electronic database and the
4 other reports that we had done, and all the
5 analysis, admittedly, he only had a week to
6 look at this, what was his opinion of the
7 NIOSH conclusions that you could not
8 reconstruct internal doses, and he agreed with
9 the NIOSH conclusion.

10 Then I did a poll. Joyce is on the
11 line, so let her speak for herself.

12 MS. LIPSZTEIN: Yes. Are you
13 talking about my personal opinion or --?

14 DR. MAKHIJANI: Yes, your vote
15 yesterday, when we went around. Rich Leggett
16 agreed --

17 MS. LIPSZTEIN: Yes.

18 DR. MAKHIJANI: -- basically, with
19 the NIOSH position.

20 MS. LIPSZTEIN: Yes, he agreed,
21 basically, with the NIOSH position, yes.

22 DR. MAKHIJANI: And you did, too,

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1 right?

2 MS. LIPSZTEIN: Yes, I do, too.

3 DR. MAKHIJANI: And, Bob, you
4 scrubbed the numbers. Do you want to throw
5 your opinion in the pot?

6 MR. BARTON: I'll let those more
7 brilliant than I make that decision.

8 (Laughter.)

9 DR. MAKHIJANI: Okay. All right.

10 Basically, all of us agreed that we
11 have enough information. When I went into
12 this, I didn't know what was in this database.

13 My main object was to look at whether Jim's
14 analysis, whether we agreed with it.

15 I also wanted to look at whether
16 the patterns in this 125,000 samples
17 reproduced what we had done before. Because
18 if it had not reproduced what we had done
19 before, then I couldn't have given you a
20 conclusion today because then I would have
21 said: give me more time; I can't tell you.

22 But it very strongly reinforced

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1 what we had done before. Other than more data
2 points which indicate RadSafe was not the most
3 high -- you can't use RadSafe for a coworker
4 model, and we are more sure about that now --
5 there's nothing really new that emerged from
6 our previous analysis of this, and that makes
7 me very comfortable in the conclusion we all
8 arrived at, that the NIOSH recommendation is
9 technically sound.

10 CHAIR PRESLEY: Can we stop right
11 here? Let's go take a break, no more than 10
12 minutes. Be back in here at 15 after. We are
13 going to try to break again around noon. Some
14 of us have to check out and go get our bags.

15 (Whereupon, the above-entitled
16 matter went off the record at 11:02 a.m. and
17 resumed at 11:14 a.m.)

18 MR. KATZ: We are coming back
19 online.

20 Let me just check to see, someone
21 on the phone, that we have you again.

22 CHAIR PRESLEY: John, are you

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1 there?

2 MR. KATZ: Somebody say, hey, from
3 the phone.

4 MS. ADAMS: Hey.

5 MR. KATZ: Okay, great. Thank you.

6 DR. MAKHIJANI: Ted, could I say
7 just say one more thing?

8 MR. KATZ: Of course.

9 DR. MAKHIJANI: One caveat to our
10 analysis is we were looking at the SEC period.

11 So this is what we did. We didn't examine
12 the post-SEC statements, the 10 CFR 835
13 statement, because it goes beyond the SEC
14 period, and we weren't asked to do that.

15 So we limited ourselves to
16 basically examining whether the bottom line on
17 the NIOSH paper, our previous analysis, the
18 nature of this dataset -- so there's a lot of
19 data that goes 1993 and beyond, and we have
20 not looked at that.

21 I mean we would be happy to, if you
22 want us to, but we haven't done it so far. I

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1 just wanted to make that clear.

2 MR. BARTON: Arjun, could I also
3 make a comment that goes to whether this
4 database is actually complete or not?

5 We had said that, when we looked to
6 see how many claimants were actually included
7 in these files, we had about 20 percent. From
8 the SEC evaluation report, we see that, from
9 the DOE-supplied records, that the hard-copy
10 records are not, because you have 32.8 percent
11 had some sort of internal dosimetry data. So,
12 if it were a complete electronic database, we
13 would expect to see something near that
14 number, and, in fact, we are about 10 percent
15 lower than that.

16 DR. MAKHIJANI: Yes. I mean I
17 indicated that earlier. We are not sure, but
18 it seems like that, and we can certainly
19 verify that, if necessary.

20 CHAIR PRESLEY: Okay. Do you all
21 have anything else to add?

22 DR. MAKHIJANI: Let me ask our

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1 team.

2 Joyce? Harry?

3 MS. LIPSZTEIN: Yes?

4 DR. MAKHIJANI: Did you have
5 anything to add? Joyce?

6 MS. LIPSZTEIN: Could you repeat
7 that? I just joined in. I'm sorry.

8 DR. MAKHIJANI: Did you want to add
9 anything to our prior discussion regarding
10 quality of data or any of the observations
11 that you have made that you think are
12 important to add?

13 MS. LIPSZTEIN: Okay. From the
14 quality pattern, I had one question, actually.
15 What does it mean, HDDR error, in the tables?

16 DR. NETON: I don't know. I
17 couldn't tell you.

18 MS. LIPSZTEIN: There were many
19 results with this comment.

20 DR. MAKHIJANI: Especially, like in
21 65 and 66; right, Joyce?

22 MS. LIPSZTEIN: No, all over, and I

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1 could not associate -- no, all over the years
2 -- and I could not associate it either with
3 the result itself or the percentage error and
4 things like that. But there was no
5 correlation at all with anything. So I didn't
6 know what this comment was.

7 And with the main error, it strikes
8 you, what's this?

9 DR. NETON: Yes, I don't know.
10 I'll see what I can find out, though.

11 MS. LIPSZTEIN: Okay. And the
12 other thing is the percentage error that was
13 associated with the measurements. There were
14 many results where there is no percentage
15 errors. There are some results that have like
16 very, very big percentage errors. So I don't
17 know how valid they are.

18 And I don't know when there is zero
19 percentage errors, no percentage errors, what
20 does it mean if it was not calculated, and
21 what happens with this data? So we get a lot
22 of uncertainty because you don't know what it

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1 is.

2 Many years there are like 100
3 results and 10 of them have a very high
4 percent of errors, and all the others have
5 zero. So we don't know what it really means
6 to the quality of the data.

7 And the other problem that I had is
8 that sometimes you have measurement results in
9 a Code 40, which is microcuries, and other
10 results you have in microcuries per cubic
11 centimeters, and I don't know how to correlate
12 them. I didn't know how to do to correlate
13 them.

14 Also, I didn't know if they really
15 meant microcuries or if it was, you know, the
16 cubic centimeter was forgotten. I tried to
17 see if the results on the higher range,
18 whether all were microcuries instead of
19 microcuries per cubic centimeters, and in some
20 years, yes, but in other years, no. So I
21 still don't know.

22 It talks about the quality of the

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1 measurements.

2 MR. BARTON: Joyce, I can add a
3 little bit of information there. From our
4 experience when we compiled the data from the
5 hard-copy records last time, we found that in
6 the 70s, and perhaps in the 1980s, the
7 practice at NTS was just to put in M-I for
8 microcurie as shorthand for microcurie per cc.

9 Now you point out the values with
10 the numerical code of 40. These were
11 generally outside that period. So my
12 impression was that, if it simply had an MI
13 and it was in the 70s and the 1980 period, it
14 was probably microcurie per cc. And you could
15 verify that by just seeing whether it is in
16 the range of the other values that were
17 microcuries per cc, but oftentimes the ones
18 with the Code 40 were significantly higher.
19 We would need to believe that they needed to
20 be corrected by some sort of sample volume,
21 which is not listed in the database.

22 DR. MAURO: And is that part of the

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1 scrubbing that you did when you --

2 MR. BARTON: The 40s were gone.
3 The MIs from the 70s were in.

4 MS. LIPSZTEIN: In 1980, for
5 example, we had 38 results in the range of 8
6 to the minus 9 to 8 to the minus 7, when the
7 other measurements were in the range of 8 to
8 the minus 11. Those results in the range of 8
9 to the minus 9 and 8 to the minus 7 were in
10 microcuries. So it made me believe, well,
11 that's it because one is for a sample, the
12 other is for cubic centimeters.

13 But, then, in the same year, we had
14 21 results in the range of 8 to the minus 6
15 and some with units of microcuries and others
16 in units of microcuries per cubic centimeters.

17 So, then, I didn't know what to think about
18 it.

19 DR. MAKHIJANI: Yes. Now, you
20 know, if you look at all these caveats,
21 obviously, there's been some judgment calls
22 that we made in putting the whole database

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1 together. Earlier we had been able to make a
2 more detailed analysis of quality, because we
3 went from a paper record, which had a lot more
4 detail, but we still have quality concerns
5 with this database, and some new issues have
6 emerged.

7 But would you say, broadly, Joyce,
8 that our previous -- how do your concerns
9 about quality reflect what we found before?

10 MS. LIPSZTEIN: I think they are
11 the same concerns we had. I just examined the
12 plutonium quality data from the new electronic
13 database, and I think the same patterns that
14 we had before, they are repeated in this
15 database, with the addition that I found it
16 was probably not a complete database.

17 DR. MAKHIJANI: I think -- Harry?
18 Did you want to add anything, Harry?

19 MR. CHMELYNSKI: No. I just have
20 to second the problems that have been stated
21 so far. The database is not very clean. It
22 takes a lot of work to try to get to where you

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1 can have a set of numbers you can believe are
2 all comparable.

3 MS. LIPSZTEIN: And the other thing
4 that told me about the quality of the results,
5 I was looking at the 1990 results, which
6 should be, you know, fairly recent. And when
7 you look at the results that are fairly high
8 results, and then there are some workers that
9 were monitored two or three months after the
10 high results, and then it drops to very low
11 results and something that is not compatible
12 with what you would expect from plutonium.

13 DR. MAURO: That is the plutonium.
14 Okay. All right.

15 MR. BARTON: And just to sort of
16 expand on what Harry was just saying, I think
17 there are definitely some QA problems that we
18 identified with the database, things like
19 someone with the same Social Security, but
20 their last name is spelled differently or
21 incorrectly. Or, you know, you may have some
22 dose entries that was simply a 1E and then

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1 nothing. You know, what can you really do
2 with that value? Or sometimes you would have
3 a 1E K to the minus 7, or something like that.

4 So I think it is certainly not in pristine
5 condition, anyway.

6 DR. MAKHIJANI: Yes, but, I mean,
7 most of the data were usable in terms of a
8 gross analysis that we have given, enough to
9 say what we have said.

10 DR. MAURO: Is there paper behind
11 every one of these? These 125,000; there's
12 paper somewhere?

13 DR. MAKHIJANI: Yes.

14 MR. BARTON: So we could probably
15 get sample volumes and be able to convert a
16 lot of those over simply --

17 DR. NETON: I think a lot of these
18 issues could be reviewed and determined, you
19 know, one way or the other. But the fact is,
20 if we don't know, again -- what the data were
21 collected, the purpose the data were collected
22 for in the first place, is it really that

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1 relevant to go back and have a quality review
2 of the data?

3 MEMBER MUNN: I am hearing a lot of
4 negative information here with respect to data
5 that exists, based on what one can only truly
6 term as clerical idiosyncrasies.

7 It seems unreasonable to discard,
8 obviously, carefully obtained data based on
9 the idiosyncrasies of the time or the speed or
10 personal preferences of the individuals who
11 were recording the data and, in all
12 probability, who were recording, were
13 transferring the data from the paper record to
14 the electronic record.

15 So this puts us in the position, of
16 course, of having to always be looking at the
17 same original paper records. But, even then,
18 to discard them because -- and, Bob, I
19 understand the need for filters. Yes, I
20 understand what you are doing.

21 But, by the same token, to discard
22 the information because of these issues that

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1 are being presented as quality issues that are
2 more human activity issues than lack of
3 quality in the original data is very
4 unfortunate for a long list of reasons.

5 MR. BARTON: I certainly didn't
6 mean to imply that these things -- I was
7 simply pointing out some observations that we
8 saw going through it.

9 DR. MAKHIJANI: Wanda, we are not
10 discarding the data because of anything.

11 MEMBER MUNN: No.

12 DR. MAKHIJANI: In fact, the data
13 always, all these things that could be in the
14 typo category, actually, I know I discussed
15 this with Bob, he corrected the typos and
16 eliminated some of the obvious typo issues and
17 used as many data points as were usable. And
18 most of the data points were usable.

19 The quality concerns that Joyce
20 expressed are somewhat more fundamental than
21 the kind of, you know, whether the database
22 was QAed in its transcription, which is

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1 certainly fixable. If everything were all
2 right, you would go back and fix it, and you
3 wouldn't have a problem with that.

4 MEMBER MUNN: No, I understand her
5 concerns with the database.

6 DR. MAKHIJANI: Yes. Right.

7 CHAIR PRESLEY: Did anyone contact
8 anybody that might have transcribed this or
9 knew something of the transcription and the
10 personal items that were put in or left out,
11 or anything like that? Did you all get with
12 anybody to try to reconcile why they left
13 these out or why that they did some of the
14 things that they did?

15 DR. MAKHIJANI: Well, Mr. Presley,
16 the extent of the problem in regard to
17 transcription wasn't extensive. We are not
18 meaning to imply that. And if it had been, we
19 would probably have felt the necessity of
20 contacting somebody, yes.

21 CHAIR PRESLEY: Let's get that on
22 the table. You all did not feel that there

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1 was a big problem in --

2 DR. MAKHIJANI: No.

3 CHAIR PRESLEY: -- the
4 transcription that was available?

5 DR. MAKHIJANI: No. There was --
6 and Bob is most familiar with the database,
7 and Jim is.

8 DR. NETON: Any time you have
9 100,000 records collected over --

10 DR. MAKHIJANI: Yes, exactly.

11 DR. NETON: -- a 30- or 40-year
12 period, you are going to have some issues
13 identified, some legacy kind of issues. But,
14 with some work, those could be evaluated and
15 remedied to a large extent.

16 CHAIR PRESLEY: But we feel like --
17 that there's not a problem going back with
18 that, the missing data? Is that correct?

19 DR. NETON: Well, again, I don't
20 know how much more work it would be worth
21 putting into evaluating the pedigree of all
22 these records, given that we really have come

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1 to the conclusion that we are not certain if
2 the highest exposed workers were monitored in
3 the first place.

4 CHAIR PRESLEY: Oh, okay. That's
5 what I --

6 DR. NETON: Once you make that
7 conclusion, come to that conclusion, then the
8 rest of it is sort of a moot issue.

9 CHAIR PRESLEY: Yes.

10 DR. MAURO: One of the things that
11 I was thinking about is you do have all of
12 this hard-copy data that does contain, in
13 theory, the job categories, the hard copy.
14 It's not in the electronic.

15 Now, however, we sampled enough of
16 the hard-copy data, a couple of hundred, and
17 we are finding that it is mostly security and
18 RadSafe. In my mind, there's no reason to
19 believe, if you went in and looked at all that
20 data, anything is going to change. So that is
21 an important point.

22 DR. MAKHIJANI: John, I think the

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1 conclusion of this analysis, and the reason,
2 one of the main reasons, certainly the main
3 reason I'm very comfortable that the bottom
4 line is robust, is this larger dataset -- I
5 mean before we had selected the 120 at random,
6 and we had gone fairly methodically. Then we
7 examined the NIOSH 100. So there was some
8 overlap, but nearly about 200 individuals that
9 we had looked at all the hard-copy
10 information, and that corresponds very closely
11 to this electronic database, which covers a
12 lot more workers.

13 So I do not believe we will find --
14 if you spent two more years, I doubt that you
15 would find anything else.

16 DR. NETON: I agree.

17 MEMBER MUNN: So the real wrap-up
18 here is we have adequate data for external
19 exposures, but we do not have a large enough
20 number of individuals covered in the database
21 for a bioassay to be able to say with
22 confidence that we can bound internal dose.

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1 So that is the real bottom line here?

2 DR. NETON: For workers who were
3 not monitored.

4 MEMBER MUNN: Yes.

5 DR. NETON: We have monitoring data
6 for workers that we would use for dose
7 reconstruction, but we have no confidence, if
8 a worker wasn't monitored and should have
9 been, that we could reconstruct their dose.

10 MEMBER MUNN: Internally?

11 DR. NETON: Internally, that's
12 correct.

13 DR. MAURO: Would you go as far as
14 to say, well, you could fill the coworker
15 model for RadSafe workers, I was thinking, or
16 for --

17 DR. NETON: Yes, I'm reluctant to
18 say we could do that. I mean, first of all,
19 we are not sure that even all the RadSafe
20 workers were monitored or not.

21 Secondly, you get into the job
22 category situation, and it is never clear to

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1 me that a guy who is a RadSafe today was a
2 RadSafe three years ago. Typically, what you
3 have on, especially people who are survivors,
4 you have their last job category, and that's
5 about all you've got.

6 DR. MAURO: You don't know what
7 else they might have done.

8 DR. NETON: So then it becomes a
9 real dicey enterprise to try to go back and
10 say I can, with confidence, know that I can
11 reconstruct the --

12 DR. MAURO: Thank you.

13 DR. NETON: In fact, I suspect
14 that, given what we see here, most of the
15 RadSafe workers already have monitoring data.

16 DR. MAKHIJANI: Yes.

17 DR. NETON: And that will be in our
18 database, and we will reconstruct them, if
19 they are not --

20 DR. MAURO: Got you.

21 CHAIR PRESLEY: Gen, do you have
22 anything?

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1 MEMBER ROESSLER: No.

2 CHAIR PRESLEY: Phil?

3 MEMBER SCHOFIELD: I guess I have
4 to agree. I just don't feel comfortable with
5 the data because we don't know what kind of
6 internal exposures some of these people who
7 weren't monitored received. Just because you
8 have an external badge doesn't show what you
9 got internally.

10 DR. MAURO: That's true.

11 CHAIR PRESLEY: Brad?

12 MEMBER CLAWSON: Well, you know, I
13 applaud Jim for what he has put forth. I
14 guess one of my issues is we have been told
15 numerous times that all the data that is out
16 there had been found and that everything was
17 there. But with the SEC petition, they even
18 brought up this extra data.

19 I just want to make sure that, as
20 we go into this and other sites, that when we
21 say that we have all the data, that we do have
22 it. I applaud Jim because to review this and

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1 come forward with this, it shows a dedication
2 to the science, and so forth. And I stand
3 good with what has been discussed. I just
4 want to make sure that we do explore the
5 avenues for the data that is out there.

6 CHAIR PRESLEY: And again, on what
7 Brad said, I would like to add one thing.
8 This is a work in progress. We are never, I
9 mean never, going to be able to get all of the
10 data that's out there on this because a lot of
11 it has been thrown away.

12 So, you know, you may come up 10
13 years down the road and somebody will open a
14 safe somewhere and say, my gosh, look what's
15 here.

16 So the fact that you're going to
17 find all the data, again, know this is work in
18 progress. Things are going to change. It did
19 change.

20 So that is what I would like to get
21 on the record, that this is a work in
22 progress, and when things come forward, they

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1 will be looked at, I presume.

2 Is that correct, Jim?

3 DR. NETON: Yes, sir, that is
4 correct.

5 CHAIR PRESLEY: Thank you.

6 Wanda?

7 MEMBER MUNN: No, if we don't have
8 the material to do it, then the rest of the
9 good science goes out the window. It's that
10 simple.

11 CHAIR PRESLEY: Unfortunately.

12 Ted?

13 MR. KATZ: I am just the DFO here.

14 (Laughter.)

15 CHAIR PRESLEY: What I would like
16 to do is -- let's talk about our task and what
17 we are going to do forward. Coming up, we
18 have one more meeting. We have a technical
19 database that I would like to see us say yea
20 or nay on. We have an SEC petition coming up
21 that I would like to hear some discussion on.
22 And we have one more meeting coming up in

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1 January. I believe it is on the 27th or the
2 28th, the 26th, the 27th, somewhere in that
3 timeframe --

4 DR. MAKHIJANI: I think the 28th.

5 CHAIR PRESLEY: To come up with a
6 final recommendation for the Board, what I
7 would like to do is for us to go away from
8 this meeting today with a path forward as to
9 what we are going to do, either today, or if
10 we think it is going to take another meeting
11 on the 28th to do this, let's have that path
12 forward today. I want to get something done,
13 one way or the other.

14 Ted?

15 MR. KATZ: On the process question,
16 I am happy to make a suggestion here, which
17 is, it is sounding like -- I mean you haven't
18 taken a vote, but you have all spoken your
19 minds, and I assume you will form a position
20 and second it and take a vote.

21 But if there's consensus among the
22 Work Group about this analysis and the SEC, I

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1 mean you don't have before you an actual redo
2 of the SEC petition evaluation yet. You have
3 this White Paper, but it is pretty, sort of,
4 closely aligned with what a petition
5 evaluation would say ordinarily. I am just
6 thinking about trying to save your resources
7 in terms of time and all that.

8 I mean I think, if you have
9 consensus and you want to take a vote on the
10 position as it stands, as laid out in the
11 White Paper, you can do that, contingent with
12 the final evaluation report being consistent
13 with what's laid in the White Paper, and not
14 necessarily have to come together again.

15 You could formulate your
16 recommendations today to the Board, wrap all
17 that up, again, contingent on the final
18 product being consistent with all this, and
19 then wait and see. We can leave the January
20 meeting on the books as a possibility, but if
21 it all comes forward the way it has been
22 discussed today, you wouldn't necessarily have

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1 to use that January meeting. I would just
2 leave it on the books for now, so barring any
3 unforeseen --

4 CHAIR PRESLEY: Okay, that's the
5 SEC. What about the TBD?

6 MR. FUNK: Hey, Ted, may I make a
7 comment here with this point?

8 MR. KATZ: John. Well, I mean
9 right now we are just discussing process, but,
10 yes, go ahead, John. Go ahead, if it's --

11 MR. FUNK: Okay. I will make it
12 really short.

13 I would like to bring up this IG
14 audit, DOE IG-0773, which is a mirror of what
15 NIOSH has done and also a mirror of what SC&A
16 has done. And in this, to cover it real
17 quick, it says, bioassay programs were not
18 working as it was intended to work and was
19 inefficient. People who should have been
20 bioassayed were not. People who should not
21 have been bioassayed were. Bios were not
22 timely so as to capture all possible

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1 exposures. Seven out of 30 of the documents
2 that had bioassays could not be found of the
3 workers. Methodologies for determining who
4 should be tested did not always ensure those
5 who should be tested were tested. Weaknesses
6 on how individuals were entered into the
7 bioassay or removed from the database were
8 exposed. There was computer failures.
9 Federal monitoring of site-level bioassay
10 programs was inadequate, and to finish it off,
11 the Department of Energy concurred with all
12 the findings in this report, which is merely a
13 mirror of what both sides have done.

14 And there's another report, which
15 you have, called OAS-M-08-02, which also
16 covers. It's called the Audit Report Contract
17 Transitional Activities at the Nevada Test
18 Site.

19 And that's all I have to say.
20 Thank you, Ted.

21 MR. KATZ: Thank you, John.

22 I don't know if anyone wants to --

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1 just as a matter of record, these reports John
2 forwarded to me, maybe to SC&A as well, I
3 forwarded them to the Work Group. So everyone
4 has these in hand. I don't know if anyone
5 wants to respond at this point.

6 DR. NETON: Well, I would only
7 comment -- this is Jim Neton -- that the
8 report IG-0773 was for an audit that was
9 conducted after the end of this SEC evaluation
10 period. It was in the 2000s. Well, this
11 covers a different era. It might be discussed
12 at another time.

13 MR. FUNK: Jim, there was a point
14 in there about the buried and lost records, is
15 why I brought that out.

16 DR. NETON: Okay. Fine.

17 MEMBER CLAWSON: Well, this brings
18 up one question that I have now. The petition
19 goes from the beginning to 1991. Are we
20 looking at that -- because I have seen NIOSH
21 with certain information extended, and so
22 forth, like that. Have we looked at that to

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1 see if, from 1991 on, or --

2 DR. NETON: In the report, we have
3 evaluated, we've put our opinion forth that we
4 believe, after 92, we can do dose
5 reconstructions.

6 MEMBER CLAWSON: Okay.

7 DR. NETON: But it is certainly the
8 Board's purview to weigh in on that, how they
9 want to deal with it.

10 MR. HINNEFELD: If I could offer
11 something from my perspective, if the Board
12 wants to withhold judgment on post-92, feeling
13 that has not been completely discussed, it
14 would seem like there could still be an action
15 to recommend addition of a class as
16 petitioned, and specifically withhold judgment
17 about whether or not dose reconstruction is
18 feasible after the end of that.

19 So that, essentially, holds it open
20 and it allows for additional debate or
21 discussion on the post-92 period. And what
22 that does, though, is to get these claimants

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1 who fall into the petition period 63 to 92 and
2 start their path moving.

3 MEMBER CLAWSON: Right.

4 MR. HINNEFELD: Without that
5 recommendation, they --

6 MR. FUNK: A little clarification
7 on that. I wasn't intending to try to get
8 that past 92.

9 MR. HINNEFELD: Okay.

10 MR. FUNK: Although the audit is
11 dated 2008, or 2007 -- excuse me -- it did
12 investigate the past practices, and the
13 practices I was referring to was only 1992 and
14 on back, so don't misunderstand that.

15 MR. KATZ: Thank you, John.

16 MR. HINNEFELD: Just a vote on the
17 petition class, on saying, you know, based on
18 the discussion here, your recommendation I
19 guess is what the discussion would lead to,
20 would essentially have this petition, but it
21 does not close out discussion elsewhere for
22 other things.

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1 DR. NETON: Or it does not prevent
2 anyone from petitioning further for 93
3 forward. I mean we see no evidence at face
4 value why we couldn't reconstruct after 93.
5 If the Board wants to continue down that path
6 and keep the SEC working group alive, I guess
7 that's okay.

8 MR. HINNEFELD: Well, I mean it
9 would be a site profile question then.

10 MEMBER CLAWSON: Yes, this is
11 basically what it comes down to. We've just
12 dealt with a lot of information here. I don't
13 know how to do it politically or anything
14 else. I would like to be able to get the SEC
15 that Jim has already put before us, and stuff
16 like that. I would like to get it going
17 toward that, but I, myself personally, I would
18 like to just have a little bit of time to make
19 sure that we have the adequate time pass
20 there.

21 It may be one or two years that
22 could be added to it, or whatever else like

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1 that, but I would like us to be able to
2 address it because we are putting a lot out
3 onto this table, and a lot of things have
4 changed. I do not want to in any way hold up
5 the people for the SEC at all, but I just want
6 to make sure that, when we go to the public or
7 anything else like that, that all of our Ts
8 are crossed and our Is are dotted on this.

9 That's just my personal opinion on
10 it. I just want to make sure that we have
11 covered everything. That is what Stu has
12 said. I think that is kind of what I am
13 looking at.

14 CHAIR PRESLEY: And again, we
15 stopped testing in 91. This thing goes for a
16 year prior or post that, is that correct, I
17 believe?

18 DR. MAKHIJANI: The last test was
19 in 92.

20 CHAIR PRESLEY: Nineteen ninety-two,
21 and it goes through --

22 DR. NETON: No, it stops at 92.

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1 CHAIR PRESLEY: It stops at 93?

2 DR. NETON: Through 92.

3 CHAIR PRESLEY: Okay. It starts
4 and then it goes to the end of 1992, I
5 believe.

6 DR. NETON: Correct.

7 CHAIR PRESLEY: I don't have --

8 DR. NETON: This coincides with the
9 end of atmospheric testing.

10 CHAIR PRESLEY: Right.

11 DR. NETON: Oh, no, underground
12 testing.

13 CHAIR PRESLEY: Underground
14 testing.

15 DR. NETON: I mean there's still
16 nuclear activities going on, but there was no
17 more underground testing after 92.

18 CHAIR PRESLEY: Right.

19 DR. NETON: It also coincides with
20 the introduction of 10 CFR 835, which is a
21 much more robust monitoring effort required by
22 all contractors. We found evidence that they

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1 had a fairly good documentation as to who they
2 sampled and why, which we couldn't prior to
3 92. That's the basis for us saying we can do
4 it at this point.

5 MEMBER CLAWSON: Right, up to that
6 point, and I understand that. But, after the
7 atmospheric testing, and so forth, it also
8 took us into another era. But you're right,
9 the monitoring was a little bit better and
10 stuff like that, but a lot of the cleanup of
11 the Nevada Test Site, it went into that. This
12 is still being implemented. I just want to
13 make sure that we have kind of looked at that
14 a little bit.

15 I guess that is more of a site
16 profile issue than an SEC, but I just want to
17 make sure that we don't miss that.

18 DR. NETON: Yes, I think Stu is
19 right. I mean it could certainly be taken up
20 under the site profile review because it has
21 been reviewed, and if issues arise to a level
22 where it looks like they become SEC issues, we

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1 certainly would discuss them at that point.
2 There's many ways this could be handled, I
3 think.

4 MEMBER CLAWSON: Right. In no way,
5 shape or form do I want to hold this back. I
6 want to get this SEC taken care of, get the
7 people proceeding forward, but I want to make
8 sure that we clean up the site profile.
9 Because we have been focused on many things in
10 the earlier days, and so forth like that.

11 My personal opinion is we have that
12 data opened up to us. I would like to be able
13 to see SC&A's final paper that they've got, be
14 able to discuss it, and maybe even from NIOSH
15 just a preliminary of what they see past the
16 92 timeframe, and be able to bring this to the
17 Board at the February meeting.

18 But that is just my opinion on it.

19 DR. MAKHIJANI: I didn't
20 understand. Are you saying that we should
21 compile the work that we have done so far up
22 to 92 into a report to consider? Is that

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1 what --

2 MEMBER CLAWSON: The information
3 that you just brought to us today, I would
4 like to have it in --

5 DR. MAKHIJANI: Okay.

6 MEMBER CLAWSON: -- a more formal
7 form --

8 DR. MAKHIJANI: Yes.

9 MEMBER CLAWSON: -- that the public
10 could actually look at, and that we could put
11 out there, so that people see what we are
12 doing.

13 DR. MAKHIJANI: Yes. I think
14 that --

15 MR. HINNEFELD: We will be
16 delivering an evaluation report in the
17 meantime, too.

18 MR. KATZ: Right. So that will all
19 be coming in January.

20 DR. MAKHIJANI: Yes. So I would
21 like some explicit guidance from the working
22 group about that, because, you know, it will

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1 have to go through DOE review. There's sort
2 of a lengthy process before it can -- and then
3 Privacy Act reviews -- before the petitioners
4 can look at it. So I would like to be able,
5 if we are going to do this report, I would
6 really like to start on it tomorrow.

7 CHAIR PRESLEY: Yes, because you
8 don't have a whole lot of time.

9 DR. MAKHIJANI: No. I actually
10 talked with our team about this yesterday,
11 that in case we were asked to do this, that we
12 would start on it right away, try to finish a
13 draft, you know, by the end of the year or
14 early in January, so that we can send it to
15 DOE for review and go through all the
16 necessary steps, so that the Working Group can
17 consider it, you know, before your next
18 scheduled meeting or by teleconference or
19 before the Board, whatever, that you have
20 ample time and that the petitioners also have
21 some time to look at it.

22 CHAIR PRESLEY: What's this going

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1 to do to the site profile?

2 DR. MAKHIJANI: Well, I think what
3 it's going to do is it is going to remove the
4 major issue that has been there. Well, as Jim
5 said, the two major issues with resuspension
6 and that environmental model and the internal
7 dose are now taken care of, up to the end of
8 1992. So the most difficult issues will be
9 resolved.

10 Now there are some things in regard
11 to the site profile. NIOSH published a new
12 internal dose and list of radionuclides, and
13 there's possibly some post-93 issues: the
14 waste workers and things that we have not
15 looked at since we created the original
16 matrix.

17 We haven't received any direction
18 from you about that to my recollection, but
19 the major issues from the previous matrix will
20 be over.

21 CHAIR PRESLEY: That's what I want
22 to get on record. We have taken those 22

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1 issues and we've worked the hound out of them.

2 I want to make sure that everybody
3 understands that those original 22 issues are
4 going to be put to bed, and, hopefully, we
5 won't have another 22 issues from 1993 to
6 2009.

7 DR. MAURO: From a practical
8 perspective, going through this process, let's
9 say that a recommendation is made to grant the
10 SEC through 1992. That leaves NIOSH in a
11 position where, to do partial dose
12 reconstructions for that time period, which
13 means reconstructions for prostate cancer,
14 reconstructions for skin cancer, and some
15 others, that would still need to be done.

16 Presumably, they would be done in
17 accordance with your latest version of your
18 site profile. So the question becomes -- it
19 sounds to me that the path forward seems clear
20 in one respect. That is, SC&A will put
21 together its report on this matter, as we have
22 just reviewed it, and deliver it to the Work

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1 Group as early as we can. It is going to be
2 tight because of the DOE cycle. And you will
3 have a piece of paper that will be available
4 for PA clearance, to put up on the public
5 accounting. Of course, that will put the Work
6 Group in the position to make a recommendation
7 to the full Board.

8 However, what we don't have is,
9 okay, are there any technical issues regarding
10 partial dose reconstruction now that really
11 emerge from your latest version of your site
12 profile, which we haven't reviewed, I guess.

13 DR. NETON: Right. But we would
14 also, though, at the same time, have to revise
15 our site profile to incorporate these partial
16 dose reconstructions. That is typical of what
17 we do.

18 DR. MAURO: So I am looking at it
19 from the point of view of SC&A and what it can
20 do to add value. And it seems to me that,
21 right now, the most important thing we have to
22 do is to get this report out to support the

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1 January 29th meeting.

2 These other matters that you bring
3 up certainly are important, but it sounds like
4 perhaps they should wait until you finish your
5 paperwork related to whether it is a revision
6 to your site profile or a revision to your
7 evaluation report that addresses how you would
8 approach partial dose reconstruction.

9 But if you are planning to do that,
10 then it really would make more sense for us to
11 just sit tight for a while on that matter.

12 DR. NETON: I would agree with that
13 process perspective. I mean we are going to
14 take another look at the site profiles and
15 modify them, if this petition is granted as we
16 propose.

17 We have to make some decisions
18 about what level of internal monitoring data
19 remains. For instance, I would suspect that
20 we would still use the environmental modeling
21 for those who are not presumptive cancers,
22 that sort of thing, for internal exposures.

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1 But we have to make some of those decisions.
2 That is typically what we do after an SEC is
3 granted, what's left to do.

4 DR. MAKHIJANI: So the short answer
5 to your question, Mr. Presley, is that what
6 issues remain will depend on what NIOSH comes
7 up with in terms of revising its site profile,
8 in light of what has happened.

9 Right now, I would say that, from
10 our point of view, no issues are on the table
11 until NIOSH provides the site profile.

12 CHAIR PRESLEY: Okay. So what I am
13 hearing is that Jim needs to come up,
14 essentially, with their input to a new site
15 profile or additions to the original site
16 profile and submit that. Is that correct?

17 DR. NETON: That would be
18 appropriate --

19 CHAIR PRESLEY: Okay.

20 DR. NETON: -- although, you know,
21 typically, we wait until the SEC has been
22 granted.

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1 CHAIR PRESLEY: But we need to get
2 your data for the SEC and SC&A's data for the
3 SEC, and then say, okay, we agree with this.
4 We will either recommend to the Board that
5 this be accepted at the end of 1992 or we
6 disagree and something else.

7 DR. MAKHIJANI: Right, and I would
8 hope that, at least a week before your next
9 scheduled Working Group meeting, that the
10 Working Group would have our report on this.
11 I will try to make it as much before, if
12 possible, so that we can make it go through a
13 Privacy Act review, so petitioners can also
14 have it on the 20th.

15 DR. NETON: I think, from what I
16 have heard at this meeting so far, I think we
17 can proceed with generating a revised
18 evaluation report that we could have in hand
19 for the working group in that same timeframe,
20 if not sooner.

21 DR. MAKHIJANI: And we are very
22 comfortable with the NIOSH paper.

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1 DR. NETON: Right, and our
2 evaluation has to be based on this White
3 Paper. I mean, we will probably do a lot of
4 cut and paste.

5 DR. MAKHIJANI: If you did a line-
6 by-line review, we would have some fine points
7 to put on it, as Rich Leggett did. But we
8 have no doubt about the bottom line.

9 CHAIR PRESLEY: Wanda?

10 MEMBER MUNN: There should be no
11 extensive reports necessary between now and
12 the end of January. The reports that need to
13 come from NIOSH and from SC&A should be brief.
14 You do not need to repeat all of the
15 information that is involved in the back
16 study. That is not what we are looking for.
17 All we need is a very brief report with two or
18 three points that have made it necessary for
19 us to do what NIOSH and our contractor are now
20 suggesting.

21 It is very clear the agency is
22 charged with the responsibility of doing these

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1 dose reconstructions in the best scientific
2 manner. If there is a portion of them that
3 they cannot do, then there is no question that
4 we must accept at least some portion of the
5 SEC.

6 And whatever we are going to do
7 with the SEC needs to be clear in those two
8 very brief papers: recommendations that we can
9 then turn into a one-paragraph recommendation
10 to the full Board in February. I can see,
11 personally, no reason for any involved
12 reporting between now and then. It would seem
13 to be fairly simple.

14 MR. HINNEFELD: Well, our
15 evaluation report is going to be pretty much
16 what's in this White Paper.

17 MEMBER MUNN: Any additional
18 revision that needs to be done to the site
19 profile --

20 MR. HINNEFELD: The site profile
21 revisions will be largely a matter of removing
22 things.

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1 MEMBER MUNN: And that would be --
2 right -- subsequent to any action that would
3 be taken in February. I can see no reason why
4 that should precede the February
5 recommendation.

6 Sorry, Ted.

7 MR. KATZ: I am just saying, I
8 mean, based on Stu's and Jim's statement that
9 the evaluation report is going to be,
10 basically, what you already have before you, I
11 think you can go ahead and, in a contingent
12 sense, make a recommendation today, not leave
13 that up necessarily until the end of January,
14 which is just a week before the Board meeting.

15 MR. HINNEFELD: I just worry about
16 things, you know, whether it is things
17 happening that you can't control for: DOE not
18 clearing something, what have you. I would
19 encourage you, if you are prepared to take
20 action today, even though it is in a
21 contingent sense, to do that, just because I
22 worry about just things that you can't

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1 predict.

2 CHAIR PRESLEY: Let me pass this
3 forward. There's two or three of us that have
4 to check out.

5 Can we break right here, go to
6 lunch, be back in here no later than one
7 o'clock, and let's talk about going forward
8 with accepting the SEC as it stands to the end
9 of 1992 with a contingent that, if everything
10 goes fine and we get a thing from SC&A -- and
11 not the site profile, but the SEC petition
12 from Jim that doesn't change, and that if
13 something should go awry and we cannot meet,
14 at least we've got that and we can get on the
15 phone and say, hey, everybody's got a copy of
16 this. Do you agree? So that we can pass this
17 on to the Board.

18 I don't want to hold this up.
19 We've got people out there that really need to
20 have this pass, so that dose reconstructions
21 can be done.

22 So can we break now? You all think

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1 about it. If somebody's got some big reason
2 why that they don't want to do this, then I
3 would like to hear it at one o'clock. If not,
4 come back prepared to -- let's vote on this.

5 DR. MAKHIJANI: Also, if I might
6 make one request, Mr. Presley and Ted, I would
7 like a little more specific guidance about the
8 report, because I kind of had the impression
9 that the work that we have done should be in
10 the report, maybe as an addendum, and maybe we
11 should have a two-page report that we could
12 clean it up and not do new analysis.

13 Was that the --

14 MEMBER CLAWSON: That is what I was
15 looking at, too. I just want to be able to
16 get it to where the people, the public, can
17 actually see it and so forth, too.

18 DR. MAKHIJANI: Right.

19 MR. KATZ: I mean I think you would
20 want to tie up your loose ends that you
21 mentioned because you want a quality product
22 to be delivered.

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1 DR. MAKHIJANI: Right.

2 MR. KATZ: But I agree with that.

3 And it just occurs to me that some
4 of these, like these tables and so on, I don't
5 know how you will handle that to minimize the
6 Privacy-Act challenge.

7 DR. MAKHIJANI: Well, I think it
8 can't be done.

9 Sorry, Wanda.

10 MEMBER MUNN: Only gross numbers
11 can be done.

12 DR. MAKHIJANI: Yes. I think we
13 would probably produce some aggregate tables
14 and a summary. In the past, that is what we
15 have done, is produce a summary with some
16 aggregate data that could be made public
17 pretty easily and pass Privacy-Act review
18 relatively rapidly, at least as I remember.

19 Is that right?

20 CHAIR PRESLEY: I can see some bar
21 charts like you had in there.

22 DR. MAKHIJANI: Right.

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1 MR. KATZ: As you think about that,
2 exactly what data you want to put forth in a
3 way that minimizes the hurdles --

4 DR. MAKHIJANI: And then we would
5 have everything else in an appendix that the
6 Board would be able to look at.

7 MEMBER MUNN: Highly truncated,
8 please.

9 DR. MAKHIJANI: No, we are not
10 going to do anything new. We are going to
11 clean up what we have.

12 You know, we did discuss yesterday
13 whether there are -- you know, there are,
14 obviously, a lot of things that we didn't look
15 at, and all of us agreed -- I've even made a
16 list -- and all of us agreed that, given where
17 we were with the bottom line and how
18 comfortable we were with Jim's report, that we
19 didn't even want to recommend to you that we
20 do further work on this.

21 MEMBER MUNN: There's really no
22 reason to.

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1 DR. MAKHIJANI: No, there is not.

2 MEMBER MUNN: If the agency says
3 they cannot do the reconstruction that is
4 necessary for internal exposure, there's no
5 reason for you to qualify that.

6 DR. MAKHIJANI: No, I agree with
7 that and our whole team agrees with that.

8 CHAIR PRESLEY: Okay, let's break.

9 MR. KATZ: For an hour, is that --

10 CHAIR PRESLEY: One hour. So be
11 back in here as fast as you can at one
12 o'clock.

13 MR. KATZ: Okay. So everyone on
14 the phone, we will be back in session about
15 five after 1:00. Thank you, everybody.

16 (Whereupon, the above-entitled
17 matter went off the record at 12:02 p.m. and
18 resumed at 1:05 p.m.)

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1 Do I hear a motion as to the path
2 forward? Or has anybody got any more
3 discussion from the Working Group on this
4 first?

5 Brad?

6 MEMBER CLAWSON: I would just like
7 to move that we accept NIOSH's proposed date
8 at this time of January 1st, 1963, through
9 December 31st, 1992 in the SEC.

10 MEMBER SCHOFIELD: I will second
11 that.

12 CHAIR PRESLEY: That we accept
13 NIOSH's proposal. Do I hear any type of a
14 caveat in there?

15 MEMBER CLAWSON: Just the caveat
16 that they are going to get us the exact dates.
17 It is what you had mentioned earlier about
18 the petition.

19 MR. HINNEFELD: In fact, we will
20 provide the evaluation.

21 CHAIR PRESLEY: Correct.

22 Okay, do I hear a motion or any

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1 discussion on the motion prior to our vote?

2 The vote is to accept this.

3 Wanda?

4 MEMBER MUNN: I would have a
5 friendly addendum based on the information
6 that we have discussed earlier and based on
7 NIOSH's own recommendation that we have that,
8 although they recommend adding a portion of
9 the class to the SEC, NIOSH intends to use any
10 available internal and external data for the
11 recommended period. That can be interpreted
12 using existing NIOSH processes and/or
13 procedures for the purpose of partial dose
14 reconstructions.

15 I would request that be added as a
16 friendly adjunct to what Brad has proposed for
17 the motion.

18 CHAIR PRESLEY: Do we have any
19 discussion on the amendment?

20 (No audible response.)

21 Any more discussion on the main
22 motion?

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1 MS. HOWELL: Can I clarify
2 something?

3 CHAIR PRESLEY: Yes, ma'am.

4 MS. HOWELL: The Working Group is
5 really just making a motion about what you are
6 going to recommend to the full Board --

7 CHAIR PRESLEY: That's correct.

8 MS. HOWELL: -- as opposed to --
9 okay, I'm not sure that the wording of the
10 motion spoke to that, but maybe it did. Maybe
11 I missed it.

12 CHAIR PRESLEY: This is a
13 recommendation to the full Board that we
14 accept SEC-0084 NTS and the time period
15 December 31, 1992 -- I'm sorry -- January 1st,
16 1963 through December 31st, 1992 with the
17 addition of the words that Wanda, I hope, has
18 on her computer where we can get a copy of
19 that to him.

20 Is there any more discussion?

21 Everybody ready to vote?

22 MEMBER MUNN: I guess I would like

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1 to make one comment. It is not really a
2 discussion.

3 It is unfortunate that, given the
4 very good science that has transpired with
5 respect to this and many other issues
6 surrounding the Nevada Test Site, that we find
7 that we are unable to complete the internal
8 dosimetry information as we would like to be
9 able to do.

10 This is so often misinterpreted by
11 people outside of the circles we work in as
12 indicative of a failure in the program and a
13 failure on behalf of the individuals who have
14 worked so hard to see that safety and security
15 were maintained at that site.

16 But this is the reality of the
17 information we have now. Given that reality,
18 this is, obviously, the move we need to make
19 next.

20 CHAIR PRESLEY: And I agree with
21 what you said, Wanda.

22 Are we ready to vote?

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1 Ted?

2 MR. KATZ: You know, you can just
3 do it all in favor, if you want.

4 CHAIR PRESLEY: I can do that.

5 All in favor of the motion signify
6 by saying aye.

7 (Chorus of ayes.)

8 Opposed?

9 (No audible response.)

10 Let the record show that it was a
11 unanimous vote by the NTS Working Group that
12 the petition be granted and that we make a
13 full report to the Board as such.

14 New business.

15 What I would like to discuss just a
16 little bit before we go on is, what do we
17 anticipate for what information is going to
18 come to us on the TBD or the site profile? I
19 had a few thoughts at lunch.

20 You know, the site profile is,
21 what, Arjun, 214 pages long; something like
22 that?

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1 DR. MAKHIJANI: Well, it is in six
2 volumes. I don't remember the total.

3 CHAIR PRESLEY: Oh, the total
4 thing, yes, it is very long.

5 I wonder if, rather than going back
6 and doing this, can we have an amendment so
7 that we can say where the changes are in that
8 thing without having to come up with changing
9 Volume 1, 2, or 3 or Volume 3 and 4, or
10 whatever, so that we have some type of a short
11 version to look at what changes were made down
12 the road for this thing?

13 I realize this is not something
14 that is going to be done here in the next
15 month, but when we do get to this -- you know,
16 I work with documents all the time that use
17 change bars or I get a revision that says,
18 okay, the revision's on page 4, 10, 15, and
19 22, line so-and-so. And it sure helps me when
20 I don't have to go through 500 pages to re-
21 review a document when the changes are there.

22 Does anybody have any feelings

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1 about this?

2 MEMBER MUNN: Don't we normally
3 have a revisions sheet incorporated in the
4 transmittal document?

5 DR. NETON: There is, but it is a
6 fairly brief summary of all the changes that
7 were made.

8 MEMBER MUNN: And that's really all
9 we need, isn't it?

10 CHAIR PRESLEY: I think we ought
11 to --

12 MEMBER CLAWSON: It would be nice
13 to be able to see how it lays out --

14 CHAIR PRESLEY: See how it lays
15 out.

16 MEMBER CLAWSON: -- into the rest
17 of the -- all my procedures that are sent out
18 to us, we always have a highlighted change
19 through it, and I would really like to be able
20 to see that. It would make better use of my
21 time, if there's any way.

22 CHAIR PRESLEY: Yes. If you are

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1 going to do in the whole TBD, then put change
2 bars out there or highlight the changes where
3 we can look at that, and we can go back and
4 discuss some of the things like this.

5 DR. NETON: Refresh my memory,
6 though, where we are in the process because it
7 seems like we have issued a new revision since
8 you, SC&A, has reviewed at least the internal
9 dosimetry. So SC&A has not even reviewed the
10 latest revision.

11 CHAIR PRESLEY: Right. That's
12 correct.

13 DR. NETON: At the same time, we
14 are going to -- a lot of the issues that were
15 raised are going to go away with the potential
16 addition of the class.

17 So I would take the assignment on
18 to see if I can provide some type of
19 characterization. I don't know if I can get
20 an exact track-changes mode version, but
21 something that could indicate the differences
22 between the two revisions and where we feel

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1 the existing issues lie.

2 CHAIR PRESLEY: What I am getting
3 at, we've got another meeting coming up. If
4 Jim's not going to be ready and John has not
5 had time for SC&A to review the position or
6 the SEC, not the SEC, but the TBD and the site
7 profile, then the only thing really that we
8 have to discuss is the up-and-coming paper on
9 the petition that I hope everybody would have
10 before then in hand.

11 I see maybe getting on a conference
12 call and us doing that, rather than spend the
13 government's money on all of us and everybody
14 taking a day to come up here for that. I
15 mean, that is my thoughts.

16 We had a meeting the other day for
17 the full Board, and it only lasted 55 minutes.
18 That's all it was.

19 And I'm just wondering if we can't,
20 if at all possible, everybody's got that date
21 held -- if that's all we have to discuss --

22 MR. KATZ: Well, you may not have

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1 to discuss anything. I mean, you have made
2 your recommendation to the full Board. Unless
3 anything changes unexpectedly, it should
4 stand.

5 CHAIR PRESLEY: I still would like
6 for everybody to have a chance to look at that
7 thing and one more time say, I don't have a
8 problem with this. Let's get it to the Board.

9 MR. KATZ: So let me just suggest,
10 once the documents go out from SC&A and OCAS,
11 those will go out and be distributed to all
12 the members of the Work Group, and when they
13 are PA-cleared, they will be given to the
14 public.

15 But I think you can confer by
16 email, just to say, is there any new issue?
17 If there's no new issue, I don't think you
18 need even a meeting.

19 CHAIR PRESLEY: Okay. I
20 understand.

21 MR. KATZ: I think you're okay.

22 MEMBER ROESSLER: So no

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1 teleconference on the --

2 MR. KATZ: So it could be a
3 teleconference if there were a new issue, but
4 if there is not --

5 CHAIR PRESLEY: If there's a new
6 issue --

7 MR. KATZ: If there's no new
8 business --

9 MEMBER ROESSLER: We will hold it
10 then?

11 MR. KATZ: So I will hold that
12 meeting in case we need it, but --

13 DR. MAURO: The question is, what
14 piece of paper is needed on the record in
15 order for the Board to be able to act on your
16 recommendation? Because, in theory, right
17 now, you have effectively made a
18 recommendation, concluded a recommendation
19 contingent on --

20 CHAIR PRESLEY: I'm going to be
21 honest with you. The only thing that I see
22 that we would need is the evaluation.

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1 DR. MAURO: So that is where I'm
2 headed.

3 CHAIR PRESLEY: Right.

4 DR. MAURO: Now if your evaluation
5 report is in place, our review of what I would
6 say is in your White Paper which, for all
7 intents and purposes, we expect to be very
8 similar to what your eventual -- you would
9 have two pieces of paper in place prior to the
10 next full Board meeting. That would be to
11 provide the evaluation report and SC&A's
12 commentary. And on that basis, I think the
13 Board could proceed based on your
14 recommendations.

15 MR. KATZ: Those would be
16 circulated to the whole Board, and I'm sure
17 Jim would be planning to present to the full
18 Board on the new evaluation report, or someone
19 from OCAS.

20 Certainly, SC&A would have an
21 opportunity to present their findings on this
22 to the full Board.

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1 The Work Group would have its
2 opportunity to make its recommendation to the
3 full Board, and then it would be taken up by
4 the full Board.

5 CHAIR PRESLEY: By the full Board.

6 DR. MAURO: I just want to make
7 sure the White Paper is there.

8 CHAIR PRESLEY: That is what I want
9 to make sure, that everything is in order for
10 us to do this.

11 DR. MAURO: But the only reason I
12 brought this up is that, to move it to the
13 world of site profiles and what's needed, I
14 don't know if that's really --

15 DR. NETON: No, that's not
16 required.

17 DR. MAURO: That is not in play
18 here. We can put that on the shelf.

19 CHAIR PRESLEY: The site profile is
20 on the shelf until we can get something from
21 Jim for you all to look at, and then we will
22 go back and discuss the site profile.

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1 DR. NETON: Yes, I don't think we
2 would be ready by this 28th timeframe.

3 MR. KATZ: So it would be, in
4 effect, like as you did -- SC&A did with
5 Hanford after there was a new SEC added. You
6 are sort of going to have to -- they are going
7 to have to produce the new site profile, or at
8 least clarify what has changed with respect to
9 the site profile, and then reconcile what has
10 been taken off the table and what might be
11 remaining to discuss, and what new might --

12 DR. NETON: But Hanford is a little
13 different in the sense that there were still
14 pieces of the proposed SEC --

15 MR. KATZ: Yes. Right.

16 DR. NETON: -- hanging out there.

17 DR. MAKHIJANI: Formally speaking,
18 there is no SEC issue remaining.

19 CHAIR PRESLEY: With the petition.

20 DR. MAKHIJANI: The petition, yes.
21 Jim is right; at Hanford, the petition went
22 up to 1990, I think, something like that. So

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1 there's a period in the petition that is
2 outstanding. In this petition, there's no
3 period outstanding. So it is all, basically,
4 going forward from 93, which we are not ready
5 to do.

6 And we, as I said, did not look at
7 the 93-forward issues because --

8 DR. MAURO: That's not on the
9 table.

10 CHAIR PRESLEY: That is not on the
11 table. We don't have an SEC that has been
12 applied.

13 DR. MAKHIJANI: Right. Correct.

14 MEMBER CLAWSON: Yes, but the thing
15 that we have gone into before, NIOSH has come
16 to us and extended dates when they found more
17 information and so forth, and I want to make
18 sure that we -- because you're right, we have
19 taken up to the end of the atmospheric testing
20 and everything else like that, but then we
21 started into a different realm, and we need to
22 make sure that we don't lose sight of that, is

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1 my only issue.

2 DR. NETON: Yes, I guess the
3 question remains in my mind; is that an
4 extension of the site profile review itself?
5 Because SC&A still has an active role in the
6 review of the site profile. And if those
7 issues rose to the level of significance,
8 where we all agreed that this was a show-
9 stopper, then we certainly would be in a
10 position to add an 83.14 class, if it got to
11 that point. I'm not sure what the
12 process would be here, but that would be a way
13 to accomplish that, but the same profile
14 process continues through its logical
15 conclusion.

16 DR. MAURO: The only possible
17 caveat is, very often, your evaluation reports
18 draw heavily and make reference to your site
19 profiles. Now the extent to which you could
20 put an evaluation report out that basically
21 presents the scientific basis for your
22 recommendation, the way you did in this

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1 summary, and not have to draw heavily on a
2 site profile that is going to be revised, you
3 see -- you want clean boundaries.

4 DR. NETON: Well, I'm not in favor
5 of making issues occur that don't exist. We
6 have posited our position. It is on the
7 table. The site profile says we can do it.
8 SC&A is charged with a complete review of the
9 site profile. I think that, to me, is the
10 logical place at which to pick up the debate
11 or discussion.

12 DR. MAURO: My main concern is I
13 want to make sure that, whatever paperwork
14 needs to be in place and in the public domain,
15 which would allow the Board to be able to
16 vote, I just want to make sure everybody --

17 DR. NETON: Okay. I misunderstood
18 what you were saying.

19 DR. MAURO: I'm sorry.

20 CHAIR PRESLEY: Do we have any more
21 business to come before the Board? Any new
22 business? Any old business? Anything to come

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1 before the NTS Working Group today?

2 (No audible response.)

3 I want to thank Jim and his people,
4 John and his people, and the Working Group for
5 doing their due diligence on this.

6 MR. KATZ: Bob, are you going to
7 need some help preparing a presentation to the
8 Board?

9 CHAIR PRESLEY: I will prepare a
10 presentation to the Board, and you will see it
11 before -- everybody on the Board will see it
12 before we get it to them, and in that
13 presentation -- at the end I will hold that
14 part of the presentation until -- or what we
15 will probably do is let him do his thing.
16 John will do his thing and then we will make
17 our presentation.

18 MR. KATZ: For all of you, I will
19 just keep in mind sort of the combined result
20 of all your presentations. The full Board
21 hasn't been at the table here for all of this
22 discussion, and they will need a lot of

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1 context beyond what you have actually
2 discussed today.

3 CHAIR PRESLEY: And that is one of
4 the things that we have been, John and I and
5 Wanda and Brad, we've been real good at is,
6 when we have done these things in the past, we
7 have had a history --

8 MR. KATZ: Right.

9 CHAIR PRESLEY: -- lesson up front
10 about where we have been.

11 MR. KATZ: Right.

12 CHAIR PRESLEY: And I've got that
13 on the computer up until the last time, and we
14 will add to it.

15 MEMBER CLAWSON: You know, this is
16 kind of what I was looking at the 28th date,
17 trying to keep it open, because if we've got
18 to kind of review kind of where we are going
19 heading forward, or whatever, even if it is a
20 conference call or whatever else like that,
21 just so that we are onboard and ready to
22 present all this to the full Board, because I

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1 know that there will be numerous questions.
2 It is just a good opportunity to get freshened
3 up.

4 CHAIR PRESLEY: It will be in your
5 hands, hopefully, in the next two to three
6 weeks, so that we can --

7 MR. KATZ: Well, all of you, if you
8 have thoughts about materials that the rest of
9 the Board members ought to particularly look
10 at in addition to what is going to be provided
11 that would help them, let me know and I will
12 get those submitted to the rest of the Board
13 members, whether it be transcripts or White
14 Papers, or whatever, that has come along the
15 way.

16 MEMBER MUNN: The White Papers are
17 the easiest to read and do a better job of
18 concentrating information in small doses.

19 CHAIR PRESLEY: If I remember
20 correctly, I have an abbreviated version of
21 our 22 matrix that we had that was in one of
22 the reports where we went to the Board, and we

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1 can add the last two, which was the badging
2 and the internal doses to that and go from
3 there.

4 MR. KATZ: Very good.

5 CHAIR PRESLEY: Anything else?

6 MEMBER MUNN: No.

7 CHAIR PRESLEY: Thank you for your
8 time.

9 MEMBER MUNN: Thank you for your
10 efforts.

11 MR. KATZ: We are adjourned, and
12 thank you everyone on the telephone who has
13 contributed to this call, as well.

14 Have a good day. Happy holidays.

15 (Whereupon, the above-entitled
16 matter went off the record at 1:26 p.m.)

17

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