

UNITED STATES OF AMERICA
CENTERS FOR DISEASE CONTROL

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NATIONAL INSTITUTE FOR OCCUPATIONAL
SAFETY AND HEALTH

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ADVISORY BOARD ON RADIATION AND
WORKER HEALTH

+ + + + +

82nd MEETING

+ + + + +

WEDNESDAY
FEBRUARY 29, 2012

+ + + + +

The meeting convened at 8:15 a.m., Pacific Standard Time, in the Waterfront Hotel, 10 Washington Street, Oakland, California, James M. Melius, Chairman, presiding.

PRESENT:

JAMES M. MELIUS, Chairman
HENRY ANDERSON, Member
JOSIE BEACH, Member
BRADLEY P. CLAWSON, Member
R. WILLIAM FIELD, Member
MICHAEL H. GIBSON, Member
MARK GRIFFON, Member
JAMES E. LOCKEY, Member
WANDA I. MUNN, Member

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PRESENT: (continued)

DAVID B. RICHARDSON, Member
GENEVIEVE S. ROESSLER, Member
PHILLIP SCHOFIELD, Member
PAUL L. ZIEMER, Member
TED KATZ, Designated Federal Official

REGISTERED AND/OR PUBLIC COMMENT PARTICIPANTS:

ADAMS, NANCY, NIOSH Contractor
AL-NABULSI, ISAF, DOE
BALDRIDGE, SANDRA*
BATT, CHRISTINA, CDC
BUCHANAN, RON, SC&A*
CALHOUN, GRADY, DCAS
CHEW, MEL, ORAU
CRUZ, RUBEN, CDC
FITZGERALD, JOE, SC&A
GIRON, ELOY*
GLOVER, SAM, DCAS
HINNEFELD, STU, DCAS
KINMAN, JOSH, DCAS
KOTSCH, JEFF, DOL
LEWIS, GREG, DOE
LIN, JENNY, HHS
LIPSZTEIN, JOYCE, SC&A*
MAKHIJANI, ARJUN, SC&A
MAURO, JOHN, SC&A*
NETON, JIM, DCAS
ROLFES, MARK, DCAS
RUTHERFORD, LAVON, DCAS
STIVER, JOHN, SC&A
TRIPLETT, TINA*

*Participating via telephone

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

2 8:26 a.m.

3 CHAIRMAN MELIUS: Good morning. I
4 welcome everybody to the second day of meeting
5 number 82 of the Advisory Board on Radiation
6 and Worker Health. And that's my welcome.

7 MR. KATZ: Good morning, everyone.

8 This is Ted Katz, the Designated Federal
9 Official of the Advisory Board. I'll let
10 everyone on the phone know we have a long
11 agenda today, we run to 6. All of the
12 presentations for the agenda are on the
13 Advisory Board or the NIOSH website under the
14 Advisory Board, under the Meetings section.
15 So you can follow along with those
16 presentations, those PowerPoint presentations.

17 Let me also remind everyone on the
18 line to please mute your phones. Press *6 if
19 you don't have a mute button and that'll mute
20 your phone. Pressing *6 again will take your
21 phone off of mute. And also please do not put
22 the phone on hold at any point, but hang up

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1 and dial back in if you need to leave the call
2 for a bit.

3 Let's -- we're missing a couple of
4 Board Members from the table right now. We
5 should do roll call. Let me check on the
6 line.

7 CHAIRMAN MELIUS: Phil is there.

8 MR. KATZ: But that's okay for a
9 roll call. First let me just check on the
10 line though. Do we have Dr. Lemen on the
11 line? Okay, no. But let's do roll call in
12 the room. Now we have several sites we're
13 discussing today so Board Members please note
14 whether you have a conflict of interest with a
15 specific site as you respond to roll call.
16 And let's begin with the Chair.

17 (Roll call.)

18 MEMBER ZIEMER: I'm here and I'm
19 actually unsure whether I'm conflicted because
20 the Clinton Engineer Works was a predecessor
21 to Oak Ridge for which I am conflicted. I
22 don't know what the connection there is. It

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1 preexisted.

2 MR. KATZ: You do not have a
3 conflict.

4 MEMBER ZIEMER: That's what I was
5 trying to elicit, some -- a thumbs up from the
6 attorneys to cover myself.

7 MR. KATZ: No conflict.

8 MEMBER ZIEMER: I now declare
9 myself to be non-conflicted.

10 CHAIRMAN MELIUS: A conflict-free
11 zone.

12 MR. KATZ: Mark. How have we lost
13 Mark? Okay, well we will catch up with Mark
14 and have him speak to conflict when he
15 returns.

16 CHAIRMAN MELIUS: Okay, we'll
17 start and the first item on the agenda today
18 is Sandia National Laboratories and Sam Glover
19 will be doing the presentation. This may be
20 your first time here today so, welcome.

21 DR. GLOVER: Thank you, Board
22 Members. If you remember, not that long ago

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1 we presented an 83.13 for the early years at
2 Sandia.

3 PARTICIPANT: We can barely hear
4 you.

5 DR. GLOVER: I'm sorry. Is that
6 better?

7 PARTICIPANT: Yes, that is. The
8 other speakers were very difficult to hear as
9 well except for Dr. Ziemer and Ted Katz.

10 DR. GLOVER: Very good, I'll make
11 sure I stay closer to the mic. So my name's
12 Sam Glover and I'm going to present a later
13 portion. We presented earlier, about six
14 months ago, recently enacted. Sandia has a
15 new SEC for the early time frames. And we had
16 -- at the Board at that time that we would
17 continue our review for the later periods.
18 SEC Petition 188 came in subsequently after
19 that and they actually petitioned for the
20 later periods up through 2011. And so that is
21 what we're going to discuss today.

22 So this petition was received July

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1 18th, 2011. The petitioner proposed a Class
2 of all security inspectors, security clerks,
3 firemen, non-regularly recurrent security
4 inspectors, security officers, security police
5 officers 1, 2, 3, alarm system operators that
6 worked in any area at Sandia National Labs,
7 Albuquerque, for the period January 1, 1963
8 through May 21st, 2011.

9 The petition qualified for
10 evaluation on October 21st, 2011. The
11 petition basis, the radiation monitoring
12 records for members of the proposed Class may
13 have been lost, falsified or destroyed similar
14 to where we left off with the previous SEC
15 review. Monitoring data retrieval problems
16 incurred by NIOSH while processing individual
17 claims while performing site data capture work
18 supported the petition basis.

19 NIOSH evaluated the Class all
20 personnel who worked at any area at Sandia
21 National Laboratories in Albuquerque, New
22 Mexico for the period January 1, 1963 through

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1 May 21st, 2011. And as I briefly mentioned
2 that Sandia -- had already added a Class from
3 January 1, 1949 through December 31st, 1962.

4 Standard sources available that we
5 usually look through, but I want to -- we have
6 been to Sandia numerous times. We have been
7 very -- worked very hard at trying to get
8 information at Sandia. So in addition to the
9 Technical Basis Documents and all the other
10 facilities -- we have over 2,500 documents.
11 I'll go through how many times. I think we've
12 been to Sandia, well, dozens of times.

13 The 367 claims submitted, 323 with
14 employment during this time frame. I did miss
15 this one. They caught most of my oversights
16 when I updated this but I did miss that this
17 should be from the later time frame. It
18 should be from '63 onward. Dose
19 reconstruction completed for claims with
20 employments during the period: 270; claims
21 with internal dosimetry: 37; and with external
22 dosimetry it says 256. That doesn't sound

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1 right.

2 A little background. In 1945 Z-
3 Division of Los Alamos moved to what was to
4 become the Sandia National Laboratory. The
5 covered period for the laboratory as
6 established by the Department of Labor begins
7 in 1949 and covers weapons assembly, weapons
8 ordnance engineering, production coordination
9 among the various Atomic Energy complex
10 facilities such as Clarksville, Medina and
11 Pantex.

12 So just a brief area. It's in the
13 middle of a large Air Force base and so they
14 have a number of technical areas.

15 Potential external radiological
16 exposure during the Class period is a broad
17 spectrum of external hazards. Photon exposure
18 related to generators, accelerators, materials
19 returned from weapons testing, reactors and
20 other research and waste materials. Beta
21 exposures from activated components, materials
22 returned from weapons testing and air filters

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1 from cloud sampling, neutrons, weapons-related
2 accelerators, reactors and various neutron
3 sources. And while it's at the -- it's at
4 sort of the beginning, not until 1958 did they
5 implement neutron dosimetry at Sandia National
6 Labs.

7 Internal radiological exposures
8 also, while not considered a high radiological
9 site they actually did have numerous internal
10 sources of exposure including plutonium,
11 tritium, uranium, americium, fission and
12 activation products as well as thorium.

13 Health physics was the
14 responsibility of the Industrial Hygiene
15 Division prior to 1957 at which point a health
16 physics section was formed. And essentially
17 we located minimal documentation of the
18 practices and requirements during the
19 evaluation period. Monitoring requirements
20 were developed based on the judgment of
21 departments, divisions and supervisors, and
22 they're really not well-documented on why

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1 those decisions were made. Interviews
2 indicate that coverage was temporal and ad hoc
3 in nature which continues until the time of
4 the Tiger Teams.

5 Personnel monitoring data. The
6 availability of monitoring data remains a
7 significant concern. In November of 2009,
8 NIOSH notified the Department of Energy that
9 case responses were incomplete particularly as
10 related to internal dosimetry and that we had
11 essentially acquired individual data during
12 our document captures that was not being
13 provided.

14 So in January 2010 we re-requested
15 the records for open Sandia National
16 Laboratory cases. And the Department of
17 Energy and Sandia National Labs are currently
18 reviewing the best path forward. They have
19 re-responded but they are still working on an
20 overall approach to records.

21 Unlike many DOE facilities, Sandia
22 National Labs did not report the number of

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1 bioassay samples. So when I go to Hanford you
2 know what your number is, what is X, that you
3 would know you had everything. You don't have
4 that here although it was likely few. Based
5 on interviews it's thought to be small. NIOSH
6 obtained limited -- or some copies of bioassay
7 records as part of its site data captures and
8 claim data requests.

9 The number of samples by year from
10 NIOSH records are provided in the following
11 table. I will mention that the data collected
12 from 1992 through 1994 were provided by the
13 CEP. And that data, that company was
14 convicted of fraud. CEP data during this time
15 frame is not used by NIOSH for dose
16 reconstruction.

17 As you can see we have some
18 samples, tritium being the most prevalent.
19 And these are just samples for the most part
20 what we've picked up just as the result of
21 finding them in the 50,000 boxes in what we
22 will term the mountain, they are the old silo

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1 sites and that's what they used for records
2 storage. And they're indexed but they weren't
3 indexed to be reviewed for this type of
4 purpose. So, sometimes you find things just
5 by happenstance. And so it is a difficult --
6 sometimes you just get lucky or you just find
7 things by happenstance. And so we have some -
8 - we just recently in the last week I think we
9 got an extra database of later term stuff. So
10 you see we ended 1991 here by the time they
11 actually began a database system. So we just
12 got the database from Sandia for post-'91. So
13 we'll be looking at it.

14 As we talk about post-'94, I'm
15 going to ask you to hold that in -- I don't
16 know if the correct term is abeyance or under
17 further review. Our recommendation only goes
18 through '94 at this time.

19 External dosimetry results are
20 essential -- yes?

21 MEMBER RICHARDSON: One
22 clarification. You said that you received the

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1 database post '91 but the prior slides said
2 that the data for '92 to '94 were not used.

3 DR. GLOVER: So they have a --
4 that database includes external as well as
5 internal. CEP was an internal dosimetry. It
6 will include that type of data. So it is
7 their database system. We had not had an
8 opportunity to truly review and do any
9 statistics.

10 MEMBER RICHARDSON: Okay. So, but
11 this slide I was looking at was bioassay data.
12 So it's -- although you've received the data
13 it's not -- that's --

14 DR. GLOVER: Yes, sir.

15 Let's see. External dosimetry
16 results were centralized from the beginning at
17 Sandia National Labs. Personal data requests
18 seem to be fairly complete for external
19 dosimetry. There are some differences and
20 they are working on correcting those
21 differences. Documentation of pre-1957
22 external dosimetry was not obtained by NIOSH.

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1 Post-'57 documentation indicates workers in
2 radiation areas were to be badged. Available
3 data represents a fairly substantial
4 population. NIOSH has further developed
5 external coworker models and neutron-to-photon
6 correction factors to determine dose to
7 unmonitored workers.

8 So our proposed -- the feasibility
9 of dose reconstruction. NIOSH has determined
10 that monitoring data, process information and
11 monitoring program information are
12 insufficient to support bounding internal
13 doses for the evaluated Class. There are
14 indications that additional data may exist.
15 These data are not readily accessible and may
16 never be accessible.

17 Based on a lack of internal
18 monitoring program documentation and source
19 term information and data for the evaluated
20 period, NIOSH feels it cannot establish a
21 bounding approach even if the
22 microfilm/microfiche data were to become

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1 available. NIOSH concludes it cannot bound
2 internal doses for the period January 1, 1963
3 through December 31st, 1994 and will continue
4 to assess post-1994 dose reconstruction
5 feasibility in a subsequent evaluation for
6 Sandia National Labs.

7 NIOSH recommendation regarding
8 non-SEC claims are that NIOSH found it is not
9 possible to completely reconstruct internal
10 radiation doses for the proposed Class. NIOSH
11 intends to use any internal and external
12 monitoring data that may become available for
13 an individual claim and that can be
14 interpreted using existing NIOSH dose
15 reconstruction processes or procedures.

16 Our recommended Class is all
17 employees of the Department of Energy, its
18 predecessor agencies and its contractors and
19 subcontractors who worked in any area at
20 Sandia National Laboratories in Albuquerque,
21 New Mexico from January 1, 1963 through
22 December 31st, 1994 for a number of workdays

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1 aggregating at least 250 work days occurring
2 either solely under this employment or in
3 combination with work days within the
4 parameters established for one or more other
5 classes of employees in the Special Exposure
6 Cohort.

7 In summarizing our recommendation
8 from '63 through '94, internal: not feasible
9 and the other, external, gamma, beta, neutron
10 and occupational medical X-ray as feasible.
11 From 1995 forward we continue to review the
12 feasibility dose reconstruction for this
13 period for internal and we'll report to the
14 Board at a subsequent meeting. Thank you.

15 CHAIRMAN MELIUS: Thank you, Sam.

16 Board Members have questions for Sam? Could
17 you at least for my benefit clarify a little
18 bit more the '91 to '94, sort of a follow-up
19 to David's question. I'm a little confused
20 still.

21 DR. GLOVER: From a -- they began
22 using electronic databases to store their

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1 data. In around '92 they changed to a new
2 format system. We didn't have access to that.
3 Before that it was in hard copy microfiche
4 records.

5 CHAIRMAN MELIUS: Okay.

6 DR. GLOVER: And so they've
7 recently transferred to us their electronic
8 databases. The problem in that -- even if we
9 had that data with them not using the internal
10 dosimetry data from that '92 to '94. So we
11 haven't determined if we have deficiencies for
12 that database. The problem is that CEP
13 falsified data. And so because of that, we do
14 not use any data in that time frame for
15 internal dose.

16 CHAIRMAN MELIUS: Other Board
17 Members have questions at this time? Okay. I
18 believe we have petitioners on the line and we
19 had a petitioner I think submitted a letter
20 which he wanted read into the record. So I'll
21 ask Ted Katz to read the letter into the
22 record.

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1 MR. KATZ: Sure. But before I do
2 that, let me -- we have one of our Board
3 Members joined us after we had done roll call.

4 Mark Griffon is here and if you'd just speak
5 to whether you have any conflicts of interest
6 today?

7 MEMBER GRIFFON: Yes, Mark
8 Griffon, no conflicts.

9 MR. KATZ: Thank you. Okay, so
10 here's the letter from the petitioner dated
11 February 21st, 2012.

12 To whom this may concern: I am
13 writing this in response to the written reply
14 that I received from Mr. Josh Kinman on
15 February 16th, 2012 concerning my Special
16 Exposure Cohort petition.

17 While I'm happy to hear that a
18 recommendation is going to be made to add the
19 following Class, quote, all employees of the
20 Department of Energy, its predecessor agencies
21 and its contractors and subcontractors who
22 worked in any area of the Sandia National

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1 Laboratories in Albuquerque, New Mexico from
2 January 1st, 1963 through December 31st, 1994
3 for a number of workdays aggregating at least
4 250 workdays occurring either solely under
5 this employment or in combination with
6 workdays within the parameters established for
7 one or more Classes of employees including the
8 Special Exposure Cohort, unquote, I feel that
9 to limit this new Class to December 31st, 1994
10 does not serve the entire Class of people that
11 I am seeking this Special Exposure Cohort for.

12 My petition stated that I and
13 fellow members of the Security Police
14 Association were subject to inconsistent
15 external and area monitoring and absolutely no
16 internal monitoring while working around
17 special nuclear material and other
18 radiological hazards. This lack of monitoring
19 did not stop on December 31st, 1994, but
20 continued through the removal special nuclear
21 material from our site in the spring of 2007.

22 Due to additional testing, new

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1 security concerns and changes to our security
2 posture, I and my fellow Security Police
3 Association members saw a dramatic increase in
4 our exposure to special nuclear materials and
5 other radiological hazards from 2004 through
6 2007. Once again, this exposure was with
7 inconsistent external and area monitoring and
8 absolutely no internal monitoring.

9 In order to properly cover all
10 members of the Special Exposure Cohort
11 petition that I have filed I am requesting
12 that the above recommendation for a new NIOSH
13 proposed Class be extended to include all
14 workers through the date of my petition.
15 Respectfully, Eloy Giron.

16 CHAIRMAN MELIUS: Thanks, Ted.
17 Does the petitioner want to add anything to
18 that statement at this point? You're not
19 required to but I just want to at least offer.

20 MR. GIRON: This is Eloy. No, I
21 don't want to add anything at this time.
22 Thank you.

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1 CHAIRMAN MELIUS: Okay, thank you,
2 sir.

3 Anybody, any Board Members have
4 any further comments or questions?

5 MEMBER ANDERSON: Sam, do you have
6 any timeline for when a decision might be made
7 on this, on the later period?

8 DR. GLOVER: I think we'll have to
9 see what the databases look like but I think
10 we'll -- it takes a long time to get data out
11 of Sandia, the classification reviews and the
12 type of information. So it's something -- I
13 hesitate to give you a number. We will
14 certainly work as quickly as we can.

15 MEMBER ANDERSON: It's kind of, at
16 what point do you say enough is enough.

17 DR. GLOVER: My boss makes that
18 determination.

19 (Laughter.)

20 MEMBER ANDERSON: Right.

21 MR. HINNEFELD: We actually ask
22 that question periodically, at roughly six-

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1 month intervals for any particular case. It's
2 a fairly complicated answer depending upon,
3 sort of a judgment of how fruitful additional
4 work will be, so.

5 CHAIRMAN MELIUS: But if I
6 understand it, the database you just have
7 gotten access to or just learned about? I'm
8 trying to understand.

9 DR. GLOVER: So I think we have to
10 look. It's a very long covered period, you're
11 talking from '63 all the way up through 2011.

12 CHAIRMAN MELIUS: Right.

13 DR. GLOVER: And so there was a
14 certain -- this chunk fit very well within
15 that. The next phase is a whole 'nother
16 version of the research. And so I was able to
17 complete this type of research in this time
18 frame. We have to sort of refit a little bit
19 here and look at a different data set,
20 different in where the records are, who was
21 monitored, in the post Tiger Team time frame.

22 And so there's different people we need to

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1 talk to.

2 CHAIRMAN MELIUS: You physically
3 have that now.

4 DR. GLOVER: Yes, sir.

5 CHAIRMAN MELIUS: Okay.

6 DR. GLOVER: Both the external and
7 internal.

8 CHAIRMAN MELIUS: Okay. So the
9 question would be for further access the
10 questions that arise out of that and what you
11 need to do to, you know, interview and follow
12 up on that --

13 DR. GLOVER: Yes, sir, the source
14 term.

15 CHAIRMAN MELIUS: Okay. Other
16 Board Members have questions? Yes, David.

17 MEMBER RICHARDSON: I have -- this
18 is sort of a related question but it turns to
19 the non-SEC claims. You said in November 2009
20 NIOSH had notified DOE that responses were
21 incomplete as related to internal dose and
22 that you had found data during data captures

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1 that had not been provided when you had asked
2 for it.

3 And this I guess for me raises a
4 question of the proposed -- or the
5 recommendation was that you intend to use any
6 internal and external monitoring data that
7 become available for individual claims that
8 are non-SEC claims. And it's -- I mean, I
9 don't know -- what's happening with this issue
10 that you raised back in 2009 regarding
11 completeness of response?

12 DR. GLOVER: Sandia and Greg Lewis
13 and his office have expended a lot of effort
14 trying to come to grips with the data. They
15 began scanning in the databases, trying to
16 fill in these gaps. It's highly complicated
17 about making -- where the gaps were and what
18 data sets were going to fill it. And that's
19 why I left it that they have identified some
20 different resources, they're looking at those
21 to see if they will fill the gaps, but it
22 currently is being decided on what the best

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1 path forward is, if it will fill these
2 previous, even back through the time frame
3 into the sixties and fifties. Are we getting
4 all the data and are they able to find all the
5 resources.

6 So that's being reviewed by the
7 Department of Energy. They're looking
8 carefully at that now. We've identified
9 additional resources at NTS where they had
10 actually typed in from the external dosimetry
11 database. They produced electronic data
12 sources and that may help them on some of
13 their external dose.

14 From an internal standpoint we are
15 still looking to make sure that all those
16 records are properly accessed. Of the 900
17 SRDB documents that we found individual claim
18 data in, we provided those to Sandia to try to
19 help them understand where we found them at
20 with the location, the boxes. And so we're
21 working collaboratively with them to try to
22 find -- to make the responses as complete as

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1 possible.

2 CHAIRMAN MELIUS: Any other
3 comments or questions? Yes, Bill.

4 MEMBER FIELD: Sam, it says on one
5 slide that there's the possibility of
6 additional materials available. It sounds
7 like from the previous slides that it's very
8 unlikely that that includes very much
9 biomonitoring data. Is that true?

10 DR. GLOVER: Bioassay was fairly
11 limited at Sandia and has probably become less
12 so over time. They've changed their mission
13 scope. But even if we get it, because of the
14 nature, what I call an ad hoc and it's not --
15 you cannot find the dosimetry information that
16 would tie that to a decision, it really --
17 very difficult for us to interpret, certainly
18 for like determining a coworker model or the
19 appropriateness of the monitoring programs.

20 CHAIRMAN MELIUS: Any other
21 comments or questions?

22 (No response.)

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1 Will I hear a suggestion for
2 action? Wanda.

3 MEMBER MUNN: I move that the
4 Board accept the NIOSH recommendation for a
5 Special Exposure Class that includes all
6 employees of the Department of Energy, its
7 predecessors, contractors and subcontractors
8 that were in any area of Sandia National Labs
9 in Albuquerque, New Mexico from January 1,
10 1963 through December 31, 1994.

11 MEMBER ZIEMER: Second.

12 CHAIRMAN MELIUS: Any further
13 discussion or comment? If not, if you'd call
14 the roll, please.

15 MR. KATZ: Dr. Anderson?

16 MEMBER ANDERSON: Yes.

17 MR. KATZ: Ms. Beach?

18 MEMBER BEACH: Yes.

19 MR. KATZ: Mr. Clawson?

20 MEMBER CLAWSON: Yes.

21 MR. KATZ: Dr. Field?

22 MEMBER FIELD: Yes.

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1 MR. KATZ: Mr. Gibson?

2 MEMBER GIBSON: Yes.

3 MR. KATZ: Mr. Griffon?

4 MEMBER GRIFFON: Yes.

5 MR. KATZ: I'll collect Dr.

6 Lemen's vote after this meeting. Dr. Lockey?

7 MEMBER LOCKEY: Yes.

8 MR. KATZ: Dr. Melius?

9 CHAIRMAN MELIUS: Yes.

10 MR. KATZ: Ms. Munn?

11 MEMBER MUNN: Yes.

12 MR. KATZ: Dr. Poston is recused,

13 absent but recused from this site anyway. Dr.

14 Richardson?

15 MEMBER RICHARDSON: Yes.

16 MR. KATZ: Dr. Roessler?

17 MEMBER ROESSLER: Yes.

18 MR. KATZ: Mr. Schofield has

19 recused himself from this. Dr. Ziemer?

20 MEMBER ZIEMER: Yes.

21 MR. KATZ: So, it is unanimous

22 with one absent vote. The motion passes.

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1 MEMBER BEACH: Ted, is somebody
2 going to pick these up?

3 MR. KATZ: Yes, those need to go
4 to Stu.

5 CHAIRMAN MELIUS: Stu. And first
6 of all, just for the petitioner and others
7 listening on the line, this doesn't close out
8 our -- I want to make sure you understand this
9 doesn't close out our review of this petition.

10 It will, you know, Sam Glover's report. It
11 will continue and we will continue to review.

12 And we have new information which NIOSH needs
13 to look at. The Board will need to be
14 involved in reviewing NIOSH's evaluation of
15 that. And so we will follow. So this is not
16 -- your petition is still open and will still
17 be followed up on.

18 I would also mention that we have
19 -- the Board will be meeting in Santa Fe in
20 June. Around June 19th. And there will be a
21 public comment period there. And you know, we
22 certainly welcome anyone, both petitioner and

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1 anybody else, that's concerned about the site
2 to come up and offer a public comment or other
3 information, and certainly stay in touch with
4 Mr. Glover about these activities. Yes.

5 MEMBER BEACH: And just a
6 reminder, we do have a Work Group for that
7 also.

8 CHAIRMAN MELIUS: Right. That was
9 my next statement is to remind we do have a
10 Work Group on Sandia. And it certainly might
11 be helpful depending on the timing of some of
12 this and so forth to involve the Work Group
13 also in these future deliberations and so
14 forth, and possibly even a short call of the
15 Work Group as you're going forward, at least
16 to sort of brief them on what your plans are,
17 Sam, and so forth with that. I believe Dr.
18 Lemen is the chair of that Work Group. Henry,
19 Josie and Gen, are you on that? I can't
20 remember who the --

21 MEMBER ROESSLER: I don't think
22 so. Tell me if I am.

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1 (Laughter.)

2 CHAIRMAN MELIUS: Surprise.

3 MR. KATZ: Sandia is --

4 CHAIRMAN MELIUS: Gen Roessler.

5 MR. KATZ: Yes.

6 MEMBER ROESSLER: Thank you.

7 (Laughter.)

8 MEMBER ANDERSON: Am I on that
9 too?

10 CHAIRMAN MELIUS: Yes.

11 MEMBER ANDERSON: Okay. You've
12 got to get after Dick.

13 CHAIRMAN MELIUS: Well, it really
14 -- a little hard to schedule a meeting when
15 you get the report.

16 MEMBER ANDERSON: Yes.

17 MEMBER ROESSLER: I think I'm a
18 new appointment on that.

19 CHAIRMAN MELIUS: It hasn't met
20 and it was -- you have no reason to --

21 MEMBER ROESSLER: Be embarrassed?

22 CHAIRMAN MELIUS: Be embarrassed,

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1 yes.

2 MEMBER ANDERSON: Gen, the two of
3 us.

4 CHAIRMAN MELIUS: We have a little
5 bit of time before 9:30 when we'll start our
6 next SEC petition so I'd like to continue.
7 There's a couple of letters I'd like to get
8 reviewed and then we'll continue with our Work
9 Group reports. Yes, sir?

10 MR. GIRON: This is Eloy Giron
11 from Sandia.

12 CHAIRMAN MELIUS: Yes.

13 MR. GIRON: I'd like to thank the
14 Advisory Board and Dr. Glover at this time.
15 Thank you, guys.

16 CHAIRMAN MELIUS: Okay, well,
17 thank you. We appreciate that. Okay. As
18 usual I will read the letter into the record.

19 The Advisory Board on Radiation
20 and Worker Health, the Board, has evaluated a
21 Special Exposure Cohort, SEC, Petition 00188
22 concerning workers at the Sandia National

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1 Laboratories, Albuquerque, New Mexico under
2 the statutory requirements established by the
3 Energy Employees Occupational Illness
4 Compensation Program Act of 2000, EEOICPA,
5 incorporated into 42 C.F.R. Section 83.13.
6 The Board respectfully recommends that SEC
7 status be accorded to, quote, all employees of
8 the Department of Energy, its predecessor
9 agencies and their contractors and
10 subcontractors who worked in any area of
11 Sandia National Laboratories, Albuquerque, New
12 Mexico from January 1st, 1963 through December
13 31st, 1994 for a number of workdays
14 aggregating at least 250 workdays occurring
15 either solely under this employment or in
16 combination with workdays within the
17 parameters established for one or more other
18 classes of employees included in the Special
19 Exposure Cohort, close quotes.

20 The recommendation is based on the
21 following factors: individuals employed at
22 Sandia National Laboratories in Albuquerque,

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1 New Mexico during the time period in question
2 worked on research and technical tasks related
3 to production of nuclear weapons.

4 The National Institute for
5 Occupational Safety and Health, NIOSH, review
6 of available monitoring data as well as
7 available process and source term information
8 for this facility found that NIOSH lacked the
9 sufficient information, parentheses, including
10 internal monitoring program documentation,
11 close parentheses, necessary to complete
12 individual dose reconstructions with
13 sufficient accuracy for internal radiological
14 exposures to a number of radionuclides to
15 which employees of this facility may have been
16 subjected during the time period in question.

17 The Board concurs with this determination.

18 NIOSH determined that health may
19 have been endangered for employees of the
20 Sandia National Laboratories in Albuquerque,
21 New Mexico during the time period in question.

22 The Board also concurs with this

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1 determination.

2 Based on these considerations and
3 the discussion at the February 28th-29th, 2012
4 Board Meeting held in Oakland, California, the
5 Board recommends that this Class be added to
6 the SEC. Enclosed is the documentation of the
7 Board Meeting where this Class was discussed.

8 The documentation includes copies of the
9 petition, the NIOSH review thereof and related
10 materials. If any of these materials are
11 unavailable at this time they will follow
12 shortly.

13 Comments? Questions?

14 (No response)

15 Okay. I have another letter if I
16 can find it here. Why don't we go on with
17 Work Group reports while I try to locate the
18 missing letter? And the next Work Group up
19 is, I believe we had just finished up with
20 Mound, and so Pantex.

21 MEMBER CLAWSON: As most of you
22 know we've passed an SEC for Pantex but we had

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1 the earlier years and the later years from
2 1984 up to 1990 that were in question. I
3 talked with Mr. Rolfes and Mr. Lewis
4 yesterday. We're having trouble getting the
5 information through Pantex classification
6 officers to be able to bring forth a report to
7 us. We're still continuing to look at those
8 years and as soon as we get more information
9 we'll -- the Work Group will reconvene and
10 reevaluate those time periods.

11 CHAIRMAN MELIUS: Okay. Any idea
12 on the timetable?

13 MEMBER CLAWSON: After yesterday
14 talking with Mr. Lewis it's going to be sped
15 up. The issue is that it's been sent to
16 Pantex and they've been non-responsive. So we
17 took it a little step higher.

18 CHAIRMAN MELIUS: Okay, good.
19 Thank you, Greg, for speeding that up. Okay.
20 The next Work Group is Pinellas.

21 MEMBER SCHOFIELD: There have been
22 some interviews. There was a couple of

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1 gentlemen interviewed in Albuquerque who were
2 actually I guess you'd say in charge of the
3 health physics. And then we had some
4 classified interviews done in Tampa recently.

5 There are a lot of new data and some
6 questions answered. So, this kind of gives us
7 the direction we're going to look before we
8 have another Work Group meeting at this point.

9 Both NIOSH and DCAS and SC&A were involved in
10 these interviews so it gives us something to
11 work with for a while.

12 CHAIRMAN MELIUS: Okay. Again,
13 timetable?

14 MEMBER SCHOFIELD: Timetable?
15 Actually that's one of the principal
16 influences is Albuquerque. Right now I'd
17 probably be -- I'm guessing June.

18 CHAIRMAN MELIUS: Okay.

19 MR. KATZ: Yes, the SC&A report I
20 think we expect in March, based on those
21 interviews.

22 CHAIRMAN MELIUS: Okay.

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1 MR. KATZ: So that'll help move
2 things forward.

3 CHAIRMAN MELIUS: Okay. That
4 one's been hanging for a while. I know it's
5 hard but we should move it along. Okay.
6 Rocky Flats?

7 MEMBER GRIFFON: Yes, I think we
8 want to discuss the implementation of the
9 Class. I can't remember. We did have a
10 conference call to get the Work Group back to
11 looking at the Site Profile although now,
12 since we have another SEC coming in, I'm sure
13 we'll shift gears on that. But in the
14 meantime, I had asked this item be highlighted
15 on the agenda to discuss this question of the
16 implementation of the Class of workers under
17 the old Class Definition. And if you recall,
18 it was -- basically it was the language of
19 monitored or should have been monitored for
20 neutron exposures that caused quite a bit of
21 trouble in terms of implementation.

22 And I think -- I've actually been

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1 in the last five minutes frantically looking
2 for the last bulletin by Department of Labor
3 because I wanted to get it correct. But I
4 mean, we had a conference call following up on
5 this and I just wonder what the action of the
6 Board can be. I mean, we don't advise DOL.
7 On the other hand, we did make this Class
8 Definition.

9 And my concern is that, and Jeff
10 might have to help me out here, but the latest
11 Class Definition, I think they -- or the
12 latest bulletin they did as guidance to the
13 compensation examiners allow them to look at
14 the Rутtenber database but it indicates that
15 if the individual identified in the Rутtenber
16 database had a recorded dose in excess of 100
17 millirem for neutrons. Is that -- I think
18 that's accurate. Yes. In a year, right, in a
19 year. So, and that's -- when we originally
20 defined that term, monitored or should have
21 been monitored, it was sort of based on the
22 current regulatory focus which is that 100

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1 millirem per year could have been received.

2 My trouble with that is that part
3 of the reason that we as a Board established
4 the Class was the concern that we couldn't
5 reconstruct neutron doses during those years.

6 So, just to see the 100 millirem was
7 established from the NDRP data and then
8 interpreted by Ruttenber, it's sort of a
9 circular logic in my opinion to set that as a
10 cutoff, 100 millirem. I would rather see
11 something that if they were identified in the
12 database they had the potential for neutron
13 exposure, period, and just anyone named in
14 that database should be included. Now, I know
15 that's a much broader list. I don't know the
16 difference in numbers. I think Brant at one
17 point gave those numbers to the Work Group.
18 But it does expand the Class, for sure. But
19 my concern is the logic behind this 100
20 millirem cutoff in the Ruttenber database.

21 So, again, I don't know who we
22 would advise on this since we don't directly

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1 advise Labor, but I just wanted to bring it to
2 the Board's attention and have some discussion
3 on that subject.

4 CHAIRMAN MELIUS: So, has there
5 been interaction between NIOSH and Department
6 of Labor on that issue?

7 MR. HINNEFELD: Well, certainly
8 not in recent conversations.

9 CHAIRMAN MELIUS: And do we know
10 how many people that affects? Claimants.

11 MR. HINNEFELD: I don't have that
12 number here. I could try to get a message to
13 Mark or to Brant and see if he recalls, or if
14 he can reconstruct it. I don't know that
15 we've --

16 DR. NETON: I don't know that we
17 actually know that number because I think
18 Brant's analysis was somewhat different than
19 what Labor is implementing right now. So I'm
20 not certain that we ever --

21 MEMBER GRIFFON: It could have
22 been an earlier iteration. Yes.

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1 DR. NETON: Yes, I think Brant's
2 calculation was somewhat different than what
3 Labor is doing right now so I'm not sure that
4 we actually have that information.

5 CHAIRMAN MELIUS: But wouldn't
6 those cases then -- if they don't qualify for
7 the SEC, they would come back to NIOSH? Is my
8 logic correct?

9 DR. NETON: Yes, they would come
10 back to NIOSH for dose reconstruction.

11 CHAIRMAN MELIUS: Dose
12 reconstruction, so you'd have a way of
13 identifying.

14 DR. NETON: If they came back to
15 us, yes.

16 CHAIRMAN MELIUS: Yes, yes. I
17 mean, would that be some way of getting an
18 idea on the scope of the issue, as well as
19 some more detail on who's impacted?

20 DR. NETON: Well, we don't -- not
21 everybody that was in Ruttenger database is a
22 claimant. That's one of the problems.

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1 CHAIRMAN MELIUS: I know, but
2 we're only concerned about claimants, in a
3 way. I mean, the only people we have access
4 to are claimants.

5 DR. NETON: Well, and I think
6 Brant did that analysis and I think it was a
7 fairly small number. I mean, we're talking a
8 handful, I think, was the difference. But I
9 don't know that he used the 100 millirem
10 criteria. It was a very small number and it
11 would have been included if we had -- if the
12 Ruttenber database were used based on the
13 claimant population we currently had in-house
14 at that time. That's what he did.

15 CHAIRMAN MELIUS: Can --

16 DR. NETON: We can resurrect that
17 number.

18 CHAIRMAN MELIUS: Can we resurrect
19 the number and sort of think about, well, what
20 -- are there ways of identifying claims that
21 would come back that would -- if there are any
22 that would be sort of -- I guess the question

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1 is really sort of what is the impact of that.

2 DR. NETON: It's non-zero and it's
3 pretty small. We can get a better handle on
4 that.

5 CHAIRMAN MELIUS: Yes. Let's at
6 least work from there and then I think we can
7 --

8 MEMBER GRIFFON: And I could be
9 wrong. I thought that at some point, Brant
10 did look at the Ruttenber database. They're
11 not claimants, as Jim said, but if they are
12 potential claimants I suppose, you know. So
13 he did look at the overall database and looked
14 at that number, I thought. But it might have
15 been not with the 100 millirem criteria so I
16 don't know.

17 DR. NETON: Yes, I think Brant
18 looked at anyone who was in Ruttenber. If you
19 recall, the Ruttenber database assumed that
20 anyone that was sort of a maintenance craft-
21 type worker could have been in a neutron
22 building and imputed a dose for those people

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1 based on some ratio that was provided to him.

2 It was part of an epi study.

3 MEMBER GRIFFON: Right.

4 DR. NETON: And so it was more
5 expansive than the NDRP which actually went
6 and looked at people who were physically
7 badged and used those data. So it's a larger
8 population but as far as the claimant
9 population we had in-house, it was not that
10 large a number. But it could potentially be
11 much larger. We just maybe didn't have a
12 representative sampling.

13 MEMBER GRIFFON: But my argument
14 is -- I guess it's more, you know, how does
15 Labor sort of justify this condition, this 100
16 millirem condition. Because, you know, by
17 implementing it this way I think you're
18 accepting Ruttenber's broaden the potential
19 workers that could have been exposed to
20 neutrons by default. By saying if you're in
21 the Ruttenber database and you got 100
22 millirem, you're accepting his research logic

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1 which, as Jim said, you know, expanded to
2 other people potentially being exposed to
3 neutrons and imputed those doses from N/P
4 ratios.

5 But then, you know, what I'm
6 asking is since this Class was based on the
7 Advisory Board saying that the N/P ratios
8 couldn't be relied on to reconstruct neutron
9 doses, how can we use a hard cutoff of 100
10 millirem to identify people in that database?

11 I just don't get the logic. I don't know if
12 Labor can speak to that or --

13 MR. KOTSCH: Jeff Kotsch,
14 Department of Labor. I mean, we just applied
15 -- we just extended, you know, the 100
16 millirem DOE neutron monitoring limit that's
17 basically the guidance to the Ruttenber
18 database. And we knew that they didn't -- I
19 forget what it's exactly called. It's called
20 job something analysis and we'll do groups of
21 people rather than actual individuals. But so
22 we knew that that would broaden the actual

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1 potential population. We assumed that was at
2 least claimant-favorable in our assessment of
3 those people. The 100 millirem also exists
4 obviously in the other bulletin when we assess
5 I think doses that come off the dose
6 reconstruction, neutron doses.

7 MEMBER GRIFFON: Right, and I made
8 the same argument then. So I think it would
9 apply to both.

10 MR. KOTSCH: So it's just a
11 continuation of that. I think just to be
12 consistent with the previous guidance.
13 Certainly we welcome any clarification of the
14 intent of the Class. But, you know, the
15 definition.

16 CHAIRMAN MELIUS: Paul?

17 MEMBER ZIEMER: Could you remind
18 us what the actual official Class Definition?
19 Did it change or does it remain the way it
20 was before, the monitored or should have been
21 monitored? So that's the definition and this
22 is just how Labor is applying it.

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1 And actually I think Mark's point
2 from a logical view is correct. I mean,
3 you're saying you can't do neutron doses and
4 you're using a neutron value. So logically
5 it's a little questionable. But to me it's
6 still sort of the question of, does it work.
7 Okay, it looks like it more than works.

8 CHAIRMAN MELIUS: Yes, well, the
9 issue is what's the impact and is there a
10 significant impact or not. I think we're
11 obviously staying away from those kinds of
12 definitions to the extent because they are
13 hard, difficult for, you know, lots of
14 reasons.

15 MEMBER GRIFFON: I mean, I guess
16 there's -- well, I guess, you know, why is
17 100. It's a pretty arbitrary number, I think,
18 because if you believe our opinion that we
19 can't reconstruct neutron doses then why isn't
20 the cutoff 10 or anything greater than zero,
21 or you know.

22 MEMBER RICHARDSON: Dr. Melius,

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1 could I ask you to clarify? When we get a
2 sense of the impact of alternative definitions
3 on the number of claims or claimants that
4 would fall under the Class is the sense that
5 if it's small, we should do nothing, or is the
6 sense that if it's small, Department of Labor
7 should do something? I wasn't clear.

8 CHAIRMAN MELIUS: The only group
9 that can do anything at this point is the
10 Department of Labor. And so I think it would
11 -- I think one, it would be helpful to know
12 what the impact is. Certainly if I were the
13 Department of Labor and we were asking them
14 to, you know, sort of reconsider this approach
15 it would be well, what difference does it
16 make. I think is the logical question.

17 You know, so is that both the
18 original analysis that Brant did as well as
19 the -- are there cases coming back that aren't
20 being considered eligible and NIOSH is having
21 to deal with them so they may be able to get
22 some sort of a count or estimate from that?

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1 And then I think we need to consider then how
2 to communicate that to the Department of Labor
3 but that's not, you know, a formal
4 communication to the Department of Labor on
5 this is not a trivial.

6 MEMBER RICHARDSON: Right. And so
7 Ted, is there like a mechanism where you send
8 a friendly letter?

9 (Laughter.)

10 CHAIRMAN MELIUS: The Secretary
11 sends a friendly letter to the Secretary.
12 That's -- for probably appropriate reasons
13 that's, you know. I think there are some
14 other informal ways of communicating with the
15 Department of Labor but it's the same
16 information. Those are probably the ones that
17 should be followed.

18 MR. KATZ: Yes, that would be
19 extreme. Informally for DCAS to communicate
20 with Department of Labor would be a good
21 route.

22 CHAIRMAN MELIUS: Yes.

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1 MEMBER RICHARDSON: I just wasn't
2 clear where this conversation was going.

3 MEMBER GRIFFON: Well, and maybe
4 in the meantime if someone can check with
5 Brant to see if he did do it yet.

6 CHAIRMAN MELIUS: Yes. And we
7 have the Work Group.

8 MEMBER GRIFFON: Anyway, other
9 than that we'll -- I guess the Rocky Flats
10 Work Group will stand ready to move on the new
11 SEC petition, as well. And I think Joe has
12 recently updated the matrix from old Site
13 Profile issues that we had not closed out
14 during our initial process because we focused
15 on the SEC issues. So we've been sort of on
16 standby but we're ready to go. Right, Wanda?

17 MEMBER MUNN: Thank you for giving
18 me that opportunity, Mark. Well, I'm a Member
19 of this Work Group but was unable to even
20 prepare for the teleconference and was not in
21 the country when the teleconference occurred
22 and so at no point did I interject anything

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1 into the deliberations that were involved
2 here. And to be very truthful, on my return
3 to the country, that's one of the things that
4 dropped through the cracks at my house. I did
5 not remember that I should be reading these
6 minutes and getting completely up to speed on
7 this.

8 It occurs to me, the discussion
9 that just transpired here with respect to the
10 100 millirem is, you know, it seems as though
11 whether or not you can define that this is the
12 legitimate point or not begs the question.
13 The original thinking on these things, and I
14 can't see any reason why it would have
15 changed, would have had to do with the effect
16 on human physiology of specific kinds of
17 exposures. And if the assumption was that
18 there's no appreciable, definable statistics
19 to back up the assertion that any neutron
20 exposure that resulted in less than 100
21 millirem was deleterious, then that, as you
22 pointed out, it's as good a level as any

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1 other. So, it seems like a moot point.

2 But I agree that, I'm hoping that
3 the Work Group is indeed ready to move forward
4 on this. I'll make every effort to bring
5 myself up to speed and try to communicate my
6 thinking a little more succinctly than I have
7 been able to do in the last two months. I
8 frankly was unaware of the fact that we were
9 going to discuss this today. So, thank you.

10 CHAIRMAN MELIUS: Any other
11 comments? Thank you. I want to move on to
12 another letter left over from yesterday which
13 -- I'm glad I found it. It was hidden under
14 the Brookhaven pile.

15 The Advisory Board on Radiation
16 and Worker Health, the Board, has evaluated
17 Special Exposure Cohort Petition 00139
18 concerning workers at Hangar 481 on the
19 premises of Kirtland Air Force Base under the
20 statutory requirements established by the
21 Energy Employees Occupational Illness
22 Compensation Program Act of 2000, EEOICPA.

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1 incorporated into 42 C.F.R. 83.13. The
2 National Institute for Occupational Safety and
3 Health, NIOSH has recommended individual dose
4 reconstructions are feasible for, quote,
5 workers at Hangar 481, Kirtland Air Force
6 Base, from March 1st, 1989 through February
7 29th, 1996, close quotes.

8 NIOSH found it has access to
9 adequate exposure monitoring and other
10 information necessary to do individual dose
11 reconstructions with sufficient accuracy for
12 members of this group and therefore a Class
13 covering this group should not be added to the
14 SEC. The Board concurs with this
15 determination.

16 Enclosed is the supporting
17 documentation from the Board meetings where
18 this SEC Class was discussed. The
19 documentation includes copies of the petition,
20 the NIOSH review thereof and related
21 materials. If any of these items are
22 unavailable at this time, they will follow

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1 shortly.

2 Comments? Questions? Okay.

3 Three down and a few to go. We still have a
4 little bit of time left. Santa Susana Work
5 Group, there was a little bit of discussion on
6 that earlier. Maybe you can --

7 MEMBER GIBSON: Dr. Melius, it's
8 been some time since the Work Group has met.
9 There's still some problem getting data from
10 Boeing.

11 CHAIRMAN MELIUS: Right.

12 MEMBER GIBSON: That DCAS and both
13 Department of Labor are having. Or Department
14 of Energy, excuse me.

15 CHAIRMAN MELIUS: Do we have a
16 timetable? I missed that part of the
17 conversation.

18 MR. HINNEFELD: It has to do with
19 obtaining a data set for coworker purposes and
20 I don't have a time frame today. We thought
21 that we -- that Boeing had said okay and that
22 they were going to send us the data set. And

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1 then the next we heard from them is, well,
2 we'll send it if our contracting officer, our
3 DOE contracting officer tells us to. So,
4 we're now making that approach. And that just
5 happened like late last week. So, we started
6 our approach to the DOE contracting officer
7 late last week. If that person concurs and
8 then they go ahead and provide it, we should
9 have it within a couple of weeks, I think.

10 CHAIRMAN MELIUS: Okay, great.
11 Thank you, Stu. Savannah River?

12 MEMBER GRIFFON: Yes, just very
13 briefly. We haven't met since the last Board
14 meeting. We did vote on the SEC Class at the
15 last meeting. The main -- the primary issues
16 continue to be the sort of -- we dealt with
17 thorium at the last Board meeting and the
18 other issues are the other exotic
19 radionuclides. NIOSH is in the process of
20 developing several coworker models. And I'm
21 not exactly sure if Arjun has an update on the
22 timing. I'd have to look up the dates but I

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1 expect that we'll have a Work Group meeting
2 prior to the next full Board meeting
3 certainly. I'm not sure.

4 DR. MAKHIJANI: Well, I don't have
5 an update on the NIOSH timing but I can give
6 you a couple of pieces of information.

7 MEMBER GRIFFON: Okay.

8 DR. MAKHIJANI: There were -- SC&A
9 participated with NIOSH in thorium data
10 capture post the SEC period. So that activity
11 is going on. There have been two visits, I
12 think. We named an alternate person. Kathy
13 was going before. Now we have an alternate
14 person from SC&A who's following that who has
15 the requisite clearances. And so that is
16 going on.

17 As you know we've -- I updated the
18 matrix. A number of issues were resolved by
19 the SEC but there are numbers that are still
20 outstanding. We don't have -- other than, you
21 know, these follow-up visits, data capture
22 visits with NIOSH we don't have a to-do list

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1 now. We're kind of awaiting NIOSH's coworker
2 models. I thought they were to be in March
3 but maybe there's an update about that.

4 MEMBER GRIFFON: Yes, I have to
5 touch base with Tim Taulbee on the timelines
6 on those. But there are several coworker
7 models due to come to the Work Group. So, but
8 I'll email him and schedule a Work Group
9 meeting in the near future. The next month
10 and a half or so, I think we should expect a
11 Work Group meeting.

12 CHAIRMAN MELIUS: Let me see what
13 NIOSH told us last week. TBD, to be
14 determined.

15 (Laughter.)

16 CHAIRMAN MELIUS: TBD for the
17 TBDs.

18 MEMBER GRIFFON: But I'm sure in
19 the Work Group that we pressed Tim on dates
20 for those coworker models and he did --

21 MR. HINNEFELD: Yes, I believe the
22 americium model might be out and the neptunium

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1 model is due. According to our information I
2 just looked up, in March, the neptunium model
3 is due and the mixed fission product is in
4 May. According to the dates that we have
5 here. Those are target dates. But I would
6 think the March date would be pretty good.

7 MEMBER GRIFFON: So we'll try to
8 schedule a Work Group meeting when it makes
9 the most sense.

10 DR. NETON: I think the americium
11 model is being held up a little bit by me for
12 some final statistical analyses. But it's
13 out.

14 CHAIRMAN MELIUS: We know the
15 responsible party now.

16 (Laughter.)

17 DR. NETON: I'm the holdup on the
18 americium model.

19 MR. HINNEFELD: Okay.

20 CHAIRMAN MELIUS: Write that down,
21 Stu.

22 MR. HINNEFELD: Yes, I'm making a

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1 couple of notes here.

2 CHAIRMAN MELIUS: And we haven't
3 forgotten you either, LaVon. You're still on
4 the agenda. Okay.

5 SEC issues. That's me and I will
6 tell my fellow Work Group Members. We'll be
7 planning a conference call meeting, it should
8 not be necessarily a long one, within the next
9 month. We'd like to talk about the -- our
10 path forward on the issue of sufficient
11 accuracy. So just sort of a planning meeting
12 and certainly Jim and Stu should be part of
13 that also. So I'd like to be able to do that
14 and then be able to have some Board discussion
15 on that issue and how we should handle that at
16 our April phone call.

17 TBD-6000?

18 MEMBER ZIEMER: Right, in this
19 case TBD doesn't stand for to be determined.
20 But the TBD-6000 Work Group is focusing
21 currently mainly on General Steel Industries.

22 We received early in January a

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1 final set of White Paper material from NIOSH
2 which has to do with the models for bounding
3 betatron exposures. And those are currently
4 under review also by SC&A. We have a meeting
5 scheduled for March 15th.

6 I should point out we got comments
7 from [Identifying information redacted]
8 yesterday in the public comment period. I've
9 asked him to provide us with those in writing.

10 Obviously both SC&A and NIOSH will need to
11 take a look at the impact of those items that
12 [Identifying information redacted] raised as
13 we consider the -- really focus on the SEC
14 petition that's before us for that site.

15 So I'm hoping that we'll be at a
16 point where we can reach some closure on the
17 SEC petition. We'll have to see the
18 implications of this new information that
19 [Identifying information redacted] has
20 provided. But in any event, we're meeting
21 March 15th and we'll report at the next
22 meeting the outcomes.

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1 CHAIRMAN MELIUS: Okay. Thank
2 you. Any questions for Dr. Ziemer? Okay. I
3 still call it TBD-6001.

4 MEMBER ANDERSON: The AWE Work
5 Group. Trying to change my mind set.

6 CHAIRMAN MELIUS: You went to the
7 head of the list.

8 MEMBER ANDERSON: Yes, right, we'd
9 start first.

10 I think we have now closed out all
11 of our SEC reviews in our Work Group. And
12 what we are left with is basically a tickler
13 file of TBD issues that were raised during
14 those discussions that now just have to be
15 finalized, implemented within the document.
16 There's two that we're currently actively
17 still working on that we still have a meeting
18 to go and that's Baker-Perkins and United
19 Nuclear. Hooker still has some TBD issues to
20 be put into the document as does Electro Met.
21 We have DuPont Deepwater also on our agenda
22 but as far as those needing to move quickly,

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1 the SECs I think are pretty much finished
2 unless there are new ones coming along.

3 CHAIRMAN MELIUS: You never know,
4 you never know. Yes, LaVon may have a
5 surprise for you later. That's why we put him
6 on last on the program.

7 Questions for Henry? I'd just
8 like to thank you and your Work Group Members
9 for your efficiency in moving through those.
10 That was good. Appreciate it.

11 I think we're running up to our
12 time period here so we've got a couple of Work
13 Groups left but we'll do those depending.
14 Some either later this morning or this
15 afternoon as we go through our schedule. I'm
16 sure by the time -- if we finish early, it'll
17 start raining if I believe the forecast.

18 But I think we're ready and I saw
19 Stu getting ready up there for Clinton
20 Engineer Works. We're getting a little break
21 from Sam Glover. We've got Jim Neton taking
22 over.

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1 DR. NETON: Thank you, Dr. Melius.
2 I'm going to present SEC 00178 Evaluation
3 Report for Clinton Engineer Works. Dr. Laura
4 Hughes was our NIOSH technical person on this
5 Evaluation Report. I'm just presenting the
6 good work that she put into this.

7 An overview of the petition. It
8 was an 83.13 petition received in July of 2010
9 and the petitioner proposed the Class
10 Definition that you see on the slide which was
11 all guards and service workers who were there
12 between January 1st, '43 and May 18th, 1947.
13 That's a little bit more narrow than the
14 covered period. The official covered period
15 extends from January 1st, '43, all the way
16 through the end of December 1949.

17 It qualified in 2010 essentially
18 based on the fact that employees were not
19 monitored. We do have some monitoring data
20 for folks that were at Clinton Engineer Works
21 but it's very spotty and not much there at
22 that. The Class that was eventually

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1 evaluated by NIOSH in this report was all
2 guards and service workers who worked in or
3 around the warehouses at the Elza Gate area of
4 Clinton Engineer Works for the entire covered
5 period which is January 1st, '43 through
6 December 31st, '49.

7 The reason, and I'll talk about
8 this later, that the Elza Gate Warehouse area
9 was chosen is because, to our knowledge, that
10 is the only part of Clinton Engineer Works
11 that handled or possessed any radioactive
12 materials outside of the already-defined
13 facilities that were within the Clinton
14 Engineer Works, that is Y-12, X-10, K-25.
15 We'll talk a little bit more about that as I
16 get into the presentation.

17 So, just to get to the bottom
18 line, the proposed Class we want to add is all
19 employees -- this is even more confusing now -
20 - of the Tennessee Eastman Corporation who
21 were responsible for workers at the Elza Gate
22 Warehouse between '43 and '47 and Carbide and

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1 Carbon Chemicals Corporation who took up that
2 contract between '47 and '49. So, all workers
3 who worked for Tennessee Eastman Corporation,
4 Carbide and Carbon Chemicals who were employed
5 at the Clinton Engineer Works for the covered
6 period, that is between '43 and '49.

7 So this is sort of a unique
8 definition. We could not figure out a way to
9 identify people who actually worked at the
10 Elza Gate. It's just not possible. So we
11 took a broader tactic here which we
12 identified, and I'll talk about this a little
13 later, that these two employers were
14 responsible for workers who worked at the Elza
15 Gate Warehouse. In other words, there were
16 several contractors that oversaw operations
17 within the Clinton Engineer Works boundaries
18 and the ones identified in this Class
19 Definition were the ones responsible for
20 workers at the warehouses. If that's not
21 clear I'll go over that a little bit.

22 Okay, I probably should have

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1 started with this but the Clinton Engineer
2 Works is a very large area. It's 59,000 acres
3 and it encompasses X-10, K-25, Y-12, the Oak
4 Ridge Hospital, the Oak Ridge Institute of
5 Science and Education which are all covered
6 facilities already, and it also includes the
7 community of Oak Ridge. So, it's huge. It's
8 17 miles long, 19 miles wide, something around
9 150 square miles of land and I think at one
10 point there was as many as 75,000 people
11 located within this defined facility in the
12 early 1940s.

13 As I said, the city of Oak Ridge
14 is also within this defined covered facility
15 which occupied eight square miles in the
16 northeast corner of the Engineering Works.

17 As I said earlier, the K-25, Y-12
18 and X-10 are within the facility but they're
19 not included in this definition. So they're
20 purposely excluded from this definition.

21 This is just a map that shows the
22 extent of the Clinton Engineer Works. It's 17

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1 miles long by 9 miles wide, somewhat oval-
2 shaped. It's bounded on essentially three
3 sides by the Clinch River that you can see on
4 the map. The Elza Gate is in the upper right-
5 hand corner with the red circle there. It was
6 where material came in and there was a rail
7 spur there. It was used to load and unload
8 materials into these five warehouses that
9 existed in that 20-acre site.

10 So as I've mentioned the Elza Gate
11 Warehouse was a 20-acre site. There were five
12 warehouses. To our knowledge, only three of
13 the five warehouses actually had any
14 radioactive material in them. And as I
15 mentioned at the beginning they're the only
16 buildings within the Clinton Engineer Works
17 where radioactive material was known to have
18 been stored, handled or had anything to do
19 with the AEC operations.

20 And the workforce of the
21 warehouses was provided by the Y-12 facility
22 contractor who, as I mentioned, was Tennessee

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1 Eastman Corporation between '47 and '49, and
2 followed by Carbon and Carbide Chemicals
3 Corporation thereafter. So this provides us a
4 nice definition since we know that if they
5 worked for those contractors during this time
6 period then they could have been at the Elza
7 Gate Warehouse.

8 I will say that we've verified
9 that that is the case through several sources
10 of information. I interviewed a former Board
11 Member who has some knowledge of this, a
12 couple of Oak Ridge site historians we talked
13 to, and there's also at least one document
14 that we looked at that you could infer that
15 the Y-12 contractors responsible for the
16 management of the personnel at the Elza Gate
17 Warehouse.

18 This is a blowup of that other map
19 that you saw and you can see the 20-acre site
20 in the northeast corner there bounded by --
21 there's a railroad spur, Clinch River on one
22 side and -- what's that -- Melton Lane Drive

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1 on the east side. So it's tucked away in the
2 corner here and it's a convenient spot for
3 materials to be dispositioned.

4 Well, there was a lot of material
5 stored there that was radioactive. I think in
6 looking at the documents that we obtained,
7 there were a couple dozen different categories
8 of material that were stored there. Anywhere
9 from uranium metal to UO3 to UF6 and a lot of
10 slag and residues, high-grade ore which would
11 be Belgian Congo ore and the low-grade ore
12 which would have been domestic ore from
13 probably the Colorado Plateau or someplace
14 like that. Various different radioactive
15 materials. There was indications that there
16 was scrapings from the receivers of the
17 calutrons.

18 And these materials were stored in
19 various forms: paper bags, burlap bags,
20 whiskey barrels. And we have inspection
21 reports that clearly indicate that some of
22 these barrels were broken and leaking and that

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1 sort of thing.

2 Included in these ores, in the
3 high-grade of course was a lot of radium which
4 generated quite a bit of radon gas. I just
5 looked at some reports this morning and the
6 values were all above the working level. A
7 couple of hundred picocuries per liter all the
8 way up to 6700 picocuries per liter. And then
9 we had a subsequent report that talked about
10 they tried to ventilate the buildings and they
11 got it down in one place to 2700 picocuries
12 per liter. So it's a pretty -- quite a bit of
13 radioactivity in these various warehouses.

14 As we always present, we try to
15 give you a feel for the number of claims,
16 although in this particular instance this
17 slide is very deceiving. It says we have 38
18 CEW claims submitted to NIOSH. Well, that's
19 true, we have 38 claims that say that at least
20 part of their covered exposure was listed as
21 being at the Clinton Engineer Works. But the
22 reality is that we don't think any of them

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1 actually worked at the Elza Gate Warehouse.
2 You know, you can identify that through their
3 employer.

4 Many of these people worked for
5 the site managing contractor who was Roanne-
6 Anderson who kind of did the logistics
7 management of the entire 50,000-acre site.
8 And I don't believe at this point that there's
9 anyone in this claimant population that
10 actually worked for the Clinton Engineer Works
11 in the covered time period for the contractors
12 that we mentioned, Tennessee Eastman
13 Corporation or the Carbide Corporation. Or
14 they have already been covered under a
15 previous Y-12 Class. Because, you know, if
16 you worked at Y-12 you were also employed by
17 Tennessee Eastman Corporation in those early
18 years and those are already covered. It's a
19 covered facility. So, at this particular
20 point in time I don't believe we have anyone
21 that's in this Class.

22 Our typical sources of available

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1 information. We looked at Technical
2 Information Bulletins. I mentioned the
3 interview we did with two Oak Ridge
4 historians. We looked through the claimant
5 files, documentation supplied by the
6 petitioner. And there's a number of documents
7 in the Site Research Database that talk about
8 inspection reports and some of the monitoring
9 that was done albeit somewhat limited. And
10 then we also did some data captures which are
11 listed on the subsequent slide here. Our
12 typical internet search is DOE Opennet, CDER,
13 and then the NARA Atlanta facility and Oak
14 Ridge Operations Office. I think we have
15 somewhere around 300 documents that at least
16 mention Clinton Engineer Works to some degree
17 or another.

18 So we can imagine, given the
19 source term that I just talked about, that
20 there's a good potential for both internal and
21 external exposure from the direct handling of
22 these ores and tailings and the inhalation of

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1 radon would certainly not be trivial here. I
2 was actually very surprised how high these
3 levels were although I'm not quite sure about
4 the accuracy. This was back in the days when
5 they did the evacuated containers and they
6 would suck some radon gas into an evacuated
7 cylinder and then try to measure it later
8 based on the daughter ingrowth.

9 But dust and inhalation from the
10 handling of the ore and slag material would
11 certainly be present. As I mentioned,
12 inspection reports show that this material has
13 leaked and they did some repackaging from
14 paper into burlap bags.

15 The external sources of course are
16 well known for uranium and its long-lived and
17 short-lived progeny. Photon betas would be
18 present in some shape or another depending
19 upon the concentration of the uranium in the
20 ore and the radium that was present. I think
21 there was something on the order of I want to
22 say a tenth of a curie of radium per ton which

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1 doesn't sound like a lot but it comes out to
2 be a pretty high number per gram of materials.

3 I think the exposure rates were not trivial.

4 And I sort of went through this
5 already. The internal sources of exposure
6 from the inhalation of the uranium and its
7 progeny as well as the radon -- and the radon
8 from the radium.

9 Not much in the way of available
10 internal monitoring data. There's I think
11 around 30 radon air samples that were taken on
12 a couple instances in '44 and '45 when they
13 were trying to get a handle on how much
14 ventilation might improve the situation. I
15 actually ran across a memo that was
16 complaining that they were trying to spend
17 money to put mechanical ventilation when there
18 could be other ways to mitigate this, like
19 changing out work crews and that sort of thing
20 which is, it's kind of interesting to think
21 about in today's world. We would never do
22 something like that.

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1 There was no information about
2 anyone at the warehouse undergoing bioassay
3 samples although we do have some indications
4 that the workers were supposed to have been on
5 a blood monitoring program presumably looking
6 for changes in blood chemistry based on
7 exposures, which was not uncommon during that
8 era. So we have no internal monitoring data
9 at all for workers at these facilities.

10 The external monitoring data, I
11 think we have maybe up to 300 film badges that
12 -- for a limited number of workers in '45 and
13 '46 only. This was provided by the University
14 of Rochester who did a lot of the early work
15 before HASL was established. And there were a
16 limited number of gamma survey measurements
17 available.

18 So, our ultimate conclusion here
19 is that there is insufficient monitoring and
20 source term data to draw any conclusions
21 regarding exposures of these workers during
22 the entire covered period between '43 and '49.

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1 And for the reasons I just mentioned, the
2 limited external monitoring data and the lack
3 of bioassay and our lack of knowledge of any
4 of the -- any hard numbers on the source term
5 although it was clearly in the thousands of
6 pounds if not hundreds of tons of material.

7 So, a brief slide to summarize our
8 feasibility of the findings. We cannot do
9 dose reconstruction for any of the materials
10 associated with radon or uranium or its long-
11 lived and short-lived progeny or the photons
12 or electrons that are emitted from the
13 daughters as well. We don't believe there's
14 any credible evidence that any neutron sources
15 were stored there so we don't believe neutrons
16 are a factor, so that's N/A. We do intend to
17 reconstruct medical X-rays using our
18 approaches outlined in TIB-6, I believe.

19 So, the health endangerment
20 indicated that there were no -- there's no
21 evidence of any kind of incident that could
22 have endangered health on a very short,

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1 sporadic basis. So we're assuming that health
2 was endangered through chronic exposure and
3 the normal 250-day requirement for membership
4 in the Class would apply to this particular
5 Class as well.

6 So, our proposed Class here is all
7 employees who worked for either of these
8 facilities, Tennessee Eastman Corporation or
9 Carbide and Carbon Chemicals for the time
10 periods under which they managed those
11 employees. These people who were employed at
12 the Clinton Engineer Works from January 1st,
13 '43 through the end of December 1949 for 250
14 work days. And that as usual could be
15 aggregated with exposures from other of the
16 covered sites.

17 So, my final slide here is our
18 recommendation which is the Class that I just
19 mentioned. Dose reconstruction is not
20 feasible. Health was endangered. And that's
21 it.

22 CHAIRMAN MELIUS: Okay. Board

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1 Members have questions for Jim? Yes, Bill.

2 MEMBER FIELD: You may have stated
3 this but I just wanted to -- just curious. Do
4 you know what the size of the workforce was
5 during this period?

6 DR. NETON: I didn't state it but
7 it was -- I don't know that we really know but
8 it was fairly small. I would say it's in the
9 couple dozens of folks who would have been
10 there. Not a huge number of people. But
11 that's just an estimate. I don't have any
12 hard facts to base that on.

13 CHAIRMAN MELIUS: Yes, David.

14 MEMBER RICHARDSON: I mean, I
15 guess it gets to that question. You know, the
16 way I read the proposed Class that workforce
17 is not dozens, that workforce is extremely
18 large, right? I mean, all employees of TEC
19 and Carbide in those periods?

20 DR. NETON: But they're already
21 covered under Y-12's SEC Class.

22 MEMBER RICHARDSON: Yes. I mean,

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1 so what we're being asked to do is to imagine
2 a set and then imagine subsets within it which
3 have been excluded.

4 DR. NETON: Yes.

5 MEMBER RICHARDSON: And implicitly
6 just think about the remainder.

7 DR. NETON: It's essentially an
8 extension of Y-12 in a way since the Y-12 ran
9 that facility. But unfortunately the
10 definition -- a facility is defined as another
11 facility by law so we have to cover it under a
12 separate SEC evaluation.

13 MEMBER RICHARDSON: And so --

14 MEMBER ANDERSON: Covering a
15 loophole.

16 MEMBER RICHARDSON: Yes, because
17 this is what -- so was the petitioner in this
18 set? You said that nobody was in this set so
19 far.

20 DR. NETON: No, the petitioner is
21 not covered under this Class.

22 MR. HINNEFELD: This is Stu

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1 Hinnefeld. My understanding is that the
2 petitioner does not even have 250 days of
3 employment total. And I believe he was in
4 fact a Y-12 security officer.

5 DR. NETON: Not necessarily at the
6 Elza Gate Warehouse.

7 MR. HINNEFELD: But we don't know
8 if he was at the Elza Gate, but he was -- that
9 was his work. But I don't believe he had even
10 250 days of employment total.

11 MEMBER RICHARDSON: And so you're
12 -- because I've never, I don't think -- I
13 mean, this could be. I, you know. When I
14 would go about trying to assemble a list of Y-
15 12 workers we would get a list -- we would get
16 employment rosters from the contractors who
17 were there. And I believe it would enumerate
18 these people and they would have locations.
19 But you're saying somehow you've been able to
20 distinguish or perhaps not distinguish
21 somebody who, when I asked for a list of the
22 TEC contractor employees, was at the Elza

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1 Gate, was not considered a Y-12 worker. See,
2 I'm not sure -- I don't know how I would have
3 known that.

4 MR. RUTHERFORD: This is LaVon
5 Rutherford. I wanted to add, we actually
6 approached Department of Labor about adding
7 the Elza Gate to the Y-12 facility designation
8 because of this situation.

9 MEMBER RICHARDSON: But how do
10 they know right now that somebody's -- because
11 don't they just get a claim? They get
12 employment history. It says --

13 DR. NETON: We don't. I mean,
14 that's the point.

15 MR. RUTHERFORD: We have no idea.

16 MEMBER RICHARDSON: Well, so
17 they've not excluded anybody so far, I
18 wouldn't think.

19 MR. RUTHERFORD: No.

20 MEMBER RICHARDSON: Because they
21 don't know their work location.

22 MR. RUTHERFORD: Right, and that's

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1 why we're saying everyone -- that we know of
2 no claim that would be added because of this.

3 DR. NETON: You could
4 theoretically go get a claim that worked at
5 the Clinton Engineer Warehouse at the Elza
6 Gate. That would be their employment. And
7 right now they wouldn't be covered.

8 MEMBER RICHARDSON: Yes, but it
9 wouldn't say that, I don't think. I think it
10 would -- wouldn't they say that they've got
11 pay stubs, they were on an employment list for
12 this contractor at these dates and we can't
13 place them? I'm just, operationally I'm
14 trying to imagine how somebody would have
15 fallen out through these cracks already.

16 MR. RUTHERFORD: I don't think
17 anyone's fallen out through the cracks. I
18 think they're all covered under Y-12. And you
19 know, I don't want to go --

20 DR. NETON: Well see, they
21 wouldn't be covered if they said that their
22 employment was -- they worked at the Clinton

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1 Engineer Warehouse. Unless we identified it
2 as people who worked at Tennessee Eastman
3 Corporation they wouldn't be covered
4 necessarily. Tennessee Eastman Corporation is
5 not a covered designation; Y-12 is. So just
6 because you worked at Y-12 doesn't mean you're
7 covered at Clinton Engineer Warehouse. This
8 makes it happen though, see.

9 MEMBER BEACH: And that's based on
10 the Class Definition for Y-12.

11 DR. NETON: The Class Definition
12 for Y-12 just says people who worked at Y-12
13 are covered. It doesn't say people who worked
14 at Tennessee Eastman Corporation. This says
15 if you worked at Tennessee Eastman Corporation
16 then we know you worked at Y-12 and so now
17 you're covered. It covers a very subtle
18 loophole I think in the way this is set up.

19 CHAIRMAN MELIUS: It wouldn't be a
20 small number of people that would have --
21 might possibly have spent the 250 days at the
22 Elza Gate Warehouses --

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1 DR. NETON: Exactly.

2 CHAIRMAN MELIUS: -- and not have
3 other work in Y-12.

4 DR. NETON: Right. And Stu makes
5 a good point. We don't have the option of
6 doing nothing here. I mean, we have a
7 petition that came to us. We evaluated it and
8 this is our best attempt at dispositioning it.

9 CHAIRMAN MELIUS: Bill?

10 MEMBER FIELD: But it sounds like
11 it's the usefulness for potential claimants at
12 this point.

13 DR. NETON: It could be. I mean,
14 it's possible a person could have worked for
15 Tennessee Eastman Corporation and said that
16 their employment was at the Clinton Engineer
17 Works. Unless we define it this way, they
18 would not be covered under the Y-12 Class
19 Definition.

20 CHAIRMAN MELIUS: And once NIOSH
21 is responding to the petition they sort of
22 have to follow through and so this is sort of

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1 where it ended up. I don't think you could
2 have predicted. Other questions?

3 MEMBER ZIEMER: Just a comment.
4 It seems a little strange to have a petition
5 from someone who doesn't qualify by either
6 location or 250 days. Can somebody petition -
7 -

8 CHAIRMAN MELIUS: Yes.

9 MEMBER ZIEMER: -- if they're not
10 a potential claimant?

11 MR. RUTHERFORD: Yes, well the
12 petitioner actually petitioned for Clinton
13 Engineer Works and they were covered under
14 Clinton Engineer Works. However, it was our
15 evaluation that determined that the
16 determination of infeasibility drew them out
17 of the Class, actually the recommended Class.

18 So what they petitioned for initially was
19 fine, it was our determination through the
20 evaluation that actually pulled them out.

21 DR. NETON: I believed we've had
22 Classes of petitioners, we've added Classes

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1 where petitioners didn't qualify as a Member
2 in the Class.

3 CHAIRMAN MELIUS: Yes. There's
4 nothing that would --

5 DR. NETON: Nothing prevents that.

6 CHAIRMAN MELIUS: -- preclude
7 that. Right. As long as -- it's the petition
8 that qualifies, not the petitioner per se.
9 Until you evaluate you can't -- any other
10 questions or comments?

11 MEMBER FIELD: Is there a
12 petitioner on-line?

13 CHAIRMAN MELIUS: I want to get to
14 that in a second, but is the -- if the
15 petitioner is on the line and wishes to speak
16 they may. I don't believe they want to but I
17 just wanted to make the invitation. Okay, if
18 not, we'll move ahead. Do we have any?

19 MEMBER RICHARDSON: I guess I'm
20 still -- I mean, it's -- I mean, I see where
21 you're going with this but it's imagining
22 drawing a circle around a set which is

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1 incredibly large, like includes a very, very
2 large population. And then we're -- well, I
3 mean you've said -- so you laid out a story in
4 which we've got, what, what did you say? A
5 hundred and fifty square miles encompassing
6 cities, hospitals, multiple facilities.

7 DR. NETON: Right. Up to 75,000
8 people.

9 MEMBER RICHARDSON: Right. And
10 spanning a range of six years, so there's a
11 lot of experience moving through that. And
12 you know, I guess -- and then you said there's
13 already some sets of these people which we
14 draw out. And you're asking me to believe
15 that the remainder of people in that
16 definition of the broad set is a few dozen
17 people who may have moved through. And my
18 fear is that somehow by this definition and
19 then the piecewise removal, have we missed any
20 possibilities of there being other people who
21 are left in these remainders who are not those
22 that you would like to cover.

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1 DR. NETON: Well, that's why we
2 went to these great lengths to try to
3 determine who employed the people that worked
4 at the Clinton Engineer Works -- I mean, at
5 the Elza Gate Warehouse. And to the best of
6 our knowledge anyone who was there handling
7 radioactive materials was an employee of
8 Tennessee Eastman Corporation, not for
9 instance, the Roanne-Anderson Corporation.

10 MEMBER RICHARDSON: Oh yes, no,
11 and I believe that, I believe you've covered
12 the people you want to cover. My question is,
13 are there other remainders which somehow are
14 large groups that we've not thought of so far.

15 DR. NETON: Within the Clinton
16 Engineer Works.

17 MEMBER RICHARDSON: Yes.

18 DR. NETON: Yes. We don't know of
19 any. It doesn't mean we couldn't add them if
20 we identified them later, but right now we
21 don't know of any.

22 CHAIRMAN MELIUS: So if they filed

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1 the claim they'd either be -- they'd be in
2 83.14, be not feasible to reconstruct but they
3 would, you know, do that, or they could become
4 a petitioner. So.

5 MEMBER RICHARDSON: No. But it's
6 like all of a sudden you've made this
7 definition and then does it turn out that in
8 fact there's 5,000, you know, auto body
9 finishers, or whatever it's going to be. Also
10 we hadn't thought of, but now the way the law
11 is written all those people are also part of
12 this set which we hadn't imagined. You've
13 drawn a circle around a city.

14 CHAIRMAN MELIUS: Yes, okay. So
15 from the other end, yes.

16 DR. NETON: We can always create
17 an 83.14.

18 CHAIRMAN MELIUS: No, David's
19 coming from the other end. Are you qualifying
20 a number of people that -- yes, that might not
21 really be exposed, I guess?

22 DR. NETON: Well, if Tennessee

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1 Eastman Corporation ran the Y-12 facility and
2 that's the only place where they worked within
3 the Clinton Engineer Works and the Elza Gate
4 Warehouse, I don't think we have.

5 CHAIRMAN MELIUS: I think if Y-12
6 wasn't already covered then I think --

7 DR. NETON: Right.

8 CHAIRMAN MELIUS: Or Y-12 was
9 covered in a very, you know, specific way,
10 only certain parts or certain buildings or
11 something like that, then I think this
12 definition would be --

13 MEMBER RICHARDSON: Well, I guess
14 what I'm thinking is the whole city was paid
15 for under contracts, right?

16 CHAIRMAN MELIUS: Yes.

17 MEMBER RICHARDSON: And we've got
18 people who are doing certain jobs in these
19 facilities, production jobs that you've
20 covered. We've taken them out of the set.
21 And then now we're saying there are people who
22 did security jobs at gates. And there were

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1 people who were doing other jobs under
2 contract. So who was -- who haven't we
3 imagined that's outside that set? Because
4 everybody was working for a contract. The
5 whole city was run under contracts. Now are
6 we covering basically everybody? I mean --

7 DR. NETON: No, I don't think so.

8 MEMBER RICHARDSON: Who paid the
9 schoolteachers?

10 DR. NETON: Roanne-Anderson
11 essentially ran the Clinton Engineer Works,
12 the logistics manager.

13 MEMBER RICHARDSON: I guess that's
14 my question.

15 DR. NETON: The housing.

16 MEMBER RICHARDSON: Are these --
17 are you --

18 DR. NETON: Barber shops, you name
19 it. I mean, grocery stores. I mean, all this
20 stuff was paid for by the government, it's
21 true, but we cannot find any exposure to
22 reconstruct for the rest of this --

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1 MEMBER RICHARDSON: Oh, I don't
2 want -- again, I'm not worried about exposure.
3 I'm wondering about whether there are lots of
4 other people who were under these contracts
5 who weren't either, you know, security at
6 these gates or --

7 DR. NETON: Unless we can find out
8 that Tennessee Eastman Corporation did a lot
9 of other things outside of run Y-12 and the
10 Elza Gate Warehouse, I don't think we'll find
11 that. I think we're fairly comfortable that
12 they were the contractor that was hired to run
13 Y-12 and the people at the Elza Gate
14 Warehouse.

15 We've certainly not seen that in
16 our claimant population. I've looked through
17 these claims. There's like 38 or so. A fair
18 number of Roanne-Anderson. I've not seen
19 anybody that was Tennessee Eastman Corporation
20 Clinton Engineer Works, though. If we do,
21 then we would identify them as probably the
22 Elza -- well, as the Elza Gate Warehouse.

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1 CHAIRMAN MELIUS: And I think the
2 way the law and the regulations are set up,
3 we're sort of obligated to follow through. So
4 we can't wait until a claim comes in, you
5 know. In order to protect against that, I
6 think.

7 DR. NETON: I mean, it is true
8 that the current Y-12 Class covers a lot of
9 people who probably weren't radiation workers
10 because we're covering all employees. So that
11 in itself would include people who worked in
12 mechanic shops and that sort of thing. I
13 mean, they're already covered.

14 CHAIRMAN MELIUS: Any other
15 questions or comments? If not, do I hear a
16 motion?

17 MEMBER FIELD: I'd like to make a
18 motion to accept the Class as proposed.

19 CHAIRMAN MELIUS: Okay.

20 MEMBER MUNN: Second.

21 CHAIRMAN MELIUS: Any further
22 discussion? Okay. All yours.

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1 MR. KATZ: We'll start with the
2 Z's. Dr. Ziemer?

3 MEMBER ZIEMER: Yes.

4 MR. KATZ: Mr. Schofield?

5 MEMBER SCHOFIELD: Yes.

6 MR. KATZ: Dr. Roessler?

7 MEMBER ROESSLER: Yes.

8 MR. KATZ: Dr. Richardson?

9 MEMBER RICHARDSON: Yes.

10 MR. KATZ: Dr. Poston, I will
11 collect his vote. Ms. Munn?

12 MEMBER MUNN: Yes.

13 MR. KATZ: Dr. Melius?

14 CHAIRMAN MELIUS: Yes.

15 MR. KATZ: Dr. Lockey?

16 MEMBER LOCKEY: Yes.

17 MR. KATZ: I will collect Dr.
18 Lemen's vote. Mr. Griffon?

19 MEMBER GRIFFON: Yes.

20 MR. KATZ: Mr. Gibson?

21 MEMBER GIBSON: Yes.

22 MR. KATZ: Dr. Field?

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1 MEMBER FIELD: Yes.

2 MR. KATZ: Mr. Clawson?

3 MEMBER CLAWSON: Yes.

4 MR. KATZ: Ms. Beach?

5 MEMBER BEACH: Yes.

6 MR. KATZ: And Dr. Anderson?

7 MEMBER ANDERSON: Yes.

8 MR. KATZ: All in favor with two
9 absentee votes. The motion passes.

10 CHAIRMAN MELIUS: I will remind
11 the Board we tried having Ted start in the
12 middle and go randomly and he left two of us
13 out.

14 (Laughter.)

15 CHAIRMAN MELIUS: So we start at
16 either end, we do okay. I'm passing around
17 another letter that just happened to be ready.

18 The Advisory Board on Radiation
19 and Worker Health, the Board, has evaluated a
20 Special Exposure Cohort, SEC, Petition 00178
21 concerning workers at the Clinton Engineer
22 Works under the statutory requirements

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1 established by the Energy Employees
2 Occupational Illness Compensation Program Act
3 of 2000, EEOICPA, incorporated into 42 C.F.R.
4 Section 83.13.

5 The Board respectfully recommends
6 that SEC status be accorded to, quote, all
7 employees of the Tennessee Eastman Corporation
8 1943 to 1947 and the Carbide and Carbon
9 Chemicals Corporation 1947 through 1949 who
10 were employed at the Clinton Engineer Works in
11 Oak Ridge, Tennessee from January 1st, 1943
12 through December 31st, 1949 for a number of
13 workdays aggregating at least 250 workdays
14 occurring either solely under this employment
15 or in combination with workdays within the
16 parameters established for one or more other
17 Classes of employees included in the Special
18 Exposure Cohort.

19 This recommendation is based on
20 the following factors. Some individuals
21 employed at the Elza Gate site of the Clinton
22 Engineer Works during the time period in

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1 question worked on the handling and storage of
2 nuclear materials.

3 The National Institute for
4 Occupational Safety and Health, NIOSH, review
5 of available monitoring data as well as
6 available process and source term information
7 for this facility found that NIOSH lacked the
8 sufficient information to allow it to estimate
9 with sufficient accuracy the potential
10 internal and external doses to which employees
11 of this facility may have been subjected. The
12 Board concurs with this determination.

13 NIOSH determined that health may
14 have been endangered for these Tennessee
15 Eastman Corporation and Carbide and Carbon
16 Chemicals Corporation employees during the
17 time period in question. The Board also
18 concurs with this determination.

19 Based on these considerations and
20 discussion at the February 28th through 29th,
21 2012 Board meeting held in Oakland, California
22 the Board recommends that the Class be added

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1 to the SEC. Enclosed is the documentation
2 from the Board meeting where this SEC Class
3 was discussed. The documentation includes
4 copies of the petition, the NIOSH review
5 thereof and related materials. If any of
6 these materials are unavailable at this time,
7 they will follow shortly.

8 Comments? Questions?
9 Corrections? You're still looking puzzled,
10 David.

11 MEMBER RICHARDSON: So, during
12 this time was X-10 covered by DuPont? Was it
13 DuPont or --

14 CHAIRMAN MELIUS: Someone has to -
15 -

16 MEMBER RICHARDSON: And those
17 workers are out of this set. There is an SEC
18 that covers the X-10 workers but they're
19 DuPont, but they're out of this set.

20 DR. NETON: I think there's an X-
21 10, one is being evaluated right now. It's
22 being evaluated right now. But those specific

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1 --

2 MEMBER RICHARDSON: Have we
3 covered some X-10? I thought -- is Union
4 Carbide covering part of X-10 during this
5 period? And did we just put them into this
6 Class?

7 DR. NETON: No. Carbide Chemical
8 Corporation in this period. I don't think so.
9 LaVon is looking it up right now but I don't
10 think so. Yes, X-10 does not currently have a
11 Class, I don't think.

12 MEMBER RICHARDSON: It is under
13 evaluation but I -- yes.

14 MEMBER ZIEMER: X-10 was
15 eventually Union Carbide which is the -- which
16 originally I guess was Carbide Carbon.

17 MEMBER RICHARDSON: Yes, so
18 Carbide started in March '48. So we've sucked
19 in a section of X-10 for '48 through '49.

20 DR. NETON: Yes, you have to be
21 identified as having been in the Clinton
22 Engineer Works, though. It's the facility.

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1 MEMBER RICHARDSON: Clinton Lab is
2 not part of Clinton Engineer Works? Because
3 that's what it was called then.

4 DR. NETON: No, they specifically
5 exempted those facilities that were already
6 identified. It's an encompassing facility
7 with three pieces carved out including Oak
8 Ridge Hospital. There was another one, that
9 S-50. I forget what that was.

10 MEMBER RICHARDSON: I can't
11 imagine some --

12 DR. NETON: So a person would have
13 to be in the Clinton Engineer Works facility
14 and work for Carbon and Carbide or whatever it
15 was called, Company, to be in the Class. If
16 you were an employee at Carbide at X-10 it
17 wouldn't be covered.

18 MEMBER RICHARDSON: If you were an
19 employee of Clinton Labs you're not a Clinton
20 Engineer Works employee.

21 DR. NETON: No. Clinton Labs is
22 not part of Clinton Engineer.

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1 MEMBER RICHARDSON: Y-12 was part
2 of Clinton Engineer Works?

3 DR. NETON: No. They're not.
4 They're specifically excepted. They've carved
5 -- facilities that have fences around them
6 already and are already covered facilities are
7 not part of this giant, it's kind of like a
8 Venn diagram where these three boxes.

9 MEMBER RICHARDSON: Yes, that's
10 what I'm still struggling. I thought that the
11 distinction you were making was by contractor
12 and we were supposed to be imagining taking
13 out contractors and there was some set of
14 contractors left within this diagram. But now
15 you're saying it's -- you've got facility
16 definitions within this larger facility which
17 we're taking out and --

18 DR. NETON: Yes.

19 MEMBER RICHARDSON: -- definitions
20 over contractors.

21 DR. NETON: Right.

22 CHAIRMAN MELIUS: Yes, we're

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1 crossing the intersection of those two
2 contractors with Clinton Engineer Works
3 because that's what gets us the Elza Gate
4 Warehouse as opposed to the other warehouses.
5 Yes.

6 MEMBER RICHARDSON: All right.

7 CHAIRMAN MELIUS: Just, Stu, if
8 you and staff can sort of double-check this as
9 it winds its way up through the -- make sure
10 we're not -- because I think those are some
11 good questions. Especially the Union Carbide
12 issue I think is a -- because of the time
13 periods involved and so forth. Thank you,
14 David, for being confused and bringing those
15 up. It's helpful. Okay.

16 We've got a few minutes and want
17 to finish up a couple more of the Work Group
18 reports and then we will take a break. I
19 believe we have two Work Groups left, Weldon
20 Spring and Worker Outreach.

21 I just want to clarify, I'm in the
22 process of appointing and changing -- not

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1 changing really but adding people in the
2 various Work Groups and so forth. It's sort
3 of -- I think most of you responded to me a
4 month or two ago and volunteered. I'm
5 assuming you still volunteer, but before you
6 get appointed or anything, I will double-check
7 back with you and so forth. But it also sort
8 of got a little bit messed up because we are
9 in the process we think of having two new
10 members and figured we'd do everything at
11 once. I wanted to include them to some extent
12 in this process also.

13 I will say because -- I've talked
14 to Mike and because of his sort of new work
15 schedule it's been difficult for him to be
16 assured that he would be available on days the
17 Work Groups met and so forth because things
18 come up and so forth. So, what we've agreed
19 is that Mike will step down as chair of a
20 couple of these Work Groups and stay on the
21 Work Group but it will have a new chair. And
22 Josie's agreed to chair the Worker Outreach

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1 Work Group and Dick Lemen has agreed to chair
2 the Weldon Spring Work Group. Mike will
3 continue to serve on those and do that. But
4 just to sort of facilitate meetings and so
5 forth so we appreciate that.

6 And Weldon Spring, we'll hear from
7 this afternoon so skip that. Worker Outreach.
8 Josie?

9 MEMBER BEACH: Okay. The last
10 Work Group meeting was held on June 29th for
11 Worker Outreach. We continue to address
12 action items on OCAS-PR-12, the procedure
13 review. And our main focus has been on the
14 Rocky Flats Outreach Pilot Program. SC&A was
15 tasked with preparing a sampling plan and
16 after several changes, emails back and forth,
17 the final plan was accepted and approved by
18 the Work Group.

19 SC&A sent out the sampling plan
20 for Objective 3. Last October we had 101
21 comments that were randomly selected from a
22 pool of 363 comments, and this satisfied the

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1 criteria set by the Work Group. SC&A has
2 completed their review of all 101 comments and
3 sent that out to the Work Group and I think
4 NIOSH received that last week.

5 The individual comment review
6 forms await NIOSH's completion which will
7 enable SC&A to give their final assessment and
8 report to the Work Group. And scheduling for
9 completion of all that is for the end of
10 April. We will -- so hopefully if NIOSH
11 completes their work, we can schedule a Work
12 Group at the end of April/first of May time
13 frame, and we'll also take up the path forward
14 on the timeliness issue just as a brief
15 discussion during that Work Group meeting.

16 CHAIRMAN MELIUS: Okay, good. Any
17 questions for Josie?

18 MEMBER BEACH: Can we hear --
19 NIOSH, can you give us a time frame of how
20 that's looking for the review? I know it's
21 hundreds of pages.

22 MR. HINNEFELD: Well, I was just

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1 making the notes that we got this. We got
2 about a hundred comments a week ago that were
3 selected and our action, I believe, is to see
4 what will happen to this comment. Is that
5 what our action is? I don't even know for
6 sure what our action is.

7 MEMBER BEACH: Your action is to
8 review those comments, get them back to SC&A
9 with, I believe -- and Joe can step in if
10 there's anything other. To review that and
11 then SC&A will --

12 MR. HINNEFELD: Yes, but we're
13 reviewing it to do what?

14 MEMBER BEACH: Let's have Joe help
15 me out there.

16 MR. FITZGERALD: Yes, we just
17 filled out the form which basically provides
18 our review of the comment and the disposition
19 of that comment. And there's a space there
20 for NIOSH's response. In other words, if you
21 agreed with our disposition or if you wanted
22 to bring anything forward that was different.

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1 MR. HINNEFELD: From your -- okay.

2 MR. FITZGERALD: So it's a
3 validation step, essentially.

4 MR. HINNEFELD: Okay. Well, I'm a
5 little adrift here. If there are a hundred
6 comments the end of April is pretty aggressive
7 but I'll have to check with the guys in the
8 office. So I don't really know. My note that
9 I was making was that you're expecting this at
10 the end of April and we either need to make
11 that or let you know soon if we're not going
12 to. That's the note I was writing before I
13 stood up here. Okay.

14 MEMBER BEACH: And just a
15 reminder, this is a pilot. This is our first
16 attempt at this and so it is a work in
17 progress. And so far I think we're on the
18 right track.

19 MR. HINNEFELD: Okay.

20 MEMBER BEACH: Thank you.

21 CHAIRMAN MELIUS: One suggestion
22 is I don't think there's anything magical

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1 about a hundred. So, in terms of, you know,
2 reviewing and the Work Group reviewing, I mean
3 if 50 were done, does that make a difference
4 in terms of breaking up? It may be
5 logistically. I mean, if it's going to be
6 done beginning of May instead of the end of
7 April, but if it makes it -- facilitates the
8 review.

9 MEMBER BEACH: It looks like Ted's
10 --

11 MR. KATZ: Well it's -- I mean
12 what they did is pulled a representative
13 sample, a number of parameters. So if we were
14 to -- you can't really chop that up if you
15 want to have conclusions that are
16 representative.

17 CHAIRMAN MELIUS: Yes, but you can
18 chop it up in terms of meetings. That's what
19 I'm saying. In terms of the Work Group
20 digesting.

21 MR. KATZ: Oh, sure. But there
22 will be, I think, Joe, you're standing up so

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1 you can speak. There will be a summary report
2 at the end of this after this validation step
3 and that's really what the Work Group will
4 then wrestle with.

5 MR. FITZGERALD: Also, I just
6 wanted to sort of add it's not as onerous as
7 it sounds. I think the 101, since I looked at
8 one-third of them personally, it turns out a
9 lot of them are dispositioned fairly
10 adequately and there's a good track record.
11 There won't be a whole lot of NIOSH hand-
12 wringing, frankly, because we agree that
13 things seem like they were handled pretty
14 straightforwardly.

15 So it's really only a small
16 portion that might be in some contention in
17 the sense that you might want to add
18 additional perspectives. Maybe there's a
19 piece of information missed or something like
20 that. So, it's not 101 that you have to look
21 at individually. It may be 20 or 30 that
22 might require some focus.

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1 CHAIRMAN MELIUS: Next week, Stu.

2 (Laughter.)

3 MR. HINNEFELD: I'm going to stand
4 by the comment I was writing before I stood up
5 the first time.

6 (Laughter.)

7 MR. HINNEFELD: We'll either make
8 it before late April or we will let you know
9 soon that we're not going to make it.

10 MEMBER BEACH: That is fine, thank
11 you. And let me add to that. In June I'll go
12 ahead and provide a report for the Board on
13 exactly what our Work Group is doing and how
14 we're progressing. To just give you a sense
15 of -- we started with, there was five hundred
16 and, I don't know, five hundred and fifty
17 comments and then, based on the TBDs, we
18 whittled that down to 363. And then we just
19 took a sampling of that to try to grasp this
20 in smaller doses. So, anyway, that's where we
21 started.

22 CHAIRMAN MELIUS: Wanda, do you

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1 have a comment?

2 MEMBER MUNN: Yes. My comment is
3 it's probably instructive to remember that the
4 purpose of this exercise is really quite
5 simple and quite straightforward. It is to
6 see whether the perception that has been
7 stated to us time and time again that
8 statements that are made to the Board are
9 ignored and no action is taken, to see whether
10 or not there is a basis in fact for that.
11 What we're looking at is, are these comments
12 not being responded to. That's really and
13 truly the only question here. Do we respond
14 to comments that are made to the Board? And
15 that's what we're looking at, that's what
16 we're going to try to define and bring back to
17 the Board so that you can know that.

18 CHAIRMAN MELIUS: Any other
19 comments or questions? Paul nicely reminded
20 me that I had skipped over the Science Work
21 Group.

22 MEMBER RICHARDSON: You mean

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1 alphabetically?

2 CHAIRMAN MELIUS: Worse than that.

3 I didn't even have it on the --

4 MEMBER RICHARDSON: I noticed that
5 we got to T's and I -- I thought maybe it
6 wasn't strictly a Work Group.

7 CHAIRMAN MELIUS: It's a very
8 important Work Group.

9 MEMBER RICHARDSON: At our last
10 meeting, we identified a list of topics to
11 work on and started out with kind of a
12 proposal for the process by which we'd move
13 through these topics. I'd say we're somewhat
14 in the learning stage in terms of the
15 procedural part of this. It's a little bit
16 different than some Working Groups because
17 we're struggling with topics in which there's
18 a lot of literature to deal with.

19 So the first topic on the list is
20 dose and dose rate effectiveness factors. On
21 November 1st, NIOSH provided us with a 362-
22 page document which was extremely useful.

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1 It's in a sense a very kind of long annotated
2 literature review covering experimental
3 evidence, epidemiologic evidence, some
4 mechanistic arguments regarding dose and dose
5 rate effectiveness factors.

6 On February 2nd, I circulated a
7 brief memo offering a first kind of synopsis
8 of that topic and put it forward for comments
9 and have begun over the last two weeks to
10 receive feedback back from the other Work
11 Group Members on that. The next step I think
12 is we'll have an in-person meeting and one of
13 the suggestions from Work Group Members was
14 that we invite one or two external people to
15 come and talk with us about kind of -- about
16 the issues and help us to kind of get up to
17 speed on that. So that's where we stand.

18 Hopefully we'll move forward from
19 that. I'm seeing that in order for us to move
20 forward in fact the topic, although it's a
21 single topic, may need to kind of be broken
22 into a series of questions that are actually

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1 more manageable and then perhaps we can sketch
2 out something like a series of bullet-point
3 observations on where we think kind of work
4 may be needed or further kind of consideration
5 about these issues.

6 CHAIRMAN MELIUS: Anybody else,
7 comments or questions? Yes, Gen.

8 MEMBER ROESSLER: It's a really
9 complicated subject and even the summary by
10 SENES took about 80 pages. I sort of, I
11 suggested to David that we do something to get
12 some help in evaluating.

13 My question is, when you say
14 external people, what does that mean.

15 MEMBER RICHARDSON: There are a
16 couple of options there. I was thinking there
17 were several authors involved in preparing the
18 report that NIOSH contracted coming through
19 SENES, and to invite one or two of them to
20 come and speak with us. I think they would
21 probably be in the best position having spent
22 a substantial amount of time in working on it.

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1 CHAIRMAN MELIUS: Any other?
2 Okay, thank you. It's almost 20 after. Why
3 don't we take a break? If we can be back here
4 at 10:45 sharp, we will start the Fernald SEC.

5 (Whereupon, the above-entitled
6 matter went off the record at 10:20 a.m. and
7 resumed at 10:47 a.m.)

8 CHAIRMAN MELIUS: Okay, we're
9 ready to start and the next subject on our
10 agenda is Feed Materials Production Center,
11 Fernald, Ohio. And we'll start with hearing
12 from John Stiver. John?

13 MR. STIVER: Thank you, Dr. Melius
14 and Members of the Board. Today I'm going to
15 present an update on the SEC petition review
16 status from SC&A's perspective.

17 The last time we did this was at
18 the December meeting in Tampa. Since then
19 there have been some developments and in
20 Fernald that's always a good situation
21 considering the time frame that we've had to
22 deal with. Excuse me, I've had a little bit of

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1 asthma problems over the last couple of days,
2 so you have to bear with me.

3 This first slide here, the only
4 purpose of this is to demonstrate the length
5 of time that this SEC petition has been in the
6 works. We're coming up on the sixth year now.

7 There have been a total of 12 Work Group
8 meetings and as Brad said yesterday we are
9 getting close to closure on some of the most
10 contentious issues, and some of the others
11 have been either resolved in the Work Group or
12 moved, as this slide shows, closed as
13 recommended by SC&A or Work Group concurrence,
14 moved to Site Profile discussions.

15 And the two that remain open are
16 the coworker model for uranium internal
17 exposures, basically this idea of the sub-
18 Class of subcontractor construction workers
19 and how to account for them. That's still
20 open and was discussed at the February 9th
21 meeting.

22 And the other issue that has been

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1 front and center really is this idea of the
2 reconstruction of internal exposures from the
3 inhalation of thorium-232 using the chest
4 count data from the Mobile In Vivo Radiation
5 Monitoring Laboratory that was loaned out from
6 Y-12 from 1968 to 1989.

7 And so what I'd like to do today
8 is, rather than go through the entire laundry
9 list of findings and issues, in the interests
10 of using the Board's time to the best
11 efficiency I'd like to concentrate on this
12 issue 6B, which is the chest count data. And
13 I'd like to -- basically this can be distilled
14 down to a couple of points here.

15 Prior to 1968, thorium was
16 measured by air sampling with breathing zone
17 and general air samples combined with these
18 DWEs. And from 1953 to 1967, that is how this
19 model has been applied by NIOSH. After 1968,
20 when the mobile system came online they quit -
21 - the FMPC NLO, the contractor, stopped doing
22 the air sampling through the HASL method and

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1 went completely to this mobile system
2 believing that, you know, if you're actually
3 measuring a lung burden in an actual
4 individual, that's got to be way better than
5 trying to derive some sort of an intake based
6 on assumptions and air concentration data.

7 And there are really two --
8 there's kind of a break point of 1978-1979.
9 From '68 to '78, the results are reported in
10 mass units in milligrams thorium with no raw
11 data or any calculations to demonstrate how
12 that milligram thorium number was derived.
13 From 1979 to 1989 the results were reported in
14 the activity of the radioactive daughters,
15 gamma-emitting daughters that were actually
16 measured in order to get back to the thorium
17 measurement, these being reported in units of
18 nanocuries, lead-212 and actinium-228.

19 White Papers have been exchanged.

20 The issues have been discussed in detail in
21 the last three Work Group meetings. Our
22 position on this can really be summarized in

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1 two overarching issues. We believe they're
2 unresolved and they relate to -- both relate
3 in some sense to the sufficient accuracy in
4 the data for both 1968-1978 as well as for a
5 later period. But this idea that the number,
6 the first one here, large uncertainties
7 related to how the milligram thorium data were
8 derived. This is related specifically to '68
9 to '78. Beyond that, we have the actual
10 measurements which allow the age of the source
11 to be determined.

12 The second issue is really one
13 that's emerged from the last couple of Work
14 Group discussions, particularly on February
15 9th we kind of had an epiphany about this data
16 set and really what it signifies. And this is
17 related to the suitability of the mobile
18 system as it was used for measuring thorium in
19 the context for which it was used
20 historically, and then taking that data and
21 trying to apply it to our needs in EEOICPA for
22 making sufficiently accurate compensation

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1 decisions.

2 And so what I'd like to do --
3 that's really the overarching issue. Number
4 two is the big one that kind of spans both
5 periods, but because of the historic
6 significance of that first 1968 to '78 time
7 frame, I'd like to also talk a bit about how
8 we arrived at the conclusion that that data
9 set probably couldn't be used in dose
10 reconstruction.

11 The next three slides are really
12 just a quick tutorial on serial decay
13 processes. This is the thorium-232 decay
14 chain. You can see -- you might not be able
15 to see this on the slides, but they're in your
16 presentation because they're so small. But
17 radium-228 is really the rate-limiting
18 radionuclide, a daughter product that will
19 govern the rate at which radioactive
20 equilibrium, or we term it secular equilibrium
21 will be reestablished once the thorium is
22 chemically separated from the progeny and when

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1 the ore is put in through the refinery and
2 chemically purified.

3 The mobile system used two gamma-
4 emitting radioactive progeny, actinium-228,
5 which has two gamma emissions of 330 and
6 900keV and lead-212, which has a 240keV
7 emission. We don't know, for the milligram
8 thorium data, which of these two
9 radionuclides, whether it was one, the other
10 or both, or some other method based on a ratio
11 and percentages of a maximum permissible lung
12 burden were used. There's evidence that all
13 three could possibly have been used during
14 this time.

15 Going to the next slide here --
16 this is kind of a busy slide so try to stay
17 with me. I'm not going to spend a lot of time
18 on it. The key component here is that this is
19 how the progeny build in after -- following
20 one chemical separation. As you can see, this
21 solid line here that dips down to about 0.42
22 or so and then comes back up, that represents

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1 composite lead-212. This kind of dotted,
2 dashed line that's building up represents
3 actinium-228 building in. And then these two
4 dashed lines, the one that's dropping off
5 represents unsupported thorium-228 and then
6 you have a buildup following the actinium-228
7 as the thorium-228 --

8 MR. KATZ: John, I'm sorry to
9 interrupt, but can you speak into the mic?

10 MR. STIVER: Okay, I'm sorry.

11 MR. KATZ: People on the phone are
12 having a hard time.

13 MR. STIVER: I didn't realize that
14 that was a problem.

15 So, let me go to the next curve.
16 This is not quite so busy. This is just a
17 Mathcad presentation or a graphic that I
18 pulled out of Tom LaBone's latest White Paper.

19 And the red curve that dips down, this is
20 lead-212 and then the blue curve that's
21 building up exponentially is actinium-228.

22 And two things to keep in mind

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1 here. If you're looking at lead-212, you
2 don't have equilibrium reestablished following
3 a separation until about three weeks. And
4 this is governed by the half life of radium-
5 228. It's about a 3.6 day half life. And so,
6 if you were to have a chemical purification
7 followed by an acute intake followed by a
8 measurement within a couple of days, you're
9 going to have a very large intake and you
10 wouldn't detect anything. Also, if you were
11 to use actinium-228 to try to determine the
12 amount of material of thorium-232 that had
13 been taken in, depending on where you are on
14 this curve, remember this is building in the
15 5.75 year half life. And so, even a couple of
16 months after separation you could be -- you
17 could underestimate your -- the amount of the
18 intake by up to a factor of 100 or more.

19 And so to really get a handle on
20 where -- how old this source is in separation
21 you really kind of need to have both
22 measurements. If you have just the lead, I

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1 mean you can see as it dips down and comes
2 back up, you could be on either side of that
3 curve but if you had the actinium, that really
4 helps to anchor you and lets you back-
5 calculate to the age of the thorium.

6 The sub-issue 1, this says the
7 combination of uncertainties and variability
8 in the milligram data could result in
9 underestimates of intake by up to a factor of
10 100. And that's basically because we don't
11 know how these data were -- how they were
12 derived. We had source terms at Fernald that
13 were at varying levels of disequilibrium. We
14 don't know the age of the source, whether age
15 corrections were made based on actinium or
16 lead or, as the literature indicates,
17 simplifying assumptions such as just presuming
18 secular equilibrium were invoked to transform
19 actinium or lead back into milligram thorium
20 data. And we just don't know. We don't have
21 that information.

22 We have to take this -- if this

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1 data were to be used in a model, it has to be
2 accepted at face value. There are ways -- if
3 you had one of these, particularly if you had
4 lead-212, as NIOSH will explain. Mark will
5 talk about this later. If you have that
6 anchor point, then you can figure out a worst
7 case situation, how bad could it be, how bad
8 could the disequilibrium be? But if you don't
9 have that, you're kind of adrift, and that's
10 our main concern.

11 Historic references. We have
12 looked at this Counter Thorium Calibration
13 Runs from March of 1976. And this, as well as
14 other references, recommend that if you're
15 going to make this technique quantitative, you
16 really need to know the age of the source.
17 You need to know the time from the measurement
18 since the intake and since the separation,
19 basically the same thing. We haven't found
20 any evidence either through NIOSH or by SC&A's
21 research to suggest these steps were ever
22 taken and the available data suggests that

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1 they probably were not.

2 One example of this is: we
3 examined claimant files for data -- for
4 results that were greater than the detection
5 limit. There were 79 results, 59 workers.
6 Only 30 percent had more than one measurement
7 and there was no correlation whatsoever
8 between the magnitude of the result and the
9 sampling frequency. NIOSH's methods,
10 as you will hear later, presume that lead-212
11 was used to derive the milligram thorium data.

12 But as yet they've presented no hard evidence
13 to support that. Again, Counter Thorium
14 Calibration Runs has a calculation and they
15 basically use various equilibrium assumptions
16 and actinium-228. Now, granted that's one
17 example but it's the only example we've found.

18 And so the burden of proof is really on NIOSH
19 to show that lead-212 was indeed used pre-
20 1978.

21 This was a tasking by the Work
22 Group and Mark Rolfes, as you guys know,

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1 posted a series of documents that are supposed
2 to help bolster that position. SC&A's
3 position is that we don't see anything new
4 that really changes our mind, although they
5 did provide some useful approaches for
6 calculating thorium if indeed you have a valid
7 lead-212 measurement.

8 We also note that there's
9 inconsistencies between the thorium-232 and
10 the actual data, this nanocurie data, during
11 this period of overlap. There was a period
12 between about '78 and '79 where you have for a
13 limited number of cases measurements of both.

14 You have the milligram data and you have the
15 actinium and the lead-212.

16 And it's very interesting that for
17 one set of data, 1979, you have two subsets
18 where you have a homogeneous group within one
19 plant over about a 3-week period of time. So
20 you're looking at one source term. Almost,
21 maybe not -- there's some possibility that
22 they weren't, but it's probably very likely

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1 that this is a single source. So, you would
2 expect that those data sets would show
3 proportionality between the thorium results
4 and the nanocurie results. Let me go to the
5 next slide here; it might be a little easier
6 for you to see.

7 This first column is the thorium
8 result in milligrams and then the second
9 column is the lead-212 activity in nanocuries.

10 The third is actinium-228, then monitoring
11 date and then location. So if you look at
12 this first highlighted group here, there's
13 four values, 2.1 milligrams. And look at the
14 reported lead-212 activities. There's
15 definitely a range here, from 0.25 to 0.4
16 nanocuries, and these are all above the
17 detection limit. So you would expect to see
18 some proportionality in the milligram results.

19 But all the 1979 data are reported as 2.1.
20 Now, is this definitive proof? No, but it
21 certainly suggests to us that this presumption
22 that the lead-212 was used to back-calculate

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1 the thorium is highly questionable.

2 We also have the lower -- the
3 three lowest, or the three bottom rows have
4 the three highest milligram thorium results,
5 and they both correlate with negative lead-
6 212. And so that's just a bit of evidence to
7 help support our position. It doesn't really
8 undermine NIOSH's position but it casts doubt
9 on that presumption.

10 This next slide, this is basically
11 about what we call independent kinetics. What
12 happens once this material is taken in? Do
13 the radioactive progeny behave the same way as
14 the parent material? And they certainly do
15 not. I'm not going to go through and read all
16 this, but this just basically demonstrates
17 that there's a translocation of material out
18 of the lung. Thorium tends to stay in the
19 lung, whereas the progeny migrate out. Our
20 calculations, as you'll see in a minute, show
21 that that effect over the course of a year
22 could result in about a factor of 10

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1 underestimation.

2 We also noted that individual
3 workers' results were inconsistent with
4 accepted biokinetic processes. Basically, you
5 have a high result. Three months later you
6 have a sub-MDL result when you should -- if
7 you follow the biokinetic processes there
8 should be a detectable level, but there isn't.

9 NIOSH has suggested that this could be the
10 result of clothing contamination and we accept
11 that that could possibly have occurred.
12 However, in the instances where we have seen
13 that type of a situation, there's a follow-up
14 measurement on the same day, not something
15 where there's going to be a long-term -- a
16 large gap between the two measurements.

17 So, all these factors together in
18 our minds cast doubt on this presumption that
19 lead-212 was used to back-calculate. And so
20 we still are at the same place we were to
21 begin with. We don't feel that that data has
22 the pedigree for dose reconstruction based on

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1 the huge amount of uncertainty associated with
2 these values.

3 Now, let's move onto sub-issue 2.

4 This is really kind of the crux of the issue
5 right now. This is the suitability of the
6 mobile system as used in the context in which
7 it was used for determining milligram lung
8 burdens in our program under EEOICPA for
9 making the correct compensation decision. We
10 call this the technical shortfall issue.

11 There's really two aspects to
12 this. First of all, the mobile system was
13 used. This is well established in all the
14 references. I've listed them. You can go to
15 them, look at them, as well as the new ones
16 that Mark posted. They show that this was a
17 screening technique. It was for triage only.

18 And basically they even call out -- at the
19 time the maximum permissible lung burden for
20 thorium-232 was about 30 milligrams, a very
21 large number. And so they were happy, they
22 were satisfied with a system that would

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1 measure 30 percent of that. So they basically
2 had a screening value, at least at Y-12 where
3 most of the calibration data exists. At Y-12,
4 10 milligrams was kind of a threshold point.
5 If you got a 10 milligram result, then you'd
6 take further steps to get a better
7 determination. Anything less than that and
8 you wouldn't worry about it.

9 The milligram thorium data are
10 consistent with non-quantitative methods.
11 Basically, when you look at the data itself
12 it's categorical. You've got a lot that are
13 down below the detection limit and just a
14 handful that are up above. So.

15 These particular references, this
16 was taken from a -- this quote down here from
17 the Technical Basis Document for FMPC in 1997.

18 Now, this was a time frame when they had
19 their own counting system in-house. They
20 weren't relying on Y-12 to bring this tractor
21 trailer rig up periodically to sample people.

22 They had their own system, they had their own

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1 calibrations, they had their own staff. They
2 probably knew the system very well. And the
3 conclusion was that, from this quote, "In vivo
4 measurements for thorium are performed by
5 determining the amount of actinium and lead-
6 212" which we know, "present in measurement
7 and assuming radioactive equilibrium with the
8 parent." So, by assuming radioactive
9 equilibrium you don't really have to worry
10 about whether you use actinium or lead-212,
11 because you're already presuming that they're
12 in equilibrium. So, this idea that you would
13 have to use lead to get that for a
14 quantitative measurement is, once again, kind
15 of brought into question. And then: "since
16 the degree of equilibrium is rarely known,
17 this technique is only useful for screening
18 tight measurements and should not be used as
19 the only indication of thorium intake."

20 Actually I had one slide out of
21 sequence here. I should go to 17. And so,
22 basically the system limitations for thorium-

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1 232 measurements were known at the time. The
2 methods were identified by which quantitative
3 measurements could be made, yet there's no
4 indication that such methods were actually
5 implemented at FMPC. Now, this tells you
6 that, okay, you've got a system that has a
7 certain capability, and that capability was
8 not reached.

9 The other information, or the
10 other aspect of this is that, well, why is it
11 so inadequate? And we believe that from what
12 we've been able to discern from the
13 documentation and the historic records that
14 the mobile system was really used to measure
15 the maximum permissible lung burden for U-235.

16 And when we look at the available
17 files, an example here, 15 claimants from the
18 59 workers I talked about earlier. None of
19 them have any attempt to calculate the maximum
20 permissible burden for thorium, but they all
21 have a calculation for U-235. Almost all the
22 in vivo monitoring results that were repeated

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1 were repeated in order to get a better handle
2 on the uranium. So you have a system that's
3 basically being used to quantify uranium lung
4 burdens. You also have the capability to do
5 screening on thorium, so they did it. Let me
6 back up again here to where we were. Let's
7 see, we were on 12, so let me come ahead here.
8 Okay.

9 This is basically some more
10 information about -- we're kind of getting
11 into the next aspect of this and this is one
12 that's very important. It has to do with even
13 under the best conditions --

14 MR. KATZ: John, just try --

15 MR. STIVER: I tend to back up.

16 MR. KATZ: You move around a lot,
17 and if you just sort of try to face the mic
18 it'll help.

19 MR. STIVER: Okay.

20 MR. KATZ: The people on the phone
21 are dying here.

22 MR. STIVER: If I could move this

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1 up a little bit, I'd feel more comfortable
2 here. There we go.

3 MR. KATZ: Thanks.

4 MR. STIVER: Is that better?
5 Okay, good.

6 Basically, 97 percent of the
7 results that are reported are below the stated
8 MDA of 6 milligrams. And I'll take a look at
9 this next slide here. I don't know if you can
10 see that very well, but this was taken from
11 NIOSH's response, their White Paper on the
12 calibration that they published back in
13 November of 2011. And you can see here that -
14 - you can't really tell but the blue line is
15 the 95th percentile. The upper line is 6
16 milligrams. And most of the data you can see
17 are below the detection limit. They follow a
18 normal distribution, which is what you would
19 expect for electronic background. And then
20 you have this handful of results that are up
21 above the normal line. And these probably
22 represent real intakes. However, we don't

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1 know what those intakes really mean. We don't
2 know if that is really 10 milligrams, 60
3 milligrams or potentially even 100 milligrams.

4 And in that NIOSH position paper,
5 they also indicated their take on this was
6 that the fact that you had so many values
7 below the detection limit just was further
8 evidence that there really wasn't a problem
9 with thorium. There's just a handful of
10 exposures and everybody else basically got
11 background level.

12 Well, unfortunately that's -- it's
13 not so cut and dried because the actual
14 background level for an unexposed population
15 is on the order of about 3 to 5 micrograms,
16 three orders of magnitude less than the
17 milligram quantities that are being reported.

18 In order to get a handle on what
19 the doses could be that might result from an
20 MDA exposure, I had Joyce Lipsztein go ahead
21 and run some different scenarios and this is
22 one of them. This was assumed 30-day chronic

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1 intake that resulted in 6 milligrams. And
2 then the individual was monitored at various
3 days post-exposure, 30, 60 and that should
4 actually be 335. That would be for almost a
5 year later. And look at these doses. Now,
6 granted this is for bone surfaces, which is
7 probably going to be the highest dose for
8 thorium intake you're going to find, but
9 you're looking at 130 rem 30 days post-
10 exposure all the way up at nearly 1,000 rem
11 one year later. So you have this incredible
12 range, it's an order of magnitude range, and
13 you have these enormous doses. And these are
14 lifetime organ dose commitments. This is a
15 50-year commitment which would be, under 10
16 CFR 835, would be assigned to the year of
17 intake.

18 And to follow up on this, we also
19 looked at -- let's take a look at the classic
20 missed dose model. Just half the MDA, we're
21 going to assume chronic exposure. Although
22 we're a little less generous here, we're

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1 assuming that this took place over a 5-year
2 period as opposed to on an annual basis. And
3 we looked at freshly separated thorium with
4 chest monitoring taken one month after the
5 last day of exposure with a result of 3
6 milligrams. And then we looked at dates of
7 cancer diagnosis.

8 Now, we don't typically look at in
9 doing Probability of Causation, but in this
10 case we wanted to see, look, are these doses
11 high enough to be compensable for the organs
12 of interest here? And we looked at four. We
13 looked at bone surfaces, liver, red marrow and
14 lung, and the top row here would be the
15 associated cancer type. For leukemia, it
16 would be acute lymphocytic. And we have --
17 this isn't really CEDE, this is just
18 accumulated dose until diagnosis. And then
19 the 99th percentile Probability of Causation.

20 And you can see for 10 years after the
21 beginning of the intake, 5 years after --
22 diagnosis. Five years after the end of the

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1 intake -- look at these doses. But more
2 importantly, look at the PoCs. They're all
3 compensable. Every single one. And granted,
4 this doesn't represent all the specified
5 cancers and it's probably likely that in the
6 case of a soft tissue cancer, you may not have
7 a compensation decision.

8 But the problem with this is that
9 you have this enormous range of uncertainty
10 beneath the detection limit. And you could
11 have a dose that you say, sure, we can
12 calculate a dose but it could be anywhere from
13 zero to hundreds of rem.

14 And this is where I started
15 thinking, I mean, does this really meet the
16 statutory sufficient accuracy clause in SEC
17 determinations? And if somebody had asked me
18 that I would have to say no, it certainly does
19 not.

20 So we're kind of faced with a
21 conundrum here. What do you do when you have
22 data that may be suitable for one of these

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1 one-size-fits-all bounding type coworker
2 models, yet what you end up with is in effect
3 a de facto SEC because the data that are used
4 were never intended for this kind of
5 quantitative measurement at the level that
6 we're looking at. And so sure, it's going to
7 be claimant-favorable, you're going to
8 compensate a lot of people. But, you know, in
9 my mind I'm to the point where I don't know
10 how to interpret that.

11 But let me just continue in this
12 discussion here, the two slides of concluding
13 statements. What we took away from the
14 February 9th meeting. Mark, you can correct
15 me if this isn't right but the position seemed
16 to be that it's okay if you have these high
17 intakes based on a background distribution for
18 a coworker model, as long as you had a stable
19 counting system that yielded reproducible
20 results. It's in effect, you had actual lung
21 burdens. Based on slide 14, we're probably in
22 the milligram range. And so the assignment of

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1 high dose is plausible and claimant-favorable,
2 and it's consistent with other bounding one-
3 size-fits-all models. Now, if I was on
4 NIOSH's side I'd say yes, what's the problem
5 here? We're going to compensate a lot of
6 people. We have good data. Somebody must
7 have gotten these values at some point, so
8 let's go ahead and use it.

9 Our position is a little
10 different. And this was really the -- if
11 there's one statement to take home from this
12 presentation, this is it. It's the limited
13 sensitivity of the mobile lab, basically the
14 high MDL combined with large uncertainties in
15 the milligram thorium data, but mainly the
16 high MDL suggest that from '68 to '78 the
17 counting system was not used in a manner that
18 resulted in sufficiently sensitive or accurate
19 results. And not only was it not used, but it
20 was probably not capable of results that were
21 sufficiently sensitive or accurate for
22 ascertaining thorium lung burdens and intakes

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1 in an SEC context.

2 I've got a laundry list of bullets
3 here that are related mainly to this. Some
4 are related to the idea of the milligram data,
5 but they're all kind of combined. So we agree
6 with NIOSH that there was probably a limited
7 number of workers who had actual thorium
8 intakes, based on our process knowledge that
9 you had limited campaigns and a limited number
10 of buildings.

11 The range of the dose commitments
12 for an intake consistent with an MDA lung
13 burden can be from zero to potentially
14 hundreds of rem. Sufficient accuracy, once
15 again.

16 The upper end of the dose range is
17 far in excess of regulatory limits and likely
18 compensable for most specified cancers, yet
19 it's based on a distribution of electronic
20 background noise. And this highlighted one
21 really gets back to the milligram issue.
22 Since we can't really peg that value to a

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1 particular age of material it could have been
2 -- if you're looking at actinium-228 at an
3 early time, it could have been off by a factor
4 of 100. So what does a 6 or 10 milligram
5 reading really mean? It could be so much
6 higher. And how could that be bounded? I
7 mean, would you look for radiation sickness,
8 some kind of deterministic effect? It's
9 certainly not within the realm of the intent
10 of the rule.

11 The coworker model is going to
12 compensate a large number of Fernald workers
13 and it's not constrained based on the building
14 or year, as with the earlier model for the
15 DWEs where you have data that has good
16 granularity and you can assign a particular
17 DWE to a building for a particular year. How
18 about the guy's buddy who comes along the next
19 year and he doesn't have that? This guy gets
20 compensated but, you know, he happened to be
21 in a building where they had low DWEs and
22 you're not. So it comes up in the fairness

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1 considerations. Again, it's not typically what
2 we get involved in, but I think in this case
3 because this is such a showcase situation for
4 this whole issue of sufficient accuracy, I
5 thought it was worth bringing this up.

6 In summary, SC&A and NIOSH have
7 reached very, vastly divergent conclusions
8 based on what reasonable scientists have
9 interpreted from the same set of facts
10 regarding milligrams thorium. We both
11 acknowledge there's very large uncertainties
12 and very high doses that result from using
13 this data. However, we disagree in regard to
14 whether the data meet the intent of sufficient
15 accuracy as applied to SEC determinations
16 under EEOICPA.

17 We believe at this point in our
18 opinion that the technical issues have been
19 fully explored and debated for '68 to '78 and
20 potentially for later periods, but right now
21 let's concentrate on '68 to '78, and it's now
22 really a time for a policy decision to be

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1 taken up by the Board. And if you like, this
2 might be a good break point if you'd like to
3 entertain questions. Or I could go on and
4 talk about the later data.

5 CHAIRMAN MELIUS: Let's talk about
6 this time period. If there are questions from
7 Board Members? Yes, Gen, I'm sorry.

8 MEMBER ROESSLER: I know we got a
9 lot of this documentation ahead of time, but I
10 really didn't focus on this and I think this
11 is a huge responsibility for a Board Member to
12 take at this point in time. There's a lot of
13 complex scientific information here and I
14 really don't feel that I can come down on one
15 side or the other. I guess I'd like to maybe
16 hear from other Work Group Members, from Work
17 Group Members on this.

18 CHAIRMAN MELIUS: Just to clarify,
19 I'm not asking anybody to take a position at
20 this point in time.

21 MEMBER ROESSLER: Oh, good.

22 CHAIRMAN MELIUS: I think we're

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1 asking: are there technical questions? Let's
2 sort of do this one step at a time. Let's see
3 where we are and so forth. So, John's
4 question to you wasn't, you know, do you agree
5 with him or not, it's would you have questions
6 for John at this point and then we'll hear
7 from Mark and then we'll --

8 MEMBER ROESSLER: All right.

9 CHAIRMAN MELIUS: Paul?

10 MEMBER ZIEMER: Well, we've had
11 some of these discussions in the Work Group.
12 Some of this gets a little magnified by
13 putting the numbers in terms of the committed
14 dose equivalent, a 50-year dose to an organ.
15 Because we're used to thinking about, for
16 example, 5 rem per year limit, but for
17 particular organs, the individual organ doses,
18 skin doses, bone surfaces and so on, annual
19 limits are much higher. Then if you multiply
20 that by 50, you get numbers that are similar
21 to what you get here. It looks like a big
22 number and the implication that the

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1 uncertainty, even at detectable limits, has
2 this big range, it's true in a real technical
3 sense, but it's not all that different from
4 the uncertainties that we get in other cases
5 where, if you were to look at, for example,
6 50-year doses for people.

7 So, I'm not disagreeing with the
8 concept that it's a big uncertainty and in
9 fact, historically, we have taken that into
10 consideration in the bounding by taking upper
11 end limits. So, I think we just need to keep
12 that in mind that in my mind what looks like a
13 big number is not that different from what
14 we've been dealing with in many, many sites.
15 Again, that's somewhat philosophical, though,
16 because all of a sudden we're thinking about
17 50-year doses for organs where you have an
18 organ fraction that you compare with the 5 rem
19 whole body dose. It does stretch things out
20 in a sense.

21 MR. STIVER: Dr. Ziemer --

22 MEMBER ZIEMER: I'm not -- it's

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1 just a conceptual comment. We had this
2 discussion.

3 MR. STIVER: Oh, yes.

4 MEMBER ZIEMER: And the issue of,
5 again, it goes to: what does sufficient
6 accuracy mean? Is it inaccurate if the
7 distribution is wide? Well, part of what we
8 have in this program is wide distributions,
9 which, incidentally, usually help the
10 claimants because they are assigned
11 probabilities based on the upper end of that.

12 But anyway, that's my comment.

13 MR. STIVER: Dr. Ziemer, I
14 remember this conversation, which is why we
15 put in this secondary analysis. And this is
16 really -- these are not committed dose
17 equivalent.

18 MEMBER ZIEMER: Yes, I understand
19 that, John.

20 MR. STIVER: These are actual
21 annual increments.

22 MEMBER ZIEMER: Right, and we

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1 understand that certainly when you do that at
2 the upper end you can -- the PoCs will be
3 above 50. That's fine. That's how they come
4 out.

5 MR. STIVER: I guess once again it
6 comes down to a philosophical judgment of what
7 is really intended by the rule and how that's
8 to be interpreted.

9 MEMBER ZIEMER: Right. And if
10 you're bounding, that's what happens. You're
11 going to assign those upper limits.

12 CHAIRMAN MELIUS: Mark?

13 MEMBER GRIFFON: I mean, looking
14 at the few examples, too, I can see some
15 questions about how to frame those examples to
16 get these higher. I mean, I'm not sure if
17 that's realistic that someone would have a
18 chronic 5-year exposure -- maybe it is -- a
19 chronic 5-year exposure to thorium and then
20 have a month after that 5-year period get
21 their sample. So there's some stuff in your
22 examples, but I'm not even going to question

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1 there.

2 I'm more interested in the -- did
3 you do any analysis of the -- and I'll preface
4 this by saying that I am not on board with the
5 earlier period being adequate yet. The DWE
6 model, though, which SC&A has reviewed and
7 sort of has taken a position that they believe
8 doses are reconstructable with the daily --

9 MR. STIVER: DWEs.

10 MEMBER GRIFFON: Yes, daily
11 weighted averages. Did you do any comparison
12 of the last years of that program, the doses
13 that you would derive using that model versus
14 the in vivo period and to see if there is any
15 relationship at all or magnitudes -- are the
16 orders of magnitude different?

17 MR. STIVER: I haven't looked at
18 that in detail in kind of a comprehensive
19 sense, but there are a number of buildings and
20 years for which the DWEs are quite low.
21 NIOSH's model is using the highest DWE for
22 that facility and that year, but even in some

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1 cases those are quite low. There's a couple,
2 like during operations such as green salt
3 reduction to metal, where it was really dirty
4 and those values are quite high. I have not
5 compared that value to these values.

6 But I guess in my mind there was
7 just this issue of, you know, if you happen to
8 be in this later period where there's just
9 basically you're in or you're out, whereas in
10 earlier years there would be kind of an
11 inconsistency in how that compensation might
12 be applied. But in this particular example
13 that we ran, this was based on the one-half
14 MDL chronic exposure for missed dose that
15 NIOSH uses in dose reconstruction. That's why
16 we set it up this way, only in our situation
17 we looked at an intake over five years that
18 resulted in half the MDL as opposed to on an
19 annual basis. So these results, all else
20 being equal, would be about five times lower
21 than what might result from the NIOSH model.

22 CHAIRMAN MELIUS: Other comments

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1 or questions? Brad.

2 MR. KATZ: Please speak into the
3 mic.

4 MEMBER CLAWSON: Yes. I just
5 wanted to make sure the Board understood kind
6 of what we've been doing. The last three Work
7 Groups we have really come into a conundrum
8 with this.

9 And basically, the way it was kind
10 of put to me is, you know, Brad, sometimes
11 when you eat an elephant you've just got to
12 start with a little piece and go from there.
13 And in my personal opinion the '68 to '78 to
14 me in my personal opinion is -- that's the
15 easiest place to start there because in what
16 I've seen from it, we're trying to basically
17 use data that wasn't designed for what it was
18 used. And yes, we do this in other cases but
19 there's no correlation. From what I've seen
20 there was nothing there.

21 So kind of what I've tried to do
22 is steer towards these sections. Because, as

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1 I've told you, Fernald is a very complex site,
2 especially with the urine data that we have.
3 And this is why I was focusing more on the '68
4 to '78, because we haven't been able to find
5 the correlation in my opinion to be able to
6 deal with this, so I'm trying to take portions
7 of it and work through it.

8 CHAIRMAN MELIUS: Any other
9 questions on the presentation? Sam, I don't
10 know if NIOSH is planning to say anything. I
11 don't have anything on my agenda. Mark or
12 who's --

13 MR. ROLFES: This is Mark Rolfes
14 with NIOSH. I'd be happy to entertain any
15 questions that you have about the model.
16 There are some things that I have seen in the
17 presentation. You know, you've got to look at
18 all the data.

19 MR. KATZ: Mark, can you try
20 speaking as much into the mic as possible?

21 MR. ROLFES: You've got to look at
22 all the data that you have available. And

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1 basically one of the most important factors
2 would be the type of cancer that an individual
3 has. As Paul did indicate earlier, the doses
4 that were reported, there are some large doses
5 to the bone surfaces spread over 50 years for
6 a near-MDL level exposure to thorium.

7 However, this is consistent with
8 any dose reconstruction that we do. If
9 there's a high MDL, the only thing that that
10 does is benefit the claimant. The uncertainty
11 in exposure is given to the claimant as
12 benefit of the doubt.

13 The cancers that were presented
14 here in the slides were all metabolic cancers.

15 The organs that were affected by thorium,
16 such as the red bone marrow, the bone
17 surfaces, the liver, those are organs that you
18 would expect to have the highest internal
19 doses from thorium. So, you know, we also
20 have cancers, other cancers for which we do
21 dose reconstructions which wouldn't have doses
22 of this magnitude. The doses would be a

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1 factor of 1,000 or more lower than the bone
2 surface doses.

3 Furthermore, if you take a look at
4 the number of bone cancers that we have from
5 Fernald, out of the 1,200 claims that we've
6 received I believe the last I checked there
7 were about eight cancers of the bone for which
8 dose reconstructions were needed.

9 I'd be happy to answer any
10 questions if there are any at this time or as
11 you go through the rest of the discussion.

12 CHAIRMAN MELIUS: Gen?

13 MEMBER ROESSLER: This is --
14 again, I'll say this is a huge amount of
15 information to absorb. But my question is can
16 you bound the doses during that period of
17 time.

18 MR. ROLFES: Yes, we believe that
19 we can place a plausible upper bound. We do
20 have a lot of values below the minimum
21 detectable amount for thorium, but we also do
22 have positive values as well, indicating that

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1 this is a plausible exposure scenario.

2 MEMBER ROESSLER: But it appears
3 that SC&A is saying the doses cannot be
4 bounded.

5 MR. ROLFES: I think we share a
6 difference of opinion.

7 CHAIRMAN MELIUS: Correct. I
8 don't think it's a question of bounding, I
9 think it's just is it a sufficiently accurate
10 or plausible bound. Right?

11 MR. STIVER: It's a big number.
12 You know, we believe that in the early period
13 it's not -- we can't bound that data.

14 I think in the later period, from
15 '78 on Tom LaBone and Mark have presented a
16 method by which you could, given a lead-212
17 value, you could get an upper bound number.
18 Now, that upper bound number is so high that
19 it's essentially going to compensate everyone,
20 and this gets to the sufficient accuracy
21 situation. I mean, is that a reasonable way
22 to go?

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1 Now, granted we've been here
2 before. There was the whole problem with Ames
3 Labs with the thorium explosions --
4 excursions. You had high-fired plutonium,
5 unstable metal tritides at Mound. They're all
6 situations where you have a tool that was used
7 at the time which is not really applicable to
8 what we're trying to do here. And so, if
9 there is ever a situation or a case study
10 where sufficient accuracy is front and center,
11 I think it's this set of data here.

12 MEMBER GRIFFON: But John, didn't
13 you also raise a question of whether you even
14 have the lead-212 number?

15 MR. STIVER: Well, that's kind of
16 the flip side of the coin.

17 MEMBER GRIFFON: Right.

18 MR. STIVER: In that earlier
19 period, we don't have anything but milligram
20 thorium and you don't know what was used to
21 derive that result. So that 6 milligram or 10
22 milligram could be an order of magnitude

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1 higher, you don't know. So I don't believe
2 for that period it's boundable.

3 Mark will probably present some
4 things here that show that, you know, that
5 they have a lot of techniques and they're all
6 predicated on having a lead-212 measurement in
7 one form or another. That's SC&A's
8 perspective.

9 MR. ROLFES: I don't know, would
10 you like for me to respond? Okay.

11 We do have references from Y-12,
12 basically showing that both lead-212 and
13 actinium-228 photo peaks were used. And a
14 total sum of the counts under those three
15 photo peaks that were used were compared to a
16 similar spectrum from 1,100 unexposed
17 individuals. And Y-12 developed this ratio
18 technique to basically quantify thorium
19 exposure based upon both the actinium-228 and
20 lead-212 photo peaks.

21 We actually have, one of the
22 documents that I recently sent out to the Work

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1 Group was this rule of thumb for computing
2 thorium body burdens from the in vivo counts.

3 It's a Y-12 reference and it provides the
4 actual calculation methodology that is used to
5 derive the thorium mass lung burdens.

6 CHAIRMAN MELIUS: Sam, you had
7 something?

8 DR. LIPSZTEIN: Can I respond to
9 this?

10 CHAIRMAN MELIUS: Yes, Joyce. Let
11 her -- yes.

12 DR. LIPSZTEIN: Those papers were
13 not related to Fernald, they were related to
14 Y-12. And the rule of thumb that they use is
15 based on a calibration source that might be
16 different from Fernald. So I don't think this
17 is applicable to Fernald. We don't know what
18 they used at Fernald. Okay, thank you.

19 CHAIRMAN MELIUS: Sam, you had a
20 comment?

21 DR. GLOVER: Boy, Mark's taller
22 than I am. I didn't realize how much taller

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1 he was.

2 (Laughter.)

3 DR. GLOVER: It lets you know when
4 you've got to kind of go on tiptoe.

5 So, the paper that he presents,
6 it's a ratioing method. And so there's never
7 -- and one of the things they presented was
8 counts, the nanocuries. And it complicated --
9 what they did is they took the person's
10 individual ratios in these different areas.
11 And so if you look at the curve the lead is in
12 the lower region and so it's in the higher
13 background counts. And so there's different
14 weights because you have to proportionally
15 increase that. And so it's with -- there's a
16 ratio of an individual's own. So they have
17 the region right before it and the region
18 right after it and they compare and see what's
19 the ratio in that region. So they have these
20 three regions of interest and they sum them
21 up. And so they never determine a net count.

22 And so it is something that may

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1 not have come out. Because when you try to
2 look at just absolute nanocuries over there,
3 well, they didn't do that. Just how much of
4 an increase in this section to the next one
5 did they have? And it's a little bit based on
6 how high -- where are you in the content
7 scatter region?

8 So, there is -- I just want to
9 make sure you guys understood that document.
10 It's something I didn't necessarily take away
11 when I first looked at the data. I'm pretty
12 sure we're very confident that this West 1965
13 paper describes very clearly what they did.
14 We don't disagree that it would be complicated
15 to fully evaluate this.

16 CHAIRMAN MELIUS: And just --
17 don't go away, Sam. Just one question. So,
18 you've never really tried to implement this
19 then, what we're talking about here? Is that
20 -- I'm trying to understand. For Fernald.

21 MR. ROLFES: This is Mark, and I
22 think at the last Work Group meeting we were

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1 asked to develop a formal response, basically,
2 in a short amount of time, two to three weeks,
3 for this meeting. And we did our best to
4 develop a formal response. And this is
5 something that we're currently looking into.
6 We don't have a formal response on this yet.
7 We have done some sample dose reconstructions
8 based upon this new information that we have,
9 based upon the disequilibrium of the thorium
10 that was used in the calibration standards,
11 based upon the information that was presented
12 in a couple of different Health Physics
13 Journal articles and in addition to this
14 document, the West 1965 document, Health
15 Physics Considerations Associated with Thorium
16 Processing.

17 CHAIRMAN MELIUS: I guess what I'm
18 struggling with is here it's six years after
19 the SEC petition is filed and we still don't
20 have a demonstrated dose reconstruction
21 method. I mean, and that -- I understand the
22 technical complications, and I'm not faulting

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1 anybody, but it's pretty frustrating for the
2 Board to sit here. And I sat in and listened
3 in, participated a little bit in the last Work
4 Group meeting and I think, you know, it was
5 instructive and I think obviously everybody's
6 trying to and struggling to interpret this
7 information.

8 But it just sort of bothers me
9 that here after six years we're still going on
10 trying to address a site where there's lots of
11 information but I guess I'm a little bothered
12 that it takes so long to do this. And we have
13 petitioners waiting.

14 And certainly, I'll say that it's
15 my recommendation we sort of try to break this
16 up into at least manageable sections for the
17 Board to be discussing because of that length
18 of time and because it is technically
19 complicated. But I really think we need to
20 come to grips with what needs to be done here
21 because I don't think it's really appropriate
22 to be going on for many more years doing this.

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1 MEMBER CLAWSON: Dr. Melius, could
2 I make a comment? I agree with you
3 wholeheartedly and this is what I was trying
4 to do.

5 You know, looking at this from a -
6 - and I've just barely got to be able to see
7 these rules of thumb that we just sent out
8 there, but the date on this thorium count that
9 they have as a rule of thumb is 3/26/76. So
10 that's telling me right there that guess what,
11 you know, they've been doing this for how long
12 and now all of a sudden they're starting to
13 see it's not jibing. It's not calculating.
14 So they go to an awful lot of work to try to
15 make something work so that they can get a
16 better handle on this. You know, to me just
17 looking at common sense-wise, that's the way
18 that I look at this. They've been showing
19 that they've had problems and now they're
20 trying to get a grasp on it.

21 MR. STIVER: And Dr. Melius, if I
22 could say something also, for the record. The

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1 information that Mark and Sam are producing
2 today is not new. We've been looking at this
3 in the last two Work Group meetings. The Hap
4 West paper was kind of front and center. And
5 this is the technique they used to develop a
6 screening methodology for 10 milligrams or
7 less.

8 Could it be made quantitative? It
9 could. If there was any evidence that it was
10 used in a quantitative sense, it should be in
11 the NOCTS claimant files like what we saw for
12 uranium. The only reason to have quantitative
13 data would be to calculate some percentile of
14 a lung burden. And we just don't see any
15 evidence of that.

16 CHAIRMAN MELIUS: David?

17 MEMBER RICHARDSON: So I was
18 wondering if, Brad, could you repeat your
19 comment again because I'm trying to get -- I'm
20 not sure I understood.

21 MEMBER CLAWSON: What I was
22 saying?

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1 MEMBER RICHARDSON: Yes.

2 MEMBER CLAWSON: Well, that's
3 about normal.

4 (Laughter.)

5 MEMBER RICHARDSON: I think you're
6 deeper into this than I am and so.

7 MEMBER CLAWSON: We have been
8 wrestling with this as a Work Group for
9 probably the last three years, but one of the
10 things that came out to me just looking at
11 this rule of thumb that they brought up is the
12 date that this was done on and that's 1976.
13 The era that we're looking at is '68 to '78.
14 We're saying, in my opinion, that they don't
15 have the information to be able to do it.

16 My personal opinion is that this
17 is an SEC period. To me it looks like because
18 they went to such great lengths to be able to
19 understand, to be able to go to this process,
20 to be able to find out what the thorium ratios
21 are and try to make sense out of what they've
22 been doing because, as John Stiver says, this

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1 was used more as a triage system to justify
2 the 10 milliliters. It wasn't used, in my
3 opinion, to be able to actually monitor. They
4 were coming to find out that they had problems
5 with thorium and they're trying to get a
6 handle on it.

7 MEMBER RICHARDSON: And the "they"
8 is Fernald? The health physics department at
9 Fernald? Or Y-12 or NIOSH?

10 MEMBER CLAWSON: Well, they used
11 actually the in vivo counting from Oak Ridge
12 came out to Fernald. And you know, usually
13 when you see somebody with an uptake of
14 thorium that they're worried about, they
15 follow up on it. They give several
16 measurements and I haven't seen. They're
17 coming out there, and I think they're trying
18 to get a handle on the thorium. I think
19 they're trying to better understand what's
20 going on with it. And I think this is
21 basically what this rule of thumb paper even
22 shows. They're trying to get a handle on

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1 where they're at with these thorium issues.

2 MEMBER RICHARDSON: Okay.

3 CHAIRMAN MELIUS: Other comments
4 or questions? Yes, Paul.

5 MEMBER ZIEMER: Well, I might make
6 one comment on the ratio issues. Most of the
7 data for the ratios is below the official
8 detection limit of the detector. So, that
9 those don't correlate is not a surprise
10 because you're in the noise of the system.

11 There were three values on your
12 chart, John, I think there were three that are
13 -- well, maybe two that were above the
14 detection limit, I believe.

15 MR. STIVER: Actually, I think we
16 might be kind of mixing things up a bit. We
17 were looking at the detection limit of lead-
18 212.

19 MEMBER ZIEMER: Right.

20 MR. STIVER: And that should --
21 and those were all above the detection limit.

22 MEMBER ZIEMER: Those were --

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1 MR. STIVER: But those didn't show
2 it correlated at all.

3 MEMBER ZIEMER: Right, that's what
4 I was getting to. Most of them though were
5 still below the detection limit. I think the
6 detection limit was --

7 MR. STIVER: It was 0.23
8 nanocuries for lead-212 and there was only one
9 result that was less than 0.23.

10 MEMBER ZIEMER: Oh, okay.

11 MR. STIVER: Yes. So those were
12 all above the detection limit, yet there was
13 no correlation, no proportionality.

14 MEMBER ZIEMER: The numbers that
15 they used as the detection limit for the
16 thorium, those were all below that limit,
17 right?

18 MR. STIVER: Well, that was kind
19 of suspect data. You had the same value
20 reported even though you had information that
21 was beneath the detection limit. You should
22 have seen some kind of proportionality. And

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1 that was really put out there to show --

2 MEMBER ZIEMER: Yes. My point was
3 that the bigger values didn't have the
4 proportionality. Those three were the ones,
5 and I mentioned this at the Work Group, that
6 those disturbed me more than the others. The
7 others I still think were -- for the thorium
8 were in the noise of the thorium detection
9 ability as they described it, if I understand
10 it.

11 MR. STIVER: We don't know why the
12 same value was reported for all the data in
13 1979. We put that out there as really a
14 demonstration that here you have, you know,
15 you have the lead-212 measurements, you should
16 be able to ascertain the age of the source and
17 calculate a thorium value for a homogeneous
18 group exposed to the same source over a short
19 period of time. There should have been
20 proportionality with the thorium measurement
21 and there wasn't.

22 So that calls into question is 6

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1 milligrams really right or were we even
2 looking at some other value? Or the values --
3 we're assuming the nanocurie values for the
4 detection limit are correct, and yet here you
5 have values greater than the detection limit
6 over kind of a broad range and you should see
7 some kind of proportionality in the thorium
8 results if they were indeed based off of those
9 lead-212 measurements.

10 So that was really, we were trying
11 to demonstrate that, hey, maybe that wasn't
12 used. Here's some small amount of evidence
13 but it's the only evidence that's there.

14 MEMBER ZIEMER: So you're really
15 saying, even as a screening tool, it was
16 suspect then.

17 MR. STIVER: Well, yes. It's just
18 for that set of data we just don't know how
19 that information was -- how was that milligram
20 value --

21 MEMBER ZIEMER: See, in my mind
22 you can use a screening tool because it's like

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1 a triage. But if the screening is suspect,
2 then that's a whole new question.

3 CHAIRMAN MELIUS: I don't know if
4 the petitioners are on the line and would like
5 to speak?

6 MS. BALDRIDGE: Yes, this is
7 Sandra.

8 CHAIRMAN MELIUS: Okay, thank you,
9 Sandra.

10 MS. BALDRIDGE: A little
11 frustration here. I'll try to get it out
12 without getting even more frustrated.

13 I went back through the Internal
14 Dose Implementation Guide that OCAS has and as
15 I review that, the document, I notice that
16 there were a couple of statements and things
17 that I probably knew but hadn't really focused
18 on. And one is that they are only following
19 the soluble portion of inhaled material
20 carried by the bloodstream. So, in dose
21 construction, where does that put the dose
22 from insoluble particles or materials

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1 ingested? They aren't being dosed for
2 internal exposure.

3 NIOSH has said, you know, we have
4 all this data. It's all uranium urinalysis.
5 Well, it's not addressing any of the insoluble
6 uranium or thorium that these people were
7 exposed to. It's only measuring what -- the
8 soluble that's coming through the bloodstream
9 and results in a urinalysis. That's one
10 frustration.

11 Then, under the worst case
12 scenario, when dose reconstructions were done,
13 there were OTIBs developed, and under the OTIB
14 there was a token thorium dose assigned to
15 workers for thorium-232, which was for the
16 uranium processing. But there was no
17 provision made for the thorium-228, which is
18 the high gamma from thorium processes. Now,
19 to exclude a higher, more potentially
20 dangerous form of radiation from a dosing I
21 don't feel is claimant-favorable.

22 Okay, another point. I really

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1 question how for dose reconstructions they can
2 determine that one person's exposure was not
3 significant enough to actually pursue an
4 accurate or reasonably accurate dose
5 reconstruction, but kind of slap on this OTIB
6 so we can get this person out the door and
7 send them off to DOL.

8 Well, when you're in that position
9 having to deal with DOL and you know there has
10 been additional exposures, such as was
11 discovered with the operations in plant 6,
12 that were not included in dose reconstruction
13 and you're telling them there's this
14 additional exposure potential here. And then
15 you go back and you check the law and NIOSH
16 has the responsibility of assigning those
17 discovered doses or potential doses to a
18 claimant, and they take the position, well,
19 we'll do it when the Technical Basis Document,
20 the Site Profile is revised.

21 So, they're not getting the
22 thorium in this Site Profile revision because

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1 the SEC is in process and the SEC has kind of
2 been hanging out there for all these years.
3 We know there's dose. It can't be applied to
4 the claimants now going on six, in some cases
5 longer. It's just a frustrating situation.

6 We know there are documents in the
7 petition that state that Fernald was opposed
8 to record-keeping practices and standards.
9 They wanted to be in control of what they did
10 and when. They didn't see any need for
11 accuracy. It was a time/manpower decision.
12 They thought things were unnecessary, because
13 the data that they were putting down wasn't
14 going to be usable for epidemiological studies
15 for workman's comp because they wouldn't have
16 the medical records on the workers to justify
17 it.

18 We know they ignored the MAC
19 levels and the standards that were set in
20 place, that they developed their own level for
21 MAC for thorium which was 20 times higher than
22 those recommended by the National Committee on

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1 Radiation Protection.

2 They were the stockpile for
3 thorium starting back in 1959, even though
4 they didn't become the official repository in
5 '72 and processed sitting there was in drums
6 that were falling apart. They not only had to
7 re-drum thorium once, but four times. It was
8 improperly coated, the men didn't know what
9 they were working with and heaven knows what
10 was in the drums or what daughter products had
11 been released. There were 30 fires in 4
12 years, and they used a 6-foot cyclone fence as
13 a preventative against cross-contamination.

14 Now, you know, to be continuing to
15 discuss whether or not the people were exposed
16 or whether the levels are bounding or not,
17 you're only -- we're only looking at the
18 soluble portion of their exposure material.
19 The reports, and one, I believe, is even in
20 the petition, about the thorium in the lungs
21 and the study on dogs that was present seven
22 years later. It just seems to me that there's

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1 a lot of exposure that's been overlooked or
2 skirted around and a lot of focus is based on
3 the little data that is available, and I say
4 "little" not because of quantity but maybe
5 because of significance, at least in my eyes.

6 When there is so much that could
7 have been used to have done a better job, but
8 Fernald messed it up for themselves by
9 falsifying and eliminating air sampling that
10 could have been done. And you know, there's
11 just such a cloud over the whole Fernald
12 workplace, in my way of seeing it, that I
13 don't think it'll, you know, I'm questioning
14 whether it'll ever get finished or sorted
15 through. And it's really frustrating.

16 I have a 98-year-old mother who is
17 holding on to see her husband compensated for,
18 to receive what she believes and I believe he
19 deserves. And it's just mind-boggling to me.

20 That's it.

21 CHAIRMAN MELIUS: Okay, thank you,
22 Sandra. So, we need to decide how to move

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1 forward here.

2 MEMBER ZIEMER: I wonder if Mark,
3 can you clarify that solubility issue that was
4 mentioned? That wasn't quite clear to me what
5 the point was.

6 MR. KATZ: One second, Mark.
7 While Mark is coming up, Sandra, can you mute
8 your phone now that you're finished addressing
9 the group, just so that the rest don't hear
10 the background noise? Thank you.

11 MR. ROLFES: I think what Sandra
12 might -- this is Mark Rolfes. I believe what
13 Sandra might be referring to with solubility
14 would be related more towards uranium and the
15 measurement of uranium excretion in urine.
16 That doesn't come into play with thorium,
17 because of the methodology that we're using to
18 estimate thorium exposures for workers during
19 the time period of discussion here, 1968 to
20 '78.

21 We're using data gathered from the
22 Mobile In Vivo Radiation Measurements

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1 Laboratory, which would basically measure any
2 thorium in a person's lung or chest region.
3 And if it's insoluble material it's going to
4 stay within the lungs and it would give you
5 more confidence in your measurement. So, and
6 insoluble thorium would be much easier to
7 detect in the lungs and significant exposures
8 would tend to be accumulative and would be
9 much easier to detect than lower-level, more
10 soluble exposures.

11 CHAIRMAN MELIUS: Well, my
12 suggestion, then, if no one else has one, is
13 we don't wait till after lunch. I'll say the
14 Work Group has worked hard on this. I don't
15 think after the last meeting they were in a
16 position to be able to make a firm
17 recommendation or motion at this meeting. So
18 it's not faulting them at all. It's a lot of
19 material, a lot of technical information to
20 absorb in a period of time.

21 But I really think we need to -- I
22 don't see the Work Group making -- being able

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1 to resolve this on their own for this
2 particular issue. And my recommendation -- and
3 we're not ready -- we don't have a Class
4 Definition ready to really address at this
5 meeting. And so I don't think trying to fully
6 resolve this issue is appropriate.

7 But what I would suggest is that
8 we be prepared with a, you know, tentative, I
9 don't know what you want to call it, proposed
10 Class Definition for the next meeting which
11 would be our April call on this. That in the
12 meantime, that all Board Members will have
13 time to review the materials. I would ask the
14 Work Group to -- I suspect there's other
15 reports in the pipeline, are there, from
16 NIOSH? I can never tell. There's so many
17 White Papers and stuff on here. I lose track.

18 And I listen to the entire meeting. I can't
19 tell.

20 MR. ROLFES: This is Mark Rolfes
21 once again. And I think we've laid out our
22 previous position in our response papers from

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1 November. If there's additional information
2 that the Board as a whole would like for us to
3 present or develop, if there's questions that
4 arise in the review of the materials we
5 previously prepared we'd be happy to do that.

6 But as of right now I think the majority of
7 everything we had intended to present has been
8 sent.

9 CHAIRMAN MELIUS: So, it would be
10 review. If there are questions or additional
11 information that would be useful, if we can
12 get to the -- communicate, I think, to Brad as
13 the Work Group Chair prior to the next -- I
14 would think we need to try to do it in the
15 next few weeks. A couple of weeks if
16 possible, but there's a lot of material to go
17 through. So, all of it which I think is on --
18 I think most of the pertinent information was
19 on the information we're given today on this
20 issue. Yes, Mark.

21 MEMBER GRIFFON: Just one
22 question. I think there was some agreement

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1 with Mark and John on this. I think, John,
2 you even stated that we agree that few workers
3 would have been involved in this. And, you
4 know, as we're thinking about Class Definition
5 of course we come to that question of: can we
6 tell who, though, you know. Can you narrow
7 that? Is there any way to identify a smaller
8 sub-population, or is it going to be all
9 workers kind of thing, you know.

10 MR. STIVER: In this particular
11 data set we do not have a good handle on who
12 was indeed a thorium worker. These people
13 were pulled from the pool of chemical
14 operators as needed for thorium campaigns and
15 so it's very difficult to identify who they
16 are at any given time.

17 MEMBER GRIFFON: That's what I
18 thought.

19 CHAIRMAN MELIUS: But again, I
20 think we'd ask. That's why I think the Work
21 Group probably needs at least a phone call
22 meeting to work with SC&A and NIOSH on at

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1 least having something that can be checked
2 with DOL, at least something going forward.
3 If we decide -- again, it's all predicated on
4 a recommendation from the Board, but I think
5 we need a Class Definition to work with. I
6 talked a little bit with NIOSH about this but
7 I think -- prior to this meeting, but I think
8 what John's saying is correct. But let's make
9 sure on that also.

10 And then the Work Group has got
11 other issues. And if it's, you know,
12 appropriate to work and try and move forward
13 on those also, but let's try to come back at
14 our April meeting to address this issue. And
15 again, this is my proposal and putting it out
16 there.

17 MEMBER CLAWSON: Dr. Melius, this
18 is Brad. I wanted to make sure you're looking
19 at the '68 to '78 time frame.

20 CHAIRMAN MELIUS: Yes.

21 MEMBER CLAWSON: Because we still
22 have issues after this '78 and we also need to

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1 look at the previous one.

2 CHAIRMAN MELIUS: Right.

3 MEMBER CLAWSON: What I was trying
4 to do is trying to eat a pretty big horse
5 here, but I wanted to find one that I
6 personally felt that we can't come to grips
7 on.

8 CHAIRMAN MELIUS: I think in
9 Minnesota it's a pretty big moose we refer to.

10 MEMBER CLAWSON: Okay.

11 (Laughter.)

12 CHAIRMAN MELIUS: David?

13 MEMBER RICHARDSON: I wanted to
14 ask something which is along the lines of what
15 Mark was asking in terms of -- Mark Griffon --
16 in terms of kind of the size of the Class and
17 the definition of the Class. Mark Rolfes had
18 framed it somewhat differently in terms of
19 thinking about which types of cancers receive
20 substantial doses at this kind of screening
21 detection limit versus others, and had pointed
22 out that some of the estimates of the -- where

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1 there were large values of committed doses
2 were for very uncommon cancers, like dose to
3 the surface of the bone.

4 I wanted to clarify something with
5 that and ask you about because the examples
6 you had given were liver, bone and leukemia.
7 The one that's standing out which I'm at least
8 intuitively thinking about as inhalation is
9 the lung. And that wasn't on the list but
10 that would be, I'm imagining a quarter of all
11 cases that would -- claims that would come in
12 would be for lung cancers.

13 Is that in that list where at this
14 detection limit there are very large doses
15 also for thorium?

16 MR. ROLFES: Yes. The lung would
17 be a metabolic model, definitely, for an
18 insoluble thorium. It would receive
19 significant exposure. However, in most cases
20 when we complete dose reconstructions for the
21 Fernald sites, I don't want to misquote an
22 exact number but greater than 90 percent of

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1 the lung cancers have already been compensated
2 for the Fernald site based upon the uranium
3 intakes alone.

4 MEMBER RICHARDSON: On the
5 uranium.

6 MR. ROLFES: Yes, correct.

7 CHAIRMAN MELIUS: And I would just
8 clarify, we do not do, you know, cancer-
9 specific SECs.

10 MEMBER RICHARDSON: Oh no, it
11 wasn't, but I was thinking about --

12 CHAIRMAN MELIUS: I understand.
13 What I was -- I actually think Mark's comment
14 is not really relevant. We're not going to
15 parse this out by, you know, what's already
16 been compensated or what's -- we went through
17 that 10 years ago. We had that discussion, a
18 long discussion on it. It's difficult.

19 MEMBER RICHARDSON: No, I see. I
20 mean, it also follows kind of from Paul's
21 thinking about what does that detection limit
22 mean. Where is that dose being deposited and

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1 how is it parsed out over time?

2 CHAIRMAN MELIUS: No, it's an
3 appropriate question, I just -- I understand
4 the question. I just wanted to clarify the
5 answer. Phil?

6 MEMBER SCHOFIELD: One of the
7 things there too is the fact that it all
8 depends on whether this is virgin thorium,
9 recycled thorium or a combination of the two
10 being blended together. Then that determines
11 the lead in there. So, how do you go to make
12 that determination for a person's exposure?

13 MR. ROLFES: If you'd like a
14 response -- this is Mark Rolfes. Basically,
15 in the West 1965 article it basically does say
16 that in order to quantify thorium lung burdens
17 you need to know the age of the materials in
18 history associated with that thorium.

19 We've actually developed a worst
20 case scenario which assumes that three
21 chemical purifications or separations occurred
22 at the worst possible scenario time to

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1 maximize the disequilibrium between thorium-
2 232 and its progeny. So we've developed a
3 correction factor, a worst case upper bound
4 correction factor of about 5. We would
5 basically assume that this is the worst case
6 exposure scenario that could have happened.
7 This, I believe, was documented in our White
8 Paper on the chronic intake retention
9 fractions. I think that was also sent out in
10 November.

11 CHAIRMAN MELIUS: Any further
12 discussion on this? Make sure everybody's
13 read it. We'll send out a quiz in two weeks.

14 DR. MAURO: Dr. Melius, this is
15 John Mauro.

16 CHAIRMAN MELIUS: Go ahead, John.

17 DR. MAURO: Can you guys hear me?

18 CHAIRMAN MELIUS: Yes, I can hear
19 you.

20 DR. MAURO: Because I did want to
21 make one statement, because I was very much
22 involved in this from the beginning and I

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1 thought it might help to simplify.

2 I think the essence of the
3 difference of opinion between SC&A and NIOSH
4 has to do with we don't believe that in 1968
5 to '78 that there is sufficient evidence that
6 lead-212 was the technique that was used to
7 come up with the milligrams. Everything --
8 this agreement really comes down to if we're
9 all very confident that the numbers reported
10 for '68 to '78 were derived and reported based
11 on measurements of lead-212 then we're in a
12 place where, okay, I think we all understand
13 that you could place a plausible upper bound
14 on what the levels are. But if there's reason
15 to believe that, well, maybe they didn't use
16 lead-212. Maybe they used actinium.

17 And there is reason to believe
18 that we just don't know how they got to that
19 milligram number. We don't know that they
20 used lead-212, and it's because of this where
21 SC&A's position is that we don't believe you
22 can place a plausible upper bound on the

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1 milligram body burden reported from '68 to '78
2 and it really comes down to that, in my mind.

3 Because I like to try to find the essence of
4 where the disagreement lies, and I think
5 therein lies the problem.

6 Now, if in the interim the Work
7 Group and NIOSH could find a way to
8 demonstrate where, no, there's absolute
9 certainty that those numbers were derived
10 based on lead-212 measurements and therefore
11 can be trusted as placing plausible upper
12 bounds, but I don't think that's where we are.

13 I think we're in a place where we don't know
14 what those numbers, how they were derived.

15 I'm sorry to interrupt the meeting
16 but that's where I came out and I've been very
17 much involved in these discussions. And it
18 really, in my mind, if you want to simplify
19 the question, it comes down to that.

20 CHAIRMAN MELIUS: Okay, thank you,
21 John. I believe we'll adjourn now and have
22 lunch. We'll come back at -- 1:30 we're

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1 scheduled? Yes, thanks.

2 (Whereupon, the above-entitled
3 matter went off the record at 12:07 p.m. and
4 resumed at 1:34 p.m.)

5 CHAIRMAN MELIUS: Okay, we'll
6 reconvene now in the afternoon and, Ted, do
7 you want to check the phone?

8 MR. KATZ: Let me just -- a couple
9 -- let me check and see. Dr. Lemen, are you
10 by any chance on the phone?

11 (No response.)

12 MR. KATZ: Okay, and the second
13 thing I just wanted to make note of is Dr.
14 Lockey is absent at this time. The rest of
15 the Board Members who have been attending are
16 still attending.

17 And I'm going to remind everyone
18 on the line to please mute your phones, press
19 *6 to mute your phones. Thank you.

20 CHAIRMAN MELIUS: Okay. And our
21 first item for this afternoon is Brookhaven
22 National Lab SEC Petition. And Grady Calhoun

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1 from NIOSH will present. Welcome, Grady.

2 MR. CALHOUN: Can you hear me?

3 CHAIRMAN MELIUS: Yes.

4 MR. CALHOUN: All right. Well,
5 good afternoon everybody. We have presented
6 this in earlier years before, but we'll go
7 over the new ones here.

8 Okay, basically what happened, and
9 we'll get into the whys, is that we kind of
10 came to the decision that we needed to at
11 least look at extending the previously
12 established period. In October we contacted
13 the claimant, and told them that we weren't
14 able to reconstruct the dose and that was past
15 the year that the previous SEC was
16 established. We received the petition shortly
17 after that.

18 It qualified for evaluation in
19 November, and we published the Evaluation
20 Report in January. The proposed Class is
21 going to be January 1st, 1980 through December
22 31st, 1993, all employees, all areas who have

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1 worked the required number of days.

2 The background is it's a national
3 lab located up in New York. They've done all
4 kinds of really interesting experiments and
5 research at that facility. A bunch of
6 different reactors there, all kinds of really
7 cutting-edge work that they did, including
8 radiation dosimetry, oddly.

9 The place is divided up, and I
10 don't know if anybody's really been there, but
11 it's kind of almost like a college feel,
12 different buildings, and there really wasn't a
13 whole lot of control moving between the
14 buildings back then when we're looking at this
15 second period and even today. My visits
16 there, I could go pretty freely throughout the
17 places and so there wasn't a whole lot of
18 control to try to limit the Class.

19 There's just a few of the things
20 that were -- the big machinery and the big
21 experiments. It was primarily an accelerator
22 facility. We had some reactors there. They

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1 produced medical isotopes there. There was a
2 waste operation department there that dealt
3 with the wastes that were generated as a
4 result of that.

5 And like I said, a couple of the
6 proton accelerators here. We also have a
7 National Synchrotron Light Source. That's
8 relatively new compared to the other items
9 that we had here. A Van de Graaff
10 accelerator. And, as you are aware, we did
11 recommend the Class some time ago up through
12 1980 -- through '79.

13 And then basically what we had to
14 do is -- and it was for all Classes, all work
15 areas, all employees. And, as we always do,
16 we continued to look at the cases as they came
17 in and try to determine if the end date was
18 actually reasonable. I think I'm getting
19 ahead of myself, but basically in 2009 we
20 recommended the Class, all employees through
21 '79.

22 And basically, we established that

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1 end date on what we believed was available as
2 far as internal dosimetry records. And one of
3 the things we found with Brookhaven is that
4 the records were just kept very, very poorly.

5 Now, I have no doubt that they had a good
6 radiation control program there, but as far as
7 retrieving the records, it just really wasn't
8 their strong suit.

9 And basically what we did is we
10 found several memos that said these
11 individuals need to be whole body counted. We
12 had those over several decades and we would
13 group those. We did a sampling to see if
14 those individuals actually had records that we
15 could find. And what we found is that
16 beginning in the eighties we had very good --
17 we could find the records of the people who
18 were sent to get whole body counts in this
19 case. So that's how we had originally come up
20 with that 1980 date.

21 Now, keep in mind that the records
22 that we were looking at were records that we

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1 had retrieved ourselves. These weren't
2 records that were provided to us by the lab.
3 There were several data captures that we went
4 on and we linked names and Social Security
5 numbers so we could find, at least look for
6 the dosimetry records for those individuals
7 who were required to get whole body counted in
8 this case. But as a result of that, we also
9 committed to continue to review the later
10 cases.

11 And what we found there is that
12 the site-specific and claim-specific data
13 available that we're getting is just not
14 sufficient to do dose reconstruction. And
15 it's primarily due to records-keeping issues
16 at the site that they kind of got a grip on.
17 I mean, they've certainly got a grip on now
18 but they certainly didn't get a grip on it
19 until it looked like 1993. And I'll tell you
20 a little bit as to why we picked that date in
21 a second.

22 External monitoring there was

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1 really good and we have routinely received
2 good external dosimetry records because they
3 were centralized. They badged people and the
4 external dosimetry records were centralized,
5 so the reports that we get back from them
6 after we make a dosimetry request have been
7 good back from the beginning of the operations
8 there, basically.

9 We even have some summary data so
10 that we could look at what the overall dose
11 was, high and low, and number of individuals
12 monitored. So they had a very good external
13 dosimetry program there. And we feel that we
14 can do the external dose for individuals that
15 were monitored there because the records are
16 very comprehensive.

17 The problem is, though, with the
18 internal doses we really don't have the
19 records to do the dose reconstruction or to
20 even come up with a coworker model prior to
21 1993. And what I'll tell you about that
22 specifically is that after we had established

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1 the SEC through '79, we would still get
2 dosimetry in as just a normal course of our
3 work when Labor gave us cases to do.

4 And so I would look at the records
5 we were receiving from the Department of
6 Energy and then I could see the records that
7 we had captured through previous data capture
8 efforts. And what I did is I had a very small
9 subset. I only looked at cases where the
10 employment was after 1979, because we had
11 already established that record-keeping prior
12 to that was not very good. And then I would
13 go back and look at the CATI to see if the
14 individual said that they were monitored, and
15 then I would compare what Department of Energy
16 had given us, Brookhaven, and what we had
17 captured ourselves.

18 And I ran across three cases at
19 least where the report from the Brookhaven was
20 that they weren't monitored. Well, I had
21 records that I had captured that showed that
22 they were. Now, it wasn't just an oversight

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1 because I reported this to them and they to
2 this day can't find those records. Okay, I
3 found them and they still can't. So we ended
4 up providing them all of the records that we
5 had captured, but I don't -- I am very
6 confident in saying that we have not captured
7 every record generated at that site. So I
8 can't rely on us to have all the records for
9 their internal monitoring program. So that's
10 what caused us to look at this date.

11 And, as I mentioned before, there
12 was really no way to limit our recommended
13 Class because people could move around across
14 the site. And again, I do believe that the
15 internal monitoring program was good there, it
16 was just a matter of keeping records of it.
17 And without those records, it basically didn't
18 happen.

19 Basically, we cannot do internal
20 dose is what we're thinking, but we can do all
21 the external dose. We've got beta/gamma.
22 They did a lot of neutron monitoring there and

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1 we know what their X-ray potential was.

2 Now, I didn't touch on why we
3 chose 1993. I don't know if I just glossed
4 over that or not, but I'll tell you now. It's
5 that we actually have found some documentation
6 of a centralized program for internal
7 dosimetry. We also have a documented
8 assessment by Chicago Operations Office that
9 was published in December of 1993 that said
10 that the site was in compliance with internal
11 and external monitoring program as well as the
12 radiological records program. So that's why
13 we chose through 1993 for this Class.

14 As far as health endangerment
15 goes, we certainly believe that the chronic
16 exposures that we don't have records of
17 endangered health. So, we believe that the
18 health endangerment was there. And, as I said
19 before, we can't limit the Class based on
20 movement across the site or any specific
21 subsets of that site.

22 So, our proposed Class again is

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1 actually piggybacking onto the first one. And
2 our proposed Class is all individuals, all
3 areas from January 1980 through December 31st,
4 1993 who worked the 250 days. We believe that
5 internal dose is not feasible; health
6 endangerment, yes. And that's it. And I'll
7 be glad to take some questions.

8 CHAIRMAN MELIUS: Okay, questions
9 from Board Members? I have one, which is
10 somewhat rhetorical but I want to get it on
11 the record. I'm also assuming that what
12 you've captured in terms of internal exposure
13 records are not representative in a way, or
14 you're not confident that they're
15 representative in a way that coworker model or
16 some other approach would be useful --

17 MR. CALHOUN: No, I don't, I don't
18 feel confident in that just because we can't -
19 - because the site is even reporting that
20 individuals weren't monitored and I know they
21 were. I can't say that the highest
22 individuals were monitored.

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1 CHAIRMAN MELIUS: Okay. I just
2 wanted to get that on the record. Thanks.

3 MR. CALHOUN: Yes.

4 MEMBER RICHARDSON: I guess this
5 gets back -- this is sort of -- I mean, it
6 gets back to this issue of what's going on
7 with DOE in terms of indexing and retrieving
8 their records. This is the second -- today,
9 this is the second facility we've had where
10 you guys are finding records that they're
11 saying they don't have.

12 And looking at the -- I mean,
13 we're talking about a contemporary period,
14 1980s to '90s. There's -- I'm sort of
15 astonished that it's not feasible to do this
16 work. I mean, now we're not talking about
17 records that are buried in caves, I'm
18 assuming.

19 MR. CALHOUN: We're not. No,
20 we're not.

21 MEMBER RICHARDSON: I don't think
22 there are caves there. And you're describing

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1 -- I mean, the field here says from 1999
2 forward there were 2,815 counts performed on
3 963 individuals. I mean, I deal with record
4 collection on very small research budgets
5 where we collect, you know, tenfold times the
6 number of records and I have a small number of
7 undergraduate students with high-speed
8 scanners. They would deal with this in a
9 week.

10 MR. CALHOUN: Right.

11 MEMBER RICHARDSON: I mean, for,
12 you know, for a couple hundred dollars
13 probably by the time -- I hate to say that,
14 but we're paying undergrads to do their work.

15 (Laughter.)

16 MEMBER RICHARDSON: And I'd be
17 happy to shift some over there, you know.

18 CHAIRMAN MELIUS: Is the
19 Department of Labor listening?

20 MEMBER RICHARDSON: It's not an
21 insurmountable task at all. This seems like a
22 really easy one and they're talking about

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1 forming a Class over not kind of willing to
2 make the effort I'm assuming here.

3 MR. CALHOUN: You know, I've met
4 with them. Greg Lewis and I went out there a
5 few weeks -- gosh, it's been a few months ago,
6 I guess, really. And we talked to them about
7 it. Even before this, I'll say a couple of
8 years ago we brought this up to them. I don't
9 know if -- the issue is I guess we'd have to
10 make the determination of are the records
11 there and they just need to be scanned and
12 categorized, catalogued. I don't know if
13 they're there.

14 And you know, I always mention
15 this when I talk about Brookhaven because it
16 is a true statement is that, you know, there
17 were cases where we actually found dosimetry
18 records in a box under a guy's desk, okay?
19 And I was led into a building that was in the
20 process of being demolished and there were
21 boxes in there. I mean, I had to put a hard
22 hat on to go look at records. So, I know that

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1 they are trying to get a grip on those past
2 records that weren't put into a centralized
3 database or centralized repository, but I'm
4 not sure that they're there.

5 MEMBER RICHARDSON: But this is
6 again, I mean, if they don't know where they
7 are, then how are they guaranteed that they're
8 doing records retention? And how do we know
9 that a week from now more of that information
10 is not lost?

11 DR. NETON: This is Jim Neton. I
12 just want to point out an additional fact, I
13 think that maybe has not been brought home
14 here. It's much more than just that we can't
15 get the records. It's: was there really a
16 monitoring program in place for all these
17 workers that was documented that we can, you
18 know, understand to ensure that the workers
19 who were supposed to be monitored were. And
20 to my knowledge, we don't have that here.

21 And you see a pattern here at
22 these national -- multipurpose national

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1 laboratories that have a variety of different
2 radionuclides that they're working with in a
3 variety of different types of situations, and
4 they would rely on what we would call episodic
5 monitoring. They would do a little experiment
6 and it's very decentralized, you know. Each
7 little department, the physics department, the
8 chemistry, would have their own little fiefdom
9 and those records were never brought together
10 in one location.

11 That's the reason why we don't
12 have these records is because they're in boxes
13 distributed throughout the site. They were
14 never centralized. But it's really more -- we
15 don't have the records but we also have no
16 confidence that we can come to the conclusion
17 that the workers who needed to be monitored
18 were, in all cases.

19 That's really key, I think, here
20 and it's the same thing that we saw at Sandia.

21 Even if we found all those records, we're not
22 sure that we could reconstruct doses with

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1 sufficient accuracy.

2 MEMBER RICHARDSON: I mean, I
3 understand. There's several distinctions
4 there. One is, you're saying, even in the
5 1980s and up to the 1990s, you feel like they
6 didn't have a description of the health
7 physics program for internal exposures which
8 is documented in a way in which you can
9 understand and use the information.

10 DR. NETON: That's correct. And
11 there are audit findings to that effect even
12 in the eighties.

13 MEMBER RICHARDSON: You're saying
14 the analytical labs that were processing these
15 specimens were decentralized and scattered?

16 DR. NETON: No, the results were
17 decentralized.

18 MEMBER RICHARDSON: The results
19 were sent back and there was nobody who was
20 maintaining log books.

21 DR. NETON: That's correct. Each
22 -- and I worked at Argonne for awhile and it

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1 was sort of similar to that, where each health
2 physics program would specify the monitoring
3 requirements for that, you know, their area of
4 responsibility, whether it was physics
5 experiments or chemistry or whatever research
6 project was ongoing. They had sort of a loose
7 central theme going which was to comply with
8 the regulations and such, but there was not
9 one organization that brought it all together
10 in one location.

11 And we've seen this at Livermore,
12 we've seen this at Sandia now, we've seen this
13 at Brookhaven and it really is because of the
14 variety of the different radionuclides in the
15 experiments that went on that you don't have a
16 routine monitoring program. It just doesn't
17 exist.

18 Now, places like, you know, Rocky
19 Flats or a production-type facility where you
20 have a routine program with general area
21 samples, breathing zone samples, maybe one or
22 two different radionuclides, that's not the

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1 case here at the national laboratories, and
2 that's kind of what we run up against here.
3 It's a special case.

4 CHAIRMAN MELIUS: Greg, you wanted
5 to add something?

6 MR. LEWIS: Yes, I mean -- this is
7 Greg Lewis from DOE, and I agree, again, with
8 what Grady and Jim said as far as our issue
9 with scanning and indexing the records, that
10 was one of the big things that we've been
11 talking about with Grady and with the site.
12 And if it was a matter of, we could scan and
13 index the particular collection that we're
14 talking about and know that from that point
15 on, you know, the concerns with, that Grady
16 has with the SEC would be eliminated, we'd
17 have the records, that wouldn't be an issue,
18 you know, we would have done so.

19 But I guess when we talked about
20 it there wasn't any degree of confidence that
21 by doing that we would eliminate the problems
22 that Grady's running into. And so that's on

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1 our end. Without some assurance that putting
2 the time and effort into the scanning and
3 indexing is going to eliminate these problems,
4 it didn't make sense for us to do it.

5 And to your point about scanning,
6 scanning is generally the easier part of those
7 projects. The harder part is indexing and
8 getting it into a database, although that
9 depends on the size of the amount of
10 information you're dealing with.

11 MR. CALHOUN: And right now we
12 have -- all of the documents that we've
13 scanned, we do have linked in such a way that
14 anytime a new claimant comes in, ORAU will
15 periodically run a program and it links Social
16 Security number and names to documents that
17 we've already captured so that we can use
18 those for non-presumptives or somebody without
19 the right amount of period of time there so we
20 can actually do the dose reconstructions.

21 And we've actually provided that
22 database -- not database, that big chunk of

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1 data I'll say back to ORAU, or back to
2 Brookhaven so that they could use it and try
3 to use it as they see fit in their records,
4 however they're going forward with that.

5 CHAIRMAN MELIUS: And I would just
6 add, I was in New York State at that time and
7 there were a lot of management issues at
8 Brookhaven, even during that time period.
9 They were more in the news because of
10 environmental issues, but they really
11 struggled to deal with them and get a hold of
12 their record-keeping in response to those
13 issues also. So from that perspective this is
14 -- what they're describing is credible also.

15 Josie, you're Chair of the Work
16 Group.

17 MEMBER BEACH: Yes, I am. I just
18 wanted to comment. The Work Group has worked
19 through these issues for the last couple of
20 years. While we were surprised that the data
21 wasn't available, being that it's a national
22 lab you would expect that that would have been

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1 done properly and gathered, but we did find
2 through interviews, through our Work Group
3 process that, just as Grady described, there
4 is data but locating it, it's -- each
5 department head had their own records.

6 So we found within the Work Group
7 that '93 was the date that we really thought,
8 and I believe -- wasn't that, Grady, at
9 Dunlap, that time period in '93? We were
10 pushing for '93, so I was really happy that
11 NIOSH came out with that date.

12 But remember from yesterday, we
13 still have issues. We are still going to look
14 further past '93 to make sure that all the
15 issues have been covered. So there's more
16 work to be done, but the Work Group did meet
17 or had a conference and voted unanimously in
18 support of this 83.14.

19 CHAIRMAN MELIUS: Any other Board
20 Member questions? Okay. And I don't believe
21 that the petitioner would like to speak but I
22 just want to make that offer. If they're on

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1 the line and would like to make comments,
2 welcome, but you're not required.

3 (No response.)

4 CHAIRMAN MELIUS: Okay. I assume
5 that the petitioner doesn't want to make
6 comments at this point in time. Then, I
7 think, any more questions or comments on this?
8 If not, I would entertain a motion.

9 MEMBER BEACH: Jim, I'd like to go
10 ahead and make a motion that we accept the
11 83.14 for the Brookhaven.

12 CHAIRMAN MELIUS: Okay, I
13 misunderstood. Okay. I apologize. So we
14 have it from the Work Group. Second for that?

15 MEMBER CLAWSON: Second.

16 CHAIRMAN MELIUS: Second, okay.
17 Brad. Any more questions or comments? If
18 not, Ted. You can start with the A's this
19 time.

20 MR. KATZ: Dr. Anderson?

21 MEMBER ANDERSON: Yes.

22 MR. KATZ: Ms. Beach?

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1 MEMBER BEACH: Yes.

2 MR. KATZ: Mr. Clawson?

3 MEMBER CLAWSON: Yes.

4 MR. KATZ: Dr. Field?

5 MEMBER FIELD: Yes.

6 MR. KATZ: Mr. Gibson?

7 MEMBER GIBSON: Yes.

8 MR. KATZ: Mr. Griffon?

9 MEMBER GRIFFON: Yes.

10 MR. KATZ: Dr. Lemen, I will
11 collect his vote. And Dr. Lockey is still
12 absent. I'll collect his vote as well. Dr.
13 Melius?

14 CHAIRMAN MELIUS: Yes.

15 MR. KATZ: Ms. Munn?

16 MEMBER MUNN: Yes.

17 MR. KATZ: Dr. Poston, I will
18 collect his vote. Dr. Richardson?

19 MEMBER RICHARDSON: Yes.

20 MR. KATZ: Dr. Roessler?

21 MEMBER ROESSLER: Yes.

22 MR. KATZ: Mr. Schofield?

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1 MEMBER SCHOFIELD: Yes.

2 MR. KATZ: And Dr. Ziemer?

3 MEMBER ZIEMER: Yes.

4 MR. KATZ: So all in favor, three
5 absentees, collect their votes. The motion
6 passes.

7 CHAIRMAN MELIUS: And while you
8 were voting, I was busy typing away here, and
9 happened to come up with a letter that I will
10 read into the record.

11 The Advisory Board on Radiation
12 Worker Health (the "Board") has evaluated a
13 Special Exposure Cohort (SEC) Petition 00196
14 concerning workers at the Brookhaven National
15 Laboratory under the statutory requirements
16 established by the Energy Employees
17 Occupational Illness Compensation Program Act
18 of 2000 (EEOICPA) incorporated into 42 CFR
19 Section 83.13.

20 The Board respectfully recommends
21 that SEC status be accorded to, quote, "All
22 employees of the Department of Energy, its

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1 predecessor agencies and their contractors and
2 subcontractors who worked at the Brookhaven
3 National Laboratory in Upton, New York from
4 January 1st, 1980 through December 31st, 1993
5 for a number of work days aggregating at least
6 250 work days, occurring either solely under
7 this employment or in combination with work
8 days within the parameters established for one
9 or more other Classes of employees included in
10 the Special Exposure Cohort."

11 The recommendation is based on the
12 following factors: individuals employed at
13 Brookhaven National Laboratory during the time
14 period in question worked on nuclear research
15 development and application.

16 The National Institute for
17 Occupational Safety and Health (NIOSH) review
18 of available monitoring data, as well as
19 available process and source term information
20 for this facility, found that NIOSH lacked the
21 sufficient information, including in vivo and
22 in vitro monitoring data, to allow it to

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1 estimate with sufficient accuracy the
2 potential internal exposures to various
3 radionuclides which employees at this facility
4 may have been subjected. The Board concurs
5 with this determination.

6 NIOSH determined that health may
7 have been endangered for these Brookhaven
8 National Laboratory employees during the time
9 period in question. The Board also concurs
10 with this determination.

11 Based on these considerations and
12 discussion at the February 28th-29th, 2012
13 Board Meeting held in Oakland, California, the
14 Board recommends that this Class be added to
15 the SEC. Enclosed is the documentation from
16 the Board Meetings where this SEC Class was
17 discussed. The documentation includes copies
18 of the petition, the NIOSH review thereof and
19 related materials. If any of these items are
20 unavailable at this time, they will follow
21 shortly.

22 Comments or questions? I've been

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1 waiting, Wanda.

2 MEMBER MUNN: My only question --
3 I'm always a little confused about 83.13s,
4 83.14s.

5 CHAIRMAN MELIUS: I think I can do
6 this, but I may need help from the lawyer.
7 But 83.13 essentially encompasses 83.14s.

8 MEMBER MUNN: Okay, so --

9 CHAIRMAN MELIUS: In the way we're
10 stating it now. Once upon a time we used to
11 make the distinction. Our lawyers have
12 advised us that's no longer necessary.

13 MEMBER MUNN: In my mind we were
14 extending 83.14.

15 CHAIRMAN MELIUS: No.

16 MEMBER MUNN: Okay.

17 CHAIRMAN MELIUS: And I would also
18 like to thank our lawyer for her legal advice,
19 for also her very good editing of my draft
20 letters.

21 MEMBER MUNN: For making it easy.

22 CHAIRMAN MELIUS: I think Paul's

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1 been very disappointed. The pen has been
2 ready but I have been waiting.

3 MEMBER ZIEMER: No dangling --

4 CHAIRMAN MELIUS: No dangling
5 participles.

6 (Laughter.)

7 MR. KATZ: Two things. One, Dr.
8 Lockey has rejoined us so he's present now.
9 And if you want to, if you read the materials
10 and you have a vote --

11 MEMBER LOCKEY: Yes.

12 MR. KATZ: -- missed the
13 discussion you can vote.

14 MEMBER LOCKEY: Yes.

15 MR. KATZ: In favor.

16 MEMBER LOCKEY: In favor.

17 MR. KATZ: Okay.

18 MEMBER LOCKEY: Thank you.

19 CHAIRMAN MELIUS: So now we have
20 one vote.

21 MEMBER LOCKEY: One in favor of
22 the rest of the vote.

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1 (Laughter.)

2 CHAIRMAN MELIUS: Okay. We do
3 need to wait until 2:30 before we start the
4 discussion of Weldon Springs because we need
5 to wait for the petitioners to be on the line
6 and have the opportunity.

7 According to my record-keeping
8 here, we have two more items to complete. One
9 is the August public meeting comments, which I
10 think are relatively straightforward. And Ted
11 has sent them out to everybody. If I get the
12 right version up here.

13 So, I have -- the document I'm
14 looking at is called Copy of Board PCP
15 Comments August, et cetera. Why it's a copy
16 but that's okay. That happens. I know,
17 Excel. And the left hand column is the
18 comment number and so forth. And then it has
19 the page in the transcript and so forth. We
20 have that. The first was a set of
21 comments from Knut Ringen. One was: need
22 definition of sufficient accuracy, and that's

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1 something that's been identified under the Ten
2 Year Review and is underway. So that's the
3 response of that.

4 I think this is: Board should
5 establish Working Group to evaluate NIOSH
6 response to the review.

7 MEMBER ZIEMER: Ten-year --

8 CHAIRMAN MELIUS: Ten Year Review,
9 yes. And we've discussed that and we're going
10 to decide whether or not to do that or not.

11 Support NIOSH plan for validation
12 study of the dose reconstruction, but the SRS
13 is not the best place to start. Again, that I
14 don't think really requires a response.

15 Regarding the Savannah River Site,
16 there was the issue of the Class Definition
17 which we really dealt with later on in the
18 meeting.

19 And then the question of the 250-
20 day requirement; is that unreasonable? And
21 that's something the SEC Work Group has been
22 struggling with.

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1 We have a comment from a Hanford
2 petitioner, a question of whether NIOSH has a
3 firm basis for surrogate and coworker data.
4 And there's, I think, a response in there from
5 Dr. Glover which has come up in those
6 discussions.

7 And then there was an issue of a
8 conflict of interest for the Dade Moeller
9 staff doing Hanford dose reconstructions. I
10 believe that's been addressed in a letter that
11 has gone back to the person making that
12 comment.

13 And then there's a general comment
14 there about -- I think the gist of that was
15 that the conflict of interest statements that
16 are posted may not always be complete. I
17 think that was more of a question of where
18 they're found on different websites and so
19 forth is the response there. They can be
20 difficult to find if you're not used to
21 navigating that.

22 I'm up to comment number 9

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1 regarding Hanford. That's again the 250-day
2 requirement we've addressed.

3 Comment number 10 is from
4 [Identifying information redacted] regarding
5 Rocky Flats. And again, this question of
6 having contractor EG&G supporting NIOSH on
7 dose reconstruction where there's -- is there
8 a conflict of interest in regard to them I
9 think both supporting as well as being
10 involved in the record-keeping and so forth.
11 And there's a response here. I can't -- was
12 that a letter also that went back? Two of
13 those that came in at that time, I can't
14 remember.

15 MR. HINNEFELD: This is Stu
16 Hinnefeld, and I don't recall right offhand if
17 we had a separate letter on that.

18 CHAIRMAN MELIUS: Okay.

19 MR. HINNEFELD: We've had frequent
20 correspondence with [Identifying information
21 redacted]. I don't know if anything is
22 hanging out there.

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1 CHAIRMAN MELIUS: Okay. I think
2 part of the response to that was also this was
3 something that was in -- there's been changes
4 to conflict of interest policy over time and
5 so things that may have been allowed in the
6 past may not be appropriate under the newer
7 policy.

8 MR. HINNEFELD: Yes, and EG&G has
9 been sort of long gone from our operations.
10 They were -- we had them on tap for awhile but
11 for just a couple of minor tasks. But they
12 haven't done anything for us for years.

13 CHAIRMAN MELIUS: Yes. Again,
14 this was a general comment from [Identifying
15 information redacted], problems with
16 stakeholder access to Working Group
17 transcripts, White Papers, et cetera. I think
18 we all said we would try to do better and I
19 think we have been. Certainly with Fernald,
20 we buried people in White Papers and
21 transcripts, including the Board Members with
22 that. But again, it's a good reminder.

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1 It is hard for petitioners, others
2 on the outside when they show up at a Work
3 Group meeting and informational reports
4 suddenly appear and so forth. At the same
5 time, we're trying to be timely so there's a
6 balance in there.

7 Another question was: NIOSH
8 decisions when using surrogate data not
9 transparent. And again we've got criteria
10 there and so forth. Perhaps we need to do a
11 better job explaining how and when we apply
12 them and so forth, but I actually thought in
13 this most recent one with Hooker, I thought it
14 was pretty clear in the report certainly how
15 that was being applied.

16 And I think, again, related to
17 Hooker Chemical, this was the issue about the
18 use of the Mallinckrodt data. And again, I
19 think that got, as I recall that got
20 clarified. And was approved and came in to
21 the Work Group very explicitly dealt with it
22 at the time of that.

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1 The comment number 14 was related
2 to Savannah River. And was, again, timely
3 information. I think there were some issues
4 about this petitioner getting information and
5 how it was sent in regard to that.

6 And then it was, the other
7 question that he had was: on what authority
8 did NIOSH add thorium issues to his petition
9 without consulting him? It should be a
10 separate issue. And the answer to that was,
11 well, NIOSH can modify the petition and the
12 Class under consideration to take into account
13 other exposures related to that site,
14 certainly in terms of efficiency and
15 evaluation.

16 So do we have any questions on any
17 of those? I think these are straightforward.
18 Yes, Brad.

19 MEMBER CLAWSON: I just wanted to
20 go back one because of being on the Hanford
21 Work Group. They said that they sent out the
22 Dade Moeller letter to them. Is that

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1 available to us? Because, many times I've
2 been asked the same question of I guess Dade
3 Moeller's now taking over the site monitoring
4 and -- of a conflict. So okay, that's what I
5 needed. Thank you.

6 CHAIRMAN MELIUS: Give it to him.
7 You ask and you shall receive, Brad. I knew
8 you were going to ask that.

9 MEMBER CLAWSON: This is true
10 service. I wish we could get all the papers
11 this fast.

12 MEMBER ANDERSON: The bill will
13 come.

14 (Laughter.)

15 CHAIRMAN MELIUS: My FedEx
16 delivery charge. This is a transcript for
17 August the 24th, comment number 16. Hooker
18 Chemical disagrees with the NIOSH
19 characterization of exposures as low.
20 Questions SC&A's motivation and independence
21 from NIOSH. Questions appropriateness of the
22 use of surrogate data, specifically for

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1 Mallinckrodt. Again, I think we've addressed
2 that. Questions legitimacy of dose
3 constructions and method for claims handling.
4 That's sort of the law. Process not timely.
5 Eleven years to resolve Hooker claims is not
6 what is intended. I think, again, that's been
7 addressed.

8 Questions accuracy of claims data
9 online regarding Hooker claims. I think we
10 all recognize there can be some confusion
11 between the different websites and so forth
12 and how that's related. And there's
13 limitations on how much information can be put
14 up online about claims.

15 There's issues about getting
16 information in a timely fashion to the
17 petitioners, comment number 23. Again, I
18 think we all agree that we need to try to do a
19 better job on that. And I think we have been
20 doing better since August.

21 Question of why we have a NIOSH
22 employee as the DFO. That's addressed in the

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1 policy and so forth that's been done. Sorry,
2 Ted.

3 And then surrogate data for
4 Hooker. This was the issue of using some of
5 the Fernald data on Hooker. So fairly
6 complicated that.

7 Number 27, comment on Savannah
8 River Site. Really was a comment to the point
9 of the petition and some of the issues that
10 were with that. I think that really was taken
11 into account when we actually were discussing
12 Savannah River.

13 And again, we're back to the,
14 again, related to Hanford. One general
15 comment, number 28 regarding -- the person
16 opposes the use of surrogate data and then the
17 conflict issue for Dade Moeller and EG&G.
18 Again, that gets back to the policy.

19 Another comment related to Hanford
20 on mentioning other exposures there. That's
21 again something that's being followed up in
22 the Hanford Work Group.

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1 Another comment specific to
2 Hanford. A response necessary. And then
3 number 32, issue with claims denial and an
4 incident with plutonium exposures and
5 asbestos. I think some of this is sort of a
6 Department of Labor issue or that kind. Some
7 is obviously -- the overestimate is related to
8 a specific dose reconstruction.

9 Any questions or comments on
10 those? Okay. For August 25th, our third day.
11 [Identifying information redacted]'s comments
12 on Pantex related to sort of the under --
13 institutional resistance to crediting workers'
14 histories and so forth. And related to that
15 some of the requirements related to
16 classification and so forth there. Again, I
17 believe that was addressed in the response.

18 Number 34, in regards to the post-
19 '84 period. That's really still under
20 evaluation, if my memory's correct.

21 And then again another one from
22 Pantex petitioners. This is really I think a

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1 series of comments that -- 35, 36, 38, 39 --
2 that are related to information that was
3 really all taken into account in the
4 discussion of the Hanford petitions there. So
5 I'm not going to read through all of those,
6 but I think they were all essentially
7 addressed and were pertinent to the petition.

8 So, any comments on those?

9 Do we need to formally do
10 anything, Ted?

11 MR. KATZ: No.

12 CHAIRMAN MELIUS: Okay. Good. I
13 think it is helpful.

14 MEMBER ANDERSON: I think it's
15 very useful.

16 CHAIRMAN MELIUS: Yes.

17 MEMBER ANDERSON: To have somebody
18 else sort it out of the transcript is
19 wonderful.

20 CHAIRMAN MELIUS: Yes, yes, no.
21 Sending them out with the transcript is
22 helpful. And then I just would add that -- I

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1 think this was the first time, maybe it's the
2 first time I was a target of it, but there's
3 also been a communication to the Work Group
4 Chairs also for comments pertinent to their
5 Work Group. And I thought that was helpful
6 also to get that out. So I think the process
7 is appropriate.

8 MR. KATZ: Yes, and I'd just like
9 to acknowledge ORAU does this for DCAS and
10 delivers this with some help from DCAS.

11 MR. HINNEFELD: Actually, our
12 outreach contractor, ATL.

13 MR. KATZ: Oh, ATL, I'm sorry.
14 But anyway, it's well done and we appreciate
15 it.

16 CHAIRMAN MELIUS: Many transcripts
17 here.

18 MEMBER ANDERSON: Does this go up
19 on the website? No?

20 MR. KATZ: It's all in the
21 transcript today.

22 MEMBER ANDERSON: Yes, okay.

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1 CHAIRMAN MELIUS: We also have two
2 pieces of correspondence to address. One is
3 from the Hanford -- or excuse me, the LANL
4 petitioner wanting to know what was --
5 basically, what was taking so long.

6 And then we also have a
7 congressional correspondence. Is that Senator
8 Udall's office? I can't remember. Regarding
9 -- also regarding essentially the same issue
10 and so forth. And I had actually, when I
11 received it -- it was sent to Mark and I, the
12 petitioners' comments, and I wrote back saying
13 we were following up. We knew we were waiting
14 for -- there's some records access issues, and
15 so I said we would get back with a more
16 complete answer on that.

17 So what I would propose is: I
18 will, for both of them -- well, one --
19 actually, both of them are really email
20 correspondence and so forth. I will just
21 write back saying we're following up and what
22 we've talked about already in terms of

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1 Hanford. The process is under way. We're
2 expecting, you know, the Work Group to meet
3 and we're hoping that we'll be ready to move
4 forward. And we'll certainly have more to
5 report at the June meeting out in Santa Fe.
6 So is that satisfactory to everybody?

7 Any other issues? Well, we can
8 all then take a -- why don't we take a 10-
9 minute break and start again at 2:30?

10 (Whereupon, the foregoing matter
11 went off the record at 2:19 p.m. and went back
12 on the record at 2:32 p.m.)

13 CHAIRMAN MELIUS: First of all, I
14 have to apologize. I sort of misstated our
15 follow-up schedule. We have Weldon Springs
16 and then we have the highlight of our meeting,
17 the LaVon Rutherford presentation. The
18 Rutherford report, yes. And then we have one
19 item left for the Board, it should be short,
20 which is to task SC&A on a few items.

21 MEMBER BEACH: Jim, because we
22 always bring LaVon up first on the first day

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1 usually. He fills in very nicely.

2 CHAIRMAN MELIUS: Yes. I thought,
3 you know, you save the best for last, right?

4 MEMBER ANDERSON: We're going to
5 have to wait till 3:45.

6 CHAIRMAN MELIUS: No, 5:45. I'm
7 sure I'm going to stay around and come back.

8 So, kidding aside let's move on to
9 Weldon Spring. We have Dick Lemen. Okay.

10 MR. KATZ: Dr. Lemen, are you by
11 any chance on the line?

12 (No response)

13 MR. KATZ: Okay. He was going to
14 try to attend if he could.

15 CHAIRMAN MELIUS: Okay. Family
16 issue to deal with. So we will, we have a
17 substitute presenter who will be presenting
18 over the phone. And I don't know if we have a
19 slide show or just a verbal presentation.

20 MR. KATZ: Ron Buchanan, are you
21 on the line and ready?

22 DR. BUCHANAN: Yes, this is Ron

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1 Buchanan of SC&A. I'm ready.

2 MR. KATZ: Great. Thank you, Ron.

3 CHAIRMAN MELIUS: Are we going to
4 put his slide show up or what's the plan? Or
5 I shouldn't say his, I should say the Work
6 Group's. I don't know if that's what he's
7 working from.

8 MR. KATZ: So, Ron helped prepare
9 the slides for Dr. Lemen. So we should be in
10 good shape. Ron, we're just bringing them up.
11 We don't have them up yet.

12 DR. BUCHANAN: Okay.

13 MR. KATZ: Okay. So, Ron, we're
14 ready and we have someone here. Do you just
15 want to let him know when to change the slide.
16 He's on the title slide right now.

17 DR. BUCHANAN: Okay. This is Ron
18 Buchanan with SC&A. We're on slide number 1.
19 We see that three Members of the Weldon
20 Spring Work Group are listed here.
21 Unfortunately, as I stated they couldn't be
22 with us today so they've asked me to provide a

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1 summary of the Weldon Spring SEC and Site
2 Profile issues at this time. So we'll go to
3 slide number 2.

4 This slide lists the Weldon Spring
5 Work Group meetings. We've had six of those,
6 two of them by conference call. In addition
7 we discussed some issues briefly during the
8 Advisory Board meeting in December of 2011.

9 Slide number 3. At this December
10 -- and that should be 2011 obviously, not
11 2012, typo there -- Advisory Board meeting one
12 of the petitioners referenced several
13 documents that might indicate that thorium was
14 processed in large quantities before 1963.
15 NIOSH was to obtain those documents and
16 provided a response on the 22nd of this month
17 that they found no indication that thorium-232
18 was processed in large quantities before 1963.

19 And this issue perhaps hinges on the fact
20 that thorium contains both thorium-230 which
21 was the byproduct of uranium processing along
22 with the other byproducts, and also there was

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1 thorium-232 which was a concentrated ore which
2 was processed in campaigns between '63 and
3 '66. Perhaps NIOSH will want to address that
4 further after I complete this summary. We go
5 to the next slide, number 4.

6 Now, I'll just briefly touch on
7 the nine SEC issues for Weldon Spring and from
8 the 1957 to '67 SEC 113. And then we'll go
9 into the ones that remain. Number one SEC
10 issue was the accuracy and completion of the
11 internal and external data and the air
12 monitoring data. Issue number 2 was a lack of
13 egress monitoring. Issue number 3 was a lack
14 of dose records for 1967 and issue number 4
15 was the fact that there was no radon or thoron
16 measurements made at Weldon Spring during this
17 SEC period.

18 Now, if we can go to slide number
19 5 we'll continue with the SEC issues. Number
20 5 was the recycled uranium intake method was
21 questioned. Number 6 was the lack of neutron
22 dose data. And number 7 was the lack of air

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1 measurements at the quarry and pits during the
2 '57 to '67 time frame. Number 8 was the
3 impact of accidents and incidents on dose
4 reconstruction. And number 9 was the geometry
5 and extremity correction factors.

6 In addition to these nine SEC
7 issues there was originally 28 Site Profile
8 issues identified by SC&A in the first Site
9 Profile issue -- revision. And these issues
10 have been incorporated into the SEC issues or
11 have been addressed and closed, or are being
12 addressed by changes in the Weldon Spring TBD
13 and PERs, the PERs being the key evaluation to
14 see if the dose reconstruction needs to be
15 reworked because of these findings.

16 Now, SC&A -- fortunately for
17 Weldon Springs these have been tracked. SC&A
18 has been tracking these Site Profiles along
19 with the SEC issues so that they are not left
20 behind.

21 Now, the SEC and the Site Profile
22 issues have been addressed in the Work Group

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1 meetings and closed except for the following
2 two: 1b was a thorium air data daily weighted
3 exposure air analysis. This wasn't the data
4 itself but the error analysis. And number 4,
5 the fact that there was no radon or thoron
6 measurements made at Weldon Spring during this
7 period.

8 What I'll do now is go into slide
9 number 8 and this will discuss these two
10 issues then in a little more detail. And so
11 1b was the thorium error analysis. Now, this
12 stems from the fact that there was no thorium
13 bioassay data collected except for some 1966
14 chest counts and these were not used in dose
15 reconstruction because of their unreliability.

16 And so there was air sampling where gross
17 alpha activity was counted during the
18 operational period at Weldon Spring. And of
19 course this contained uranium and thorium
20 activity during the thorium campaigns. To be
21 claimant-favorable it is assumed that all the
22 air activity is 100 percent thorium.

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1 The original air samples were
2 recorded by hand most of the time on data
3 sheets and then this data was taken and
4 transcribed over to a summary sheet where the
5 calculation of the daily weighted exposures
6 were performed. And the question here is was
7 there errors when they transposed the numbers
8 into the summary sheet, or translated them
9 over and then did calculations. And there
10 were some errors as would be expected in
11 handling a large amount of data.

12 Now, sometimes these errors are
13 called "blunders" in scientific literature.
14 However, in this context they are not gross
15 mistakes or stupidity but just common math or
16 calculational errors. So we wanted to look
17 and see if these had an impact on the dose
18 reconstruction results.

19 And so in last year NIOSH issued a
20 White Paper addressing these errors. The same
21 month in September SC&A issued a response to
22 their paper and SC&A recommended that some

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1 sort of dose reconstruction implementation
2 method be provided -- provided the results.
3 We needed to know how the dose reconstructor
4 would use that in actual practice.

5 And also there was a limited
6 amount of data for the thorium measurements --
7 to be applied to the thorium measurements
8 during the '63 to '66 campaign. And so we
9 wanted to know how representative this
10 information was of thorium.

11 And so in November of last year
12 NIOSH issued a revised White Paper addressing
13 some of these issues and these were discussed
14 during the phone conference at the Work Group
15 on November 29th. At that Work Group, SC&A
16 was tasked with analyzing this revised paper.

17 On January 17th of this year we issued a
18 revised paper addressing the errors in the
19 implementation recommendations. That's slide
20 10. Excuse me if I forget to tell you to move
21 the slides. Okay, that's slide 10. Okay, now
22 we'll go to slide 11.

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1 We see that in February of this
2 month during our Work Group teleconference the
3 DWE error issue was discussed and SC&A was
4 charged with issuing a summary response to
5 this issue. And so on the 21st of this month
6 SC&A drafted the summary response and
7 hopefully all the Work Group Members received
8 a copy of this in time for today's meeting.

9 And what we found was that the
10 type and magnitude of errors found in
11 transcribing and calculating the DWEs at
12 Weldon Spring are similar to studies done
13 elsewhere in peer reviewed articles such as
14 Health Physics Society and also at Fernald
15 they did the same type of study. No, we
16 didn't use Fernald data, we just was comparing
17 a sister plant to see if the magnitudes of
18 their error was similar and they were. The
19 correction that NIOSH proposes are applicable
20 to the DR and they run from like 2 to 4
21 percent, 2 percent at the 50 percent in
22 confidence level and 4 percent at the 95

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1 percent confidence level. And so they're not
2 a large correction factor.

3 The quantity of the representative
4 data for the thorium DWES error analysis was
5 limited. In other words, there were 17 taken
6 during the period of thorium use out of 82
7 analyzed. But SC&A does not feel that
8 additional resources would have a significant
9 impact on the results of this correction
10 factor. And so we have no further
11 recommendations on that. That was slide 11.

12 Slide 12 is the number 4 issue
13 where there was no radon or thoron
14 measurements done at Weldon Spring during this
15 SEC period. Now, the uranium was processed
16 through. It contained a small amount of
17 radium which would give off the radon. And
18 this would accumulate in the spaces where
19 there was a large handling of this material,
20 stirring and processing of it, and it would
21 come out into the room. And so this is what
22 originally NIOSH proposed a model in the

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1 original TBD and ER, and we analyzed that and
2 came back with some questions.

3 I believe NIOSH came back with
4 another model then last spring and we
5 evaluated it last summer and found that it was
6 a different model. It was ultra conservative
7 and in this case they analyzed the amount of
8 uranium passing through the most active
9 building. And 1 percent radium content in
10 this concentrated ore, and that all this would
11 turn into radium and go out into the building,
12 fill it up to maximum concentration and not be
13 vented. There was no leakage or vent or
14 turnover rate. It just, it would build up to
15 some maximum concentration and the worker
16 would spend say 2,000 hours a year in there
17 and you'd calculate working level months from
18 that information.

19 SC&A found that the Weldon Springs
20 radon model is more conservative than the
21 previous models proposed for Weldon Spring or
22 for the other DOE sites in which a turnover

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1 rate was included, and that this did not
2 include any loss of radon or thoron if he was
3 working with it through ventilation. So, the
4 Work Group has been advised of this and the
5 Advisory Board then can take this under
6 consideration.

7 SC&A evaluation is that it is a
8 bounding model. However, we know that in the
9 past that the Board has not accepted radon
10 models when there was no measurements as
11 benchmarks for radon.

12 So this brings us to slide 13
13 which is a summary. We've worked on the SEC
14 and Site Profile issues for the last several
15 years. We find that the 9 SEC issues and 28
16 Site Profile issues have been addressed except
17 for the use of the radon/thoron model and
18 we've presented it here to the Board. And so
19 that concludes the summary.

20 CHAIRMAN MELIUS: Thank you, Ron
21 and good job, LaVon.

22 (Laughter)

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1 CHAIRMAN MELIUS: Just one
2 correction before we start the discussion. I
3 think it would be helpful. First of all, I'm
4 not on the Work Group. Surprised me. And can
5 find no record other than that slide that
6 indicates that. And the last Work Group
7 meeting which was on Valentine's Day that Dr.
8 Lemen was on, Mike Gibson was unable to make
9 that one. I had prevailed on David Richardson
10 to attend, participate in that meeting
11 probably because of the discussion on blunders
12 and he was kind enough to do that. I owe him
13 the thanks. I was tied up that day.

14 MEMBER RICHARDSON: Give my wife
15 the thanks.

16 (Laughter)

17 CHAIRMAN MELIUS: It was in the
18 morning, 10 to 12. But I think given the
19 context that our sort of Work Group is in flux
20 and Dr. Lemen can't be here, I'm not sure it's
21 appropriate that we try to take action on
22 here. I think we can ask some questions, but

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1 I think we need to reconstitute the Work
2 Group, at least one other Member in addition
3 to Mike and Dr. Lemen.

4 Dr. Lemen has agreed to Chair the
5 Work Group as I said earlier and I think while
6 they're meeting sort of bring this to the
7 Board probably at our June meeting for
8 discussion and resolution. I think we need
9 another presentation on the radon model and
10 some further discussion of some of these
11 issues.

12 Also, I have in the back of my
13 mind the -- once upon a time a long time ago
14 the Mallinckrodt, sort of the sister facility
15 was a very painful and difficult decision on
16 this Board, and I think to make sure we all
17 have -- everybody has full information and
18 comfort before we go ahead on that. So,
19 having said that if there are questions for
20 Ron we can entertain them. Yes, Paul.

21 MEMBER ZIEMER: This may be best
22 delayed till the full discussion of the radon

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1 model, but it appeared to me that this was a
2 very much more simple model. There was no air
3 turnover allowed. Is that my understanding,
4 Ron? That you allowed it to build up with no
5 ventilation?

6 DR. BUCHANAN: This is Ron
7 Buchanan. Yes, that's correct, Paul. It just
8 built up to some maximum. Radioactive decay
9 was the only thing that would take it away.
10 And so it was not any air exchange or leaks or
11 ventilation at all. Very simple model.

12 MEMBER ZIEMER: Because one of the
13 issues in the previous model that we
14 ultimately rejected was the debate over air
15 turnover rates and that sort of thing,
16 although one might also argue here that no
17 turnover rate may not be plausible either.
18 But I did want to get a feel for the
19 difference in this model versus the ones that
20 we have -- or at least one that we have
21 excluded.

22 CHAIRMAN MELIUS: And I believe

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1 also if I recall from that presentation the
2 source term is also less. And sort of less
3 dynamic also.

4 MEMBER ZIEMER: Source term and
5 processes are a little different here. Maybe
6 we can have that discussion in more detail
7 next time.

8 CHAIRMAN MELIUS: Yes, I think
9 that -- but I think that's another distinction
10 that's important for that. Yes, Brad and then
11 Mark.

12 MEMBER CLAWSON: Well, last time I
13 raised a concern because of the Ingle Report.

14 And Mr. Rolfes sent back --

15 CHAIRMAN MELIUS: Can you speak
16 into the mic a little bit more?

17 MEMBER CLAWSON: Okay. Mr. Rolfes
18 sent back a report to us, well to me saying
19 that, and I didn't quite understand it, that
20 they weren't worried about the 230, the
21 thorium-230. And I just want a little bit
22 more clarification on that because I thought

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1 we were taking the whole thorium issue all the
2 way through the years. Because these went out
3 the four pits which dried out, went dusty and
4 my understanding is that thorium-230 is just
5 as bad as the thorium-232. And I was just
6 wondering why we're still saying from the
7 later years on. And how come we're not taking
8 into account the thorium-230.

9 CHAIRMAN MELIUS: Mark, do you
10 want to address that?

11 MR. ROLFES: Yes, this is Mark.
12 And to clarify what Brad has said, he had
13 expressed some concern based upon a document
14 that he had found from Oak Ridge Associated
15 Universities when they were conducting an
16 epidemiologic survey of the Weldon Spring
17 Plant and also the Mallinckrodt site in the
18 1990s.

19 They had given a brief history of
20 the operational processes going on at the
21 site, had lumped in the exposure to thorium,
22 either thorium-230 or thorium-232, together

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1 and just called it thorium, and then described
2 both processes where thorium-230 would have
3 been extracted from uranium ore concentrates
4 and discarded in the four chemical pits which
5 were kept underwater.

6 That was -- it was more a concern
7 about thorium-232 production operations being
8 conducted in the earlier years and not
9 necessarily a concern. Basically we are aware
10 of the thorium-230 present in the uranium ore
11 concentrates at the site and we are giving
12 credit for that in dose reconstruction based
13 upon -- we add thorium-230 intakes based upon
14 the uranium intakes that we develop based upon
15 bioassay results.

16 The thorium-232 is separate. The
17 thorium-232 production operations were
18 conducted from 1963 through 1966. And this
19 was much different than the extraction of the
20 thorium-230 from the uranium ore concentrates.

21 I don't know if there's additional questions
22 that you might have about the processes.

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1 MEMBER CLAWSON: So, you're taking
2 into consideration the thorium-230 though, but
3 it's in your uranium model, right?

4 MR. ROLFES: That's correct.

5 MEMBER CLAWSON: The other
6 question that I had was how much of this data
7 is actually Weldon Spring data? Because we
8 had the question earlier about using Fernald
9 data. And Dr. Lemen, I raised this concern
10 with him and you sent him a letter saying that
11 all of the information that you were using is
12 Weldon Spring data.

13 MR. ROLFES: Correct.

14 MEMBER CLAWSON: How much -- how
15 much information do you really have? Because
16 my understanding was there was very little
17 data for Weldon Spring, the sample data or
18 anything else.

19 MR. ROLFES: Well, I think, once
20 again if you're referring to the thorium-230
21 concentrations that based upon measurements
22 and ratios to the uranium from the waste pits

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1 or from the ore being processed, or the ore
2 concentrate being processed. If you're
3 referring to thorium-232 operations we do have
4 the air monitoring data in the form of daily
5 weighted exposure reports. And both sets of
6 data, the thorium-230 as well as the thorium-
7 232, they're all from Weldon Spring. It's
8 completely from Weldon Spring.

9 MEMBER CLAWSON: So, how about air
10 sampling for uranium? Do we have air samples?

11 Because I'm getting a different picture from
12 early on that they really didn't have that
13 much data for Weldon Springs. And now I'm
14 hearing that you've got a substantial amount.

15 I'm just trying to get a feel for how much
16 data do we really have. Besides thorium I
17 guess just raw data. What do we really have
18 from Weldon Springs that we're basing this on?

19 MR. ROLFES: Well, our dose
20 reconstruction approach for uranium relies
21 upon the uranium bioassay results. So we
22 didn't go through and analyze, you know, how

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1 many uranium air samples that we have, for
2 example. We did have thorium-232 bioassay
3 samples being collected by the mobile in vivo
4 unit.

5 And to correct on what Ron had
6 said earlier, we didn't discard those data, we
7 just didn't receive the actual results of the
8 lung burdens that the individuals who were
9 counted in 1966. We were only given a
10 summarization that approximately 200 counts
11 were made I believe on 160 workers. And we
12 were given a summarization as to where --
13 whether they had a lung burden of thorium-232
14 somewhere in between a trace. And they
15 basically categorized the exposure levels in
16 three different bands.

17 So we didn't have the actual
18 results for thorium-232 bioassay. And so
19 we're using air sampling data, the daily
20 weighted exposure results to reconstruct
21 thorium-232 intakes for that situation.

22 CHAIRMAN MELIUS: Mark?

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1 MEMBER GRIFFON: Just to follow
2 up. I had another question, but just to
3 follow up on Brad's. So, for the thorium-230
4 you're doing any dose reconstruction based on
5 uranium bioassay, is that correct?

6 MR. ROLFES: That's correct.
7 After we calculate a uranium intake based upon
8 someone's uranium urinalysis result we would
9 add in an intake of any other progeny
10 radionuclides and any other trace
11 radionuclides that would be found in ore
12 concentrates.

13 MEMBER GRIFFON: Did I
14 misunderstand that you -- you said that the
15 thorium was separated from the uranium, the
16 thorium-230 was separated out.

17 MR. ROLFES: It wasn't -- not
18 necessarily in a form like a collection. It
19 wasn't separated to concentrated. It was
20 basically discarded into the waste pits as a
21 wet slurry and kept underwater.

22 MEMBER GRIFFON: But the people, I

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1 mean, so I'm not too familiar with this site
2 but nobody would have been exposed in those
3 waste pits, or cleaning up those waste pits,
4 or any of those activities? In that case
5 they've got a different mix I guess.

6 MR. ROLFES: The remediation
7 didn't occur during the operational period.
8 It was actually done by the Army after the
9 fact I believe. So the people that were
10 covered employees under DOE contract weren't
11 involved in the actual remediation work of the
12 pits.

13 MEMBER GRIFFON: I mean, I'll
14 review further for the next meeting.

15 My other is more of a statement
16 than a question. It's this thorium air DWE
17 model is also similar to what has been
18 proposed for Fernald I believe. And I still
19 have some questions about the one at Fernald.

20 So I think it might be useful for the Work
21 Groups to coordinate on some of the issues
22 that were brought out in the Fernald analysis

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1 versus the Weldon Spring.

2 I also see in the slide it talks
3 about these errors, and this is what you
4 mentioned, the blunders are in the scientific
5 literature. I mean, I get the sense that this
6 is the one paper that was done on this issue
7 and it was, you know, I think tasked through
8 this project. So, I don't know if that's a
9 broadly defined sort of thing, blunders. The
10 scientific literature I believe is the one
11 paper that we're referencing and it's been
12 sort of used to justify both these approaches
13 I believe. Is that wrong? I don't know.
14 Anyway, that's just a statement more to
15 consider what we've been looking at at Fernald
16 when we're looking at this Weldon Spring
17 model.

18 MEMBER CLAWSON: Mark, I wanted to
19 address something that you had said earlier.
20 Now, this went into four different pits. The
21 last three and four pits were built later on
22 in the years. What gives you the sense that

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1 they were completely covered with water?
2 Because in some of your own documents these,
3 in the summertime these pits would become --
4 these pits would dry out. And this was one of
5 the issues that they had, and I believe there
6 was an EPA report that came out on the same
7 issue of it drying out and becoming airborne.

8 MR. ROLFES: There was actually a
9 report that did say that the rainfall in the
10 area kept the pits wet and so there wasn't a
11 concern with resuspension. I'd have to check
12 back to see if we had any kind of air
13 monitoring data around the area, but that came
14 from a report basically saying that the
15 raffinates had remained underwater.

16 CHAIRMAN MELIUS: Any other Board
17 Member questions at this point? We'll be
18 coming back to this. There's a fair number of
19 reports and Work Group deliberations on this,
20 so it's been looked at.

21 I believe we have the petitioners
22 may be on the line. I don't know if they wish

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1 to say anything at this point.

2 MS. TRIPLETT: Yes, this is Tina
3 Triplett.

4 CHAIRMAN MELIUS: Okay, go ahead.

5 MS. TRIPLETT: Okay. I have a
6 number of things. The thorium years of
7 production I know have come into question.
8 And initially when we were talking with Mr.
9 Rolfes we didn't specifically differentiate
10 between the thorium-232 and thorium-230. Our
11 discussion was based on the fact that there
12 are several documents, and I gave him a couple
13 examples, but we have numerous documents that
14 state that thorium was there the whole entire
15 time. The historical documents don't
16 differentiate between the thorium-230 and the
17 thorium-232. NIOSH it appears makes their own
18 judgment on why to separate it and I'm not
19 really sure I've received an explanation of
20 why that's now being taken into account.

21 There's additional documents at
22 hand that show thorium processing residues

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1 were placed in pits 3 and 4, and pit 3 was
2 constructed in 1959. And there's also other
3 documents that we have that show thorium
4 processing residues were deposited in all four
5 pits. So, there still seems to be a
6 discrepancy of what was actually there and
7 there's no material accountability, true
8 material accountability for what Weldon Spring
9 did or did not process.

10 The issue with the thorium-230 was
11 we've kind of made this point previous that
12 there was raffinate processing at Weldon
13 Spring. We have graphs that show that the
14 raffinate processing was done at Weldon Spring
15 the entire operating period. It shows that
16 thorium-230 was recovered. It wasn't going
17 into the pits as Mr. Rolfes claims. So why
18 else would there be a reason to recover it if
19 they weren't sending it out to other sites?
20 The same procedure in reference to these Ingle
21 1991 and Ingle 1998 documents show that that's
22 what Weldon Spring was doing. It's not

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1 talking about thorium-232, it's talking about
2 the thorium-230 from raffinate.

3 And it appears that this isn't
4 being taken into account although it has been
5 shown thorium-230 from processing of raffinate
6 has been a huge problem at other sites that
7 have already granted SECs, notably the
8 Mallinckrodt Destrehan facility. They already
9 established that uranium progeny could not be
10 dosed from the raffinate which includes the
11 thorium-230.

12 There just doesn't seem to be any
13 consistency among the sites. I know it was
14 also an issue with Blockson as well about the
15 thorium-230 and if there was a separate waste
16 stream for it. It could have, you know, dried
17 out, become airborne and resulted in another
18 undetected source of internal exposure.

19 We've expressed this in the past
20 as I've mentioned before, you know, and
21 regardless of whether it's thorium-230 or
22 thorium-232 Weldon Spring was not monitored

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1 for either. And I don't think it's fair that
2 we're singling out thorium-232 for '63 to '66
3 when thorium was there the whole entire time.

4 There's still just as much hazard to thorium-
5 230 as thorium-232. And we have these
6 documents that show it was being recovered
7 from the raffinates.

8 There's other concerns.
9 Mallinckrodt was very reluctant in protecting
10 its workers from thorium exposure. This was
11 noted in the memo from 1965 where thorium was
12 being done involving hand scooping outside of
13 the hood with vigorous air currents.

14 The adequacy of administrative
15 controls such as a respirator wearing for
16 routine dust-handling operations was
17 questioned. A backup in vivo counting was
18 recommended. However, a reticence was
19 evidenced by Mallinckrodt staff personnel
20 toward counting any of its at-risk employees
21 due to potential personal relations
22 complications. It was very difficult to

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1 assess any over-exposure for thorium and the
2 conventional bioassay techniques were not
3 adequate for monitoring those exposures. And
4 it's also been documented and we've submitted
5 this several times, that it was noted that
6 thorium exposures were more than realized at
7 Weldon Spring.

8 It appears that some of this
9 information in my opinion is being -- NIOSH
10 may be misleading as far as what information
11 they have. I know with the dosing thorium
12 from the uranium output doesn't seem to be
13 feasible because there's just not enough data
14 for Weldon Spring. I feel that they're
15 carefully -- NIOSH may be carefully choosing
16 their words and they keep changing the
17 terminology to confuse us petitioners, the
18 claimants and the Advisory Board.

19 NIOSH has made a comment in the
20 Evaluation Report that thorium air
21 concentrations was routinely recorded and that
22 just isn't true. They're using summary data

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1 of air concentrations which doesn't appear to
2 be actual Weldon Spring data. And even the
3 summaries that are being used are being
4 misrepresented because for several of those
5 years the data was taken from other years.
6 They were not true measurements. The fact is
7 there is no raw data for Weldon Spring and any
8 attempt to recreate the intakes are not
9 bounding or sufficiently accurate.

10 Furthermore, NIOSH has already
11 determined that records related to potential
12 thorium exposure may not be sufficient for
13 adequate reconstruction of internal exposure
14 as stated on page 11 of the Evaluation Report.

15 In regards to the DWE blunders,
16 what it comes down to for us as the
17 petitioners is the lack of data. There is
18 limited data and the lack of
19 representativeness of the data. The
20 petitioners have made several attempts to get
21 clarification from NIOSH on this issue, and as
22 previously stated it appears NIOSH keeps

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1 changing terminology to create confusion.

2 Mr. Rolfes initially advised us
3 that there was 1,400 air samples. Then he
4 turned it into 1,400 operations, and then now
5 it's 1,400 calculations. We cannot get a
6 straight answer.

7 When NIOSH fails to state that is
8 that this information is not from Weldon
9 Spring, when we requested to see the raw data
10 we were told it would be in a FOIA previously
11 submitted instead of re-sending the
12 information. This raw data isn't in my FOIA
13 because this data is not from Weldon Spring.
14 Raw data from Weldon Spring appears to not
15 exist.

16 There's also still the problem of
17 the destruction of records and the lack of
18 data at Weldon Spring. There is very limited
19 useful data as previously stated. Petitioners
20 have made several submissions indicating the
21 destruction of records at Weldon Spring,
22 notably the destruction of shelf life V2161.

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1 NIOSH claims these documents were never
2 destroyed. However, NIOSH has not been able
3 to produce these documents as previously
4 requested by the petitioners in an Advisory
5 Board meeting.

6 It should also be noted that
7 building 415 was an incinerator which was used
8 to burn trash and classified documents.
9 Several Weldon Spring Plant employees in their
10 affidavits have recalled that classified
11 documents were burned.

12 A trip report to Weldon Spring in
13 May of 1988 indicated that prior attempts to
14 locate records were unsuccessful. A
15 significant portion of those records
16 identified in the catalog of onsite files was
17 not found. Some records have been exposed to
18 the elements and were wet, decayed and
19 illegible. Routine correspondence was not
20 found in these records reviewed at Weldon
21 Spring. These examples demonstrate that
22 useful data for Weldon Spring is non-existent.

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1 It appears NIOSH is misleading all
2 parties in their attempts to perform dose
3 reconstructions by carefully choosing their
4 words. When push comes to shove NIOSH doesn't
5 have the raw data they claim to have. When
6 anyone questions NIOSH it seems that they
7 become evasive which leads to a lack of trust.

8 NIOSH makes attempts and assumptions to dose
9 individuals with limited or no site data which
10 leads to more inaccuracies. NIOSH attempts to
11 create doses but there is no evidence that
12 their findings or calculations would not
13 underestimate one or any worker.

14 NIOSH relies on health physicists
15 instead of worker testimony. NIOSH also
16 referenced in the employee interviews of the
17 Evaluation Report, and I believe it's Personal
18 Communications 2009h, they listed that person
19 as a Weldon Spring Plant design engineer.
20 However, in the narrative of the Evaluation
21 Report this same individual is referenced as a
22 health physicist which Weldon Springs did not

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1 even have. Not surprisingly, this individual
2 is cited the most in the Evaluation Report.

3 There's also a lack of full
4 disclosure. The petitioners have made several
5 FOIA requests. We've received some
6 information but when we FOIA specific items we
7 get additional information. How are
8 petitioners and any claimants guaranteed to
9 have all requested information?

10 This is not an equitable fight.
11 This SEC petition has already discovered 28
12 errors which would be fixed. This just proves
13 NIOSH has not been able to form any dose
14 reconstruction for Weldon Spring with
15 sufficient accuracy. And how many chances do
16 they get? NIOSH appears to be completely
17 biased in utilizing information that will
18 benefit their interest. They omit important
19 claimant-favorable information. This whole
20 process is completely unfair and quite
21 insulting to petitioners and claimants.

22 The intent of this program was to

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1 provide timely compensation to those
2 individuals who made sacrifices for this
3 country. NIOSH has been allowed to manipulate
4 this program with no accountability. The
5 roadblocks that the petitioners and claimants
6 face are constant and never-ending. How is
7 anyone expected to fight the government?

8 The claimant burden is beyond
9 words. We are misled with flashy words and
10 science that we do not understand.
11 Explanations by NIOSH change within the same
12 breath. NIOSH has an explanation for
13 everything, even if a petitioner or claimant
14 provides or presents a valid argument or
15 documentation that proves otherwise. The fact
16 is that NIOSH has not been able to demonstrate
17 that dose reconstruction can be performed with
18 sufficient accuracy and plausibility.

19 I am hopeful that the Advisory
20 Board realizes that NIOSH's claims are lacking
21 and not bounding, and we are respectfully
22 requesting the Advisory Board grant a Special

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1 Exposure Cohort for Mallinckrodt Weldon
2 Spring. Thank you.

3 CHAIRMAN MELIUS: Thank you.

4 MR. KATZ: Tina, this is Ted Katz.

5 Would you mind -- it sounds like you were
6 speaking from a written statement. Would you
7 mind sending that in?

8 MS. TRIPLETT: Sure.

9 MR. KATZ: If you would just send
10 that to Josh Kinman. You probably have his
11 email address.

12 MS. TRIPLETT: Sure.

13 MR. KATZ: You may have mine. If
14 you have mine you can send it directly to me,
15 either way.

16 MS. TRIPLETT: Okay. Okay, will
17 do.

18 MR. KATZ: Thank you very much.

19 CHAIRMAN MELIUS: Thank you.
20 Okay. Any other Board Member comments or
21 questions? Yes, David.

22 MEMBER RICHARDSON: Just one

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1 question. There seemed like there were two
2 different kind of narratives about what was
3 going on with thorium and it might help for me
4 to clarify. Was there work conducted at
5 Weldon Spring for the production of thorium,
6 or was the thorium taken as a waste product
7 and put into pits? I guess that's what I'm
8 unclear about. It doesn't seem like there's
9 one description of this where it's actually
10 being transferred and moved and recovered, in
11 other words, being dumped. What's the
12 version?

13 MR. ROLFES: This is Mark Rolfes.
14 And during the operational period from '57 to
15 '66 uranium ore concentrates were brought
16 onsite and subjected to processes, chemical
17 separation processes to recover the uranium
18 but discard wastes. That waste contained
19 thorium-230 and that waste was pumped into the
20 four chemical waste pits that we had discussed
21 earlier.

22 Beginning in 1963 thorium

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1 production operations involving thorium-232
2 began. And this is -- if you take a look
3 there is air monitoring data associated with
4 these operations from '63 to '66 and also
5 material balance ledgers showing materials
6 coming into the site in large quantities I
7 believe in either 1963 or 1964, and then
8 changes in that material balance during those
9 subsequent years until '66.

10 MEMBER RICHARDSON: So these
11 descriptions of the process that the
12 petitioner was describing which come from kind
13 of site histories that ORAU put together
14 describing the production of thorium-230 at
15 the Weldon Spring site are incorrect?

16 MR. ROLFES: That is correct.
17 There was no separation of thorium-230
18 conducted at the Weldon Spring facility to
19 concentrate thorium-230. There was a separate
20 program where this may have been done at
21 Mallinckrodt and that's also discussed within
22 this Ingle 1991 reference. So, that was done

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1 in the earlier days for Los Alamos National
2 Laboratory. But to our knowledge there is no
3 indication that this operation was ever
4 conducted at the Weldon Spring facility.

5 MEMBER RICHARDSON: And have you
6 been in touch with Betsy Dupree or the ORAU
7 staff about why they described that as
8 shutting down at Mallinckrodt and being
9 relocated at Weldon Spring? It's fairly, I
10 mean they're fairly clear.

11 MR. ROLFES: No, we haven't
12 contacted them to follow up on it. It was
13 basically lumping any potential exposures that
14 occurred at both Weldon Spring and the
15 Mallinckrodt facilities. They basically
16 identified potential exposures to thorium.
17 And so they described all thorium work,
18 whether it was thorium-230 associated work or
19 thorium-232 associated work, it was all lumped
20 together as part of an epidemiologic study.

21 MEMBER RICHARDSON: Well, but I
22 think -- I mean, they were doing kind of an

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1 exposure, a description of the facility
2 history and a description of a process which -
3 - I mean, I understand that epidemiologists
4 are different creatures, and yet they usually
5 don't, you know, write that there was a
6 process going on, the production of thorium.
7 It was shut down on a specific date and it was
8 restarted at another facility. We fabricate
9 some things but you know, usually we call it
10 estimation.

11 (Laughter)

12 MR. ROLFES: I do have the
13 document --

14 CHAIRMAN MELIUS: David, the guild
15 would like to speak to you.

16 (Laughter)

17 MR. ROLFES: I do have the
18 document I believe if you'd like for me to
19 read the context if that would be helpful.

20 MEMBER RICHARDSON: I mean, I
21 guess I'm -- it sounds to me like there were
22 several distinctions going on. There is the

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1 distinction between thorium-230 and -232 that
2 we've been talking about. There's also I
3 think a distinction about was the thorium
4 treated as waste or was there an intentional
5 production of it, and that would have
6 implications for thinking about whether it's
7 treated as secondary to kind of intakes
8 uranium or whether there was an actual thorium
9 hazard there.

10 CHAIRMAN MELIUS: I think what we
11 need to do is make sure that the Work Group
12 and SC&A with NIOSH addresses that issue.

13 MEMBER CLAWSON: Dr. Melius, he
14 also commented on a mass balance sheet and I
15 wanted to make sure that I had the right one.
16 Is it the 2000 edition? Recycled Uranium
17 Project?

18 MR. ROLFES: No, it is an earlier
19 document. I don't recall the exact title but
20 it, I believe it was from the 1960 time
21 period, 1960s era, that decade.

22 MEMBER CLAWSON: So is that on the

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1 SRDB?

2 MR. ROLFES: Yes, it is. And Ron
3 Buchanan if he's on the phone, he might be
4 able to identify the reference immediately. I
5 believe it's 8,400 something.

6 DR. BUCHANAN: Well, the one that
7 shows -- this is Ron Buchanan, SC&A. The one
8 that shows the receipt of thorium-232 is
9 reference 8252. And that was a DOE '86
10 document.

11 MEMBER CLAWSON: Okay, Ron, I'll
12 get that number from you so that when I -- a
13 little bit later. Thanks.

14 MR. KATZ: I've got it, Brad.

15 MEMBER CLAWSON: Okay.

16 CHAIRMAN MELIUS: Okay. Any other
17 questions? Okay. Thank you. We'll be back
18 with this. Thank you, Mark, for your comments
19 also. Participation. Everybody ready?

20 MR. RUTHERFORD: While we're
21 waiting for my presentation to come up I want
22 to put it on the record of thanking Greg Lewis

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1 for his work in getting the Sandia ER
2 released. He put a lot of effort into it and
3 it wouldn't have happened without him.

4 Okay, I'm going to talk about
5 status of SEC petitions. We do this
6 presentation every Board meeting to give the
7 Board an update on existing SECs that are in
8 process and also allows the Board and the Work
9 Group, gives them an idea on planning for
10 future Work Group meetings and Board meetings.

11 As you can see, as of February
12 13th we have 198 SEC petitions, rapidly
13 approaching 200. We have five petitions in
14 the qualification process, 119 of those
15 petitions qualified. You can see six
16 evaluations in progress. Again, this is as of
17 February 13th so it's already wrong and you'll
18 find out about that in a minute.

19 Currently we have, as I mentioned,
20 a number of petitions that are in the
21 evaluation process. One of them is Oak Ridge
22 National Lab. This one was slowed down a

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1 little bit over the holidays just due to the
2 lack of staff in order to support a data
3 capture effort there. And we've got that
4 resolved. Greg put a lot of effort in getting
5 that issue resolved. We're working through
6 that now. We think we'll have this evaluation
7 complete in May in time for the June Board
8 meeting. This is for early years at Oak Ridge
9 National Lab of '43 to '52.

10 Titanium Alloys Manufacturing.
11 Again, this is one that has actually been
12 completed. The evaluation was completed.
13 It's for a period of 1955 to '56. Originally
14 it was identified in 1950 to '56. However,
15 during our evaluation we recognized some
16 information that we provided to the Department
17 of Labor that the covered period probably
18 should be adjusted. They adjusted that to
19 1955 and 1956. We completed that evaluation,
20 sent that to the Board last week. Felt that
21 the Board and the petitioners really didn't
22 have enough time to look at that and we plan

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1 to present that I guess at the June meeting if
2 the Board doesn't want us to do it during the
3 teleconference. I'm assuming the June
4 meeting. Rocky Flats.

5 CHAIRMAN MELIUS: I'll let you
6 know about that.

7 MR. RUTHERFORD: Okay. Rocky
8 Flats plan, a little deja-vu here. We had a
9 petition come in for all employees at --
10 actually qualified for all employees who
11 worked at Rocky Flats from January 1, 1972
12 through December 31 of 1989. The actual basis
13 for qualification was a tritium exposure that
14 we actually, when we went back through the
15 transcripts -- we looked at what the
16 petitioner provided us, went back through the
17 transcripts in previous Board meetings and
18 really felt like this issue wasn't completely
19 addressed in the previous evaluation under SEC
20 30. We also noted that there was some other
21 potential tritium releases. So we actually
22 defined the period as 1972 to 1989 for our

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1 evaluation.

2 The '72 was associated with an
3 incident that -- of tritium release that we
4 knew of, and the 1989 was when worker
5 testimony indicated some tritium release and
6 exposure. Obviously if we determined we had
7 an infeasibility during our evaluation it
8 would be adjusted appropriately.

9 We expect to complete our
10 evaluation on Rocky Flats it says April 2012.

11 However, again, that's changed. I think
12 it'll more than likely be June/July time frame
13 that we will complete our evaluation of this
14 one in support of the September Board meeting.

15 Nuclear Metals, Inc. We have a
16 petition that qualified that we're working the
17 evaluation now. It's from -- the period is
18 from January 1, 1958 through December 31 of
19 1983. Those of you who remember the Hood
20 Building and the Class we added to the Hood
21 Building. Some of the operations at the Hood
22 Building actually moved to Nuclear Metals,

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1 Inc., and so we're working this evaluation
2 now. We expect to complete this in April time
3 period in support of the June meeting.

4 Grand Junction Operations. This
5 was actually an evaluation that we did early
6 on. We continued our evaluation in the post-
7 '75 period. We have received all our
8 information and we are currently evaluating
9 that data. And we expect to have an update,
10 or actually a final report to the Board in
11 support of the June meeting.

12 Some SEC petitions that are in the
13 qualification right now. Actually, the
14 Hanford petition did not qualify. It did go
15 to administrative review. However, the
16 Administrative Review Panel just recently
17 released their finding that they agreed with
18 our conclusion that the petition should not
19 qualify.

20 And again, Nuclear Metals, Inc.,
21 is actually moved out of the qualification
22 process and is in the evaluation process now.

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1 And a couple others, Westinghouse Nuclear
2 Fuels Division is in the process. Ventron
3 Corporation is actually qualified now and we
4 are -- they did some early years in the
5 forties, '42 to '48 time frame I believe,
6 uranium metal production, and that petition is
7 qualified and we're moving the evaluation
8 forward on that.

9 We also have, they're not listed
10 right now but we have a couple of 83.14s that
11 are working on. They were kind of in
12 different phases and I didn't list them. We
13 are working a Hanford one that I mentioned
14 earlier. We will have that Hanford evaluation
15 complete for the June meeting. We have a
16 Winchester Engineering 83.14 that we're
17 working. We also have a Sandia early years,
18 that '45 to '49. We're waiting for Department
19 of Labor and Department of Energy to decide,
20 more the Department of Labor to make their
21 final determination on how the facility is
22 going to be designated. Then the claims would

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1 have to be pulled back and they would re-
2 verify their employment and we could move
3 forward with an 83.14 on that.

4 We also are looking, we're doing
5 some -- completing our analysis on the
6 Clarksville and Medina to determine whether we
7 should move forward with the 83.14 on that. I
8 believe we'll be working in that direction and
9 be able to at least give you an update on the
10 Board conference call. All right? That's
11 about it.

12 CHAIRMAN MELIUS: I may have
13 missed it, but Savannah River site?

14 MR. RUTHERFORD: We are continuing
15 our work on the Savannah River site looking at
16 the thorium.

17 CHAIRMAN MELIUS: But do you have
18 a petition?

19 MR. RUTHERFORD: Oh, I'm sorry.
20 That petition was a petition for later years.
21 We've been back and forth with the
22 petitioner. Right now we're waiting for that

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1 petitioner to provide us some additional
2 information. Right now it is, you know,
3 there's not enough information to qualify the
4 petition right now. However, the years are
5 already being discussed at this time under a
6 petition.

7 CHAIRMAN MELIUS: One comment that
8 came up was -- in the Board Member discussion
9 before. I think it would be helpful to have
10 an update on sort of petitions that don't
11 qualify. Again, I don't think detail but just
12 getting a sense of what are some of the issues
13 --

14 MR. RUTHERFORD: Oh, sure.

15 CHAIRMAN MELIUS: -- and how
16 you're going about it. You know, we had a
17 Work Group, we were thinking back five years
18 ago. Jim Lockey chaired it and I think -- and
19 we get inquiries, it comes up in public
20 meetings and I think it would be helpful if we
21 were sort of up to date. So maybe as part of
22 your next presentation to the Board either in

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1 April on the call or in the June meeting.

2 MR. RUTHERFORD: Yes. I actually
3 have, I do include that in the dose
4 reconstruction workshop, SEC workshop. I
5 provide those people that come to that the
6 reasons that typically don't qualify
7 petitions.

8 CHAIRMAN MELIUS: Okay.

9 MR. RUTHERFORD: Sure. Okay.

10 CHAIRMAN MELIUS: It would be
11 helpful. Because actually since our
12 evaluation you -- at the time we were doing
13 the evaluation you were in the process of
14 implementing new procedures then so it's been
15 awhile. Any other questions for LaVon? Let
16 him off easy? And thank you for not expecting
17 us to review the report that you sent us at I
18 think 4 o'clock on Friday I think is when it
19 got in my inbox or something like that.

20 Okay. We have briefly tasking to
21 do and then I think we are then finished.
22 Ted, do you want to go ahead? We have to do

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1 this in two parts because I have to leave the
2 room.

3 MR. KATZ: So, SC&A. This is,
4 actually we don't have to do it for the record
5 but there are one, two, three, four. There
6 are seven additional procedures. We've been
7 doing two-page summaries of procedures once
8 all the issues are closed out, meaning
9 completely closed or in abeyance and the path
10 forward is clear.

11 And SC&A has come up with seven
12 more procedures that could be summarized in
13 two-pagers. So we would like to task those.
14 I could just run through the list so that
15 everybody knows what we're talking about.

16 The first is radiation exposures
17 covered for dose reconstructions under Part B
18 of EEOICPA. That's IG-003 -- oh, I see. It's
19 a very general guidance. The second is IG-005
20 which is use of classified information.
21 Although, okay. This is an interesting one
22 because it has zero findings. So I'm not sure

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1 what was closed. Nothing was closed, nothing
2 was even opened. And actually both of those
3 have zero.

4 CHAIRMAN MELIUS: That Procedures
5 Work Group is really --

6 (Laughter)

7 MR. KATZ: So, let me just say
8 these first two, 003 and 005, if we can just
9 take a look at those in the Subcommittee
10 first. I'm not sure that there's something to
11 summarize.

12 The next is PER-008 which is
13 modification of NIOSH IREP lung cancer risk
14 model on non-compensable lung cancer claims.
15 There was one finding and that finding was
16 closed. That seems like a good one.

17 OCAS-PER-009 is target organs for
18 lymphoma. That had two findings both of which
19 were closed.

20 The next is OCAS-PER-0012 which is
21 evaluation of highly insoluble plutonium. One
22 finding which was closed.

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1 The next is ORAU-OTIB-0011 which
2 is tritium calculated and missed dose
3 estimates. Two findings, both closed.

4 The next is ORAU-OTIB-0021,
5 external coworker dosimetry data for the X-10
6 site. There were four findings. Three were
7 closed and one is in abeyance. The next --

8 MEMBER GRIFFON: This is under the
9 Procedures Work Group.

10 MR. KATZ: Yes, under Procedures.
11 Yes.

12 MEMBER GRIFFON: And is the, I
13 mean, it seems like that ORNL one especially,
14 shouldn't that have been on the -- do we have
15 an ORNL Work Group? I don't know. Maybe we
16 don't.

17 MR. KATZ: No.

18 MEMBER GRIFFON: Okay.

19 MR. KATZ: The next is eternal
20 radiation dose estimates for individuals near
21 a 1958 criticality accident at Oak Ridge Y-12
22 plant. Three findings. They were all closed.

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1 MEMBER MUNN: What was the number?

2 MR. KATZ: That's ORAU-OTIB-0057.

3 And finally, ORAU-PROC-94, verification and
4 validation process for the Tools Development
5 Group. One finding, finding in abeyance.

6 Is that acceptable to the Board?

7 CHAIRMAN MELIUS: With the proviso
8 that we get clarification on those first two
9 to the Subcommittee. Yes, they go back to
10 Subcommittee.

11 MR. KATZ: All right.

12 MEMBER GRIFFON: And on the PERs,
13 I should probably know this but the DR
14 Subcommittee is also doing some part of that,
15 right? We're reviewing cases that pulled --

16 MR. KATZ: That's true, but the DR
17 -- the DR is actually not reviewing this. It
18 selected the cases that are -- and those cases
19 were selected so that the Procedures
20 Subcommittee could confirm implementation of
21 the procedure. But these are PER reviews so
22 here the findings were that the methodology is

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1 correct versus the implementation of that
2 methodology.

3 CHAIRMAN MELIUS: I hope our new
4 Members aren't listening in to this.

5 (Laughter)

6 MR. KATZ: Oh yes, this would be
7 Greek. I'm sorry. Okay, so that covers the
8 two-pagers then. And we will get
9 clarification on these two others which may
10 not be tasked perhaps.

11 CHAIRMAN MELIUS: That's one of
12 the ones we'll get clarification.

13 MR. KATZ: Exactly. No findings.

14 MEMBER CLAWSON: Okay. Because
15 that's -- Pantex there was a big issue. We
16 still have some more sites that that possibly
17 could be an issue.

18 MR. KATZ: Okay. Okay, well we'll
19 look into that at the Subcommittee level
20 anyway first before anything gets done. And
21 if there are issues that haven't been
22 addressed, but they don't show here that there

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1 are any findings at all. Okay.

2 Then the second thing is there are
3 two Site Profiles for which -- they're AWEs so
4 they're relatively small. We don't always
5 task these. Sometimes they get handled when
6 we're doing a dose reconstruction. Part of
7 SC&A's dose reconstruction review will be to
8 actually so do a mini Site Profile review.
9 But we have two Site Profiles in this case
10 related to dose reconstruction reviews that
11 are underway by SC&A where the Site Profile is
12 more extensive and complicated than what they
13 normally do in a mini Site Profile review, you
14 know, integrated with the dose reconstruction
15 review. So, we'd like to task these two so
16 that SC&A can take these on.

17 And the first which everybody can
18 consider is General Atomics. So, I don't have
19 more details about that site but if it's --
20 but SC&A certainly has resources to take on a
21 couple of Site Profile reviews. So if that's
22 acceptable to all we will task them. And

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1 everyone's nodding heads affirming for the
2 record.

3 The second, the Chair is recused
4 from making a tasking for this but this is
5 NUMEC Apollo. Again, we have a dose
6 reconstruction underway but they need a Site
7 Profile review to complete the dose
8 reconstruction review. All are nodding
9 affirmatively that they agree. So we will
10 task those two for SC&A. And that completes
11 tasking.

12 CHAIRMAN MELIUS: Done tasking.
13 Any other items anybody would like to raise?
14 Anybody would like to make a certain motion
15 that I suggest?

16 MEMBER ZIEMER: Motion to adjourn.

17 CHAIRMAN MELIUS: Dr. Ziemer just
18 moved that we adjourn. Do I have a second to
19 that?

20 MEMBER ANDERSON: Second.

21 CHAIRMAN MELIUS: Brad can second
22 that. And all in favor?

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1 (Chorus of ayes)

2 CHAIRMAN MELIUS: Opposed?

3 (No response)

4 CHAIRMAN MELIUS: Yes, abstaining.

5 Do you want to poll the missing Members? And
6 we'll see everybody in -- well, Work Group
7 meetings but certainly in Santa Fe in June.
8 Thank you.

9 MR. KATZ: Thank you, everyone.

10 (Whereupon, the foregoing matter
11 went off the record at 3:35 p.m.)

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