

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

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ADVISORY BOARD ON RADIATION AND
WORKER HEALTH

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SPECIAL EXPOSURE COHORT WORK GROUP

+ + + + +

MONDAY
NOVEMBER 17, 2008

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The work group meeting convened in the Zurich Room of the Cincinnati Airport Marriott Hotel, 2395 Progress Drive, Hebron, Kentucky at 9:30 a.m., Tim Melius, Chairman, presiding.

MEMBERS PRESENT:

- JAMES M. MELIUS, Chairman
- JOSIE BEACH, Member
- MARK GRIFFON, Member
- GENEVIEVE S. ROESSLER, Member*
- PAUL L. ZIEMER, Member*

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ALSO PRESENT:

TED KATZ, Designated Federal
Official

*HANS BEHLING, SC&A**

ARJUN MAKHIJANI, SC&A

JOHN MAURO, SC&A

*STEPHEN OSTROW, SC&A**

JIM NETON, NIOSH OCAS

LARRY ELLIOTT, NIOSH OCAS

LAURIE BREYER, NIOSH OCAS

LAVON RUTHERFORD, NIOSH OCAS

STU HINNEFELD, NIOSH OCAS

DENISE BROCK, NIOSH OD

JOE GUIDO, ORAU

MIKE MAHATHY, ORAU

BILL THURBER, ORAU

ZEDA ELIZABETH HOMOKI-TITUS, HHS

*EMILY HOWELL, ESQ., HHS OGC**

*DAN MCKEEL, Dow, Petitioner**

*MAUREEN MERRITT, Participant**

*JOHN RAMSPOTT, Participant**

TERRIE BARRIE, ANWAG

**Present via telephone.*

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T A B L E O F C O N T E N T S

	<u>PAGE</u>
<i>Roll Call</i>	4
<i>Ames Discussion</i>	8
<i>Dow Discussion</i>	77
<i>Adjourn</i>	

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

9:32 a.m.

MR. KATZ: Okay, so we are going to get started. We are missing Mark Griffon but he will be with us shortly. So -- hello?

MS. HOWELL: Sorry, this is Emily. I just wanted to let you know I think there were some airport delays. I know Liz is en route.

MR. KATZ: Oh, okay. Thank you, Emily.

Okay, this is Ted Katz. I'm the acting Designated Federal Official for the Advisory Board on Radiation and Worker Health. And this is the Special Exposure Cohort Workgroup of that board.

And we are going to begin by taking roll starting with the board members in the room.

CHAIR MELIUS: Tim Melius, board member.

MR. KATZ: We need to cover whether

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1 *is a conflict of interest with Ames or Dow,*
2 *which are the two sites that will be discussed*
3 *at some point during the day.*

4 *CHAIR MELIUS: And I have no*
5 *conflict of interest.*

6 *MEMBER BEACH: Josie Beach and no*
7 *conflict.*

8 *MEMBER GRIFFON: Mark Griffon, no*
9 *conflict.*

10 *MR. KATZ: Okay, then on the*
11 *telephone for Board members.*

12 *MEMBER ZIEMER: Paul Ziemer, no*
13 *conflict.*

14 *MEMBER ROESSLER: Gen Roessler, no*
15 *conflict.*

16 *MR. KATZ: Okay. And now NIOSH*
17 *OCAS OR ORAU staff in the room.*

18 *MR. ELLIOTT: Larry Elliott, OCAS,*
19 *no conflicts.*

20 *DR. NETON: Jim Neton, OCAS, no*
21 *conflict.*

22 *MS. BREYER: Laurie Breyer, OCAS,*

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1 *no conflict.*

2 MR. GUIDO: Joe Guido. I have a
3 *conflict with Dow.*

4 MR. KATZ: Okay, conflict with Dow.
5 *And on the telephone the NIOSH ORAU staff.*

6 MR. RUTHERFORD: LaVon Rutherford,
7 *no conflicts with Dow or Ames.*

8 MS. BROCK: Denise Brock, no
9 *conflicts.*

10 MR. KATZ: Okay, that's it for
11 *NIOSH ORAU. Then in the room, SC&A.*

12 DR. MAURO: John Mauro, SC&A, no
13 *conflict.*

14 DR. MAKHIJANI: Arjun Makhijani,
15 *SC&A, no conflict.*

16 MR. KATZ: And on the phone, do we
17 *have any SC&A?*

18 MR. BEHLING: Hans Behling, no
19 *conflict.*

20 MR. OSTROW: Steve Ostrow, no
21 *conflict.*

22 MR. KATZ: Okay, then. And now we

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1 have either representatives of Congressional
2 offices or members of the public on the
3 telephone.

4 DR. McKEEL: This is Dan McKeel,
5 I'm the SEC petitioner for Dow.

6 MR. RAMSPOTT: John Ramspott.

7 MR. KATZ: I'm sorry, that's John
8 Ramspott. Thank you.

9 MS. BARRIE: And this is Terrie
10 Barrie with ANWAG.

11 MR. KATZ: Welcome, Terrie.

12 Anyone else from the public who
13 would like to identify themselves?

14 (No response.)

15 MR. KATZ: Okay, then. Just phone
16 etiquette, please everyone who is not
17 speaking, put your phone on mute. And can you
18 *6 if you don't have a mute button? And
19 please don't put the phone call on hold but
20 hang up and call back in if you need to leave
21 for a while.

22 And with that, I turn it over to

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1 *the Chair, Dr. Melius.*

2 *CHAIR MELIUS: Our plan is to start*
3 *talking about the 250-day issue with Ames. I*
4 *suspect we'll go until about eleven o'clock*
5 *for that.*

6 *And then at eleven, we'll switch*
7 *over to talking about Dow unless we finish up*
8 *with Ames sooner than that. Or have a very*
9 *heated discussion that we don't want to stop*
10 *or whatever.*

11 *So -- and I think the last meeting*
12 *we had about this was -- the discussion was*
13 *the draft report from SC&A regarding the Ames*
14 *situation. And then since that time -- since*
15 *our last, this group we have had the Jim Neton*
16 *-- NIOSH has produced a report which he*
17 *circulated again the other day.*

18 *And so I think it's probably best*
19 *to start -- Jim, if you want to briefly*
20 *summarize.*

21 *DR. NETON: Sure.*

22 *Yes, this is a report that we -- I*

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1 *guess we call these white papers these days --*
2 *originally circulated April 23rd, 2008, to the*
3 *working group. And it was our sort of*
4 *analysis of the 250-day -- I mean the blowout*
5 *analysis that SC&A prepared and issued in June*
6 *2007 and which was primarily put together by*
7 *Hans.*

8 *But I think during our*
9 *deliberations of this document, a couple*
10 *questions came to light. One was well, A:*
11 *does this really apply to anybody currently*
12 *that we're reconstructing; and then B: SC&A*
13 *proposed a framework that appeared to be*
14 *almost workable for doing dose reconstruction.*

15 *And I said well, let's take a look*
16 *at that and see, you know, if we can*
17 *demonstrate that we can do dose reconstruction*
18 *for blowouts, then this whole issue may sort*
19 *of disappear. So this is our attempt at*
20 *looking at some of those issues.*

21 *And there are three parts and I'll*
22 *go over them one by one. It's pretty brief.*

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1 I think this whole document is three pages
2 long.

3 The first thing we did was we
4 pulled through and, again, I'll have to caveat
5 this by this review was done back in April so
6 the case files we looked at may not be
7 current.

8 But at that point in time, there
9 were only three case files that we could find
10 at the Ames facility or the Ames laboratory
11 that had less than 250 days of employment and
12 would have been precluded from being in the
13 class.

14 One of those claims has already
15 been administratively closed by the Department
16 of Labor at the request of the claimant. That
17 leaves two claims which are listed as B and C
18 in this report.

19 Claim B is active. He worked in
20 the metallurgical lab building purifying some
21 yellow cake, et cetera. But in his caddy, he
22 indicated that he did work with uranium but

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1 not thorium. So it's not clear that this
2 person had any involvement with thorium
3 exposure, particularly blowout, at least
4 directly involved with blowout.

5 In Claim C, the third claim, the
6 energy employee appears, by looking through
7 the files in some detail, have been a co-op
8 employee who worked part time.

9 So based on his co-op experience in
10 the laboratory, it looks like if there was any
11 potential for exposure with thorium, it would
12 have been small quantities of sources that
13 might have been present in the laboratory.

14 So in two out of three cases that
15 we looked at that had less than 250 days
16 employment are sort of on the table for dosing
17 instructions. But it's not clear to us that
18 either of them have potential for exposures to
19 blowouts.

20 The second part of this review went
21 over SC&A's analysis of a hypothetical
22 blowout. And we did a couple things.

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1 One is we looked at the assumptions
2 behind SC&A's analysis. And I won't go over
3 them in detail here but we believe that it is
4 a reasonable framework for possibly bounding
5 these blowouts.

6 But we did believe that some of the
7 assumptions used here were somewhat overly
8 conservative. Probably at the high end of
9 what the exposure conditions really were.
10 That's our opinion from looking at some of the
11 assumptions that were made.

12 We did go and review the
13 calculations and we don't take exception to
14 the doses that were calculated. We believe
15 they are in the general ballpark.

16 I think we had a five percent here
17 or there discrepancies in the doses but those
18 are trivial for purposes of what we're trying
19 to establish here. And the doses were pretty
20 much in line with what SC&A had calculated for
21 the lung and the bone surfaces. We'll talk
22 about those later.

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1 And the third part of this analysis
2 was that we had suggested that there were
3 bioassay data available for workers at Ames.

4 There were 73 bioassay regional
5 urine samples that were taken between 52 and
6 53. And at that meeting, we had suggested
7 that we could go back, use those to try to
8 bound exposures for workers, you know, use
9 those as sort of long-term indicators. And
10 store them as a long-term retention component.

11 You could take what was currently
12 being excreted in the urine, or at least the
13 misdose that, you know, you could calculate
14 from the urinary excretion and come up with
15 some sort of bounding analysis based on the
16 urine results.

17 We, in fact, went back and did that
18 but unfortunately the results of our analysis
19 produced implausibly large misdosage. You
20 know, we should have seen a priori that
21 thorium is a very bad nuclide to -- it's not a
22 very particularly useful nuclide for

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1 *reconstructing exposures going back in time*
2 *because not much is excreted in the urine per*
3 *unit time after it is taken into the body.*

4 *And particularly if you go back --*
5 *we were going back, I believe, nine months or*
6 *something trying to predict an acute intake*
7 *nine months ago based on a contemporary urine*
8 *sample.*

9 *And the doses that we provide in*
10 *the table clearly are extremely large. I mean*
11 *the lump doses are somewhere around 8,000 rem,*
12 *that sort of thing. So that analysis just is*
13 *not going to work.*

14 *So that's the summary, a brief*
15 *thumbnail summary of what we've got here.*
16 *Entertain any discussion?*

17 *DR. MAKHIJANI: The bottom line is*
18 *that you do numbers but you come up with*
19 *implausible numbers.*

20 *DR. NETON: Yes, the urine samples*
21 *just are not going to work. They are not*
22 *going to be instructive. That still doesn't*

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1 mean that the -- you know, the SC&A I think
2 still has some merit.

3 But the problem with the SC&A
4 approach -- I mean the SC&A originally, I
5 believe, developed this approach to
6 demonstrate that the exposures were
7 substantially large, similar to criticality.

8 DR. MAKHIJANI: Yes, it wasn't --

9 DR. NETON: It wasn't supposed to
10 be a bounding thing. But at the same time,
11 given that that scenario is on the table, I
12 still believe that the exposure is somewhere -
13 - maybe not the very high upper end of the
14 exposure but probably no higher than that.
15 But then the question comes up well how many
16 times did that occur.

17 DR. MAKHIJANI: Right.

18 DR. NETON: Now you got to also
19 remember though in the 250-day requirement,
20 it's either presence or 250 days. It's not
21 five exposures or five times these blowouts
22 occurred.

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1 DR. MAKHIJANI: Right.

2 DR. NETON: So in reality, you'd
3 almost have to have a single incident, which
4 would be a single blowout. I mean if you're
5 going to use that blowout as a determining
6 factor in presence.

7 And then it comes back to where we
8 were at the original meeting, are the doses
9 that are calculated for the single blowout
10 similar to a criticality.

11 DR. MAKHIJANI: Okay.

12 DR. NETON: And so we're
13 essentially back to where we were at the last
14 meeting in my opinion.

15 DR. MAKHIJANI: Yes, I would agree
16 with that. I think that that's sort of the
17 heart of the question. I mean for dose
18 reconstruction, you have to know how many
19 blowouts and so on but it's irrelevant if the
20 focus is on a single incident.

21 DR. NETON: Right. I mean think
22 that's true. I mean the lawyers are not here

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1 yet.

2 I think the way the rule is
3 structured, it's either presence, just one
4 incident that you can define or 250 days.
5 There's no in between. You can't start saying
6 well maybe ten days presence or two incidents
7 or that sort of thing.

8 CHAIR MELIUS: Well but couldn't
9 you say hypothetically 30 days -- if you were
10 present working there for 30 days, there's a
11 strong likelihood that you would have been
12 present during a blowout.

13 Say we decide -- again,
14 hypothetically, that a single blowout would
15 be, you know, sufficient dose and high enough
16 dose to qualify. That if you were there for,
17 you know, 30 days, you would have, you know,
18 strong probability that you would have been,
19 you know, present -- involved in one of those
20 blowouts. And, therefore, you qualify based
21 on that.

22 I mean I think that -- it's really

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1 no different than the other -- all the other,
2 you know, estimates that, you know, we do on
3 other dose reconstruction activities.

4 DR. NETON: I've not really thought
5 about it from that perspective. I don't know
6 about Larry or Emily or Liz, if she gets here
7 have thoughts on that.

8 But I guess I would go back further
9 and say is that single blowout of sufficient
10 magnitude to be similar to a criticality. I
11 mean that's the first thing I think needs to
12 be established.

13 DR. MAURO: Yes, I think one of the
14 things we overlooked to step back a bit, one
15 of the first things we did, as a workgroup is
16 explore, you know, what types of doses would
17 one consider to be comparable to a
18 criticality.

19 And I know we prepared a report on
20 that and we realized that the range was very
21 large. But at the same time, I'd offer up
22 that I think there was consensus that

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1 something on the order of from 25 rem to 100
2 rem delivered acutely to the whole body would
3 be in the right ballpark for something that
4 one would consider comparable to a
5 criticality, not the fraction of a rem dose
6 that we also saw for some criticalities
7 because were not too close.

8 DR. NETON: Yes.

9 DR. MAURO: And where we ended up -
10 - and I think we did have quite a bit of
11 discussion and disagreement related to can you
12 truly compare -- let's just for the sake of
13 argument now, assume that the 25 to 100 there
14 is general consensus that that falls into the
15 right ballpark for acute, whole body,
16 penetrating radiation as being comparable to a
17 criticality, then Hans performed an analysis,
18 okay, let's do a blowout and see what kind of
19 doses we get.

20 And the kinds of doses are
21 different. We're talking doses that certainly
22 are in that range. But they're dose

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1 *commitments, internal dose commitments which*
2 *are delivered over years.*

3 *And, for example, I'm looking at*
4 *the table right now -- there is a table in*
5 *Hans's report where well if you just look at*
6 *the bone dose -- and now it's not whole body,*
7 *now we're talking organ dose, look at just one*
8 *year, we're talking 12 points of rem.*

9 *Now you may have come up with a*
10 *number a little different. And then if you're*
11 *looking for 30 year -- this is thorium now --*
12 *dose commitment per blowout, we're talking 214*
13 *rems. So in effect, we do have a difficult*
14 *question in front of us.*

15 *And that is maybe we're talking*
16 *about doses that are comparable but in terms*
17 *of absolute sense in terms of where we would*
18 *agree but where there is, I would say, almost*
19 *at risk of say a policy decision, is a dose*
20 *commitment, a 30-year dose commitment*
21 *equivalent to -- that would be, in this case,*
22 *214 rem to the bone.*

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1 Would that be considered to be
2 comparable to equivalent to a criticality
3 exposure? And therein lies the nub.

4 DR. NETON: Yes, I think John has
5 summarized it pretty well. And that was the
6 crux of our discussion at the last meeting
7 which is are internal exposures -- internal
8 committed exposures comparable to an acute
9 exposure.

10 And I can only say that I remember
11 thinking back when the rule was being written
12 that the criticality analogy or the, you know,
13 analogy that's in there was really more so
14 that it would be sort of intuitively obvious
15 that this exposure endangered health.

16 And almost to the point where you
17 are talking about potentially having
18 stochastic health effects, you know, something
19 like, you know, blood, you know, human --

20 MEMBER GRIFFON: You mean non-
21 stochastic.

22 DR. NETON: -- I mean not

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1 *stochastic -- non-stochastic health effects*
2 *like blood disorders, you know, lymphocytes*
3 *production and cataract formation, you know,*
4 *things of that order.*

5 *And so then it would be somewhat*
6 *general agreement among a health physicist*
7 *looking at this that yes, this was a very*
8 *large exposure. And it's easily determined to*
9 *be as such.*

10 *When you get into internal*
11 *exposures, where you have protracted exposure,*
12 *they're not acute, you're not going to have*
13 *any long-term health effect -- and, in fact,*
14 *in this particular analysis, I think you are*
15 *looking at multiples of the annual limit on*
16 *intake. You know these are not like where is*
17 *the magnitude kind of thing.*

18 *So I have a little difficulty*
19 *comparing the two. And that's exactly where I*
20 *think we left off.*

21 *Is 214 rem, 30-year committed dose*
22 *to bone surfaces equivalent to an*

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1 *instantaneous 200 rem whole body exposure?*
2 *Probably not.*

3 *And, in fact, you also have to*
4 *remember the fact that we have the GDREF*
5 *incorporated into this analysis, which gives -*
6 *- infers less risk per unit dose from chronic*
7 *exposure which, by definition, all internal*
8 *exposures are.*

9 *DR. MAURO: But I would like to*
10 *also add we know that there were multiple*
11 *blowouts in a given year -- in a given 250-day*
12 *period. So we can't discount that either.*

13 *DR. NETON: Right. But again, you*
14 *get -- instantaneous -- the law -- the rule*
15 *talks about a one-shot incident versus 250-*
16 *day. When you start talking about multiple*
17 *blowouts, now you're talking about multiple*
18 *exposures. I agree. I understand. I hear*
19 *what you're saying.*

20 *You know, it's just there is no in*
21 *between in the way the current rule is*
22 *written. You can't say well five blowouts*

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1 would do it, you know that will get you there-
2 kind of thing. It's just not possible.

3 CHAIR MELIUS: Well, we can always
4 change the rule which is a possibility. But
5 what about a different tact again,
6 hypothetically, what if you made a
7 determination that you can do some sort of
8 bounding dose for a blowout, okay.

9 And you assume then that anybody
10 working that time period less than 250 days --
11 because you've determined over 250 days you
12 can't reconstruct. But less than 250 days
13 would have, you know, been exposed to one
14 blowout per month. And that would be part of,
15 you know, your dose calculation for that
16 person.

17 I mean that would, you know, maybe
18 I don't know -- it's been so long since we've
19 talked about Ames and specifically how common
20 they were, but one per month or one per week
21 is not, you know, is certainly within the
22 range of what was talked about.

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1 So for a person that was less than
2 250 days, you would do the dose
3 reconstruction. Your assumptions for the dose
4 reconstruction would be whatever, you know,
5 was measured, et cetera, plus assuming one
6 blowout per week exposure.

7 DR. NETON: That's a viable option.

8 MEMBER GRIFFON: Well, now you're
9 talking about a way to bound it rather than --

10 DR. NETON: Right.

11 MEMBER ZIEMER: But you would have
12 a bounding rule then.

13 CHAIR MELIUS: Partial dose
14 reconstruction that just looks -- because
15 you've agreed that if it is over 250, you
16 know, I mean it's a way of trying to address
17 an issue within the -- sort of the constraints
18 of what we -- how we've approached how our
19 regulations are written.

20 DR. NETON: I don't disagree. That
21 certainly could be approach. I mean we have
22 to --

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1 MR. ELLIOTT: Can you bound that
2 dose? Or do you have to come out? You have
3 to be able to --

4 MEMBER ZIEMER: This is Ziemer.
5 Could I add to that comment? In fact in all
6 of these cases, in order to assess whether or
7 not something is a viable option such as a
8 blowout, we end up having to bound the dose
9 for the blowout to see if it is eligible, in a
10 sense. So on all of these you end up doing
11 exactly that.

12 You have to sort of say what dose
13 could have been received by this kind of
14 activity? So don't we end up bounding them
15 anyway?

16 MEMBER GRIFFON: But I'm just -- I
17 mean we're going back and forth between the
18 policy question and the Ames question.

19 MEMBER ZIEMER: Yes, but I'm
20 following up on Jim's idea that if you could
21 establish a sort of typical frequency and a
22 bounding dose, then you could take that -- use

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1 that in a dose reconstruction for the
2 individual who had less than 250 days and,
3 therefore, didn't qualify for an SEC status.

4 MEMBER GRIFFON: But have you
5 already said -- for the people over 250 days,
6 you've already said that you can't reconstruct
7 or bound doses, right?

8 DR. NETON: Yes.

9 MEMBER GRIFFON: So now you're
10 going to say for those less than 250, all of a
11 sudden we have respondents that know how to
12 bound. It's a little --

13 DR. NETON: Well, this is 250 days'
14 exposure working with thorium. So you can't
15 bound the chronic exposure.

16 MEMBER ZIEMER: Now this is only a
17 partial --

18 MEMBER GRIFFON: It's a way to give
19 them some credit, I guess, partial dose
20 reconstruction.

21 DR. NETON: Well think about
22 someone applying for an SEC and saying I want

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1 to apply for blowout compensation, how would
2 we handle that?

3 We would probably do something very
4 similar to what Dr. Melius just mentioned.
5 We'd say well, okay, you were involved in
6 blowouts and we know that -- we know the
7 amount of material that was involved, we know
8 the duration, I mean --

9 CHAIR MELIUS: Yes, you know, we'll
10 take the 95th percentile of the average number
11 of blowouts that -- whatever, we have some
12 frequency information or --

13 DR. NETON: Hans did just that.

14 CHAIR MELIUS: Yes.

15 DR. NETON: I mean he did a very,
16 you know, nice analysis trying to take into
17 account the size of the building and such. We
18 feel that it is a little bit on the high side
19 but nonetheless, you know, an approach similar
20 to that, you know.

21 MEMBER GRIFFON: Demonstrates the
22 principle.

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1 DR. NETON: A somewhat similar
2 approach would be viable.

3 DR. MAKHIJANI: It seems to me that
4 the problem with that is that if you're going
5 to say one blowout a month, and you're already
6 with one blowout, I would say you got
7 implausibly high doses.

8 DR. NETON: No, one blowout if we
9 used the uranium thorium bioassay data. I'd
10 probably go back and reconstruct what the
11 exposure would have been if I took the 1952
12 uranium thorium bioassay data and assume the
13 acute exposure nine months prior to that.

14 DR. MAKHIJANI: Oh, okay. Sort of
15 guess the date of --

16 DR. NETON: Yes, I mean okay what
17 if it happened nine months before, the
18 exposures come out huge. The blowout
19 exposures come out high. I would not say that
20 they are implausibly high.

21 DR. MAKHIJANI: Yes, all right.

22 DR. NETON: You could envision, you

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1 know, some of these are -- the instant case,
2 you're talking about a 40 nanocurie intake of
3 thorium here. This is not a massive amount of
4 thorium to inhale. I mean it's .04, yes, 40
5 nanocuries of thorium intake.

6 Those are not unlike what we see in
7 a number of chronic exposures. So, you know,
8 these are not out there ridiculous. I mean
9 the bone doses are high just because of the
10 long-term retention of the thorium in the
11 bone.

12 MEMBER ZIEMER: This is Ziemer.
13 Jim, could I ask on that issue is the problem
14 the fact that you are way out on the long tail
15 of excretion and you just have a single point?

16 DR. NETON: For the thorium
17 bioassay?

18 MEMBER ZIEMER: Yes.

19 DR. NETON: Yes.

20 MEMBER ZIEMER: You said the model
21 gives you implausibly large results and --

22 DR. NETON: Well --

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1 *MEMBER ZIEMER: -- you know the*
2 *model is still the model. And so what -- is*
3 *there any -- I was trying to think whether*
4 *there's any precautions even in the ICRP's*
5 *discussion on use of the model in that way.*
6 *Obviously, a single point on the tail of a*
7 *model, you could be off by quite a bit.*

8 *DR. NETON: Yes, actually --*

9 *MEMBER ZIEMER: A priori, one says*
10 *you can use that but then to go back and say*
11 *"But I don't like the results, therefore I*
12 *can't use it doesn't work." I agree it's*
13 *implausibly large but we still -- the model is*
14 *still the model.*

15 *DR. NETON: Right. I think what*
16 *happens here, Paul, is the misdose -- well, we*
17 *didn't know at what point to go back to as far*
18 *as the acute exposure.*

19 *MEMBER ZIEMER: Oh, yes. I*
20 *understand that. We're going back awfully*
21 *far.*

22 *DR. NETON: And, in fact, we used*

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1 the 95th percentile of the bioassay data.

2 MEMBER ZIEMER: Oh, okay. That's
3 what --

4 DR. NETON: It was 2.7 picocuries
5 per day excretion.

6 MEMBER ZIEMER: Yes, yes.

7 DR. NETON: If you're excreting 2.7
8 picocuries of thorium -- I think we went back
9 nine months -- 245 days we went back, you
10 know, it's probably ten to minus six or ten to
11 minus seven the excretion fraction or
12 something at that point.

13 So you multiply that number times a
14 huge number and you end up with these intakes
15 that -- I'm looking here, for type S, it
16 imputed or it calculated 8.7 microcurie intake
17 of thorium. That's not plausible even under
18 these blowout scenarios that SC&A is
19 calculating.

20 MEMBER ZIEMER: Yes.

21 DR. NETON: So it's just that
22 thorium is a bad tool to go back to

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1 reconstruct -- not a useful tool to go back
2 and reconstruct plausibly bounding exposures.

3 DR. MAKHIJANI: I think you got
4 what -- 50, 70 grams of thorium.

5 DR. NETON: Yes, it's a massive
6 amount of intake.

7 MEMBER ZIEMER: Yes.

8 DR. NETON: The 40 nanocurie
9 intakes projected by the SC&A model -- frankly
10 40 nanocuries is not that high. I mean it's -
11 - you know, that's a few multiples of what the
12 ALI used to be anyway -- the annual limit on
13 intake.

14 Any intake of an alpha-emitting
15 actinide like this will give you a fairly
16 large dose.

17 DR. MAKHIJANI: In fact if you
18 think about it, most of the SEC sites we've
19 added have been for inability to reconstruct
20 internal doses due to either uranium or --
21 well, actually mostly thorium.

22 But there is another -- I mean if

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1 we turned the question that Mark raised, step
2 back from Ames and say 250 days is a policy
3 question, obviously it's not in the
4 regulations, the internal dose. So you have
5 to exercise some judgment, you know, somebody
6 exposed to an acute event that results in high
7 doses, what's the right thing to do?

8 But maybe the way the question
9 should be framed is if you there have been
10 acute incidents, would this person be
11 compensated if they were there just for that
12 one day as a worker for any one of the SEC
13 cancers under a typical kind of claimant
14 circumstances.

15 And the answer is yes. Then you
16 could say well, you know, that incident
17 qualifies. Now it doesn't let you compare it
18 a criticality clearly but there is no way
19 really you are going to compare committed
20 doses to criticalities. It's two different
21 things.

22 DR. NETON: But would you have done

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1 a dose reconstruction then almost by
2 definition and say he's compensated by dose
3 reconstruction, not by SEC.

4 MEMBER GRIFFON: Yes, if you come
5 down --

6 DR. NETON: I mean if you do a dose
7 calculation and you say it's over 50 percent,
8 I've done a dose reconstruction that's
9 bounding and he's being paid.

10 DR. MAKHIJANI: Well, it's a
11 hypothetical calculation. It isn't a
12 calculation for --

13 DR. NETON: Not an individual, it's
14 not a case. Then you get into the scenario
15 that we talked about last time where you have
16 a virtual infinite variety -- latency period
17 and agent exposure.

18 DR. MAKHIJANI: Okay, I'm not
19 suggesting there is an easy way out. I'm just
20 saying --

21 DR. NETON: In fact, this is the
22 reason the 250 days is in the regulation.

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1 *It's just too hard to put your finger on.*

2 *DR. MAKHIJANI: I mean there is a*
3 *fairness idea in the law, like, you know,*
4 *you've got to be fair, and timely, and all*
5 *that -- I don't remember the exact words --*
6 *but if you focus on the word fair, how do you*
7 *compare somebody that worked there for three*
8 *months who were exposed to incidents that we*
9 *acknowledge to be fairly severe but of the*
10 *inhalation variety to somebody that worked*
11 *there for 250 days who we assume --*
12 *automatically assume was in danger.*

13 *We focus on the in danger piece*
14 *rather than the numbers. Can you ask whether*
15 *somebody was exposed to thorium blowout was*
16 *endangered in that sense? Leaving the numbers*
17 *and risks aside, a qualitative judgement about*
18 *endangerment.*

19 *DR. NETON: I'll go back to the*
20 *rule that says can you put a plausible upper*
21 *bound on that thorium blowout.*

22 *DR. MAKHIJANI: No, no.*

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1 DR. NETON: *If the answer is yes --*

2 CHAIR MELIUS: *No, no, I think*
3 *Arjun is asking a different question. It's*
4 *how do you evaluate endangerment? I mean*
5 *that's what we're --*

6 DR. MAKHIJANI: *That's right.*

7 CHAIR MELIUS: *Yes, we're wrestling*
8 *with less than 250 days. If the endangerment*
9 *part of the --*

10 DR. MAURO: *But within the context*
11 *of the criticality -- see, at least in this*
12 *case, this issue that we're dealing with, we*
13 *have some guidance in the statute. And that*
14 *is criticality.*

15 *The question of endangerment in*
16 *general as being a criteria is something that*
17 *we've never engaged.*

18 DR. NETON: *Well, I think that it's*
19 *pretty specific. It says if you cannot put an*
20 *upper bound on the dose then health was*
21 *determined to be endangered. That's the way -*
22 *- every time we present an SEC evaluation,*

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1 *that's what we say. That's the test.*

2 *Can you put an upper bound on it?*

3 *No. By definition then, health is endangered.*

4 *DR. MAKHIJANI: No. The way I*
5 *recall it says can you put an upper bound on*
6 *it? No. That's the dose piece. And then for*
7 *the endangerment, you say did they work for*
8 *250 days? And if the answer to that is yes,*
9 *then you say endangered.*

10 *CHAIR MELIUS: Endangerment is*
11 *always the, you know, it's 250 days and that*
12 *there was exposure. We sort of -- we're not*
13 *very specific about it.*

14 *DR. NETON: But health was*
15 *endangered and 250 days is the default --*

16 *DR. MAKHIJANI: Right.*

17 *DR. NETON: -- unless there is some*
18 *evidence of an extremely high dose incident*
19 *such as a criticality. So it really is that*
20 *if you can't put an upper bound on it then*
21 *health becomes endangered. And 250 days is*
22 *the default. That's just the way it plays*

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1 out.

2 DR. MAKHIJANI: I don't recall any
3 -- well, maybe --

4 CHAIR MELIUS: It's a two-prong
5 test that we've been presenting all these
6 years. And it says that's the logic.

7 DR. MAURO: When we get to Dow, we
8 are going to encounter the situation where
9 perhaps there will be situations where we
10 can't put a plausible upper bound and we're
11 not quite sure if there's endangerment. But
12 we'll get there later.

13 MEMBER GRIFFON: Yes, let's save
14 that one.

15 (Laughter.)

16 DR. NETON: It's more complicated.
17 It's not really the 250 days though. That's
18 more

19 DR. MAURO: That is not really the
20 250 days -- but I'm sorry for that diversion.

21 MEMBER GRIFFON: But I mean back to
22 this --

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1 CHAIR MELIUS: But originally in
2 the legislation and really in the regulations,
3 it's a two-prong test. You know and the two
4 don't connect. Right. I mean there's no --
5 and secondly, the criteria -- well, the
6 criteria for both are not strict.

7 But certainly in endangerment, you
8 know, we simply adopted, you know, something
9 that was from the legislation. The 250 days
10 is the basic default. And then language that
11 turns out not to be as -- maybe as clear as we
12 all thought it would be on the endangerment
13 issue.

14 And so it's -- how do we -- so with
15 endangerment for these situations I think
16 we're trying to deal with what has happened.
17 What are the criteria for less than 250 days.

18 And it may turn out that Ames is not the best
19 example to wrestle with that.

20 It may be better to deal with Ames
21 as something where the doses would be
22 reconstructed in those situations. I mean,

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1 *yes, it sort of avoids the issue.*

2 *DR. NETON: It doesn't solve it.*

3 *CHAIR MELIUS: It doesn't solve it.*

4 *But if it's fair to the people at Ames,*
5 *that's -- you know, it's best way for Ames in*
6 *this situation. I'm trying to think how many*
7 *other situation we have where there have been*
8 *so many reported incidents of this magnitude.*

9 *MEMBER ZIEMER: This is Ziemer.*
10 *I'll just add as kind of an editorial comment*
11 *here as well. I don't think it will ever be*
12 *fruitful for us to argue that there's*
13 *necessarily a fairness in the 250 days itself.*

14 *That's certainly kind of arbitrary.*

15 *But that's the way it was established. Well,*
16 *one could argue that someone who worked 249*
17 *days, why are they not endangered and the 250-*
18 *day person is with the extra day.*

19 *It doesn't seem fair. But that's*
20 *the default value. That's what we work with.*

21 *So to try to argue fairness based on*
22 *particular doses and particular incidents*

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1 *isn't going to work if we try to compare it*
2 *with the 250 days.*

3 *I think it becomes sort of*
4 *technically kind of fruitless.*

5 *CHAIR MELIUS: But Paul -- this is*
6 *Jim -- the 250 days was not -- was set in the*
7 *regulation.*

8 *DR. NETON: It's in the law.*

9 *CHAIR MELIUS: Well, it's included*
10 *for specific examples in the law. But NIOSH*
11 *could have -- and I'll say we, so it's more*
12 *than just I -- we collectively could have*
13 *recommended something else --*

14 *MEMBER ZIEMER: Well, yes but --*

15 *CHAIR MELIUS: -- in that --*

16 *MEMBER ZIEMER: -- Jim, I think the*
17 *same thing -- pick another number and you'll*
18 *have the same problem.*

19 *CHAIR MELIUS: Yes, I don't*
20 *disagree with that.*

21 *MEMBER ZIEMER: Pick 100 days.*

22 *CHAIR MELIUS: Yes, but I don't*

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1 think --

2 MEMBER ZIEMER: Then the issue is
3 what happens at 99?

4 CHAIR MELIUS: Yes, yes.

5 MEMBER ZIEMER: I'm just saying you
6 still have that sort of arbitrariness. It's
7 very difficult to find the line where you say
8 yes, if I don't know, this is where
9 endangerment occurs. You are always going to
10 have that arbitrariness to it I think.

11 CHAIR MELIUS: Yes, but I think we
12 have to balance that arbitrariness with --

13 MEMBER ZIEMER: Yes.

14 CHAIR MELIUS: -- fairness as Arjun
15 was --

16 MEMBER ZIEMER: Yes, I --

17 CHAIR MELIUS: -- articulating.

18 MEMBER ZIEMER: -- I would agree
19 with that part of it. I think it's very
20 difficult to establish fairness based on the
21 250-day value per se.

22 CHAIR MELIUS: Yes.

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1 **MEMBER ZIEMER:** *It actually works*
2 *better -- in my mind, it works better if you*
3 *can bound the dose because then we have some*
4 *idea really of how likely it is that there*
5 *really is a health endangerment.*

6 *Without dose numbers, you know, the*
7 *250 days is sort aside from any dose number.*
8 *And I think that's why we feel uneasy with it.*

9 **DR. MAKHIJANI:** *But I am a little*
10 *puzzled about this bounding dose.*

11 **CHAIR MELIUS:** *Speak a little*
12 *louder, Arjun.*

13 **DR. MAKHIJANI:** *I'm puzzled about*
14 *this term bounding the dose because if we say*
15 *we're doing a partial dose reconstruction,*
16 *then you're not bounding the dose. I mean*
17 *those two things are -- you are bounding the*
18 *number for an incident but you're not bounding*
19 *the dose to the person.*

20 **MEMBER ZIEMER:** *No, but we do that*
21 *on SECs all the time where a person doesn't*
22 *qualify, then we try to establish a dose for*

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1 -- or a partial dose reconstruction. I think
2 that's what we will be doing here.

3 DR. MAKHIJANI: Yes, but only --

4 MEMBER ZIEMER: This will be a
5 partial.

6 DR. MAKHIJANI: -- we do that in a
7 completely different context. If you do that
8 for cancers that are not part of the SEC list
9 --

10 MEMBER ZIEMER: Or for people who
11 have been there less than 250 days.

12 MEMBER GRIFFON: But you also do it
13 for the items that can be reconstructed. You
14 used to say --

15 MEMBER ZIEMER: Right.

16 MEMBER GRIFFON: -- it can
17 reconstruct incidents.

18 DR. NETON: Or incidents.

19 DR. MAURO: In a funny sort of way,
20 this is not unlike just using medical x-rays.
21 If it's the only thing you can do, that's
22 what we do. And what we're really saying is

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1 well, the only thing that we can do here is --
2 it sounds kind of --

3 DR. NETON: If there were
4 incidents, we can bound them.

5 DR. MAURO: But this one, I mean to
6 say that just like x-rays we can place an
7 upper bound -- in effect where I was headed
8 was -- this approach, should it go forward as
9 being contemplated, would be equivalent to
10 this -- the way in which x-rays are dealt
11 with.

12 This is a situation that the
13 judgment is yes, we can place an upper bound.

14 I think that there is general agreement that
15 the kind of scenario that Hans constructed
16 seems to be reasonable, not bounding, for a
17 single blowout.

18 And the dilemma that we're dealing
19 with is how many blowouts do we assume?

20 MR. KATZ: Excuse me. Someone on
21 the telephone is having a conversation about
22 muting the phone. If you just go ahead and do

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1 that please, it's interfering with the
2 discussion. Thanks.

3 DR. NETON: Yes, I agree with John.

4 That then becomes sort of on a case-by-case
5 basis analysis. Like the two cases I just
6 reported that had less than 250 days that
7 didn't qualify for the class, one, in my mind,
8 in particular, wouldn't qualify for any
9 blowouts probably. Yet the other one, the
10 person claimed they never worked with thorium
11 but they walked through the area.

12 So you take each case as it
13 happens, as it comes, with the idea that there
14 probably wouldn't be that many.

15 MEMBER ZIEMER: One hundred fifty
16 grand plus medical.

17 DR. MAKHIJANI: Well, the less than
18 250-day question doesn't apply to many
19 workers. I mean generally people tended to
20 stay in nuclear field if they had some kind of
21 employment.

22 But I really think to say this is a

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1 *partial dose reconstruction is mixing up --*
2 *maybe I'm not getting it but it's mixing up*
3 *two different issues because we're trying to*
4 *look at an endangerment question for those who*
5 *worked less than 250 days to see -- you know,*
6 *at least this is how I'm thinking of the*
7 *question: were the conditions of employment*
8 *for those people who worked less than 250 days*
9 *similar in terms of risk to those who worked*
10 *for more than 250 days?*

11 *CHAIR MELIUS: But I think we're*
12 *saying, Arjun, and, you know, that is the*
13 *issue that I guess the workgroup was focused*
14 *on. I think the resolution at Ames is not to*
15 *deal with that. Maybe not to deal with that*
16 *issue directly.*

17 *But a better way or the way of*
18 *dealing with -- we can deal with the Ames*
19 *situation by doing it as a partial dose*
20 *reconstruction. And not having to address the*
21 *endangerment issue.*

22 *DR. MAKHIJANI: But why. I mean if*

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1 -- that is what I am conceptually not getting.
2 If you are saying the policy issue to be
3 resolved is is there endangerment if you work
4 there less than 250 days, how does that -- I
5 just don't see the equivalent.

6 CHAIR MELIUS: Because 250 days
7 only becomes an issue if you are -- if you
8 can't reconstruct the doses.

9 DR. MAKHIJANI: But you can't. You
10 can't reconstruct the doses.

11 CHAIR MELIUS: Well, you can do a
12 partial --

13 DR. MAKHIJANI: You can always do a
14 partial dose reconstruction for everybody.

15 CHAIR MELIUS: Yes. But you still
16 need 250 days. If you have worked more than
17 250 days, you are in the SEC at Ames. I mean
18 it's a pretty broad class definition. So it's
19 under 250 days that we are concerned about.

20 DR. NETON: That brings up an
21 interesting point, though, then if you start
22 doing partial dose reconstructions for non-

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1 *presumptive cancers, then it has to be added*
2 *back in there, and I know we're not doing*
3 *that.*

4 *DR. MAKHIJANI: Then you open up*
5 *the door for these --*

6 *MEMBER GRIFFON: Well that was my*
7 *point is that you can't be doing something for*
8 *the less than 250 days that you're not doing*
9 *for the others.*

10 *DR. NETON: And a thought just*
11 *occurred to me, you have got to think about*
12 *the non-presumptives.*

13 *MEMBER GRIFFON: Yes. So I mean I*
14 *think what we might have come out of this*
15 *workgroup is that we're going to fall short on*
16 *development of policy basically for -- you*
17 *know, but this might come up in other SECs as*
18 *we go forward, but the Ames example may not*
19 *be, you know --*

20 *DR. NETON: And there were two test*
21 *cases, right? There was Ames, and the Nevada*
22 *Test Site, and I'm not sure where we stand on*

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1 *that.*

2 *MEMBER GRIFFON: I don't know where*
3 *that is.*

4 *CHAIR MELIUS: In this, well, we*
5 *can talk about that in a second, and then I*
6 *think there is a third that it was supposed to*
7 *be addressed in, and I'm conflicted on that,*
8 *but it's Apollo, I believe, the NUMEC site.*

9 *DR. NETON: That might be right.*
10 *I'm not sure.*

11 *CHAIR MELIUS: The NUMEC site, it*
12 *was in the letter. It was sort of reserved as*
13 *an issue, I thought.*

14 *MEMBER GRIFFON: Yes, I think*
15 *you're right, yes.*

16 *CHAIR MELIUS: No one has reported,*
17 *nothing is done. And, again --*

18 *MR. RUTHERFORD: Dr. Melius, this*
19 *is LaVon Rutherford, that is correct.*

20 *CHAIR MELIUS: I only remember*
21 *because I had to be careful with it.*

22 *DR. NETON: I think what happened*

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1 is after this was taken up with the working
2 group, there were SECs that had potentially a
3 similar issue. And they were sort of just
4 annotated that way.

5 DR. MAKHIJANI: The most reasonable
6 way to resolve the 250, And you know, I mean,
7 we've had a tangled discussion about this for
8 two years now, what we did, you know, just
9 decide on what an appropriate revision of the
10 regulation might be, and just --

11 CHAIR MELIUS: But to go back, what
12 we decided to do on the 250 days, because we
13 tried a general discussion, and we weren't
14 able to resolve it, and we spent probably a
15 day doing that, or maybe more, but we said,
16 let's look at some examples, and see if we go
17 through the examples - one was Ames, the
18 second was Nevada Test Site - would that help
19 us provide a framework for how to approach it.

20 And so we've been focusing on Ames.
21 We've had some problems dealing with Nevada.
22 And we can talk about that maybe in a second,

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1 but Ames is, I think would be either -- to me
2 it's do the approach where we would do partial
3 dose reconstructions on the blowouts.

4 I guess the second question -- and
5 Liz, this came up before you were - while you
6 were in transit - was sort of the issue that,
7 does the current regulation allow multiple --
8 how does it deal with multiple incidents?

9 It talks about an incident, such as
10 a criticality or something - I think that's -
11 I don't remember the exact wording, but how do
12 you deal with a situation of multiple
13 incidents? And you don't have to answer now.

14 I'm not sure that's --

15 MS. HOMOKI-TITUS: I can give you
16 my off-the-cuff answer, but we would have to
17 give you an official one later. Are you
18 talking about multiple incidents that you
19 would be using in a dose reconstruction, or
20 trying to establish an SEC class?

21 CHAIR MELIUS: Trying to establish
22 endangerment in an SEC class I think would be

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1 *the --*

2 *MS. HOMOKI-TITUS: Well, by the*
3 *reg, it's either 250 days or presence. So*
4 *it's not spelled out to say presence at three*
5 *different events, because that would be more*
6 *than one second presence. So I don't think*
7 *the reg deals with that.*

8 *CHAIR MELIUS: Okay.*

9 *MS. HOMOKI-TITUS: I think that*
10 *would require a reg change if you wanted to*
11 *say, we need three incidents to make this an*
12 *endangerment.*

13 *MR. ELLIOTT: I think an important*
14 *component of the incident that's mentioned in*
15 *the language, in the rule, is that it's an*
16 *unplanned, unmonitored event.*

17 *And if we have a series of events,*
18 *we have to start asking ourselves, okay, they*
19 *were not unplanned. They knew that this kind*
20 *of a blowout would happen on a consistent*
21 *basis.*

22 *Were there any administrative steps*

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1 *taken to reduce the number of blowouts? Or,*
2 *you know, we'd have to look at it that way, I*
3 *think.*

4 *DR. MAURO: If I recall the history*
5 *of this whole problem, they got smarter as*
6 *they went along. And they reduced the number*
7 *of blowouts, but in the initial stages --*

8 *MR. ELLIOTT: And that doesn't*
9 *answer endangerment, but that just answers,*
10 *you know, what kind of a mindset, what was the*
11 *culture.*

12 *MEMBER BEACH: I don't know, I mean*
13 *this is not really my place, but you still --*
14 *it seems like you still have on the table this*
15 *question that maybe Ames isn't giving you the*
16 *answer to, but it seems like what would useful*
17 *to answer is, what is the internal equivalence*
18 *to the external acute exposure?*

19 *I mean, if it's not the blowout at*
20 *Ames, but what would -- at what point do you*
21 *say, this is the same kind of thing.*

22 *CHAIR MELIUS: Yes, and do you want*

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1 to quantify it?

2 DR. MAURO: We go back to the
3 philosophy, and I think there was general
4 consensus is when you're talking about the
5 equivalent -- I guess a health impact that
6 would be equivalent to what one would
7 experience from an acute dose of 25 to 100 rem
8 uniform whole-body exposure, that's the
9 closest I can come to recollecting where we
10 came out when we started to look at the
11 criticality question.

12 You know, some folks mentioned as
13 low as five rem, because you do see a little
14 bit of blood change at five rem, but I think
15 that was sort of rejected, and we drove closer
16 to the 25 rem as being a little bit more
17 reasonable.

18 And I think it's within that range
19 that there was consensus around the table.

20 MR. KATZ: And Jim said that, you
21 know, the case -- this case is different
22 because, on the surface of the bone and the

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1 way you do the calculation, it's really a very
2 marginal case in a sense, he's saying. But
3 what would not be a marginal case? If you
4 could get to that point --

5 DR. MAURO: You could back it out.
6 I mean, in effect, you can make it a risk
7 equivalent. I mean, you could very easily
8 convert a 214 rem 30-year dose commitment to
9 the bone to what the risk equivalent would be
10 to an instantaneous uniform whole-body dose.

11 MEMBER ZIEMER: I'm not sure you
12 could do that at all very easily, John.

13 DR. NETON: Well you've got the --
14 the bone surface weighting factor is -- it's
15 actually your .03 or .01, depending on which
16 system you use. But even then, it's delivered
17 over a long period of time.

18 MR. BEHLING: Can I make a comment
19 here? This is Hans Behling.

20 One of the other factors that could
21 certainly be introduced into this conversion,
22 or trying to establish parity, is to use what

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1 *BEIR -- all the BEIR reports would recommend,*
2 *and that is to make use of the factor of two*
3 *that separates the cancer risk coefficient*
4 *from an acute exposure versus a protracted*
5 *exposure. So a factor of two would also be*
6 *appropriate to reduce the protracted exposure*
7 *of the cancer risk to an acute exposure.*

8 *DR. NETON: Yes, I agree with that,*
9 *Hans. But it seems to me that now we're going*
10 *down the path to establishing some type of*
11 *risk, which we've already decided that 250*
12 *days is not necessarily dosimetric or risk*
13 *based at all. It's a somewhat arbitrary*
14 *number that was selected --*

15 *DR. MAURO: But it does go toward*
16 *the -- if we decide there's a step that we've*
17 *taken that - note when I say we - that would*
18 *be taken, the step being criticality, what*
19 *does that mean? Risk equivalent, it means*
20 *having a potential acute symptoms, acute*
21 *radiation syndrome symptoms, that's the step*
22 *that we'd be taking that would not be in the*

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1 rule.

2 Now whether or not you want to take
3 that step is another question. It would not
4 be an unreasonable step, but I just -- which
5 translates to about 25 rem is the floor of,
6 let's say when you start to see blood changes
7 of some significance, certainly 100 rem.

8 And now, in effect, you would have
9 a very tractable process to answer this
10 question in a systematic consistent way across
11 the complex as it comes up if you want to
12 engage that problem at this point in time.

13 MR. ELLIOTT: But if you say that,
14 then you've effectively bounded the dose, have
15 you not? And if you can bound the dose, you
16 don't need to add the class.

17 DR. MAURO: Well, the good example
18 would be here, in other words, if we were to
19 apply that rule, we'd ask ourselves the
20 question, is it plausible that a person could
21 have gotten -- in other words, how many
22 blowouts would he have to experience to cross

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1 *that threshold, and is that plausible?*

2 *DR. NETON: Now we're getting into*
3 *multiple sides of the issue, which the rule*
4 *simply doesn't necessarily handle.*

5 *DR. MAURO: But it's silent -- but*
6 *right now it's silent on that, as we just*
7 *heard.*

8 *MS. HOMOKI-TITUS: Well no, it says*
9 *presence, or it says an incident for presence*
10 *for 250 days. So it's not really silent on*
11 *that. I mean, you have presence, so you're*
12 *going to have a really hard time saying, these*
13 *three events were all happening at the same*
14 *time, I mean, unless they were.*

15 *DR. MAURO: Well, I guess I don't*
16 *understand. Let's say you were present for*
17 *250 days, and that's it. And during those 250*
18 *days, there are N number of events that we*
19 *could place an upper bound on.*

20 *Would you consider those N events*
21 *to be part of the equation? Not just one, but*
22 *three, five, ten -- just some number. In*

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1 *other words, I guess I don't quite understand.*

2 *MS. HOMOKI-TITUS: I guess I'm a*
3 *little unclear on your question.*

4 *DR. MAURO: I think it uses*
5 *singular.*

6 *CHAIR MELIUS: If it's always*
7 *singular, and I don't have it in front of me,*
8 *or whatever, I think then what Liz is saying*
9 *probably makes sense, I don't know.*

10 *MS. HOMOKI-TITUS: You're present*
11 *for one second, so there's something happening*
12 *during that time, or you're present for 250*
13 *days. If you're talking about the SEC, then*
14 *it doesn't matter how many events happened*
15 *during that 250 days.*

16 *CHAIR MELIUS: It's presence at an*
17 *event, I think is what --*

18 *MS. HOMOKI-TITUS: Presence, yes.*

19 *CHAIR MELIUS: An event I think*
20 *it's how it -- but --*

21 *MEMBER ZIEMER: This is Ziemer.*
22 *That assumes that all the health endangerment*

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1 during the 250 days is due to those events,
2 whether it's three, or ten, or whatever, but
3 really under the rule, it's everything that
4 occurs in the 250 days.

5 And one could argue that it's
6 everything -- it's those events plus whatever
7 else occurs, which you can't bound. And since
8 you can't bound it, you don't know that those
9 are the most significant, in theory.

10 CHAIR MELIUS: For Ames, just Ames,
11 away from the bigger question, do you want to
12 look more into -- what's the next step from
13 your perspective? Do you want to look back at
14 -- I mean, I think this is the issue of sort
15 of how many blowouts, and what's a reasonable
16 way of approaching this and so forth, and
17 thinking through how you do it.

18 MR. ELLIOTT: It helps all the non-
19 presumptives.

20 DR. MAURO: Exactly. I mean it's
21 sort of a --

22 MR. ELLIOTT: Because right now

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1 we're not doing that.

2 DR. MAURO: Right.

3 MR. ELLIOTT: And I guess I'd
4 wonder what's happened since. You know, did
5 we not look at this trying to bound the
6 blowout dose, or not? We just threw up our
7 hands and said we can't reconstruct dose for
8 that class.

9 DR. MAURO: Yes. Exactly, and then
10 the blowout issue was raised.

11 CHAIR MELIUS: Why don't we do that,
12 and then we can proceed. And that will get
13 this at least resolved hopefully on Ames. And
14 again, how many people it applies to, but the
15 problem with --

16 MR. ELLIOTT: I think it applies to
17 one.

18 CHAIR MELIUS: Exactly. And then
19 you also have people that have been sort of
20 dissuaded from applying even because they
21 worked there for less than 250 days. I think
22 I've seen some e-mail graphics by at least one

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1 person who hasn't applied. Or they get
2 shunted into Subtitle E or something like
3 that, I don't know.

4 But anyway, NTS.

5 DR. MAKHIJANI: Well, the last
6 report on NTS we gave you, Jim, was about a
7 year ago.

8 CHAIR MELIUS: Right.

9 DR. MAKHIJANI: It was a working
10 paper.

11 CHAIR MELIUS: October 2007.

12 DR. MAKHIJANI: Well, knowing the
13 cases that Jim filed, and people who might
14 have had relatively higher exposures --

15 MEMBER ROESSLER: This is Gen.
16 Arjun, could you get closer to the microphone?

17 CHAIR MELIUS: Okay, speak up,
18 Arjun.

19 DR. MAKHIJANI: Yes, this is Arjun
20 Makhijani. The last report we gave this
21 working group was about a year ago in which --
22 no, it's called Working Paper on Nevada Test

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1 *Site, Incidents Related to Consideration of*
2 *Employees with Less Than 250 Days of*
3 *Employment October 2007.*

4 *And in that, we had a number of*
5 *workers - 22, I think - where we surveyed the*
6 *external dose, and looked at whether there*
7 *were acute exposures, and whether the people*
8 *were involved in incidents. It cataloged the*
9 *kind of incidents they had been involved in.*

10 *We did not make any judgments about*
11 *the 250 day issue, but we just laid forth the*
12 *people who were actually involved in the*
13 *incidents, and there is quite a bit of detail*
14 *in all the references so that you could make*
15 *your own judgment about whether -- and there*
16 *is a table one that I have in my computer. I*
17 *can send it around to people. I have it in my*
18 *computer. I can send it around to people.*

19 *CHAIR MELIUS: Well, but Arjun, I'm*
20 *actually mainly interested in sort of figuring*
21 *out next steps, not trying to discuss --*

22 *DR. MAKHIJANI: Yes. Okay.*

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1 CHAIR MELIUS: -- it here today.
2 *It's not fair to people who we haven't alerted*
3 *them.*

4 DR. MAKHIJANI: Okay.

5 CHAIR MELIUS: But we have
6 *discussed this paper already once.*

7 DR. MAKHIJANI: Yes.

8 CHAIR MELIUS: And then we were
9 *going to go to see whether we could use some*
10 *of the DTRA methods, and that was explored.*

11 DR. MAKHIJANI: Yes, and it came to
12 *a -- yes, we -- you know, there has been so*
13 *much controversy and difficulty and difference*
14 *that we kind of --*

15 CHAIR MELIUS: Yes.

16 DR. MAKHIJANI: -- I think in
17 *conversation that you and I had --*

18 CHAIR MELIUS: Right. Well yes, it
19 *didn't make sense to pursue.*

20 DR. MAKHIJANI: We thought we were
21 *not going to pursue that too much.*

22 CHAIR MELIUS: Yes.

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1 **MEMBER ZIEMER:** What was concluded
2 - this is Ziemer - what was concluded on the
3 DTRA method? I recall that you were going to
4 look at that, but I don't recall the outcome.

5 **DR. MAKHIJANI:** It's been a little
6 while since I looked at the specifics of it.
7 We did look at it, but the whole
8 methodological questions and the differences
9 between what NIOSH had done and DTRA had done
10 in terms of being able to calculate internal
11 doses from external doses seemed kind of
12 pretty iffy, because NIOSH had actually
13 abandoned that approach in deciding to grant
14 the SEC.

15 And then it would seem -- it seemed
16 like one would then have to get into all the
17 details of what every -- all these agencies
18 have done. It didn't seem very productive to
19 do that.

20 **CHAIR MELIUS:** This is like -- I
21 think we need to get back to that October
22 report and think about it so it either can --

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1 we resolve the discussion. We thought it was
2 a way of trying to help, you know, facilitate
3 the discussion of, really of the endangerment
4 issue, getting a better handle on what the --

5 DR. NETON: Wasn't -- I'm sorry.

6 CHAIR MELIUS: Go ahead, Jim.

7 DR. NETON: It's coming back a
8 little bit now.

9 CHAIR MELIUS: Yes.

10 DR. MAKHIJANI: It's been a while.

11 DR. NETON: Were we not going to
12 take a look at what the magnitude of the doses
13 that DTRA had reconstructed --

14 DR. MAKHIJANI: Right.

15 DR. NETON: -- as sort of an
16 indicator of how high these really were --
17 given the fact that we had some differences
18 with DTRA, and you're saying that we really
19 couldn't use those values, but at least to get
20 a rough order of magnitude, are these internal
21 doses, you know, very large, small, you know,
22 what are they? I think that was kind of --

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1 DR. MAKHIJANI: I don't think the
2 internal -- from memory, I don't think the
3 internal dose as calculated by DTRA would
4 vary.

5 But then the question is, what
6 significance are you going to attach to that
7 without looking at the methodological
8 questions? And that's sort of the --

9 DR. MAURO: Exactly.

10 DR. MAKHIJANI: -- can you ascribe
11 any significance to it?

12 CHAIR MELIUS: What do we do with
13 the information?

14 DR. MAKHIJANI: What do you do with
15 the number?

16 DR. NETON: Yes, given that we've
17 already said that it's not useful for our
18 purpose.

19 DR. MAKHIJANI: Right. So then to
20 introduce -- you know, we thought about it
21 some, and we thought to introduce numbers into
22 the debate without being able to say what they

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1 mean, and how they compare seemed --

2 CHAIR MELIUS: And how they got
3 there, right.

4 DR. MAKHIJANI: -- kind of not --
5 without further direction from the working
6 group, it seemed not worthwhile.

7 DR. MAURO: Yes, we did make a
8 couple of inquiries and thought it through.

9 DR. MAKHIJANI: Yes. And the dose
10 is -- Jim is right. The dose is not very
11 high.

12 CHAIR MELIUS: Why don't I suggest
13 that everybody look at the October '07 report
14 again? Maybe we can do either a quick
15 workgroup meeting at the -- at our Augusta
16 meeting, a breakfast meeting or something, or
17 we can do a phone meeting, and sort of move on
18 from this. It's not fair to expect people to
19 discuss something we haven't looked at for a
20 year.

21 DR. MAKHIJANI: Jim, should I
22 recirculate the report?

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1 CHAIR MELIUS: Yes, if that helps.

2 DR. MAKHIJANI: I do not believe it
3 has -- let me see here.

4 MEMBER ZIEMER: Can I ask -- this
5 is Ziemer -- I just want to ask, because I'm
6 looking at that report right now, and just to
7 refresh our memories, I think, Arjun, you had
8 provided, I think, actual external dose
9 monitoring values for the 22 persons, plus you
10 had appended an accident report which detailed
11 doses for a number of individuals.

12 So we were looking at least at the
13 external values to get a -- some idea of the
14 magnitude of exposures, and I think we were
15 going to see what DTRA did.

16 I think we knew that DTRA mainly
17 focused also on external. My question is,
18 were we also going to look at the internal --
19 were we looking at updates, as well? Arjun, do
20 you recall if you were going to look at that,
21 or --

22 DR. MAKHIJANI: Excuse me, Dr.

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1 *Ziemer, the idea of compiling that table was*
2 *to look at people who were involved in*
3 *incidents, and I actually laid before you*
4 *whatever detail on the issue is available.*

5 *MEMBER ZIEMER: Yes, yes, I*
6 *understand that, yes. But that was mainly --*

7 *CHAIR MELIUS: And we did that.*

8 *MEMBER ZIEMER: -- external*
9 *dosimetry that you were able to uncover there.*

10 *DR. MAKHIJANI: Yes, I mean*
11 *incidents with potential internal dose.*

12 *MEMBER ZIEMER: Right, right.*

13 *DR. MAURO: It was effectively a*
14 *compendium, 22 cases.*

15 *MEMBER ZIEMER: Right.*

16 *DR. MAURO: And out of the 22*
17 *cases, we did get some pretty good information*
18 *on what the magnitude of the external*
19 *exposures were.*

20 *MEMBER ZIEMER: Exactly.*

21 *DR. MAURO: But we -- and I'll give*
22 *you the highest one we got was 18.5 rem.*

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1 *MEMBER ZIEMER: Right.*

2 *DR. MAURO: But when we looked at -*

3 *-*

4 *MEMBER ZIEMER: That was an annual -*
5 *- I mean that was the annual figure. It may*
6 *have been one event, but it was annual.*

7 *CHAIR MELIUS: Good question. I'm*
8 *not sure -- I have the number in front of me,*
9 *but I'm not sure if it's annual or --*

10 *DR. MAURO: Well, well, the tables*
11 *are all by year.*

12 *DR. MAKHIJANI: Annual, it's*
13 *annual.*

14 *CHAIR MELIUS: But I read this last*
15 *night in anticipation we might do this, and*
16 *there is quite a bit of information regarding*
17 *the nature of internal exposures, but it's*
18 *semi-quantitative.*

19 *That is, where we could get some*
20 *estimates of what the internal exposures were,*
21 *like a thyroid dose of 37 rem, in one*
22 *particular case. But I would say, in general,*

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1 what we found is that it's hard to extract a
2 good compendium of data on what the internal
3 exposures might have been, especially
4 associated with some of these -- the internal
5 exposures that went hand in hand with these
6 external exposures.

7 But certainly everyone should read
8 it. It's just one case study after the other.
9 It gives you a good handle on the kinds of
10 information that are out there.

11 DR. MAKHIJANI: So I'll recirculate
12 that, and I'll have Nancy send it for Privacy
13 Act review.

14 CHAIR MELIUS: Okay, which may be
15 hard. It's going to be hard. It's going to
16 be very difficult.

17 MEMBER ZIEMER: That's true, you
18 circulated a Privacy Act review to the working
19 group so that we can all --

20 DR. MAKHIJANI: Yes. Right. I'll
21 do that, yes, sure. I'll circulate what I
22 have.

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1 CHAIR MELIUS: Okay. Good. Okay.

2 I think that concludes what we can
3 do on the 250-day issue today. Why don't we
4 take about a ten-minute break, and come back
5 at about a quarter of 11:00 and do the -- talk
6 about Dow.

7 MR. KATZ: Okay. I'm just putting
8 the phone on mute.

9 CHAIR MELIUS: Okay.

10 (Whereupon, the above-entitled matter went off
11 the record at 10:37 a.m. and resumed at
12 10:50 a.m.)

13 MR. KATZ: Okay, the SEC workgroup
14 is back and ready to start again. We're going
15 to be discussing Dow, and we have two
16 individuals in the room joining us since we
17 began, Stu and --

18 MR. HINNEFELD: Yes, Stu Hinnefeld
19 from NIOSH.

20 MR. KATZ: And conflict or not with
21 Dow?

22 MR. HINNEFELD: No, I have no

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1 *conflict with Dow.*

2 *MR. MAHATHY: Mike Mahathy over at*
3 *ORAU. No conflict.*

4 *MR. KATZ: No conflict.*

5 *MS. HOMOKI-TITUS: And Liz Homoki-*
6 *Titus, HHS.*

7 *MR. KATZ: So three individuals.*
8 *Liz came in a few minutes late, and if anyone*
9 *-- if there's anyone new to the phone who*
10 *wants to self identify, please do.*

11 *Okay. Now we can start.*

12 *CHAIR MELIUS: Yes, just logistics.*
13 *Our plan is to go until noontime, and then*
14 *we'll make a decision, see where we are in*
15 *terms of discussion and so forth, and then*
16 *figure out how we handle lunch and et cetera.*

17 *This is the first time that this*
18 *workgroup has discussed the Dow SEC, and our*
19 *main focus today is going to be on the SC&A*
20 *report from August 2008, which is called a*
21 *Focused Review of Addendum 2 to the Dow*
22 *Chemical Madison Plant SEC Petition Evaluation*

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1 *Report.*

2 *I thought it might be helpful -- I*
3 *don't know if LaVon is still on the phone, or*
4 *if Stu or somebody could give us --*

5 *MR. RUTHERFORD: I am, Dr. Melius.*

6 *CHAIR MELIUS: Yes, could you give*
7 *us sort of a brief history on the Dow SEC so*
8 *that we can have some context for this report*
9 *--*

10 *MR. RUTHERFORD: Sure.*

11 *CHAIR MELIUS: -- session? Thanks.*

12 *MR. RUTHERFORD: Yes, this is LaVon*
13 *Rutherford.*

14 *September -- about September of*
15 *2006, we determined dose reconstruction was*
16 *not going to be feasible for the operational*
17 *period for Dow. In November of that year,*
18 *2006, we sent a letter to the petitioner*
19 *informing them that dose reconstruction would*
20 *not be -- to a potential petitioner that dose*
21 *reconstruction would not be feasible.*

22 *And we received that petition on*

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1 November 28th of 2006. In December, we sent a
2 letter to the petitioner explaining that we
3 would not be presenting at the December board
4 meeting in 2006 because of a number of issues.

5 In January 2007, we sent a letter
6 to Dow requesting documentation on Dow
7 Midland. In April of that year, we issued our
8 first evaluation report. The evaluation
9 determined dose reconstruction was not
10 feasible for the 1957 through 1960 period. We
11 did -- although it was --

12 MR. ELLIOTT: LaVon?

13 MR. RUTHERFORD: Yes?

14 MR. ELLIOTT: LaVon?

15 MR. RUTHERFORD: Yes.

16 MR. ELLIOTT: This is Larry.

17 MR. RUTHERFORD: Yes?

18 MR. ELLIOTT: I think you need to
19 be specific on what we could and could not
20 reconstruct.

21 MR. RUTHERFORD: I'm just getting
22 ready to do that.

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1 MR. ELLIOTT: Okay. Sorry to
2 *interrupt.*

3 MR. RUTHERFORD: Again, April 2007
4 *evaluation report we issued, and we determined*
5 *dose reconstruction was not feasible for the*
6 *1957 through 1960 period. However, we did*
7 *determine that, at that time, that dose*
8 *reconstruction for the residual period was*
9 *feasible.*

10 At that time, the only covered
11 *exposures that were required to be*
12 *reconstructed for the residual period was*
13 *uranium. And in that report, we determined*
14 *dose reconstruction was feasible for uranium*
15 *during the residual period.*

16 Late April of 2007, just before we
17 *presented our evaluation report to the board,*
18 *we received additional documentation from Dow.*

19 We presented our evaluation report at the May
20 *2007 advisory board meeting. The advisory*
21 *board concurred with NIOSH to add the class*
22 *from 1957 to 1960.*

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1 The petitioner at that time
2 contended that thorium should be a covered
3 exposure, and that the residual period dose
4 reconstruction should include thorium
5 exposure.

6 NIOSH indicated that, at that time,
7 thorium is not a covered activity, that the
8 thorium work was not a covered activity, and
9 therefore, the thorium exposures would not be
10 accounted for during the residual period. And
11 therefore, NIOSH had not evaluated that as
12 part of the residual period.

13 The advisory board, at that time,
14 decided to send a letter to the Secretary of
15 HHS requesting that the Secretary consider
16 adding thorium activities as a covered
17 activity. In addition, the advisory board
18 asked NIOSH to evaluate whether dose
19 reconstruction for thorium exposures are
20 feasible during the residual period.

21 At that time, NIOSH had concluded,
22 though, that they would not evaluate the

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1 *thorium exposures during the residual period*
2 *because we could not put resources to*
3 *calculating thorium exposure during a residual*
4 *period that was not a covered activity. That*
5 *would have been -- this is just a side note --*
6 *that would have been, wouldn't have been a*
7 *good idea to use resources for an activity*
8 *that was not a covered activity.*

9 *May 29th, 2007, the advisory board*
10 *sent a letter to the Secretary of HHS asking*
11 *that thorium activities be considered a*
12 *covered activity.*

13 *On August of 2007, Addendum One is*
14 *issued -- Addendum One to the evaluation*
15 *report is issued to address additional*
16 *documentation received from Dow in that late*
17 *April period. The addendum concluded that the*
18 *documentation provided by Dow did not change*
19 *the original feasibility determination.*

20 *On August 30th of 2007, Dr.*
21 *Gerberding with CDC, at the direction of*
22 *Secretary Leavitt, sends a letter to Dr.*

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1 *Ziemer and the board indicating that CDC -- or*
2 *that HHS is not responsible for determining*
3 *covered activities. That is the responsibility*
4 *of the Department of Labor and the Department*
5 *of Energy, and therefore, cannot add thorium*
6 *activity as a covered activity. Dr.*
7 *Gerberding did offer technical assistance from*
8 *NIOSH.*

9 *On September 10th of 2007, the*
10 *Department of Labor sends a letter to the*
11 *petitioner concluding that the information*
12 *provided does not support changing the*
13 *coverage for the Dow Midland facility.*

14 *On January 8th of 2008, the*
15 *Department of Energy sends a letter to the*
16 *Department of Labor concluding that magnesium*
17 *thorium alloy plates and sheets provided by*
18 *Dow to the AEC could have been used in atomic*
19 *weapons, and therefore, should be considered a*
20 *covered activity.*

21 *The Department of Energy presented*
22 *at the January 2008 advisory board meeting*

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1 *their findings concerning the thorium*
2 *activities. NIOSH indicated at that time that*
3 *they would evaluate the feasibility of*
4 *completing dose reconstructions for the*
5 *residual period for thorium exposures. NIOSH*
6 *had already concluded dose reconstruction for*
7 *uranium during the residual period was*
8 *feasible.*

9 *On February 28, 2008, NIOSH*
10 *requests a clarification from the Department*
11 *of Labor as to whether DOE's findings*
12 *supported changing the covered period because*
13 *of the addition of the thorium activities.*

14 *On March 7th, 2008, NIOSH sends a*
15 *letter to Dow requesting additional*
16 *documentation that could be used to*
17 *reconstruct thorium exposures during the*
18 *residual period.*

19 *On March 11th of 2008, the*
20 *Department of Labor sends a letter to NIOSH*
21 *concluding that the covered period should not*
22 *be extended because of the addition of thorium*

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1 *activities as a covered activity.*

2 *On June 3rd of 2008, NIOSH issued*
3 *their Addendum 2 to the evaluation report that*
4 *concludes that dose reconstruction of thorium*
5 *exposures during the residual period are*
6 *feasible.*

7 *NIOSH presents the Addendum 2 at*
8 *the June 2008 advisory board meeting, and the*
9 *advisory board concludes they will have SC&A*
10 *do a focused review on the addendum, and they*
11 *will give OTIB-0070 to the procedures group*
12 *for review.*

13 *On September 3rd, 2008, SC&A issued*
14 *their Focused Review of Dow Addendum 2, and on*
15 *September 8th of 2008, NIOSH issues Appendix C*
16 *to the Dow, which is the Dow Chemical part of*
17 *Battelle 6000 for reconstructing Dow claims,*
18 *and starts reconstructing -- or starts*
19 *completing dose reconstructions.*

20 *And that takes us pretty much right*
21 *up to the workgroup meeting.*

22 *CHAIR MELIUS: Okay. Now SC&A has*

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1 *issued two reports on, if I'm correct, on the*
2 *Dow site. One was in August 2007, which is a*
3 *focused review of operations and thorium*
4 *exposures at the facility. And then secondly,*
5 *there is this Focused Review of Addendum 2.*

6 *The Focused Review of Addendum 2*
7 *was much more specific to the SEC petition,*
8 *and is the one -- is also the most recent*
9 *report, August 2008, and it's the one that we*
10 *will focus on.*

11 *And I talked to Jim Neton last week*
12 *about this, and although NIOSH has not done a*
13 *formal review of this, or written a report*
14 *yet, at least one that has been released, he*
15 *is prepared to discuss some of NIOSH's*
16 *reaction -- technical reactions to the SC&A*
17 *review.*

18 *So I think that's what I'd like to*
19 *start our discussions on, and then see where*
20 *that takes us, and we can decide what else we*
21 *need to do.*

22 *So, Jim Neton.*

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1 DR. NETON: Well, I don't know --

2 CHAIR MELIUS: Or whoever --

3 DR. NETON: I don't know if you're
4 prepared to go through, and with Mike
5 Mahathy's assistance, respond to these
6 individually, or how do you want to proceed?

7 MR. RUTHERFORD: Jim, I apologize.
8 I've been out for --

9 DR. NETON: Okay.

10 MR. RUTHERFORD: -- the past week.

11 DR. NETON: That's fine. Well,
12 hopefully -- Mike Mahathy is here, and I think
13 he's the lead on preparing these responses, so
14 there were how many findings that were issued
15 -- seven findings that were presented in the
16 SC&A report that was issued in September 2008,
17 right?

18 And we can go through those one by
19 one, and just have a general discussion of
20 where we go --

21 CHAIR MELIUS: Would it be helpful
22 if John or someone did a quick --

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1 DR. NETON: Yes.

2 CHAIR MELIUS: -- summary of sort
3 of the focus where their report came out, I
4 think would be helpful.

5 DR. MAURO: Yes, I'd be happy to.
6 I'll give you an overview.

7 Bill Thurber, who is the principle
8 author of this, is on the line, so we can get
9 into a little more granularity.

10 To go back to the first report,
11 though, is probably good just to make it
12 clear, in our first report, we reviewed
13 NIOSH's judgment that they could perform dose
14 reconstruction for uranium during the `57 to
15 `60 period, and the residual activity
16 associated with it, and we concurred with
17 that.

18 And the -- and they also concluded
19 that they could not reconstruct the doses
20 associated with thorium during that time
21 period. And we have certain observations --
22 we were a little bit more concerned with

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1 *thoron than we were with thorium, but*
2 *nevertheless, we concurred with that decision*
3 *also.*

4 *Now moving off from there, then*
5 *came this issue related to the thorium again*
6 *for the residual period. Now this is*
7 *interesting because we carefully reviewed the*
8 *protocol that NIOSH presented in what we'll*
9 *call their Addendum 2 to the thorium report,*
10 *where they claimed that they can perform dose*
11 *reconstruction.*

12 *And it's important to recognize*
13 *that the approach that was adopted also makes*
14 *reference to a procedure, OTIB-0070. So that*
15 *was part and parcel to the review, and we*
16 *reviewed both, and the workgroup and the board*
17 *have both reports.*

18 *Now the -- to get to the -- I'll*
19 *give you the bottom line, and then we can sort*
20 *of let it expand from there, is that the way -*
21 *- the approach that NIOSH has taken can be*
22 *thought of like this. That is, during the*

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1 *operations period, while the weapons-related*
2 *thorium was being produced, which was in the*
3 *late 1950s, the idea being that, okay, we do*
4 *have data on the airborne levels of thorium at*
5 *the facility at that time.*

6 *And we can make the plausible but*
7 *claimant-favorable assumption that the dust*
8 *loadings of thorium at that time represented*
9 *an upper bound of the airborne activity*
10 *resulting from the resuspension of residual*
11 *radioactivity that might have accumulated at*
12 *the site at that time.*

13 *And that basically begins the*
14 *starting point, January 1st, 1960, of what an*
15 *upper bound might have been for the airborne*
16 *dust loading for thorium. And then from there*
17 *on, since there was no longer any additional -*
18 *- starting at that point, it's assumed that,*
19 *okay, so that's -- we can sort of say we could*
20 *place an upper bound on the inhalation*
21 *exposures from thorium on January 1st, 1960*
22 *based on those measured values.*

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1 *But then as time goes on, that*
2 *activity is going to decline, and to a point*
3 *where it exponentially gets lower and lower*
4 *and lower to some level, and there are*
5 *actually some measurements made much later on,*
6 *I believe actually as late as 2006, of*
7 *residual radioactivity of thorium at the site.*

8 *So in principle, the idea being*
9 *that, well, we know the starting point of what*
10 *might be an upper bound of the airborne dust*
11 *loading from resuspension, and we know that*
12 *it's gone down sort of exponentially over*
13 *time, and we could probably peg the lower end*
14 *of what that might have been, place a*
15 *plausible upper bound of what the end would*
16 *be, and from there, you have a curve showing*
17 *the airborne concentration of thorium 232 in*
18 *air as a function of time due to residual*
19 *activity associated with weapons-related*
20 *activity for thorium at the facility.*

21 *Now our principle concern is that,*
22 *based on our review of the literature, the*

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1 vast majority of the thorium that was
2 processed at Dow was not related to weapons
3 production based on a review of purchase
4 orders, okay? Basically we looked at purchase
5 orders from Mallinckrodt and a number of other
6 places.

7 And the bottom line is an extremely
8 small fraction of that airborne dust that was
9 measured in the late 1950s was associated with
10 weapons-related activity. Perhaps on the
11 order of less than one percent, perhaps .1
12 percent.

13 And therefore, the entire model,
14 starting from 1960 onward, represents an
15 implausible scenario. We completely agree
16 that it's an upper bound. Bu we believe that
17 the rule also states that the scenario that
18 results in those exposures have to be
19 plausible.

20 And we don't think it's plausible
21 that any worker was ever exposed to residual
22 activity of weapons-related thorium activity

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1 that was on the order of these numbers that
2 you folks make reference to.

3 And that was the front end of our
4 problem. The back end of our problem, when
5 you get to the later years, is that the
6 measured activity that was, you know, reflects
7 a number of things that confound the problem
8 further.

9 One is, whatever was measured there
10 residual on surfaces, was due to all the
11 thorium processing that took place, so
12 therefore, it's some kind of mixture of
13 commercial and weapons related, probably a
14 very, very small fraction of which was weapons
15 related.

16 But making it more complicated is
17 that whatever was measured was measured after
18 there was quite a bit of decontamination
19 activity that took place prior to then. So
20 therefore, we have offsetting effects.

21 In one respect, on the back end
22 now, the later years, you are grossly over

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1 *estimating the contribution of weapons-related*
2 *thorium, but on the other hand, you might be*
3 *underestimating it because you're not looking*
4 *at residual activity that was there over the*
5 *years. It's residual activity left after*
6 *cleanup.*

7 *So I guess that represents*
8 *conceptually our concern that the construct,*
9 *though bounding, is really not scientifically*
10 *plausible.*

11 *And Bill, is there anything - I try*
12 *to really capture it as briefly as possible -*
13 *is there anything you would like to add to*
14 *that to enrich the story a little bit? Bill*
15 *Thurber, are you on line? Bill?*

16 *MR. THURBER: Hello, can you hear*
17 *me?*

18 *DR. MAURO: Yes, hi, Bill. Yes.*

19 *MR. THURBER: Yes, I heard what you*
20 *said, John.*

21 *DR. MAURO: Did I capture the*
22 *story?*

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1 MR. THURBER: Yes. I think you
2 *captured it well. I think that the points are*
3 *-- the overarching points are, one, that what*
4 *NIOSH did is clearly bounding; two, our*
5 *fundamental concern is that, while it's*
6 *bounding that we have some reservations of*
7 *whether it meets a plausibility test because*
8 *we think that a number of the assumptions that*
9 *were used overstate the problem by perhaps*
10 *orders of magnitude.*

11 And the most specific thing is the
12 *fact that the new evidence that underlies the*
13 *whole Addendum 2 thing was that a*
14 *determination that some of the magnesium*
15 *thorium alloy could have been used for atomic*
16 *weapons, not was, but could have.*

17 But anyway, setting that aside, if
18 *you look at the specific data as to how much*
19 *magnesium thorium alloy was shipped to*
20 *Mallinckrodt in 1957 and 1958, it's a few*
21 *thousand pounds, and that is a tiny fraction,*
22 *as you said, of the total magnesium thorium*

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1 alloy production.

2 And so using -- unless you
3 compensate for that, you come up with very
4 large numbers of residual radioactivity.

5 We had a number of other points of
6 technical details relating to things as to
7 exactly where NIOSH got the data that they used
8 in specific calculations, or why they screened
9 the available data in the way that they did, we
10 felt that there was more data available than
11 they did use in the report, for example.

12 But I think you've pretty much
13 captured it, John.

14 DR. MAURO: Thanks, Bill.

15 DR. NETON: Okay, well I appreciate
16 being in a position where an estimator thinks
17 our numbers are too high. That doesn't happen
18 very often.

19 CHAIR MELIUS: No, it's actually
20 both -- both ways, too high and too low. So
21 take your pick. You can start with either one.

22 DR. NETON: Well, I thought they

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1 felt that their numbers were bounding,
2 excessively bounding.

3 CHAIR MELIUS: On the front end.
4 On the back end, we're not quite sure what to
5 do with the back end problem.

6 DR. NETON: But on the front end of
7 the issue, where they're too high, I think
8 specifically the amendment for the covered AWE
9 talks about, if a non-covered source of
10 ionizing radiation to an atomic weapons
11 employer is not distinguishable from a covered
12 related source, then the non-covered source
13 shall be treated as part of the radiation dose
14 received by the employee. So I think we're
15 bound.

16 We can't determine which portion of
17 that is related to the cover operations, then
18 we just include it all. And that's required by
19 law. So even though we admit that it's higher,
20 we can't distinguish between which magnesium
21 thorium alloy was related to operations, and
22 which was commercial, so we just said it's all.

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1 MR. THURBER: Well, excuse me, this
2 is Bill Thurber. If it's clearly identified as
3 to how much magnesium thorium alloy was shipped
4 to Mallinckrodt in 1957 and 1958, and how much
5 magnesium thorium alloy Dow produced, I'm not
6 sure why you say that.

7 MR. MAHATHY: For one, we don't
8 know if that's all of it.

9 CHAIR MELIUS: Mike Mahathy, speak
10 up more loudly.

11 MR. MAHATHY: You know, there's
12 indications that Dow might have shipped,
13 although it hasn't been shown, may have shipped
14 magnesium thorium to the Rocky Flats and to
15 other sites, so we can't say --

16 MR. THURBER: But the issue about
17 magnesium thorium alloy to Rocky Flats was
18 reviewed in the previous report.

19 MR. MAHATHY: I know we don't want
20 to go there. I'm just saying --

21 MR. THURBER: So there is no basis
22 for it.

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1 MR. GUIDO: Well regardless, how
2 would you propose to scale it then? This is
3 Joe Guido. I mean, I agree in principle, but
4 how would you propose to scale it in a way
5 where everyone will agree to the scaling?

6 MR. THURBER: Well, as I say, we
7 know how much was shipped to Mallinckrodt from
8 the purchase orders.

9 MR. RUTHERFORD: So what Bill --
10 this is LaVon Rutherford -- so what, Bill, you
11 are saying is, is we take that percentage
12 versus the amount that was produced by the
13 facility in roughly that same year or 1960-61
14 and we say that percentage is --

15 MR. THURBER: No, in the same years
16 that it was produced.

17 MR. RUTHERFORD: That's what I'm
18 saying.

19 MR. THURBER: In `57 and `58, yes.

20 MR. RUTHERFORD: Yes, and then you
21 are saying then we would take that fraction
22 percentage and apply it to the intakes that

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1 we've already applied and drop the intakes by
2 that amount.

3 MR. THURBER: Basically.

4 DR. McKEEL: Dr. Melius, this is
5 Dan McKeel, may I make a comment?

6 CHAIR MELIUS: Yes, brief, Dan, go
7 ahead.

8 DR. McKEEL: Well, my brief comment
9 is, let's table this discussion completely
10 apropos what the law requires is the production
11 period for thorium alloy did not stop in 1958.

12 And so the residual period did not start for
13 thorium in 1958 either.

14 So the production of thorium alloy
15 of the same type that was used in nuclear
16 weapons work as certified by DOE continued on
17 for many years thereafter. And that needs to
18 be considered as well in the dose calculations.

19 CHAIR MELIUS: I think we're bound,
20 for this discussion -- you know we recognize
21 that there are open questions about that. But
22 I think for the purposes of what NIOSH is doing

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1 now, they have to stay with what are the
2 covered periods and do that.

3 And that's why I want to stay
4 focused on this report. If covered periods
5 change, then things will have to be adjusted
6 accordingly. And we're not speaking one way or
7 the other about that specific issue but trying
8 to deal with the technical issues related to
9 whether or not the doses can be reconstructed
10 during this period, given what is, you know,
11 what we have now and what is, you know,
12 allowed, you know, legally in terms of what
13 NIOSH is allowed to do.

14 DR. MCKEEL: I understand that.
15 The point I'm trying to make, though, is that
16 what you all are talking about as residual
17 period and covering the doses is that, during
18 the uranium residual period, thorium was still
19 being produced, whether you call it the covered
20 period -- it's outside the covered period, but
21 it's during the residual period. And thorium
22 was still, during the covered period -- the

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1 *residual period for uranium, but thorium was*
2 *still being produced.*

3 *CHAIR MELIUS: But not for an*
4 *atomic weapon that has been shown,*
5 *demonstrated, or evidenced, Dr. McKeel. Not*
6 *for use in atomic weapons.*

7 *We have a confirmation from DOE and*
8 *DOL that those two years are the only time*
9 *periods that we are to consider thorium*
10 *production activity.*

11 *DR. McKEEL: I understand. And you*
12 *are -- I understand that everybody has chosen*
13 *to disbelieve the Rocky Flats story from 11 Dow*
14 *workers. So I just wanted to make that*
15 *comment. And that's all I want to make.*

16 *CHAIR MELIUS: Okay.*

17 *DR. McKEEL: Thank you.*

18 *MEMBER ZIEMER: Jim, this is*
19 *Ziemer.*

20 *CHAIR MELIUS: Yes.*

21 *MEMBER ZIEMER: Could I ask a*
22 *question here?*

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1 CHAIR MELIUS: Yes, certainly,
2 Paul.

3 MEMBER ZIEMER: This question, I
4 think, is either for Jim Neton or for SC&A. Is
5 there an assumption that the -- assuming there
6 is some ratio of weapons versus non-weapons
7 work, I think SC&A was suggesting that it be
8 scaled proportionately.

9 But are they making the assumption
10 that the development of or the generation of
11 contamination was the same from all these
12 processes? That is the weapons-related
13 activities and the non-weapons-related
14 activities? It seems to me that's the
15 assumption --

16 DR. MAURO: Paul, yes --

17 MEMBER ZIEMER: -- that would be
18 open to question.

19 DR. MAURO: -- yes, Paul, I would
20 say that we did not make that recommendation or
21 finding. The only finding we have is that
22 based on production, we know that the alloy --

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1 *thorium alloy produced for weapons was a small*
2 *fraction of one percent of the total amount of*
3 *thorium alloy produced at the facility during*
4 *the covered period.*

5 *MEMBER ZIEMER: Yes, I'm just*
6 *saying it doesn't necessarily follow that one*
7 *percent of the contamination was.*

8 *MR. THURBER: No, this is Bill*
9 *Thurber. May I amplify what John said? The*
10 *materials that were sold to Mallinckrodt that*
11 *might have been used for weapons were the same*
12 *materials that Dow was producing for commercial*
13 *customers. They were commercial alloys.*

14 *So you would think that the kind of*
15 *contamination from producing whatever it was --*
16 *HK21 sheet or something -- whether that sheet*
17 *went to Mallinckrodt for a weapons application*
18 *or whether it went to some commercial customer*
19 *for use in aircraft or whatever, that the*
20 *relative amount of contamination would be the*
21 *same.*

22 *MEMBER ZIEMER: Okay, that's really*

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1 what I was asking.

2 MR. THURBER: Those were not
3 special materials --

4 MEMBER ZIEMER: Okay.

5 MR. THURBER: -- that went to
6 Mallinckrodt.

7 MEMBER ZIEMER: Okay, they were the
8 same processes is what you're saying.

9 MR. THURBER: Right, yes.

10 MEMBER ZIEMER: So it's just a
11 matter of who the final product went to.

12 MR. THURBER: Yes.

13 MEMBER ZIEMER: Okay. That helps
14 clarify that question. Thank you.

15 CHAIR MELIUS: Jim Neton has a
16 comment to that, Paul.

17 DR. NETON: Yes, someone from ORAU
18 might correct if I'm wrong here, but I'm not
19 sure that we really know the total production
20 of magnesium thorium alloys that Dow actually
21 produced for DOE. I mean we have evidence of a
22 couple purchase orders that establish the fact

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1 that they did produce this material and shipped
2 it to Mallinckrodt. But that just established
3 the minimum amount of material that was
4 produced for DOE or AEC.

5 So how do we really know how much
6 of that total material was produced for DOE
7 operations? I say we don't. Then we're just
8 guessing if we try to scale the values.

9 MR. THURBER: But that's the only
10 material -- the only material that -- isn't it
11 true, I may be wrong, this is Bill Thurber,
12 again, and please correct me if I'm wrong, but
13 isn't it true that the only material that DOE
14 has said was used for weapons was the material
15 that went to Mallinckrodt in 1957 and 1958?

16 DR. NETON: I don't think that's
17 true.

18 MR. RUTHERFORD: Yes, I think,
19 Bill, I think what they've said is, that is
20 what has gotten them -- the thorium activities
21 in the door. But I don't think that they've
22 said that, you know, those two purchase orders

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1 were it. This is LaVon Rutherford, by the way.

2 I think it is true, and I'm not
3 disagreeing with you at all, but we did review
4 all of the purchase orders that were in that
5 700 pages of documents. And these were the
6 only materials that did go to Mallinckrodt.

7 All the rest of the stuff that went
8 to Mallinckrodt was not related to magnesium
9 thorium alloys. It was related to other Dow
10 products.

11 CHAIR MELIUS: My comment would be
12 that given the amendment and what NIOSH is
13 obligated to do, I think there is a pretty high
14 bar in terms of showing, you know, adopting the
15 approach that SC&A is proposing here. I think
16 NIOSH would have to be very certain that they
17 would have complete information --

18 MR. ELLIOTT: To scale it back.

19 CHAIR MELIUS: -- just to scale --
20 in order to scale. And, again, while it may be
21 a valid point in terms of making sort of
22 general estimate, I think given that amendment

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1 and given the circumstances, I think they would
2 be hard pressed to come up with the
3 circumstances where NIOSH would be absolutely
4 certain or have a high degree of certainty in
5 order to be able to use that kind of scaling.

6 MR. ELLIOTT: The weight of the
7 evidence is not there.

8 CHAIR MELIUS: Yes, right.

9 MR. ELLIOTT: Just like it's, you
10 know, we hear the workers talk about shipments
11 to Rocky Flats, but the weight of the evidence
12 is not there either.

13 DR. MAURO: So what I am hearing is
14 that you are saying that it is plausible that
15 it all could have been --

16 DR. NETON: We don't know where to
17 draw the line. And if we can't know where to
18 draw the line, we just --

19 MR. ELLIOTT: Like the law says, if
20 it's not discernable, we can't distinguish.

21 MR. GUIDO: You know, we're not
22 commenting on plausibility there. There is Joe

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1 Guido. We're commenting on the
2 indistinguishability. I mean we know that
3 there is some other level but the question --
4 it's like the start of the question, who is
5 going to pick the number? And who is going to
6 agree on the number?

7 If we agree on ten percent or 11
8 because, you know, those factors are going
9 effect -- at some point, it is going to effect
10 someone's compensability. You know, whatever
11 number you pick, so, you know, that's where our
12 case is.

13 DR. MAURO: We find ourselves in an
14 unusual circumstance. You know we're
15 interpreting and perhaps we shouldn't be, but
16 the plausibility issue has come up before, and
17 it will come up again.

18 And I guess the way in which
19 plausibility is defined in its broadest -- you
20 are defining it in its broadest sense right
21 now, that is if we really can't place an upper
22 bound on it, we'll assume it is all. Even

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1 *though we know it is implausible that it was*
2 *all.*

3 *DR. NETON: Right. But that is*
4 *following the regulations. I mean we're not*
5 *making this up. I mean we're following the*
6 *law.*

7 *CHAIR MELIUS: I think this is a*
8 *different plausibility than the plausibility,*
9 *sort of, dose reconstruction and so on. I*
10 *think this is how do you interpret that*
11 *specific statute and amendment?*

12 *And so I think we just sort of*
13 *approach it differently and not try and put it*
14 *in the context of the other. And I think the*
15 *wording is such that I think it is hard to do*
16 *anything other than what NIOSH is doing.*

17 *DR. MAURO: Then there is the back*
18 *end of it. Now we go to the back end of the*
19 *problem and Bill, please, again, as a reminder,*
20 *our concern is that the way in which this curve*
21 *of residual exposure is built is very much in*
22 *accord with -- well, at least one of the steps*

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1 recommended in OTIB-0070 whereby you sort of
2 pin down what is at the back end of the
3 potential exposures, the low end.

4 And one of our concerns was that
5 the way that was constructed had numerous
6 assumptions embedded in it that were
7 questionable, that were questionable in terms
8 of, well, we put to bed the front end problems.

9 So, therefore, we're not -- we are
10 concerned in that maybe the cause there was
11 decontamination that took place prior to those
12 measurements, the place you are pegging the
13 number now at the bottom end might be too low
14 and maybe was higher.

15 MR. MAHATHY: There also was a
16 survey done in 1989, which Bill alluded to, and
17 the highest thorium dose sample was like seven
18 picocuries per milligram. And if you calculate
19 that out, it comes out to 1,700 picocuries per
20 year, which is actually lower than the dose we
21 calculated using the other method, which is
22 2,100.

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1 So even using data that we have
2 *previous to 2006 actually gives you the lower*
3 *intake. Now we also have -- since then, you*
4 *know, we have all the data, you know, from the*
5 *contamination survey that was done in 2006. So*
6 *those are -- you know, I feel like the intake*
7 *we calculated in 2006 is actually higher than*
8 *what it would have been because remember they*
9 *were in there vacuuming and stirring it up.*

10 We only have to calculate what
11 *people would have gotten from residual, not*
12 *from some action of the thorium. So if you*
13 *assume all the thorium was fixed there and, you*
14 *know, basically would have been the same pretty*
15 *much over time, it would have been higher when*
16 *they were disturbing it.*

17 CHAIR MELIUS: *Go ahead.*

18 DR. MAURO: *I guess our concern is*
19 *that what was measured reflected post-*
20 *decontamination and not pre-decontamination.*

21 MR. GUIDO: *It turned out that the*
22 *decontamination in 1989 -- I'm just trying to*

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1 get the scope -- where is the decontamination
2 we're talking about.

3 DR. MAURO: I'm zeroing in at 2006
4 now.

5 MR. MAHATHY: Right. There is
6 20006, and I didn't allude to the 1989 data,
7 which is actually less than the 2006 data.

8 MR. RUTHERFORD: That is correct.
9 This is LaVon Rutherford. That is correct.
10 The 2006 data is actually higher than the 1988-
11 89 data.

12 MR. MAHATHY: Which tends to
13 suggest that the material was disturbed, and
14 then they had higher readings.

15 MR. RUTHERFORD: The reason, John,
16 the reason that we moved to that was because we
17 had that data in 2006. And that was actually
18 perimeter data that was used around the -- we
19 knew that the cleanup activities, based on the
20 Cushman or the closure report, that the cleanup
21 activities, the workers inside that area were
22 in respiratory protection and they used

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1 *boundary samples.*

2 *We used the perimeter samples to*
3 *actually say that the highest exposed person*
4 *that would not have been working in that area*
5 *would have been exposed to that air data.*

6 *And then we used that air data and*
7 *actually compared it to the '89 data and we*
8 *said, well, we know this is bounding. And*
9 *we'll go ahead and use this in the exponential*
10 *approach.*

11 *MR. THURBER: I think -- yes, I*
12 *understand exactly what you're saying. I think*
13 *that the comment in our report was that the*
14 *2006 data were taken during the cleanup of*
15 *overhead beams that involved vacuuming and*
16 *other manual removal processes.*

17 *And our comment was that that would*
18 *hardly seem to be representative of what the*
19 *real residual contamination endpoint ought to*
20 *be for an exponentially-declining function. I*
21 *think that's the point.*

22 *MR. RUTHERFORD: Well -- this is*

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1 LaVon Rutherford -- then, Bill, it's more than
2 that it could be over-estimating -- it could
3 be implausibly high if you take into
4 consideration what you just said.

5 MR. THURBER: Yes.

6 MR. RUTHERFORD: I mean it could be
7 both ways. So our situation was we had this
8 data in 2006, and we felt like okay, to be a
9 good bounding exposure, we're not just going to
10 throw this data out. We're going to consider
11 this data.

12 And we took that air data and we
13 actually compared it to the '89 data. It was
14 higher. We could have went back and said well,
15 let's just use the '89 data, but we didn't
16 because we didn't want to have to argue the
17 point of well, which is right and which is
18 wrong here.

19 MR. THURBER: Right.

20 MR. RUTHERFORD: And so that's why
21 we went that way.

22 MR. MAHATHY: I might also add that

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1 within those reconstructions for four different
2 cancers using 40 years of employment, they are
3 all within the realm of plausibility. And we
4 can share the information. So --

5 DR. NETON: I think what Mike is
6 saying is we've done some examples of dose
7 reconstructions using some metabolic and non-
8 metabolic cancers. And the values aren't
9 ridiculously high to where, you know, these are
10 implausible exposures.

11 MR. MAHATHY: Colon cancer was
12 33.25 percent of CLC --

13 DR. NETON: That in and of itself
14 doesn't say too much other than the fact that
15 they are not astronomically high. One could
16 still argue that they are on the high end for a
17 residual period, I suppose. But now I'm
18 hearing -- John started off saying that they
19 were too low. And now I'm hearing Mike Thurber
20 saying that they are too high. So I'm not sure
21 where we are.

22 DR. MAURO: I know we agreed --

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1 when we walked away from the back end of the
2 calculation, we had what I would say
3 contradictory concerns. In one respect, we
4 were operating on the assumption that the
5 material was cleaned up before. So, therefore,
6 it is really not what the residue is.

7 We were also concerned, but wait a
8 minute, whatever the residue was, probably only
9 a very, very small fraction was from weapons-
10 related activity.

11 And then finally, offsetting that
12 further, is you are cleaning up and you were
13 stirring the stuff up, that's not what you
14 would have during a residual period. That was
15 during the D&D period when you were generating
16 aerosol.

17 So, you know, we have all -- I
18 guess it becomes, you know, we're in this place
19 where we tried to look at this as a
20 scientifically plausible way of modeling
21 something. And we found right from the front
22 end to the back end in our approach to really

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1 stress what we would consider to be a
2 scientifically valid and plausible approach.

3 Nevertheless, within the
4 definition of plausibility, as embraced by
5 NIOSH and apparently around the board, I guess
6 our concerns really are misplaced. I don't
7 know -- I mean I'm hearing answers that sounds
8 like that is okay.

9 MR. MAHATHY: I just -- one other
10 problem. If you look at the '89 and the 2006
11 data, that really within the margin of error,
12 they were the same.

13 DR. MAURO: Well, as far as SC&A --
14 I mean I'm going to withdraw at this point.
15 We've done the best we can to sort of put a
16 light on how you did it, where we think there
17 might be weaknesses scientifically in the
18 assumptions and the approach.

19 I think you understand what they
20 are. And really I don't know how much more we
21 can add other than some of the -- there are
22 some what I would call second order issues

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1 related to the data that you started with, its
2 completeness. But that's really secondary to
3 what we're talking about.

4 MR. MAHATHY: And I wanted to say
5 we used only samples, only results from
6 Madison. We did not use results from Bay City
7 or Midland, and the earlier results, '56 and
8 '57. And there were some in '58 that were from
9 Midland and Bay City.

10 We only used results from Madison
11 that we considered general area.

12 DR. NETON: Mike, could you just
13 clarify for me, what were the general
14 conditions around when the 1989 samples were
15 taken? What was the pedigree of those samples?

16 MR. MAHATHY: It was done by ORAU.

17 DR. NETON: Right. So these were
18 sort of just not disturbed samples. They were
19 more of building operations.

20 MEMBER GRIFFON: And those were,
21 you said, picocuries per milligram --
22 picocuries per gram?

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1 CHAIR MELIUS: Yes, what was it?

2 MEMBER GRIFFON: What were the --

3 MR. MAHATHY: Actually those were
4 stored by results and we converted them.

5 MR. GUIDO: Well, the one that you
6 are talking about is picocuries per gram.

7 MR. MAHATHY: Seven picocuries per
8 gram.

9 MR. GUIDO: I heard milligrams.

10 MR. MAHATHY: Oh. Sorry.

11 MR. RUTHERFORD: If I remember
12 correctly, Mike, correct me if I'm wrong, this
13 is LaVon again, that 1989 survey was a
14 preliminary survey to get in basically stagnant
15 conditions in preparation for future D&D. Or
16 future remediation.

17 DR. MAURO: So this is like a
18 standard Morrison site characterization prior
19 to clean up. And now were you measuring
20 airborne dust loading or surface contamination
21 level?

22 MR. MAHATHY: That was surface

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1 *contamination only. And we, you know, I*
2 *converted -- I just used the simple, you know,*
3 *converted -- I had factors and I converted it*
4 *to an airborne --*

5 *DR. MAURO: Ten to the minus six?*

6 *MR. MAHATHY: Yes.*

7 *DR. MAURO: Then we're back to the*
8 *ten to the minus six resuspension factor. I*
9 *mean this is closing down to -- I mean where we*
10 *are right now, from what I see, then it becomes*
11 *a matter of how did you peg the back end and*
12 *you're saying you pegged the back end, assuming*
13 *all the residual activity that was there --*

14 *MR. MAHATHY: That was in '89 only.*

15 *DR. MAURO: -- was -- is an upper*
16 *bound.*

17 *MR. MAHATHY: Right.*

18 *DR. MAURO: Because you are*
19 *assuming one, it was all weapons-related, what*
20 *you are looking at, and that the material was*
21 *based on what was measured on surfaces.*

22 *MR. MAHATHY: Yes.*

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1 DR. MAURO: And then you -- well, I
2 guess the only thing that I would point out is
3 then you applied the ten to the minus six
4 resuspension factor and that would you give you
5 -- peg your lower end --

6 MR. MAHATHY: Yes.

7 DR. MAURO: -- of 1980 -- well,
8 let's say, 2006 number of a certain level of
9 number of becquerels per cubic meter. During -
10 - we have lots of literature that says during
11 operations, the air dust loading would have a
12 resuspension factor that might be at least two
13 orders of magnitude higher than that.

14 MR. GUIDO: Can I --

15 CHAIR MELIUS: Go ahead.

16 MR. GUIDO: Well, I wanted to say
17 we're kind of mischaracterizing a little bit
18 the 1989 data because there was a lot of data
19 there and a lot of different ways to look at
20 that. I mean if we're trying to say that, you
21 know, we agree our upper bound is high and our
22 lower bound, which is based on air data may or

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1 *may not be high because we're trying to say*
2 *well is that really the right number because*
3 *there was some decon done before.*

4 *And if you trace that back to 1989*
5 *and say, okay, is -- you know based on that*
6 *curve, is the `89 point right because the `89*
7 *data is undisturbed. I mean there's a lot of*
8 *ways to look at the --*

9 *DR. MAURO: But it's surface data.*

10 *MR. GUIDO: Well, yes, but as I*
11 *say, there's a lot of ways to look at the 1989*
12 *data.*

13 *DR. MCKEEL: This is Dan McKeel,*
14 *may I please make a comment about the 1989*
15 *data?*

16 *CHAIR MELIUS: No, not right now,*
17 *Dan. Let him finish first.*

18 *MR. GUIDO: Yes, let me finish my*
19 *point. What I'm saying is there are a bunch of*
20 *ways to characterize it. And one way is they*
21 *actually went up in the dust in the rafters and*
22 *calculated the specific activity of the dust.*

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1 *It was seven picocuries per milligram. Okay,*
2 *that was in the dust.*

3 *DR. MAURO: Okay.*

4 *MR. GUIDO: So now if you want to*
5 *look at what the 1989 intake projected by that*
6 *curve is and you want to look at what dust*
7 *loading based on seven picocuries per*
8 *milligrams would cause that, you're going to be*
9 *up around 120 milligrams per cubic meter, which*
10 *is very high.*

11 *So that framework kind of gives you*
12 *a -- we're still high in my opinion. We're not*
13 *using the ten to the minus six. I mean because*
14 *that, to me --*

15 *DR. MAURO: Oh, you didn't use that*
16 *then?*

17 *MR. GUIDO: Well, we didn't use*
18 *that data at all. I mean we're not using that*
19 *data at all. I'm just saying if you are trying*
20 *to -- if we went back -- if you said go back*
21 *and look at the '89 data and make us*
22 *comfortable that that '89 data shows us the*

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1 *curve is right, what I'm saying is we could do*
2 *that based on mass load.*

3 *DR. MAURO: Yes, if you have a mass*
4 *loading approach that you could peg the back*
5 *end with, given the --*

6 *MR. GUIDO: Right.*

7 *DR. MAURO: -- this is all, you*
8 *know, as we discussed before, rather than the*
9 *resuspension factor approach -- but I'm saying*
10 *--*

11 *MR. GUIDO: It's hard to disagree*
12 *on that. Once you get there, and if you are in*
13 *the milligrams per cubic meter range, you have*
14 *certainly placed an upper bound on the back end*
15 *of that.*

16 *MR. MAHATHY: It is actually higher*
17 *than the one we have now.*

18 *MR. GUIDO: So maybe we should, you*
19 *know maybe one way to get through this is for*
20 *us to do that to show you -- I mean because I*
21 *think -- well, it's not hard. You know seven*
22 *picocuries per milligram was what was in the*

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1 *rafter dust.*

2 *So, you know, to get to -- you can*
3 *look at the intake that is projected in that*
4 *year. What's the number? I actually did this*
5 *calculation because I thought this was going to*
6 *be an issue -- 18.9 dpm per day in 1980. What*
7 *is it in 1989? What is the data in 1989? I*
8 *have the matrix right here -- 7.7 dpm per day.*

9 *So basically what we're saying is*
10 *what does it take to get to 7.7 dpm per day*
11 *from seven picocurie per gram material.*

12 *DR. MAURO: Is that milligrams per*
13 *cubic liter?*

14 *MR. GUIDO: No, I know, I'm just*
15 *saying that's the process to do it. I'm not*
16 *saying let's do this right here. But I'm*
17 *saying this is the process we can do and we*
18 *could see what the number comes out to. If it*
19 *is in the milligrams per cubic meter, we're not*
20 *going to argue, right? I mean --*

21 *CHAIR MELIUS: Now, Dan, you had a*
22 *comment on the '89 data?*

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1 DR. MCKEEL: Yes, my comment was
2 that 1989 was a very limited survey of only one
3 building, the extrusion building. And there
4 was zero survey data from building five or
5 seven where the rolling mill was and where the
6 pot room were.

7 And so the Pantel later report, the
8 D&D reports in 2003 through 2008 covered the
9 entire plant. So the 1989 data can't be the
10 sole representative because it is one spot in
11 this great big building complex. Thank you.

12 MR. MAHATHY: That is another
13 reason I used the 2006. But they were still
14 very consistent.

15 CHAIR MELIUS: Did you hear that,
16 Dan?

17 DR. MCKEEL: I heard --

18 CHAIR MELIUS: The response.

19 DR. MCKEEL: -- I heard that it was
20 used in 2006 for some reason but not why. I
21 mean, 2006 should be more representative of the
22 total plant.

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1 MEMBER GRIFFON: That's what he
2 said, yes.

3 CHAIR MELIUS: That's basically
4 what he said.

5 DR. McKEEL: Okay.

6 CHAIR MELIUS: That's why they used
7 both and essentially used the 2006.

8 DR. McKEEL: Okay. I will also
9 mention, you know, that there was previous
10 decontamination work, of course, in 1993 of the
11 thorium magnesium waste that was outside of the
12 building. So you all are aware of that as
13 well. Thank you.

14 DR. MAKHIJANI: I didn't
15 participate in this, but just to raise a
16 question.

17 CHAIR MELIUS: Speak a little bit
18 louder, Arjun.

19 DR. MAKHIJANI: This is Arjun. Is
20 there an ingestion component to this also?

21 DR. NETON: Yes. Another comment.

22 DR. MAKHIJANI: This is my last

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1 *comment.*

2 *DR. MAURO: Yes, but I think we*
3 *were in the place that I think is really the*
4 *core of the concerns. There are ingestion*
5 *issues. Modeling issues we've had on many*
6 *occasions.*

7 *DR. MAKHIJANI: Yes, right. That's*
8 *why I was kind of remembering it as being there*
9 *before.*

10 *DR. MAURO: And, in fact, the*
11 *ingestion pathway is almost linked to the*
12 *inhalation pathway in the models that were used*
13 *by NIOSH.*

14 *We're really -- now we are at the*
15 *point where we are questioning whether the*
16 *inhalation is good. And let's say it turns out*
17 *that everyone is comfortable with the*
18 *inhalation but then the ingestion becomes a*
19 *tractable issue.*

20 *DR. MAKHIJANI: Yes.*

21 *DR. MAURO: Right. That goes --*

22 *DR. NETON: Exactly, which we've*

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1 *already agreed it's a tractable issue.*

2 *DR. MAKHIJANI: All right now. I'm*
3 *sorry, I'd forgotten that.*

4 *CHAIR MELIUS: The other findings,*
5 *do you want to go over those please.*

6 *MR. MAHATHY: Yes.*

7 *DR. NETON: There was an external*
8 *dosimetry question.*

9 *DR. MAURO: Right. It was an*
10 *external. And Bill, you're going to have to*
11 *help me out a bit here because when I was*
12 *refreshing my memory on this, I focused in on*
13 *the matters we just discussed.*

14 *MR. THURBER: Right.*

15 *DR. MAURO: How are you on the*
16 *thorium and the external? Are you current on*
17 *those two aspects of our sets of findings?*

18 *MR. THURBER: I'm sorry.*

19 *DR. MAURO: Well, let's start with*
20 *external because we broke our report up into*
21 *several sections.*

22 *MR. THURBER: Right. Well, we had*

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1 *some questions about thoron that were basically*
2 *related to the fact that we didn't understand*
3 *the basis for the data selection, as I recall.*

4 *We thought that there were a number of general*
5 *area samples that NIOSH did not include in*
6 *their database, and it wasn't clear to us why.*

7 *MR. MAHATHY: They were not from*
8 *Madison. They were taken from Midland.*

9 *MEMBER ZIEMER: Are you talking*
10 *about -- this is Ziemer -- are we talking about*
11 *Finding 5 on the thoron measurement?*

12 *CHAIR MELIUS: Yes.*

13 *MR. THURBER: Yes, that's what I*
14 *was talking -- this is Bill Thurber -- that's*
15 *what I was talking about anyway.*

16 *DR. NETON: Yes, our response is,*
17 *basically, that we've used all the data that*
18 *were available at the Dow Madison facility.*

19 *MR. THURBER: Okay. Obviously, it*
20 *would have been helpful if that -- if those*
21 *distinctions were made in the report. The*
22 *other point we had -- we had some trouble*

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1 actually -- and it may be our guys don't do
2 their calculations right, but we could not
3 duplicate the 95th percentile calculation.

4 MR. MAHATHY: That was an error.
5 And that was my fault. And your calculation
6 was correct.

7 MR. THURBER: Okay. Well, then
8 what that says is that the 95th percentile
9 value using your database would be about 35
10 percent higher than what you reported.

11 MR. MAHATHY: This has almost no
12 effect on that.

13 MR. THURBER: Okay. And, again, it
14 would be helpful to -- I would have to go back
15 and try and look at all the data that I
16 mentioned in our report to see if we are in
17 agreement that some of the data was from Bay
18 City.

19 DR. NETON: I also see here, Bill,
20 that there's a note on one of our responses
21 that we did not include process area samples.

22 MR. THURBER: No, no. We

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1 understood. That was very clear in your
2 report. And we also tried to, in examining
3 what we thought was the relevant dataset to --

4 DR. NETON: Okay.

5 MR. THURBER: -- to exclude process
6 samples as well. So conceptually, we're in
7 total agreement on that point.

8 DR. NETON: Okay.

9 MR. THURBER: So I guess then as
10 far as the thoron is concerned, the question
11 is, is whether -- if we took our dataset and
12 reexamined it whether we would be in agreement
13 that the -- that you people had only used the
14 Madison and we had used stuff that went beyond
15 Madison. And we apparently are in agreement
16 that the 95th percentile value is as reported
17 in our focused review.

18 DR. NETON: Correct.

19 DR. MERRITT: This is Dr. Maureen
20 Merritt. I'm just joining the conversation
21 here. Thank you.

22 MR. KATZ: Can you repeat your name

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1 as long as you --

2 DR. MERRITT: Dr. Maureen Merritt -

3 -

4 MR. KATZ: Maureen Merritt.

5 DR. MERRITT: -- here at Los

6 Alamos.

7 MR. KATZ: Thank you.

8 CHAIR MELIUS: How about Finding

9 No. 6?

10 MR. THURBER: Finding No. 6, that -

11 - oops, excuse me --

12 DR. MAURO: That's the external
13 question?

14 CHAIR MELIUS: Right. Yes, .7 MR
15 per hour.

16 MR. THURBER: Yes, I think that --
17 well, Finding No. 6 was ingestion, which we've
18 already talked about.

19 DR. MAURO: No, number seven.

20 MR. THURBER: Finding No. 7 --

21 CHAIR MELIUS: Was ingestion.

22 DR. MAURO: That was ingestion.

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1 *Number six has to do with -- if I recall,*
2 *number -- yes, external, the .7 MR per hour,*
3 *Bill, if you would correct me if I'm wrong now*
4 *that it is coming back to me from reading this,*
5 *it was based on the assumption that a person*
6 *was standing some distance away from the alloy,*
7 *the pure alloy, the four percent alloy, thorium*
8 *alloy, all the time.*

9 *And this really was not*
10 *appropriate, if we're talking about exposure to*
11 *residual material that might be on surfaces.*
12 *Again --*

13 *MR. THURBER: That's correct, John.*

14 *DR. MAURO: -- again, a gross*
15 *overestimate of what might have been the*
16 *external exposures a person might have*
17 *experienced from the residual period. I think*
18 *that was our concern.*

19 *MR. THURBER: Yes.*

20 *CHAIR MELIUS: By the way, for*
21 *those of you that are confused, Finding Six and*
22 *Seven are reversed in the body of the report*

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1 *versus the executive summary.*

2 *DR. MAURO: Is that right? My*
3 *apologies.*

4 *CHAIR MELIUS: I'm looking at the*
5 *executive summary.*

6 *DR. MAURO: I'm guilty then.*

7 *DR. McKEEL: Can I please point out*
8 *that the Pantel reports documented that not*
9 *only was there thorium dust on surfaces but*
10 *there was amounts of thorium metal products of*
11 *various kinds scattered around all of the three*
12 *main buildings at Dow. I showed that to the*
13 *board in May of 2007.*

14 *CHAIR MELIUS: All right.*

15 *DR. McKEEL: Thank you.*

16 *DR. NETON: Along those lines,*
17 *then, our response would be similar to what we*
18 *said for the others. It is indistinguishable*
19 *from commercial -- commercial operations and*
20 *AEC operations are indistinguishable in this*
21 *time period. So we just went with the higher*
22 *dose.*

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1 DR. MAURO: I think that's it.

2 CHAIR MELIUS: Yes. So I think
3 that, regarding the SC&A Addendum 2 report we
4 were going over, I think some written response
5 from NIOSH would be helpful. I think there is
6 -- mainly I think a clarification on this
7 residual period commercially, that issue I can
8 see where it is confusing to people. And I
9 think that would be helpful for future and so
10 forth.

11 And then I think the clarification
12 on the inhalation dose, the choice, what we
13 talked about doing would be also helpful in
14 terms of the justification.

15 But I think it makes sense as you
16 present it.

17 MEMBER GRIFFON: Including the '89
18 --

19 MR. GUIDO: Right. Yes, that item
20 isn't really embodied in the one through seven
21 findings. Where would you want to see that?
22 Or is this a separate item?

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1 In other words, findings one
2 through seven really don't --

3 DR. MAURO: Yes, it's in the text
4 but it's not in the findings.

5 MR. MAHATHY: It's in the text.

6 MEMBER GRIFFON: So if we respond,
7 does it need to be just a separate item or --

8 MR. MAHATHY: I think it would fit
9 under one of these findings.

10 DR. McKEEL: Doesn't it fit --
11 actually it fits under the finding that is
12 associated with the questions with the 2006
13 data that we used.

14 MR. GUIDO: Right. Number three.
15 Okay.

16 And I showed -- my back of the
17 envelope calculations, it is 50 milligrams per
18 cubic meter is what you would need, which is
19 off the charts.

20 MR. ELLIOTT: It's pretty high.
21 You couldn't see through it.

22 DR. MAURO: We don't go there. I

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1 can tell you as an industrial hygienist, you
2 can't see through it.

3 CHAIR MELIUS: Some of us will
4 question how well industrial hygienists can
5 see, smell --

6 (Laughter.)

7 MR. ELLIOTT: I can't imagine it
8 looking that way every day. People wouldn't
9 put up with it.

10 CHAIR MELIUS: Okay. That
11 completes, on this particular issue, I think it
12 is just getting response back. And I don't --
13 Dan, do you want to give us an update -- or
14 Larry, there are still some outstanding Freedom
15 of Information Act requests, and I'm just
16 trying to get -- trying to think how we
17 schedule dealing with this SEC in terms of
18 where we are.

19 I'd like to make sure that we, you
20 know, to the extent that, you know, we answer,
21 they answer promptly. And that Dan and the
22 petitioners have access to all the necessary

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1 information they need to evaluate this. So can
2 you -- can somebody update us?

3 DR. MCKEEL: I can try to.

4 CHAIR MELIUS: Okay.

5 DR. MCKEEL: We have sent several
6 FOIA requests. The first was in April of 2007,
7 soon after the original evaluation report
8 surfaced. And that had 14 -- I asked --
9 actually what I sent Larry Elliott was 14
10 questions, eight of them, I think, were made
11 into FOIA requests.

12 We've gotten answers back from all
13 but Item 9. And we still await that.

14 Then in March -- on March 30th of
15 this year, we sent a FOIA request for
16 additional Dow information, particularly about
17 -- and revised that in May and updated it --
18 and particularly we were looking for the
19 information that Larry had indicated.

20 He sent a letter to Dow
21 headquarters seeking information about thorium
22 during the residual period. And that was

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1 primarily aimed at getting that letter to Dow
2 headquarters and any information that Dow had
3 sent back in return.

4 I didn't get an answer back from
5 that at all. So in June I filed a FOIA appeal,
6 and that worked its way through the process.
7 And eventually I wound up with documents that
8 were said to be responsive to all three of the
9 main items I sent a FOIA about.

10 But none of them were the documents
11 that was received from Dow headquarters. And I
12 also mentioned in my revision and in the appeal
13 that one of the reports, I think it was the
14 Addendum 2, had mentioned that in the database
15 there were 62 items from Dow headquarters that
16 were received or that were placed in the SRDB
17 January 9th of this year. And that was long
18 after the other Dow materials that we sent --
19 that were sent to us in last August of '07.

20 So I thought they must be different
21 documents. And anyway, I went through a long
22 deal with both FOIA offices, the CDC FOIA

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1 office and the Public Health Service Appeals
2 Office and I never have gotten any of those
3 documents requested from Dow headquarters. So
4 I consider those still outstanding.

5 And then PHS wanted to make one
6 element of the appeal -- I think it may be
7 those documents -- they wanted to convert that
8 into a brand new FOIA request. And nothing has
9 been acted on with that.

10 So there are several items like
11 that that I still would like to get. I also,
12 you know, of course, would like to have the, I
13 assume that SC&A may be tasked, or the new
14 contractor, to make comments on the new
15 Appendix C.

16 And, of course, I'd like to have
17 those when they come out. But I must say there
18 are all sorts of reports that this workgroup
19 has not really -- I made a list for myself with
20 20 document groups that pertain to Dow. And so
21 I do wonder if those things are going to be
22 reviewed as well. But the FOIA thing, I'm just

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1 -- I'm waiting for those.

2 There is one bit of information I
3 would like to convey to you all and just
4 mention that I can send that this afternoon by
5 e-mail, but I obtained a final -- the letter
6 that Illinois Emergency Management Agency, the
7 Nuclear Safety Division, sent to Spectrulite
8 Corporation's CEO, Chris Barnes, on June the
9 9th of this year, which finally terminated the
10 Spectrulite thorium license. So that did
11 finally bring closure to the thorium operations
12 all together at that site.

13 CHAIR MELIUS: Okay.

14 MR. RUTHERFORD: This is LaVon
15 Rutherford. We do have a copy of that, Dan,
16 that final letter.

17 DR. McKEEL: Okay.

18 CHAIR MELIUS: Does anybody from
19 NIOSH have a response on the FOI situation?

20 MR. ELLIOTT: Yes, it's with the
21 FOI Office. I mean there's --

22 MR. KATZ: But didn't you have some

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1 *interaction with Dr. McKeel about what letters*
2 *were actually -- his question about letters to*
3 *the headquarters, Dow, whether you ever*
4 *received a response or not. I thought you guys*
5 *had some interaction about that recently where*
6 *you said you never received some documents. Or*
7 *am I mixing this up with another facility?*

8 *MR. ELLIOTT: There is confusion*
9 *around this. I never said I sent a letter to*
10 *Dow headquarters. I said NIOSH was looking at*
11 *sending a letter to Dow headquarters.*

12 *In fact, I think the letter that*
13 *was sent to Dow headquarters went out under*
14 *Stu's signature. And this is all part of one*
15 *of Dr. McKeel's FOIA requests that is being*
16 *handled by the FOIA office.*

17 *I did write a letter to the State*
18 *of Illinois. And I got a response from them.*
19 *And I sent them a thank you letter for that.*
20 *And I think that is also involved in one of Dr.*
21 *McKeel's FOIA requests.*

22 *But, you know, these --*

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1 DR. McKEEL: Well, all I can
2 comment --

3 MR. ELLIOTT: -- when Dr. McKeel
4 has -- when you have a FOIA request like you
5 submitted over the weekend for one specific
6 document, that's very easy to process through
7 the FOIA office. I simply take that e-mail as
8 a request for that document and we process it
9 as a FOIA request, as you've seen me do this
10 morning, Dr. McKeel.

11 But when your request is broad and
12 expansive and changes over the course of a few
13 months, that causes the FOIA office difficulty
14 in preparing a response. It causes us
15 difficulty in understanding what the FOIA
16 office wants to review in order to make
17 decisions about provision.

18 And so that is what is taking a lot
19 of time on some of the outstanding FOIA
20 requests. They are very voluminous. They are
21 very expansive.

22 They have changed or morphed over

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1 time. And, you know, that's in the hands of
2 the FOIA office. I have no ability to figure
3 out, you know, how to speed that up or what to
4 do about that.

5 DR. McKEEL: Well, I've tried to do
6 everything I know. All I can say is that FOIA
7 requests, the way I see them, are a loop. The
8 reason you can't -- you can't send them to me
9 directly. But you have the documents that I am
10 requesting, I believe.

11 And so I send a request to the FOIA
12 office. They receive it. And then presumably
13 they come back to you -- that's what they said
14 they have done -- and ask for those documents.

15 And then you send them to them or not. And
16 then they send me the documents or not. And
17 provide an explanation.

18 And so I'm saying that there was
19 one item that hasn't been contested, Item 9
20 from April 2007 that hasn't been answered. And
21 so --

22 MR. ELLIOTT: What is Item 9, if

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1 *you can refresh my memory?*

2 *DR. MCKEEL: I think it is about*
3 *correspondence between NIOSH and ORAU*
4 *concerning the evaluation report. I don't have*
5 *it in front of me right at the moment.*

6 *MS. HOMOKI-TITUS: Larry, this is*
7 *Liz Homoki-Titus. I think that is the one that*
8 *has, like, four or five hundred pages of*
9 *response that the office is trying to go*
10 *through and we're trying to help them speed it*
11 *along. But I mean it is a very voluminous*
12 *response to a very, kind of, broad question.*

13 *DR. MCKEEL: Well, I understand*
14 *that. I will comment that the FOIA office has*
15 *never asked me to narrow that scope. So all I*
16 *know is that, you know, it is 17 or more months*
17 *afterwards and I still haven't gotten the*
18 *document. So voluminous or not, I don't think*
19 *the FOIA request discriminates against that.*

20 *MR. ELLIOTT: There are certain*
21 *protections to certain types of information*
22 *that, you know, may not be allowed to be*

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1 provided to you.

2 DR. McKEEL: Oh, I understand that.

3 But I think in 17 months that could be so
4 indicated, you know.

5 MR. ELLIOTT: I agree. I would not
6 disagree with that at all.

7 DR. McKEEL: Yes, yes. No, I
8 understand the rules.

9 Well, that's all I can say.

10 CHAIR MELIUS: Okay.

11 MR. RUTHERFORD: Dr. Melius, this
12 is LaVon Rutherford.

13 CHAIR MELIUS: Yes?

14 MR. RUTHERFORD: I wanted to also -
15 - there was a question that Dr. McKeel had
16 concerning the end date set for Dow. And I
17 wanted to point out that Appendix C of the
18 Patel 6000 identifies November 30th, 2007 as
19 our end date. And that is what we are moving
20 forward with in our residual contamination
21 report.

22 DR. McKEEL: Well, don't you -- my

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1 *understanding after the June meeting was that*
2 *you would communicate that information to the*
3 *Department of Labor. And then they would know*
4 *that.*

5 *MR. RUTHERFORD: I think we told*
6 *you at that time, too. And Larry is in here*
7 *and he can pipe up on this as well, that the*
8 *only thing the Department of Labor is going to*
9 *recognize is the residual contamination report*
10 *when it comes to changing covered period.*

11 *I'd also like to point out the fact*
12 *that the original covered period ended at the*
13 *1998. Right now we have no claims that are*
14 *potentially affected from 1998 to 2007.*

15 *Now I do recognize that there are*
16 *going to eventually be claims. But right now*
17 *we are working all dose reconstructions and all*
18 *claims that we have, we are working them*
19 *through. And that none of them are affected by*
20 *that end date.*

21 *And our existing dose*
22 *reconstruction model under Appendix C allows*

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1 *for any that come in that, in the future, from*
2 *1998 to 2007, we'll be able to handle.*

3 *MR. ELLIOTT: We anticipate the*
4 *residual report to come out soon. We are*
5 *working through a review of the draft of it*
6 *now. So it is imminent.*

7 *CHAIR MELIUS: Thank you. You*
8 *answered my question already.*

9 *Okay. Thanks. Okay. If not, I*
10 *think we can end the meeting. In less time*
11 *than I thought. But that's fine. I won't*
12 *argue with it.*

13 *Thank you everybody.*

14 *MR. KATZ: Thank you.*

15 *CHAIR MELIUS: And I'd like to*
16 *thank the NIOSH rep for the ORAU people*
17 *attending today. I think it is helpful to have*
18 *people here and see some of these people we*
19 *have heard from before.*

20 *MR. ELLIOTT: Happy they could help*
21 *us and be here, too.*

22 *CHAIR MELIUS: Okay. So thank you*

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1 *all. And talk to you soon.*

2 *(Whereupon, the above-entitled*
3 *matter was concluded at 12:03 p.m.)*

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