

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

+ + + + +

WORK GROUP ON WELDON SPRING PLANT

+ + + + +

TUESDAY
JANUARY 25, 2011

+ + + + +

The Work Group convened in the Zurich Room of the Cincinnati Airport Marriott, 2395 Progress Drive, Hebron, Kentucky, at 9:00 a.m., Michael Gibson, Chairman, presiding.

PRESENT:

MICHAEL H. GIBSON, Chairman
RICHARD LEMEN, Member*
ROBERT W. PRESLEY, Member*

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ALSO PRESENT:

TED KATZ, Designated Federal Official
ISAF AL-NABULSI, DOE*
RON BUCHANAN, SC&A
JOSEPH FITZGERALD, SC&A
DAVE HARRISON, ORAU Team*
MONICA HARRISON-MAPLES, ORAU Team*
STU HINNEFELD, DCAS
KAREN JOHNSON*
MARY JOHNSON*
JENNY LIN, HHS*
JOHN MAURO, SC&A*
ROBERT MORRIS, ORAU Team*
GENE POTTER, ORAU Team*
BRYCE RICH, ORAU Team*
MARK ROLFES, DCAS
TINA TRIPLET*

*Participating via telephone

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

2 (9:03 a.m.)

3 MR. KATZ: Okay. We have our
4 illustrious Chair. Let's get started with
5 roll call if I can set up -- so remind
6 everyone to speak to conflict of interest,
7 too, beginning with the Board with the Chair
8 in the room.

9 CHAIRMAN GIBSON: Mike Gibson,
10 Chair, no conflict.

11 MR. KATZ: And Board Members on
12 the line?

13 MEMBER PRESLEY: Robert Presley,
14 no conflict.

15 MEMBER LEMEN: Richard Lemen, no
16 conflict.

17 MR. KATZ: Okay. Do we have any
18 other Board Members on the line?

19 (No response.)

20 MR. KATZ: NIOSH-ORAU Team in the
21 room?

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1 MR. HINNEFELD: Stu Hinnefeld. I
2 don't have a conflict at Weldon Spring.

3 MR. ROLFES: Mark Rolfes, NIOSH,
4 no conflict with Weldon Spring.

5 MR. KATZ: NIOSH-ORAU Team on the
6 line?

7 MR. MORRIS: Robert Morris, ORAU
8 Team, no conflict.

9 MS. HARRISON-MAPLES: And Monica
10 Harrison-Maples, ORAU Team, no conflict.

11 MR. POTTER: Gene Potter, ORAU
12 Team, no conflicts.

13 MR. RICH: Bryce Rich, ORAU Team,
14 no conflict.

15 MR. KATZ: Is that Bryce Rich?

16 MR. RICH: Yes.

17 MR. KATZ: Thank you. SC&A
18 members in the room?

19 MR. FITZGERALD: Joe Fitzgerald,
20 no conflict.

21 DR. BUCHANAN: Ron Buchanan, no

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1 conflict.

2 MR. KATZ: SC&A on the line?

3 MR. MAURO: John Mauro, SC&A, no
4 conflicts.

5 MR. KATZ: Okay. And there are no
6 other federal officials. There are no other
7 federal officials in the room. Any federal
8 officials or contractors to the feds, HHS or
9 otherwise, on the line?

10 MS. LIN: Jenny Lin, HHS.

11 DR. AL-NABULSI: Isaf Al-Nabulsi,
12 DOE.

13 MR. HARRISON: Dave Harrison, ORAU
14 Team, no conflict.

15 MR. KATZ: Last but not least, any
16 members of the public, petitioners or
17 otherwise, on the line?

18 MS. JOHNSON: This is Karen
19 Johnson, petitioner, and my mother, Mary
20 Johnson.

21 MR. KATZ: Welcome.

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1 MS. TRIPLET: And Tina Triplet,
2 petitioner.

3 MR. KATZ: And welcome, Tina, too.

4 Very good. That sounds like a full deck, so
5 let's get started. Let me just remind before
6 I turn it over to the Chair, everyone on the
7 line, please mute your phones except when
8 you're speaking to the group. If you don't
9 have a mute button your phone, press *6 to
10 mute it, and then press * and then 6 again to
11 unmute it if you want to come off mute. And
12 please do not put the call on hold at any
13 point, just hang up mind dial back in if you
14 need to leave the call for a piece. Thank you
15 very much.

16 And there's an agenda for the
17 meeting that's on the website, and I hope has
18 been emailed out to the petitioners. Mike,
19 it's your agenda.

20 CHAIRMAN GIBSON: Okay. Our last
21 meeting we started going over the issue

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1 matrix, and there were some open issues or
2 some issues that hadn't been addressed. And
3 with Ted's help, we've -- he's identified some
4 issues that were left open or unresolved the
5 last meeting, so we'll just start with those
6 open issues. And if we get through those, if
7 there is anything that may have been omitted
8 or otherwise left out, we'll discuss that
9 then. So you want to start out with SC&A or
10 NIOSH, the first issue?

11 MR. KATZ: Mike, let me just
12 clarify what I did here is I didn't run
13 through the transcript to see what might have
14 been -- I don't recall what might have been
15 put to bed, but I just comprehensively pulled
16 from the list of SEC issues off of the matrix.

17 So that's what you have on your agenda. I
18 mean it's the same list, just written a little
19 bit more differently, but it's the list off
20 the matrix from November I believe.

21 MR. FITZGERALD: Mike, what I

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1 propose is perhaps to get things kicked off,
2 Ron can summarize where we were coming from
3 and try to bridge from the last meeting and
4 then identify what we've done since, then turn
5 it over to NIOSH.

6 CHAIRMAN GIBSON: Sure.

7 DR. BUCHANAN: This is Ron
8 Buchanan with SC&A, and I know it's been a
9 while since we've addressed this site, and so
10 for the members at the table and also on the
11 phone, what I'd like to do is do a recap. And
12 this recap applies to some of the details --
13 the SEC issues we'll get into later, so please
14 bear with me.

15 What I'd like to go through as
16 number one is a little of a history of the
17 Weldon Spring site so we all see how these
18 issues play in with the history of the site
19 and also the document exchange that has taken
20 place so far on the site. And then we can
21 start addressing the individual issues.

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1 And so the Weldon Spring site is
2 located outside of St. Louis, Missouri. It
3 handled concentrated uranium ore. It operated
4 from `57 to `66, was its official operating
5 period. It was an old emanation depot plant
6 before that. They did not receive any
7 radioactive materials until apparently June of
8 1957. They operated through December of 1966.

9 They were kind of a sister plant
10 to the downtown Mallinckrodt Chemical Work
11 Plant in St. Louis, and some of the workers
12 out there. Some of the technology was
13 transferred out there. It was to be a cleaner
14 more modern plant than the one under the
15 Manhattan Project downtown. And so it
16 operated until December `66 when it was closed
17 down.

18 Now, it had several years that
19 kind of -- where it was going to be used for
20 other things. `66 and `67 -- I mean `67 and
21 `68, maybe `69, the Army was going to do some

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1 herbicide production there. Some of the
2 facilities were decommissioned and was going
3 to be turned over to other things. That did
4 not work out after some modifications had been
5 made. And so it went into just kind of a
6 maintenance mode from about `68-`69 into the
7 80's. Nothing much went on there.

8 Now Weldon Spring consisted of the
9 main processing plant that received the
10 uranium ore and concentrated it, melted it and
11 turned it into uranium nuggets and such to be
12 shipped out. Most of that material was
13 removed, of course, at the end of the
14 operation period.

15 Then in `80 to `85 and 90's
16 timeframe, they came in and started doing
17 characterization of the facilities. They had
18 three -- the main plant. They had the
19 raffinate pits for where sludge and the
20 chemicals from doing the processing was
21 pumped. There were a total of four of them

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1 which were evaporation-type ponds. And then
2 they had the quarry which is located a mile or
3 so away from the main plant where they
4 essentially act like a dump ground for mostly
5 downtown site and for the Weldon Spring site.

6 And so those are three main areas that we
7 want to address in our issues.

8 Then they did the cleanup and the
9 D&D work was in the 90's and it was finished,
10 I think, in 2002. I was there a couple of
11 years ago, and most of this material, it's
12 either a large pile of rock, a pyramid-type
13 rock structure which a lot of it -- so the
14 higher material is encased concrete, sludge
15 inside. And so at any one time, they had
16 about a maximum of 600 workers there the
17 busiest period in, say, 1960 or so at the
18 site.

19 Uranium was used -- they received
20 uranium in the way of ore concentrate or
21 yellowcake. They changed it into metallic

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1 uranium. They did receive some recycled
2 uranium. One of the issues that we'll talk
3 about is they started receiving that in the
4 early 60's. They did receive -- and this is
5 mostly from Fernald. That has not been
6 verified 100 percent. Most of their material
7 came from Fernald. They had enriched uranium,
8 received some of that in the 60's. They did
9 process some thorium in the 60's. And so this
10 is where some of the issues come from which
11 we'll address.

12 And so the period we're discussing
13 on the SEC is during the operating period, `57
14 to `66, into `67 timeframe. Now in June of
15 2005, the Site Profile was issued, Volumes 1
16 through 6 covering the various internal and
17 external and environmental site description.

18 In March of 2009, SC&A reviewed
19 that Site Profile and issued their review of
20 the Site Profile TBDs, and I think there were
21 something like 25 Site Profile issues that

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1 SC&A identified.

2 In September of 2009, SEC Petition
3 143 was qualified, and then in April of 2010,
4 NIOSH issued the ER report which we are
5 currently working on. And then in May of
6 2010, the Advisor Board authorized a focused
7 ER review by SC&A for the ER. And then in
8 October of 2010, the first Working Group
9 meeting convened on the SEC here in
10 Cincinnati. At that time, we identified a
11 list of action items for both SC&A and for
12 NIOSH, and after the meeting on the 19th,
13 there were some email exchanges between NIOSH
14 and SC&A on the discussion of the action
15 items. And SC&A issued a list of what they
16 understood the action items would be.

17 And so one of SC&A's charters was
18 to do a combined matrix since we had discussed
19 some of the Site Profile issues at the meeting
20 on the 19th. And most of the SEC issues, to
21 keep them straight, SC&A issued a combined

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1 matrix for the Site Profile and the SEC on the
2 10th of November 2010. Now the SC&A has not
3 been tasked with the Site Profile issue
4 resolution, but we included that so we
5 wouldn't get the issues confused. Some of
6 them overlap, of course, and so it did cross-
7 reference on that.

8 On the 10th -- in November of
9 2010, SC&A issued their reply report to the
10 ER. And then in December of 2010, SC&A issued
11 the DWE paper on air concentration exposure
12 paper which actually comes from Fernald. And
13 we'll get into this in a little more detail in
14 later issues. Just wanted to make you aware
15 of that.

16 And then, of course, Weldon Spring
17 has relationship to Fernald since they receive
18 materials from there. And so resolution at
19 Fernald DWE issue has applications to Weldon
20 Spring, and I will go a little more in detail
21 on that.

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1 And of course, we have our second
2 Work Group meeting today, and in our action
3 items and our matrix list, we have nine major
4 issues that were considered SECs.

5 So if anybody has any corrections
6 or additions to that -- if not, I'll start on
7 the matrix issues.

8 MS. JOHNSON: Ron?

9 DR. BUCHANAN: Yes.

10 MS. JOHNSON: This is Karen
11 Johnson. I just wanted to add one thing that
12 wasn't touched on last time, and that was that
13 26-page report by Monte Mason. It was a note
14 and summary of his visit in 1975 regarding
15 uranium in urine values. I don't know if you
16 recall that. I think Denise Brock sent a copy
17 of it to everyone.

18 DR. BUCHANAN: Yes, Karen. This
19 is Ron. Yes, I obtained that reference and
20 have read it.

21 MS. JOHNSON: Okay. That's all I

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1 had. Thanks.

2 DR. BUCHANAN: Okay. So if we
3 want to start with the matrix. I hope
4 everyone has a copy. Like I said, there's
5 nine major issues. Issue number one has four
6 parts to it, because issue number one is
7 considered with the data -- the accuracy of
8 the data and the adequacy of the data. And
9 so, of course, we have four issues within that
10 issue.

11 We can combine issue 1a and 1c
12 which is internal and external data. So what
13 SC&A needs to say, I think the Working Group
14 needs to say is the trail of the data. For
15 example, if the dose reconstructor receives
16 information -- how was that data taken from
17 the original recorded data at Weldon Spring in
18 1957 through 1967? By the way, the SEC covers
19 1957 through 1967.

20 Where is the trail, the paper
21 trail so to speak? Where is the verification

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1 that that data is accurate and complete and
2 what systems were used? You know, what
3 storage systems were used? How was this
4 transcribed to computer systems or whatever
5 it's on, and what verification has been done
6 to make sure it is accurate and complete.

7 MR. ROLFES: I just wanted to put
8 a caveat out there that NIOSH hasn't provided
9 responses to each of these findings yet, but
10 we're actually going to respond and send that
11 out in writing in the future here, shortly
12 after this meeting. Hopefully, about mid-
13 February, we'll have our official responses,
14 but we have prepared some draft responses at
15 this time for discussion. So, basically, when
16 we go out and complete a data capture, we will
17 scan hard copy records into electronic files,
18 into PDFs and upload them into our Site
19 Research Database. We will also receive
20 individual files from the Department of Energy
21 that we request for each claim for a dose

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1 reconstruction.

2 Part of what we have done to
3 compare the data to its original source is
4 we've compared some of the data that we
5 received for an individual claim to data
6 within the CER database to check to make sure
7 that the numbers were accurately transferred
8 and entered. This is something that we also
9 do during the dose reconstruction process.

10 A lot of the times the PDF files
11 that we receive for an individual claim which
12 have radiation exposure information in them we
13 will enter that data into an Excel spreadsheet
14 for use by the dose reconstructors, and that
15 data is also checked before it's used in a
16 dose reconstruction and is also, as part of
17 the reconstruction process, additional
18 individuals will be able to check that data to
19 make sure there are no mistakes. There are
20 several layers of review within a dose
21 reconstruction to ensure that the data that we

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1 receive are accurately entered and used in the
2 dose reconstruction process.

3 DR. BUCHANAN: This is Ron, SC&A.

4 Describe this CER database, how this verifies
5 the data, that original data.

6 MR. ROLFES: Well, the CER
7 database was based upon the original hard copy
8 data, and hard copy data was entered into the
9 CER database from that hard copy data. I
10 don't know if Monica might be able to
11 elaborate a little bit further on, you know,
12 any checks that might be in place, if you
13 might know firsthand of any of that quality
14 assurance that might have gone into entering
15 the data into the CER database.

16 MS. HARRISON-MAPLES: I can speak
17 to the CER database somewhat. The database
18 was originally developed for an epidemiology
19 study, so it was an independent capture of the
20 Weldon Spring data before this program ever
21 began. Those numbers were verified through

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1 several layers within the CER organization.
2 They're well-known throughout the country for
3 their epidemiology work. We used the CER
4 database as a double-check and a comparison in
5 order to verify that what we had entered into
6 our -- you know, what we were using for dose
7 reconstruction didn't have any kind of errors.

8 And where things didn't match up, those
9 individual results would be triply questioned
10 I guess is how we used the CER database for
11 dose reconstruction.

12 MR. FITZGERALD: Very quick. This
13 is Joe. Put another way, the CER database,
14 even though it's a -- frankly, it was designed
15 to be an epidemiological treatment, is used
16 more of as a secondary check. It's not the
17 primary check --

18 MS. HARRISON-MAPLES: That's
19 correct.

20 MR. FITZGERALD: Because I think,
21 you know, certainly epi database would not

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1 have necessarily the QA that you would have
2 for a verification for this program, but
3 certainly it offers a secondary check.

4 So the primary check would be, I
5 guess, a firsthand review by NIOSH. I'm
6 trying to get a sense of how you actually
7 validate, you know, the V&V validation and
8 verification database. Or is there? I mean
9 is CER basically how you validate?

10 MS. HARRISON-MAPLES: Oh, okay.
11 I'm sorry. I wasn't following the question
12 very well. No. As Mark alluded to, we
13 repeated the data from the DOE files and from
14 site data captures. That information is then
15 entered into spreadsheets for the dose
16 reconstructors, but the dose reconstructors
17 also have copies of the original material that
18 was received through the data capture and
19 received from DOE. So as a secondary check,
20 their procedures include them going back to
21 the original data and verifying what they're

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1 using. If there's any kind of question, the
2 CER database would be sort of a tertiary
3 check.

4 MR. FITZGERALD: Right.

5 DR. BUCHANAN: This is Ron, SC&A.

6 So the hard copy has never been transformed
7 to an electronic database totally and used
8 alone? You're saying that all dose
9 reconstruction is done -- or the dose
10 reconstruction has available to him all
11 original, her scans and all of the original
12 data. Is that correct?

13 MS. HARRISON-MAPLES: Yes. All of
14 that is uploaded into the SRDB and is always
15 available to the dose reconstructor.

16 DR. BUCHANAN: So when a dose
17 reconstructor does it, a dose reconstruction,
18 in those DOE files, there are photocopies of
19 all that worker's handwritten doses or
20 typewritten, whatever they were from the time
21 they originated?

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1 MS. HARRISON-MAPLES: Everything
2 that we've captured is available in the SRDB,
3 yes.

4 DR. BUCHANAN: Okay. What has --
5 where are these physical records set? Is
6 there any verification that these records are
7 -- I guess, you know, the next point then,
8 okay, so the dose reconstructor has scans of
9 the original handwritten or typed results,
10 biological or bioassays or external dose, has
11 there been any verification to show that
12 those records he has are all that's available?
13 So what's been the chain of custody of these
14 records from 1958 when they were written down
15 to when he just, in 2011, did a dose
16 reconstruction?

17 MR. ROLFES: Well, within each
18 claim file -- I'm not sure exactly what you're
19 asking -- but with each claim file, there are
20 electronic spreadsheets that are used by the
21 dose reconstructors, and those become part of

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1 the administrative record for that
2 individual's claim. Basically, any and all of
3 the bioassay and/or dosimetry data is entered
4 into an Excel spreadsheet for use by the dose
5 reconstructor, and that is what becomes part
6 of the administrative record. The firsthand
7 receipt of data from the Department of Energy
8 is also in the NIOSH-OCAS claims tracking
9 system, and that's available to the dose
10 reconstructor as well.

11 DR. BUCHANAN: Okay, but all of
12 this was taken from original datasheets
13 someplace?

14 MR. ROLFES: Correct, out of a DOE
15 repository for example.

16 DR. BUCHANAN: Okay. I guess my
17 question is, is the scanned copies that the
18 dose reconstructor -- go back and verify the
19 spreadsheets with the site, how are they --
20 how do we know that they're all there? I
21 guess the accuracy wouldn't be of question if

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1 they're scanned copies, but the completeness
2 of the records from the day -- you know, a guy
3 worked there for five years or so, how do we
4 know we have all his data scanned?

5 MR. ROLFES: I guess you can ask
6 the question of anything, you know, how do we
7 know we have everything. And there's no way
8 to answer that yes, we have everything without
9 knowing that there's something else out there,
10 so --

11 DR. BUCHANAN: Well, I mean
12 there's certainly some process in place to
13 demonstrate that we have his records. You
14 know, this is if the dose reconstructor had a
15 photocopy of that individual's records, then
16 he has the accuracy of the records, if they're
17 readable, but he doesn't know that they're
18 complete. And I guess that's a --

19 MR. ROLFES: Sure.

20 DR. BUCHANAN: A loop that we need
21 to close is how do we verify that they are

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1 complete.

2 MR. ROLFES: So what we would need
3 to do, for example, is take a look at an
4 individual case, and if you had an individual
5 that was employed doing the same job for the
6 entire, you know, '57 through '66 time period,
7 was monitored from day one via urinalysis and
8 also wore an external dosimeter for, you know,
9 the first three years, but then suddenly,
10 there was a gap in his monitoring data, that
11 would identify, hey, what happened here. That
12 would attract our attention rather than, you
13 know -- it would make us focus on what
14 happened here, what do we need to look for.

15 And in cases where we don't have
16 data for that time period, there are several
17 ways that we can address by assigning the
18 surrounding dosimetry data to fill in that
19 gap. We can also take a look at coworker
20 data, for example, in certain cases. So when
21 there are gaps that appear, that's normally

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1 part of the dose reconstruction process that
2 attracts our attention to it. For example,
3 for a uranium bioassay result, if an
4 individual routinely submitted samples, say,
5 every six months, and didn't have one at the
6 regular six-month interval, you can use those
7 surrounding bioassay results to estimate the
8 chronic intake that occurred over that time
9 period when the individual wasn't monitored.

10 DR. BUCHANAN: This is Ron with
11 SC&A. I understand what you're saying, Mark,
12 in that if there's some individual dose
13 reconstruction and you extrapolate from other
14 periods. Now one problem at Weldon Spring is
15 that there were some periods where there were
16 spot bioassays and covert badging, that sort
17 of thing. But besides that, I guess what
18 you're saying is that you're leaving it up to
19 spot it in an individual dose reconstruction
20 in filling the gaps, but there's been no
21 verification, chain of custody so to speak of,

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1 in the records as an overall for Weldon
2 Spring. We're taking it kind of on face value
3 that the records that are there are complete
4 or as complete as necessary.

5 MR. HINNEFELD: Well, this is Stu
6 and I'm glad you modified the statement there.

7 I don't know that we can ever take on face
8 value that we have captured all the records
9 generated at the time on any site. Okay, we
10 can capture what we can capture. If in fact
11 there are voids or gaps in a person's exposure
12 record, then we have techniques for doing
13 coworker dose reconstruction or whatever the
14 appropriate approach is for filling in those
15 gaps in that.

16 You wouldn't assume someone was
17 non-exposed if you had a gap in their exposure
18 record. There would have to be some other
19 evidence, you know, a reason, like he was
20 switched to an administrative job or he was
21 laid off for a year or something like that.

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1 But there would have to be a reason to
2 consider him non-exposed, and so his exposure
3 -- and so we'd be doing that. I mean that's
4 something we've done a lot. I mean we don't
5 go into this, we can't go into this presuming
6 that every record that was generated that we
7 got, and so we make those adjustments to the
8 dose reconstruction in those situations.

9 DR. BUCHANAN: Okay. This is Ron
10 again. So the CER database, what was
11 confusing me was on the CER database, because
12 it is not complete. We know that because it
13 wasn't intended to be for dose reconstruction.

14 And so you're saying you're just -- you take
15 the original data, you put it into a
16 spreadsheet for the dose reconstructor to use,
17 and then you compare that to what's found in
18 the CER to see if it matches that and if
19 there's any missing from that or any
20 discrepancy. Is that what you're saying on
21 the CER database?

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1 MS. HARRISON-MAPLES: Essentially.

2 MR. ROLFES: On our Evaluation
3 Report, we did compare the CER data to our
4 data, but we're talking about the SEC
5 evaluation versus the normal dose
6 reconstruction process and they're slightly
7 different. And I think we answered about the
8 dose reconstruction process. If Monica could
9 answer about the Evaluation Report, how we
10 compared the data in the CER database to the
11 hard copy data. Monica, do you understand
12 what Ron's asking?

13 MS. HARRISON-MAPLES: No. I'm
14 sorry, I had to step away for just a second.
15 Could someone repeat the question for me?

16 DR. BUCHANAN: Yes. This is Ron
17 with SC&A. The question is that their CER
18 database was only used -- you just did some
19 double-checking of your spreadsheets against
20 the CER database. You did not use the
21 database for dose reconstruction. You just

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1 were comparing your NIOSH's spreadsheets taken
2 from the original data against the CER to see
3 if there was any discrepancies or error
4 between the two. Is that correct?

5 MS. HARRISON-MAPLES: You're
6 talking about in the ER evaluation, that is
7 correct. Within the ER, we just used the CER
8 database to double check.

9 DR. BUCHANAN: Okay. So the CER
10 database is not actually used during the dose
11 reconstruction process?

12 MS. HARRISON-MAPLES: I can't say
13 that it's not used ever. As I said earlier,
14 if there is some sort of a question between
15 things, it may be used as a check, but to the
16 best of my knowledge, it's not ever used as
17 the primary source of information for dose
18 reconstruction.

19 DR. BUCHANAN: Okay. Thank you.

20 MR. ROLFES: Welcome.

21 DR. BUCHANAN: Okay. I think that

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1 clarifies some points that weren't clear in
2 the past. I'll move on. If there are any
3 other questions, comments? I'll move on to
4 the next issue.

5 MEMBER LEMEN: This is Dr. Lemen.

6 MR. KATZ: Yes, go ahead, Dick.

7 MEMBER LEMEN: I had a couple of
8 questions on what percentage of the estimated
9 total workforce do you have records on?

10 MR. ROLFES: Dick, this is Mark
11 Rolfes, and I have to check back in the
12 Evaluation Report. I can pull it up here if
13 you'd like to wait a minute, but we do have
14 that detailed in our Evaluation Report. I
15 don't know, Monica, you might be able to get
16 it faster than I can. If you wouldn't mind
17 taking a look as well.

18 MEMBER LEMEN: Along with that
19 same question, of those percentages of the
20 ones that you have of the estimated, how many
21 of those do you have individual dose data on,

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1 what percentage?

2 MS. HARRISON-MAPLES: May I ask a
3 clarifying question? You're asking how many
4 people do we have dose data on for the entire
5 workforce?

6 MEMBER LEMEN: Yes.

7 MS. HARRISON-MAPLES: We don't
8 collect dose data for the -- well, the CER
9 database would have dose data for probably
10 most of the entire workforce, but within the
11 NIOSH project for dose reconstruction, we
12 collect dose data for claimants, so --

13 MEMBER LEMEN: Yes. I understand
14 that but of the claimants, how many actually
15 have dose data and not estimated data?

16 MS. HARRISON-MAPLES: That I know
17 -- that we do have in the ER report. Let me
18 continue to look for my version of that.

19 MEMBER LEMEN: That's all I got.
20 I'll wait for your answer.

21 MR. FITZGERALD: Yes. I guess,

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1 Mark, you're looking for the data.

2 MR. ROLFES: Correct.

3 MR. FITZGERALD: While you're
4 looking for the data, I'll go back to
5 something Stu said earlier, which I think this
6 is sort of a dilemma that we face with most of
7 the SEC sites, knowing whether or not what DOE
8 gives you is actually a complete set and how
9 would you know if it weren't, which has pretty
10 important implications for things like
11 coworker dose. You want to make sure that you
12 have a complete set to operate off of.

13 I'm hearing that you're using
14 whatever documentation was captured,
15 individual dose reconstructions, as you go
16 through individual dose reconstructions.
17 That's the answer you were referring to is the
18 dose reconstruction answer.

19 For the SEC answer, you point to -
20 - I think you're pointing to things like the
21 CER database as a check, you know, for

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1 completeness. Now the pause I have on that,
2 and I'm just trying to think about this, is
3 that I suspect that the CEDR project which
4 generate the CER database, the epi project at
5 DOE is probably relying on the same set of
6 data that it made available to NIOSH and that
7 acquisition of data for the site.

8 So there's a -- I'm a little
9 concerned that you're using the CER database,
10 but they all may come from the same source of
11 what exists for the site and what's been
12 presumed to be a quote, unquote, complete set
13 of data for the site, although, you know, I
14 don't think DOE necessarily -- I don't know
15 for sure, this is something maybe it would be
16 worth looking at -- has performed a validation
17 that this, for all intents and purposes,
18 represents the dose data that was generated at
19 the site, and there are no gaps or no
20 questions about individuals that may or may
21 not have been monitored.

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1 From what I've heard, I don't yet
2 get a sense that that loop has been closed,
3 that you really know that what you got -- and
4 I understand the frustration, you know, how do
5 you know it's complete -- but I don't know
6 whether DOE, before they generated the CER
7 database, might have gone through some
8 exercises. It's possible. I think some of
9 the sites did do a V&V, a validation and
10 verification of their data before they
11 compiled it. I'm not sure about that though,
12 and I'm not sure whether they might have done
13 that before they sent the data to NIOSH. And
14 so I think there is an inquiry that may or may
15 not have been done.

16 To just figure out has anyone
17 really gone through and tried to -- I think
18 Dick Lemen was getting to the point I was
19 thinking about too -- well, I'd like to know
20 what the employee, you know, if you have an
21 employee list by year, maybe even by work

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1 categories, there may be a way to get some
2 sense of whether there's a consistency in the
3 amount of individuals included in the database
4 versus what you should be seeing by virtue of
5 the employee list. And we've done this at
6 other sites, but so far, I haven't really
7 heard the kind of check that Los Alamos --
8 their V&V was going back through logbooks and
9 just trying to make sure that anything that
10 was earmarked as a, in that case, a bioassay.

11 You could crosswalk and find a record, a dose
12 record. So, you know, there's a V&V process
13 that most sites go through. I don't sense yet
14 that we have that. We may. I just don't
15 sense so far that we have covered that,
16 whether DOE has done it or whether you all
17 have done it.

18 I think what you've been using is
19 the CER as a check, but I'm concerned that
20 that may actually be using the same understood
21 data as a basis, so you'd be checking against

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1 the same data you're acquiring from the DOE.

2 MR. HINNEFELD: Okay. This is Stu
3 and I'm not as familiar with the situation as
4 most of the people, but I want to make sure I
5 understand where we're going here. So when
6 you say the completeness of the database, the
7 database, I guess, is the CER database. Is
8 that true? Is that --

9 MR. ROLFES: No, no --

10 MR. HINNEFELD: What database are
11 we talking about?

12 MR. ROLFES: We're talking about
13 the database that DOE, when you go to each
14 site -- and you did this 6-7 years ago and
15 said, you know, we need the dose record for
16 the site, and they ship over what they've got.

17 And you collect through data capture other
18 documents which would be used to corroborate
19 during dose reconstruction. I'm going to the
20 SEC context. I like that distinction you
21 made. You know, SEC context says, okay, how

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1 do you know that you're dealing with a full
2 deck of cards. Well --

3 MR. HINNEFELD: Okay. Now so
4 there is another database, besides the ER, for
5 Weldon Spring?

6 MR. ROLFES: I'm not aware of that
7 and that's what I was going to say. Usually,
8 when DOE, at least in the earlier years of
9 this program, DOE would go back and pull hard
10 copy records. They may have changed things
11 now and put things into a database. I don't
12 know if that's been done or not for this
13 specific site. You know, for example, like
14 with Fernald, they've entered all of their
15 hard copy data into a database. As far as I
16 know with the Weldon Spring site, there is no
17 electronic database. It's all hard copy
18 original records still. So --

19 MS. HARRISON-MAPLES: Mark, that's
20 correct, there is no database.

21 MR. ROLFES: Okay. Thank you,

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1 Monica.

2 MR. HINNEFELD: So in terms of is
3 the database complete compared to an employee
4 roster, the check that could be made there
5 would be on the CER database? Does the CER
6 database contain data for the employees or at
7 least employees' job categories that you would
8 expect to have monitoring data on? I mean
9 that sort of completeness can be done. And
10 that would be important because the CER data
11 is used for the coworker approach?

12 MR. FITZGERALD: Well, no, no. My
13 point was I would like to know that the CER
14 database, if you're going to use it for that
15 purpose, was validated when they put it
16 together by DOE so you know you're not using
17 the -- if the CER database was based on these
18 hard copy files, then literally, what you got
19 from DOE and the dose records and the CER
20 database are one in the same, so of course,
21 you would expect them to agree. You know,

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1 they're using the same source of information.

2 But I would like to know that when
3 they put the CER database together, just
4 somebody said, you know, I want to make sure
5 that we did -- this is as complete as it needs
6 to be -- were records lost; are there gaps,
7 certain gaps that we're seeing -- that
8 somebody asked those questions. Very well
9 they may have when they put the CER database
10 together.

11 MR. HINNEFELD: Okay. So the
12 question here then is the CER database, did it
13 faithfully capture all the records available
14 and was there a sufficient QC done on that.

15 MR. FITZGERALD: If NIOSH proposes
16 to use that as a means to validate that it's
17 got what it's got and so that would be where I
18 would look and say, you know, how was that
19 actually compiled, and did somebody ask that
20 question. Do we know we got what we need to
21 have or not in terms of the actual dose

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1 records at the site.

2 MR. HINNEFELD: For what purpose
3 are we using the CER database? I guess that's
4 what's puzzling me.

5 MR. FITZGERALD: We don't use it
6 right now for dose reconstruction. We rely
7 upon the hard copy records that we received
8 for each individual's DOE response. Separate
9 from that, we did take, as a secondary check,
10 as Monica had explained, we used the CER data
11 to double-check to make sure that we received
12 as much data as is available.

13 MR. HINNEFELD: So now when we do
14 that, what does that mean? We look, we see
15 Joe Smith, and we've got a series of hard copy
16 record for Joe Smith, which is what we got on
17 his file. And we said, okay, we have this
18 other source of data, whoever built the CER
19 database a number of years ago also built a
20 line. Let's see if they built a line for Joe
21 Smith. Then look, they built a line for Joe

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1 Smith. And look, his external adds up to
2 higher than these individual hard copies we
3 have. Is that what we do? I'm sorry, I just
4 don't understand how it plays into the
5 question at all.

6 MR. FITZGERALD: Well, what we're
7 hearing is that it's used as a secondary check
8 on completeness. I don't disagree with that.

9 I'm just saying that do we know that the CER
10 database, which is an epi database, was
11 constructed in a way which, in fact, examined
12 the question of did we, in fact, collect all
13 the necessary records or not.

14 At some point, somebody's got to
15 ask the question how do we know we got the set
16 of records which were generated at this site.

17 And you said before, we'll never know. Well,
18 I think that's part of the program that we
19 need to ask those questions and to make that
20 inquiry, because for something like a coworker
21 approach where you're going to be relying on

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1 the completeness to make some judgments.

2 So I'm just trying to go, step
3 backwards to try to figure out, okay, I don't
4 have any problems with certainly the CER
5 database being that check on completeness, but
6 I would want to know that somebody didn't just
7 simply throw paper together and that was the
8 CER database but really went through some
9 process of validating the historic
10 completeness of that, because a lot of sites,
11 you know, and we've experienced this at
12 different places, records were disposed and
13 lost and discarded and you name it. And the
14 question is how -- what gives you some
15 confidence that you have a complete set or
16 not.

17 MR. ROLFES: We can look into CEDR
18 and see if we can possibly get some kind of
19 information from them as to the quality
20 assurances of the CER data. Monica, is this
21 something that we should be able to get from

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1 CEDR?

2 MS. HARRISON-MAPLES: I'm sorry,
3 did you say me?

4 MR. ROLFES: Yes. I wondered if -

5 -

6 MS. HARRISON-MAPLES: First word
7 got lost. I wasn't sure you called my name.
8 I believe that we can go back to CER and to
9 CEDR and try and find some sort of
10 verification procedures from them.

11 MR. ROLFES: Okay.

12 DR. BUCHANAN: This is Ron. I
13 don't -- I kind of agree with Stu on this that
14 you can't really trace -- I mean I'm not
15 saying that's a bad idea is that you could
16 look at CEDR, but since we don't use that for
17 primary dose reconstruction, I think it should
18 be focused more on the data we do use. We're
19 using the scanned copies of the originals and
20 then the NIOSH creates a database from that to
21 be used in dose reconstruction. And the dose

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1 reconstructor has the originals to refer back
2 to if he needs to. And checking the CER
3 database verification would be okay and if
4 that would be reasonably to do.

5 But I don't think that necessarily
6 defines the root problem of do we have
7 external data in the bioassays from the
8 worker. And that almost goes back to the
9 other sites we've looked at where you go in
10 and do, you know, 20 or 30 claims and see if
11 there are significant gaps in a worker's data
12 that should have been monitored or think
13 potentially should have been monitored.
14 That's what we have been using in the past.
15 So not that CER is a bad database, but I don't
16 think it's the final answer to this question.

17 MR. ROLFES: So, Ron, what you're
18 asking then -- this is Mark Rolfes -- would be
19 a claim-specific dose reconstruction
20 essentially, because that is what, in fact, we
21 do during the dose reconstruction process is

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1 try to identify any of those shortcomings in
2 monitoring and apply claimant-favorable
3 assumptions to ensure that we've overestimated
4 the person's potential dose rather than
5 underestimating it.

6 DR. BUCHANAN: On an individual
7 dose reconstruction, I agree with you. Now
8 from an SEC point of view on the completeness
9 of the data being used generally, to answer
10 that question, the only sense, like Stu says,
11 you can't be sure you got every box of files
12 and stuff. You know, what we resorted to in
13 past sites in this question is to go back and
14 randomly select 20 or 30 claims and look at
15 their records and see if they're recently
16 complete for the periods that they would have
17 been exposed. And I don't think that's been
18 done in any way, you know, like we've done for
19 other sites.

20 DR. MAURO: This is John Mauro.
21 I'd like to weigh-in just a little bit. The

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1 concern that's being expressed here is one
2 that really gets to almost a ground floor of a
3 process, that is when you initiate a process,
4 whether it's to capture data to do dose
5 reconstructions, to write a Site Profile, or
6 to support an ER, you know, you rely on DOE.
7 You make -- I've seen the letters. You send
8 the letters out to the workers and material
9 comes back on worker-specific data. Then
10 there's a data capture effort where you try to
11 capture hard copy or electronic everything
12 that DOE has, and what shows up shows up, and
13 you have this array of information available
14 to you now to support the work that needs to
15 be done.

16 It's my understanding that once
17 that process begins for a Site Profile or an
18 ER, you have -- there appears to be an ongoing
19 data capture process which, I guess, now that
20 we're having this discussion is sort of
21 dawning on me that the idea that you have a

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1 complete data set is always a troubling issue.

2 That is has DOE done everything they can to
3 try to find relevant records that might
4 pertain to either an individual worker or to
5 the site in general when you're trying to do
6 coworker development if that's necessary to
7 fill in gaps? When you engage in this process
8 for giving yourself a level of assurance that
9 you think that you've done everything
10 reasonable to capture all the data and that
11 DOE has done everything reasonable to capture
12 the data, is this something that's written
13 down?

14 I have to say that I've always
15 looked at it from the point of view, okay,
16 here are the records that are available to us.

17 We go into the site query database. We go
18 into individual case files, and we use what we
19 have to say something intelligent about
20 whether we think the records are fairly
21 complete and you can do a dose reconstruction

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1 and/or build a coworker model or whether or
2 not there might be some sufficient
3 deficiencies in perhaps certain aspects of the
4 data. This is a deep question, and I have to
5 say I don't know if we've had this
6 conversation before. That is are there
7 specific steps that NIOSH typically goes
8 through to make sure that all parties
9 concerned are being as exhaustive as possible.

10 I remember visits to various record centers
11 that were off site in different locations to
12 capture records, whether it was air sampling
13 data or any other -- those kinds of records,
14 which became part of a data capture process
15 but usually that was well into, let's say, a
16 review cycle, like things that have been done
17 with Pantex and Mound, et cetera. And
18 Fernald, it happened with the thorium-232
19 DWEs.

20 I guess the question is really and
21 now we have before us Weldon, and the question

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1 becomes, "Okay, as this issue applies to
2 Weldon, were there any steps taken to provide,
3 whether DOE or NIOSH, to say, okay, are we
4 fairly confident that we have captured all the
5 data?" In this case, it sounds like hard copy
6 data as opposed to some kind of electronic
7 data, that there are some records that might
8 be missing. The first question is do you
9 folks at NIOSH have a procedure -- I haven't
10 run into it quite frankly -- we reviewed a lot
11 of procedures -- where you actually talk about
12 what are some of the things that need to be
13 done to try to be as exhaustive as possible?

14 MR. ROLFES: I guess that question
15 was for us, John Mauro. This is Mark Rolfes.
16 We've gone on a number of data captures for
17 the Weldon Spring site, and originally, when
18 we developed the Site Profile, we identified
19 records in Oak Ridge. Subsequently, during
20 the SEC evaluation process, we also identified
21 additional records in the Oak Ridge vault.

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1 There have been records that have turned up
2 from Fernald and other sites across the United
3 States. Anytime we go on a data capture trip
4 to one of several tens of different DOE
5 repositories, for any DOE site that we find
6 information, we always capture that whether or
7 not that's our original intent. If we're
8 going out to look for Fernald data but happen
9 to find something for Weldon Spring, we'll
10 also capture the Weldon Spring data.

11 So we've gone on many data
12 captures since the inception of this program
13 looking back to the earliest days of the
14 Manhattan Engineer District to look for and
15 identify anything relevant to our program.
16 And it's not just a one-time effort. If we
17 learn about new data, we pursue that data and
18 make sure that we do our best to capture as
19 much as possible that's relevant to the dose
20 reconstruction process.

21 DR. MAURO: Is there something

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1 that exists in any guideline or is it just not
2 possible? In other words, is this -- the
3 nature of the process is a form of research
4 that unfolds before you as you dig? Or is
5 there some set of -- there might be a
6 procedure that says, okay, as our first cut,
7 in addition to opening up the -- having your
8 MOU with DOE and making your request for data
9 -- protocol, are there other guidelines to
10 help to search the one you just described? Or
11 is it really something that is allowed to
12 unfold as you learn more because, you know,
13 depending on the site where there might be a
14 repository, might be different?

15 I'm actually trying to get to
16 something standardized. And if there is
17 something that's standardized by way in which
18 you folks at least give yourself a sense of
19 assurance and therefore documentation that
20 you've then exhausted and captured data as you
21 can, that you did, in fact, follow that

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1 procedure, that that procedure was reviewed
2 and approved and that, in fact, your staff in
3 this particular application, on Weldon, in
4 fact followed that procedure. Or is it really
5 something that's not written down and it's
6 really ad hoc and you document as you go
7 along?

8 MR. ROLFES: I'd say most of the
9 time, if we have a data deficiency, we would
10 identify that either during a peer review at
11 the Oak Ridge Associated Universities team or
12 during the final review and approval of the
13 technical basis document within DCAS. And,
14 you know, if we have identified, for example,
15 during the review of a TBD that there are some
16 shortcomings in the thorium data or the dose
17 reconstruction approach proposed in a TBD, we
18 would ask the Oak Ridge Associated
19 Universities team to go back and look for
20 additional data. Or, you know, DCAS itself
21 would go out and look for additional data to

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1 make sure that we've got as much data as we
2 possibly can to develop a technical basis to
3 complete a dose reconstruction.

4 So there's not something that's
5 written down, but if we identify deficiencies
6 in a technical basis document, then we would
7 go out and pursue additional data to look, to
8 make sure that we've collected everything that
9 there is. And once again, as Stu and I have
10 said, we're never going to have every piece of
11 data, but we do have a very comprehensive -- I
12 think we've collected nearly 100,000 documents
13 for this project only within our Site Research
14 Database. That does not include the
15 individual's dosimetry records that we have
16 within our NIOSH OCAS Claims Tracking System.

17 So we're not dealing with a small volume of
18 records. It's a rather comprehensive and
19 large number.

20 MR. HINNEFELD: John, this is Stu.
21 To your question is there a procedure for

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1 this completeness of search, I don't think
2 that there is a procedure written like that
3 and probably because different sites are sort
4 of site specific.

5 DR. MAURO: You know, and I
6 respect that and can understand that because
7 I've seen the process at work. What I'm
8 hearing though is that there is a degree of
9 due diligence that you have brought to this
10 particular case whereby, as Mark just
11 described, the various things that were done
12 to review the hard copy and perhaps the CER
13 data, certain questions you posed to it,
14 things you look for, certain data capture
15 efforts that follow-up as a result of that
16 process.

17 In other words, what I'm hearing
18 is there may very well have been an aggressive
19 effort to be as exhaustive as possible, the
20 degree to which that can be recorded so that
21 all folks concerned feel that there was a

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1 degree of significant effort made to make sure
2 you're as complete as you can be, what I'm
3 hearing is that perhaps the Site Profile --
4 and you can answer this for me because I got
5 to say I haven't read the Site Profile, not in
6 quite some time -- whether or not that kind of
7 descriptive material on the various steps that
8 were taken to confirm to try to make sure
9 there are no people or types of data, whether
10 it's bioassay, air sampling, film badge data,
11 whatever, radiation work permit data, you
12 know, that what steps were taken to make -- to
13 try to be as sure as possible, working with
14 DOE and their various records processors, that
15 you've captured everything that, I guess, is
16 reasonable to be done. Is that written up
17 somewhere? I'm hearing that that is not
18 written.

19 MR. FITZGERALD: John, this is
20 Joe. I just sense that we're kind of getting
21 off the mainstream topic on this one. There

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1 is no question that there was a high degree of
2 due diligence in data capture, and we see this
3 in most sites. I mean I think NIOSH has gone
4 through a lot of effort to pick up whatever
5 records are available.

6 Our point goes to something a
7 little different, though, saying that quite
8 apart from that due diligence and the process
9 by which you collect as much as you can, at
10 some point there's a question that has to be
11 answered, which is, well, how do you know you
12 have a complete set of the dose records
13 themselves. Clearly, you take what DOE gives
14 you, and I'm sympathetic to Stu's comment that
15 it's hard to know if you got it all. But
16 that's the charter that the Board has given
17 itself as far as data adequacy and
18 completeness because the implications that has
19 for things like coworker dose model
20 development and what have you is to answer the
21 question, do you believe or have confidence

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1 that you have all the necessary records for
2 dose reconstruction from that particular site,
3 and how do you know that. And there are
4 different ways to answer that. And we
5 actually have answered that in different ways,
6 different forms at different sites.

7 And some sites, DOE, and sometimes
8 in conjunction with NIOSH, has gone through a
9 lot of trouble to do a V&V, verification and
10 validation, of that database before it's
11 actually employed in dose reconstruction.
12 Other sites NIOSH has done things, and
13 actually SC&A has done on occasion, the kind
14 of sampling that Ron's talked about, which is,
15 okay, let's query the database and do some
16 sampling to see if we feel confident we have
17 it all.

18 MR. HINNEFELD: This is Stu. Let
19 me just offer this. I've been -- to satisfy
20 my own curiosity, I've luckily found a Weldon
21 Spring claim that reported the exposure

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1 history, that we have their exposure history.

2 I don't know if this is -- if they're all
3 like this or one. This is the first one I've
4 looked at. What we did on exposure record,
5 when we asked the DOE for the exposure record
6 from Mallinckrodt, we got freaking everything.

7 We got the personnel security questionnaires,
8 and it just goes on and on and on.

9 And then for the dosimetry
10 section, we also have a handwritten, you know,
11 image of a handwritten dosimetry card that
12 shows the year, 1957, the weeks, and then
13 every other week, there's an entry for beta
14 and gamma. So this apparently is an image of
15 the record kept at the site and for most
16 years. And I haven't done a study and I've
17 only looked at one claim, but in this case,
18 there seemed to be data every other week which
19 would indicate to me they run a two-week
20 batch. Exchanging that a little later on,
21 there's data once a month or something like

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1 that.

2 And so from that standpoint,
3 having received this, we can make a judgment
4 if there's a data entry every two weeks, we
5 currently have the complete record for this --

6 MR. FITZGERALD: For the
7 individual, yes.

8 MR. HINNEFELD: And so Ron's point
9 a while ago was, you know, he suggested maybe
10 that we take a random sampling of the 260 some
11 odd claims and do that kind of check on those
12 claims to see if, in fact, these tend to be
13 complete, you know, there's not a year missing
14 or a page missing or something like that. And
15 then -- and so have some sort of report on
16 that, and that would indicate that for at
17 least this sampling of people that we have
18 chosen, there seems to be some level of
19 confidence that the exposure records that are
20 retained by DOE and provided to us in response
21 to requests are complete. Is that what is

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1 suggested here?

2 MR. FITZGERALD: That answers one
3 of two dimensions to the issue.

4 MR. HINNEFELD: Okay. That
5 answers which one then?

6 MR. FITZGERALD: Well, you know,
7 for example, at another site, Rocky Flats, we
8 felt that the validation in terms of
9 completeness, we had all the records, but then
10 the question was did you have all the records
11 for all the years that individual would have
12 worked in a certain operation. So we, in
13 fact, did the sampling that Ron brought up for
14 that purpose, to answer that question.

15 But it doesn't answer the question
16 whether or not you have all the individual
17 records to begin with, that, you know, you're
18 operating off this presumption that what you
19 have is, in fact, 100 percent of the monitored
20 workers at that site. I don't know if that
21 question has been answered. Do you have --

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1 MR. HINNEFELD: The question about
2 do we have 100 percent of the monitored
3 workers -- I'm trying to --

4 MR. FITZGERALD: Records for those
5 workers.

6 MR. HINNEFELD: Okay. Do we have
7 the records --

8 MR. FITZGERALD: For the records
9 that you do have, they appear to be very
10 comprehensive. You have everything from hard
11 copy up to, you know, you have a whole file on
12 every individual worker. So for the ones you
13 do have, it looks like it's pretty
14 comprehensive. The only question may be,
15 similar to what Ron's raised, are there any
16 gaps that may exist for those individual
17 records.

18 My question is a little different.
19 How do you know you have all the individual
20 records to begin with and has that been
21 validated by DOE before they made those

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1 records available.

2 MR. HINNEFELD: All the individual
3 records meaning that there are some people for
4 whom you should have records that we didn't
5 get.

6 MR. FITZGERALD: Of course, at
7 some sites over the ensuing history, some
8 records were discarded, some records were
9 lost. I mean that's been the nature of the
10 beast for every site. And the question is
11 what we typically do is establish has anyone
12 done comparisons, for example, against
13 employee lists, or has anyone looked at the
14 documentation you've collected, done some way
15 of -- is there anyone that appears that they
16 should have been monitored or were monitored,
17 did have records, but we don't have a file
18 necessarily in this group of files that DOE
19 sent over.

20 MR. HINNEFELD: Okay, well, so
21 that process would require then finding a

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1 roster, maybe several rosters, annual rosters
2 or whatever, preferably with job titles
3 because I don't know what they're monitoring
4 practices were and if there were any
5 unmonitored people or anything, finding on
6 that roster all the claimants because we would
7 only have the individual exposure records for
8 the claimants, finding on that roster the
9 claimants. And then for that list of
10 claimants, all the claimants on the roster,
11 did we get an exposure record from them.

12 MR. FITZGERALD: But you have
13 exposure records not just for claimants, you
14 have exposure records -- you would presumably
15 get exposure records for everybody that -- I
16 mean for all the records they happen to have
17 at --

18 MR. HINNEFELD: I don't --

19 MR. FITZGERALD: They only sent
20 you --

21 MR. HINNEFELD: -- why we would

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1 have gotten that.

2 MR. FITZGERALD: They would only
3 send -- most of the DOE sites have sent
4 whatever they had in terms of records, and
5 then you would cull them out for dose
6 reconstruction --

7 MR. HINNEFELD: No, no. Most
8 sites send us a response to an individual
9 claim request. For the individual exposure
10 records, we get -- we ask what are the
11 exposure -- what exposure records do you have
12 for Joe Smith, and they send us Joe Smith.

13 MR. FITZGERALD: Right.

14 MR. HINNEFELD: Okay. That's how
15 we get individual exposure records. On data
16 captures, on occasion, particularly when we're
17 building a coworker model, we may ask for the
18 complete database, like this 20 at Fernald,
19 for purposes like building a coworker
20 database, or maybe if we're getting air sample
21 data which aren't going to show up in the

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1 bioassay record. So we may on occasion, at
2 some sites, ask for the complete database.
3 But that's not the routine, and not every
4 place had an electronic database of all their
5 records. So we don't, as a routine -- as a
6 routine matter, we ask for Joe Smith. We get
7 Joe Smith's record, and that's what's in that
8 guy's file, and that's what I'm looking at
9 when I see these data every other week.

10 MR. FITZGERALD: And there hasn't
11 been an instance when you've had a claim that
12 you haven't got a record back from DOE?

13 MR. HINNEFELD: Well, now Ron
14 suggested that we do that.

15 MR. FITZGERALD: No, no. I'm just
16 saying that there hasn't been an instance
17 where you requested a file that you didn't
18 have dose data provided by --

19 MR. HINNEFELD: Oh, sure. I mean
20 I don't know about Weldon Spring, but, yes,
21 there --

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1 MR. FITZGERALD: Well, I'm just
2 saying for Weldon Spring. What I'm sort of
3 getting at is, you know, we're looking at the
4 completeness of dose records at Weldon Spring,
5 and it's almost -- this is almost an empirical
6 process where you sort of know if you -- you
7 know, how complete it is by virtue of whether
8 you get a positive response from the site
9 every time you have a claimant come in.

10 MR. HINNEFELD: No. I think what
11 we're saying is that if we don't get exposure
12 record for a person, and I don't know if it
13 happens at Weldon Spring, but I know a lot of
14 sites it happens that people either weren't
15 monitored, or we don't get a record, or the
16 DOE can't find a record of the monitoring, in
17 that sense, then we would have to make a
18 judgment about this person's exposure
19 potential. And usually, in that situation, we
20 go to a coworker approach, and, you know,
21 there are some levels then there which, I

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1 guess, is a -- if that's going to be debated,
2 it's probably a debate for a different group
3 because it's used everywhere as opposed to
4 just at Weldon Spring. But -- so that's what
5 would be done in that circumstance for a
6 person who fits into what looks like a
7 monitored position, should have been monitored
8 and for some reason, DOE doesn't have the
9 exposure record. Then we would have to use
10 some alternative for a dose reconstruction.
11 Or if we feel like we can't build a sufficient
12 coworker model that -- that's led to a bunch
13 of SECs.

14 MR. FITZGERALD: Well, yes, that's
15 kind of where I'm headed to some extent
16 because at some point, in order to fill in
17 gaps where you don't get a response and you
18 have to assign a coworker dose, perhaps by
19 worker category, you do need to know what the
20 dose distribution is across the monitored
21 employees for the site. So that gets you

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1 passed the empirical just asking and getting
2 to looking at the set of records, the
3 monitoring dose records for the site and
4 deciding whether or not you can do a
5 distribution to support a coworker -- and that
6 entails that you know you got them all or that
7 you can at least --

8 MR. HINNEFELD: It entails that
9 the site records that you received do not
10 inordinately discriminate against more highly
11 exposed people, that more highly exposed
12 people were not in some way systematically
13 excluded from the record you got. It does not
14 necessarily require that 100 percent of the
15 records collected are there because --

16 MR. FITZGERALD: But --

17 MR. HINNEFELD: -- you would
18 expect them not --

19 MR. FITZGERALD: -- you're
20 switching from individual records one at a
21 time to looking at the body of dose records

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1 for the site to come up with that
2 distribution. I agree with what you're
3 saying, but at some point, you do the macro of
4 what records you got.

5 MR. HINNEFELD: If needed for a
6 coworker.

7 MR. FITZGERALD: Coworker dose.
8 And it's conceivable, and this is another
9 issue, but at some point, you're not going to
10 get a response that you have a dose of record
11 and it's somebody in a worker category who
12 obviously looks like they should have been
13 monitored but you don't have a record for
14 them. You have to make an assignment and that
15 will compel, I think, you to have to do that
16 review or analysis to come up with the
17 coworker estimates.

18 And I don't see how you get there
19 unless you do what we were talking about,
20 which is to verify that the complete deck of
21 cards as far as the dose records for the site

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1 are available, we can look at it, and by
2 worker category feel like we can come up with
3 a distribution for certain worker categories
4 and assign it as a coworker dose. See, at
5 some point, you get to the point of having to
6 make an assessment of the completeness of the
7 data at the site.

8 MR. ROLFES: And to answer that,
9 also, Dick had brought this up earlier, he had
10 asked about the number of people that were
11 monitored at Weldon Spring site, and this is
12 presented in the Evaluation Report on page 14
13 in Table 4-1. I just wanted to answer this
14 really fast and also another thing that John
15 Mauro had previously asked. Anyway, here
16 we've got a description, the total number of
17 claims submitted for dose reconstruction from
18 the Weldon Spring site was 258 at the time of
19 March 12, 2010. The total number of claims
20 that were submitted which met the Class
21 Definition for the evaluation of January 1,

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1 1957 through December 31, 1967 was 244. The
2 number of dose reconstructions completed at
3 that time was 180, and the number of claims
4 for which internal dosimetry records were
5 obtained for the years in that evaluated class
6 was 207. The number of claims for which
7 external dosimetry records were obtained was
8 192. So 192 and 207 out of the 244 cases, if
9 that helps.

10 MR. FITZGERALD: Well, how many
11 would -- are being deferred because there
12 isn't a dose record and one would have to come
13 up with maybe a coworker assignment? Do you
14 have any that fall in that category?

15 MR. ROLFES: That's not presented
16 in the Evaluation Report. That's something on
17 an individual basis, as we had mentioned, you
18 know, for example, if you expect someone such
19 as a chemical operator, you would expect that
20 they would have lots of monitoring data
21 because that's a higher exposure category, we

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1 haven't gone through to look, you know, on an
2 entire basis of how many chemical operators
3 weren't monitored. However, that would
4 certainly raise some suspicions. You know, if
5 we had a chemical operator that never had any
6 monitoring data, we'd say probably that
7 individual was probably monitored but we don't
8 have his data or -- so we'd need to focus on
9 that individual's lack of data.

10 MR. FITZGERALD: And that's where
11 this goes to. You, at some point, go from
12 dose reconstruction to dose reconstruction
13 where you're getting the records from DOE to a
14 point where you have to do a coworker
15 assignment or do something like that by worker
16 category for whatever reason, you know, the
17 record's not there, that DOE comes back, says
18 no record. And when it's a chemical operator
19 or something, you're going to have to make an
20 assignment, and that assignment is going to be
21 based on a dose distribution for chemical

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1 operators at Weldon Spring. And you're going
2 to be looking at, okay, do we have essentially
3 all the data that we need for chemical
4 operators and how do we know that's all the
5 data, because this one person's missing data,
6 you have to wonder, well, do we have half the
7 data or three-quarters of the data, or is this
8 the exception to the rule and we have most of
9 the data. And that's what you're going to
10 have to answer to come up with that
11 distribution and to make that assignment.

12 And this is really conventional.
13 I think we've been up against the same issue
14 at every site, but in this case, you know, a
15 judgment has to be made if, in fact, the dose
16 records are complete enough to do that
17 distribution. And what I said earlier was,
18 well, you know, the CER database is an epi
19 database, but my question is whether DOE, at
20 the time, had gone back -- or I guess NIOSH
21 did CEDR, right -- whoever did it --

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1 MR. HINNEFELD: I believe ORAU did
2 CER separate from --

3 MR. FITZGERALD: -- whoever
4 constructed the CER database, did they, in
5 fact go back and answer that question, do we
6 have everything, you know. And I'd be
7 interested in knowing what the regime was,
8 because certainly if it looks like a pretty
9 systematic approach and they turned over the
10 rocks and this is best as they can tell and
11 lay out, that they've gotten all the data, I
12 think that goes a long way to provide some
13 confidence.

14 It may not answer Ron's question
15 which is, okay, if you have all the data for
16 an individual case, do you -- is there gaps.
17 And, you know, of course, there may be gaps.

18 MR. HINNEFELD: I think you can
19 probably look at one of these files, and you
20 can see whether or not there are weeks missing
21 or exchanges missing or if there were maybe

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1 years with no bioassay data. I haven't looked
2 through this whole record. There may be years
3 with no bioassay, but then the guy's a
4 chemical operator. That might be something we
5 would hope to see.

6 MR. FITZGERALD: That's another
7 question. So really, the central question of
8 how you're going to assign a coworker dose.

9 MR. HINNEFELD: How is that -- I
10 thought that was the question we were just
11 asking. Now you've got this exposure from
12 this guy. How do you know it's complete? I
13 think you would know it was complete based on
14 what it tells you, how many numbers you have
15 in this record he told you, and does that fit
16 what you would expect --

17 MR. FITZGERALD: Well, within an
18 individual dose record, you would answer the
19 question as to whether or not the file is
20 complete.

21 MR. HINNEFELD: Right.

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1 MR. FITZGERALD: I'm going to a
2 larger question which is how do you know you
3 have a, in a broader sense, a complete set of
4 records that would enable you to do a coworker
5 dose model.

6 MR. HINNEFELD: So in order to do
7 something for someone that we don't get an
8 exposure record for?

9 MR. FITZGERALD: That's right.

10 MR. HINNEFELD: Okay. I got that
11 note.

12 MR. FITZGERALD: There's two
13 facets to this, but the first one is pretty
14 fundamental because, as you noted earlier,
15 there has been a number of SECs awarded just
16 basically because, you know, the database
17 couldn't be shown to be complete enough to
18 support coworker dose developments. You could
19 not make that assignment with confidence, so
20 that was an SEC.

21 So in this case, all I'm saying is

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1 how do we know that we do have a complete set
2 sufficient that you can develop that coworker
3 approach. That's all.

4 MR. HINNEFELD: Okay.

5 MR. ROLFES: We've done a pretty
6 good job at trying --

7 MR. HINNEFELD: I don't think
8 we're going to settle it today, so I don't
9 know if we need to keep arguing about it
10 today. I'm just trying to get down exactly
11 what that --

12 MR. FITZGERALD: Clarifying --

13 MR. HINNEFELD: Yes, because when
14 you start talking about the completeness and
15 quality of data, and I'm staring at the
16 handwritten record that they kept, apparently
17 contemporaneously, with the guy's work, I'm
18 thinking I don't know what I have to do for
19 this. And that's what we use in this guy's
20 dose reconstruction, but now we've kind of
21 gone into a different approach of the unmarked

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1 -- not a different -- help my understanding --
2 to understand that we are talking about people
3 where we don't get the exposure record, and do
4 we know we have a complete enough data set to
5 deal with that.

6 MR. FITZGERALD: That's right.

7 MR. HINNEFELD: Okay. If that's
8 the issue, I've got that in my --

9 MR. FITZGERALD: That's right, for
10 coworker --

11 DR. BUCHANAN: And tacked onto
12 that -- this is Ron -- is if you go in there
13 and you see that the individual had gaps that
14 are more than just he didn't turn in his badge
15 or missed a bioassay and stuff, you know,
16 large gaps in, say, 20 or 30 cases, you see a
17 lot of them have gaps that are chemical
18 operators or whatever who should have been
19 monitored, then that's going to tell you that
20 probably there's some data missing someplace,
21 that there are some handwritten files that

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1 didn't get transferred over and stuff. Yes,
2 their monitoring was right. Either that or
3 the monitoring wasn't done the way it should
4 have been.

5 So, you know, you have two things,
6 two aspects. Was each individual that should
7 have been monitored, are the bioassay records
8 available? And secondly, is the overall
9 population monitored enough to get a coworker
10 base out of it? So those are the two
11 questions that we're asking.

12 DR. MAURO: This is John again.
13 By way of process, I thought I -- hear a path
14 forward that might help to achieve closure.
15 And it may really go to a process that whether
16 you're implementing it or not is the question.

17 You make your request for data for individual
18 cases. The data shows up, and you have an
19 ongoing process of data acquisition from DOE
20 which probably is protracted for individual
21 workers and also for different time periods,

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1 different types of activities, different types
2 of data. So this goes on for some time.
3 While that's going on, you're doing dose
4 reconstructions for people where you can, and
5 you're trying to move out to dose
6 reconstruction. So there's a process at work.

7 What I'm hearing is there could be
8 a useful linkage between the folks that are
9 looking at the actual records for individual
10 workers, and let's say they're doing some
11 internal dose, gathering up the bioassay data,
12 and as we've all seen, there are always
13 periods of time where we don't have neutron
14 data, we don't seem to have bioassay data, or
15 we don't seem to have certain type of bioassay
16 data that might be useful or helpful. At that
17 point, typically, what happens is a coworker
18 model is either developed or applied.

19 However, there could also be a
20 trigger that says, you know something, I'm
21 noticing that we're -- for this particular

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1 worker, we would have expected to see
2 quarterly urine samples collected and analyzed
3 for uranium or thorium, but we're not seeing
4 that. And it's almost as if there's a loop
5 here by way of process that says, you know,
6 there probably are some records out there that
7 we're missing.

8 And I'm just sort of thinking out
9 loud now that if that's, in fact, in place,
10 that link between your DR people who are
11 looking at the data and trying to do a good
12 dose reconstruction and your data capture
13 people who are always out there trying to
14 scour for more data, if there's a link that
15 one helps to steer the other, that would be a
16 process that would go a long way to providing
17 the step that gives everyone assurance that
18 you're really doing everything reasonable to
19 capture data, to have a complete record.
20 Because in the end, everyone has to feel
21 confident that you did everything reasonable

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1 to capture all the data that might be useful.

2 And then at that point, you say, okay,
3 really, this is all we've got, more might show
4 up, but right now it looks like we've done the
5 best we can.

6 And then you move forward from
7 there and you build your coworker model once
8 you find out where the holes are, and we're
9 off and running into whether or not we've got
10 sufficient data to reconstruct doses from this
11 building or from this isotope whether it's
12 neutron, beta, whatever it is.

13 But I think that whether you do
14 this or not, I don't know, but it might be a
15 good idea to use the dose reconstruction data
16 for individual people, and when gaps show up
17 that sort of say, look at this gap. I could
18 see that feeding back to the data capture
19 effort. Do you know whether or not that's
20 done?

21 MR. ROLFES: John, this is Mark

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1 Rolfes. And we have a partial answer to that,
2 I guess. If you take a look at the Evaluation
3 Report that NIOSH has produced, I point you to
4 page 79, and it has Attachment 1, Data Capture
5 Synopsis, which identifies the information
6 that we've gone out to look for in data that
7 we've collected, when it was completed, and
8 how many of those documents we've uploaded
9 into the Site Research Database.

10 Now something prompted those data
11 captures, and that piece isn't necessarily
12 there. However, we've got 13 pages of
13 information which explain all of our previous
14 data captures and where those data captures
15 occurred for the Weldon Spring plant.

16 MR. HINNEFELD: John, this is Stu.
17 I would offer that I know what you're
18 describing occurs. I don't know if it occurs
19 religiously or not. I know that there have
20 been many times over the course of the almost
21 8 years since I've been working on this -- it

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1 only seems like 18 -- that there were
2 technical holds put on dose reconstructions
3 from a particular site because the dose
4 reconstructors, when trying to do the dose
5 reconstruction, says, "Holy cow, we don't have
6 enough information to deal with this
7 particular kind of dose, and therefore, we
8 need to do some site research to see if there
9 is a way to do it." And that was called a
10 technical hold. Claims from that site were
11 pending, and then site research had to go see
12 if there was a way to find information to
13 allow that to proceed.

14 So I know that has happened over
15 time. I don't know for sure how much history
16 I can reconstruct if you're interested in
17 seeing that. I mean that's more of a general
18 question. It's not a specific Weldon Spring
19 question. But I might be able to get you some
20 stuff that kind of shows some of that.

21 But I don't know that -- has that

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1 -- I mean have there been occasions when a
2 dose reconstructor was doing a dose
3 reconstruction, particularly at a place with
4 not a lot of claims, and he said, "Well, I
5 don't have this data. I will do something. I
6 will do a model." Usually, when they do that,
7 they try -- they get with a team leader or
8 something if they would have to do that, if it
9 is done. I won't ignore that it's done. If
10 it would be done, it wouldn't be one dose
11 reconstructor doing it. There would have to
12 be an approach generated that would have been
13 -- be generally useful because we try to do
14 these things consistently.

15 MR. MORRIS: Ted, this is Bob
16 Morris.

17 MR. KATZ: Yes, Bob.

18 MR. MORRIS: Yes. I wanted to add
19 one more thing and answer a question from
20 previous. Each site has a lead dose
21 reconstructor, and that person has the purview

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1 to see the issues popping up in all of the
2 dose reconstructions from the sites. And I am
3 confident that those people would be spotting
4 gaps that were systematic.

5 But then specific to a question
6 that was raised earlier about the procedures
7 for data capture that ORAU Team worked
8 against, there is ORAU Team Procedure 0025.
9 It's called Data Reconnaissance and Data
10 Capture. It was first issued in July of 2004,
11 and it talks to the process of identifying the
12 available records, making site contacts with
13 people, and using the finding aids that are
14 available for the sites, and it's an iterative
15 process. Refer you to that for the answer to
16 that question about systematic approach to
17 data capture.

18 MR. FITZGERALD: I think we've
19 been on this quite long enough. Can we just
20 get back to, I think, your thought that you
21 would look at this issue of completeness in

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1 the context of coworker models and all that.

2 MR. HINNEFELD: The notes I've
3 taken that I think addresses what's been
4 discussed here is one is to address the issue
5 of for individual claims, are there holes in
6 individual claims, you know, remarkable holes
7 in individual claims.

8 We discussed doing a sampling of
9 the Weldon Spring claims, and in going through
10 these samples and seeing for these people and
11 these job titles what does their exposure
12 record actually look like. Were they
13 monitored for external and, if so, was it
14 complete for the years of their work. Were
15 they monitored for internal, and if so, during
16 what frequency during the course of their work
17 and for what radionuclides. So we can do that
18 and see if there is some sort of systematic
19 omission in terms -- or even very commonly if
20 things -- if there seem to be gaps in what you
21 would expect to see. Okay, so we can do that.

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1 We can also develop for -- what is
2 done for coworkers in terms of for people in
3 the instance where we don't get an exposure
4 record for a person, what do we do and how do
5 we know that's okay. So in terms --

6 MR. FITZGERALD: Stu, could I --

7 MR. FITZGERALD: But I'm not --
8 the process is less of -- you know, I think
9 the process is laid out. I'm just -- my
10 question is how do you know you have
11 sufficient records to support a coworker
12 assignment, in other words that you're -- you
13 have to come up with a dose distribution that
14 is based on a complete enough set of records
15 that dose distribution --

16 MR. HINNEFELD: Okay. I'm just
17 not familiar enough with the criteria. I
18 think they're out there.

19 MR. FITZGERALD: It's a question
20 of representativeness. Can that dose
21 distribution that you're going to assign 95th

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1 percentile to a coworker that doesn't have any
2 records, is that reliable enough and
3 representative enough? And the only way it's
4 representative is you have a complete set of
5 information so that distribution would be a
6 sound representation for that particular site,
7 for that particular worker category perhaps.

8 MR. HINNEFELD: Well, I mean this
9 has been discussed a number of other places as
10 well.

11 DR. MAURO: This is John. I think
12 that it's important that we make a separation
13 between data completeness in its essence, that
14 is has everything been done and tests been
15 placed on the data that we feel confident that
16 we've captured everything that we humanly can
17 capture. The second question is once you've
18 done that, you know, are the data good enough
19 to do dose reconstruction, to build coworkers,
20 do we have SEC issues.

21 So I'd like to stick just for one

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1 more moment to the first step. I heard three
2 lines of attack that could be used to document
3 that you were, in fact, thorough in making
4 sure you've got all the data. The first is
5 the one that you currently already do very
6 well. You make a major assault on all the
7 record centers, and you go out there and just
8 scour, but it's really like just going, making
9 sure if there are records on Weldon Spring
10 someplace, at the Hanford's record center,
11 we're going to go look for them.

12 The second piece has to do with
13 Dick Lemen's point, roster information. I
14 don't know how productive that could be, but
15 that's another line of attack. Say, listen,
16 we have information on the rosters of all the
17 people that have worked there over this 10-
18 year period, and is there any way knowing that
19 roster that we could pose questions to the
20 data that we did gather that seems to be --
21 seems to indicate it. It's never proof but

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1 it's weight of evidence that we really did get
2 most of the people that probably should have
3 been -- that were on the roster and perhaps
4 should have been monitored for something that
5 is important to them. That would be another
6 weight of evidence. So that's a roster
7 concept.

8 One is the assault. The second is
9 a roster. The third is holes in individual
10 workers' records themselves. That would be
11 the third leg of this stool that we're trying
12 to build to stand on. The third leg would be,
13 okay, when we look at the actual records for
14 the people that we do have records for that
15 have been provided by DOE, and our dose
16 reconstructors are looking at it, and as you
17 said, your lead dose reconstructor would be
18 the person that would start to see something
19 emerge, my goodness, it seems that we're
20 missing a lot of data on this particular time
21 period, this particular category of worker,

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1 this particular process, et cetera. Probably
2 should have seen some more bioassay data here.

3 Maybe it's just lacking and that's that, but
4 maybe it exists and we haven't found it.

5 So what I'm getting at is that I
6 almost -- form in my mind while we've talked
7 is a three-step element that makes up a
8 process that when documented in your Site
9 Profile or your ER report, will communicate to
10 the world the things that you have done to be
11 due diligent in making sure that you've
12 captured the records that were out there and
13 that you did the best you could.

14 Then you leave that subject and
15 then you move on to the subject that Joe just
16 mentioned. Okay, now that we feel pretty
17 confident we got everything that's out there,
18 now we have to ask ourselves the question is
19 that data good enough to do the things that
20 need to be done. And, of course, that's
21 another subject altogether.

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1 MR. FITZGERALD: Well, you know,
2 listen, the SEC is a very specific set of
3 inquiries, and the question is whether or not
4 the data is complete enough to support dose
5 reconstruction in the sense of a coworker
6 model development. I mean I think we're
7 conflating this by including things like due
8 diligence and, you know, whether a good faith
9 effort was made to turn over as many rocks as
10 possible. I mean those are all worthy
11 objectives, and certainly we take that at face
12 value that, of course, NIOSH is going to be
13 aggressive and look for paper. I don't think
14 that's the central question.

15 Central question is whether you
16 can demonstrate that your set of records is
17 sufficiently complete to support dose
18 reconstruction. That's the central question
19 for the SEC, and there are two questions that
20 are embedded in that. I think, Stu, you've
21 written them down. One is for any individual

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1 record, how confident are you that there is
2 not gaps that can't be filled. You know,
3 that's one question.

4 The second question is at some
5 point, you're not going to necessarily get a
6 dose record back from NIOSH in a claim.
7 You're going to have to turn, if it's a worker
8 category that clearly should have been
9 monitored, you're going to have to turn to a
10 coworker assignment. How are you going to do
11 that? That's a very specific question. How
12 are you going to do that and on what basis?

13 And that basis should include an
14 assessment of the completeness of the records
15 that would enable you to construct a dose
16 distribution for those worker categories,
17 maybe time periods, too, to be able to then
18 take that value, maybe 95th percentile, and
19 assign it to that worker that doesn't have a
20 dose record, which is, of course, SOP for all
21 the sites that we've been up against.

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1 If you can't do that, the records
2 aren't complete enough, the data is not there,
3 that has been a basis for an SEC award in the
4 past. So very specific to those questions,
5 you know, I think there needs to be some
6 treatment by NIOSH on that to enable the Work
7 Group to feel confident that, okay, that
8 issue, which is central to the SEC, we can
9 certainly answer that from a completeness and
10 adequacy standpoint. You know, the data
11 completeness and adequacy, I think, is a
12 foundational question. Before you go any
13 further, is the data there that would enable
14 you to do that? That's pretty much it.

15 MR. HINNEFELD: Those are things
16 at least I can understand.

17 MEMBER LEMEN: Hello, this is Dick
18 Lemen again.

19 MR. KATZ: We can hear you, Dick.

20 MEMBER LEMEN: To follow up on my
21 previous questions, I think this is relevant

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1 to the discussion right now, you said on the
2 table that you have 244 people that meet the
3 Class Definition.

4 MR. ROLFES: I'm pulling the table
5 back up, if you could give me just one second,
6 please. That's correct.

7 MR. KATZ: Dick, are you still
8 there? Dick, we can't hear you anymore. You
9 cut off sort of suddenly. I don't know if
10 your line broke or -- we've lost Dick. It
11 sounded like it cut off, and he's not
12 responding.

13 MR. ROLFES: I guess I've answered
14 his question.

15 MR. FITZGERALD: Moving on.

16 MR. HINNEFELD: Well --
17 recollection we were around 200 out of 244 was
18 the number, so five sixths of the people in
19 the covered period have monitoring data. Now
20 that does not speak to the question, Ron's
21 question, "Well, is it -- are there big holes

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1 in that? Is there any pervasive holes in
2 that?" I mean so there is --

3 MR. KATZ: It doesn't answer
4 whether they all needed to be monitored
5 either.

6 MR. HINNEFELD: Well, in fact,
7 that's true. I mean there could be 40 people
8 who had administrative jobs -- I don't know
9 what Weldon Spring's monitoring regiment was.
10 I don't know when they chose to monitor.

11 DR. BUCHANAN: This is Ron with
12 SC&A and, yes, they -- none of -- most of --

13 MEMBER LEMEN: Hi, this is Dick
14 Lemen again. I got cut off.

15 DR. BUCHANAN: Okay.

16 MR. KATZ: Welcome back, Dick.

17 MEMBER LEMEN: I understand you
18 didn't want to hear my question.

19 (Laughter.)

20 MR. KATZ: We actually didn't -- I
21 think you cut yourself off, Dick, because we

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1 didn't lose anyone else, I don't believe but -

2 -

3 MEMBER LEMEN: No. I know I cut
4 myself off. I don't know how I did it, but I
5 did it. But anyhow, back to my question which
6 I think is relevant to this discussion, there
7 are 244 people that meet the Class Definition
8 according to the table.

9 MR. ROLFES: Correct.

10 MEMBER LEMEN: And if I read the
11 report right, that table came from, there are
12 nine buildings. Are those nine buildings all
13 included in the Class Definition?

14 MR. ROLFES: It's the entire site,
15 that's correct.

16 MEMBER LEMEN: And throughout the
17 nine buildings, you have further in that
18 broken down to ten job categories, correct?

19 MR. ROLFES: Could you point me
20 what page you were referring to in the
21 Evaluation Report?

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1 MEMBER LEMEN: Table 6-7. I don't
2 know exactly which page that's on, but that's
3 the table I'm looking at.

4 MR. ROLFES: Okay, I'm there.
5 Thank you.

6 MEMBER LEMEN: And my question is
7 of the 244, have you broken it down -- I
8 didn't see it in the report, maybe you did and
9 I missed it -- have you broken down how many
10 of those 244 fit into the nine buildings and
11 was there a lot of interaction between moving
12 from one building to another during the work
13 process? And the next question is in the ten
14 job categories, how did the 244 fit into those
15 ten job categories? Is there a sort of a
16 preponderance, say, in -- do you know how many
17 worked in each job category to start with?
18 And then what percentage of the 244 represent
19 each job category? Do you follow what I'm
20 saying?

21 MR. ROLFES: I understand what

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1 you're asking, and that's not something that
2 we've done. That's something that is sort of
3 done on an individual basis. We look at the
4 individual's exposure history and work
5 locations in order to assign a claimant-
6 favorable distribution for the energies to
7 which the individual was exposed to, for
8 example, whether it's 250 and above keV
9 photons or 30 to 250 keV photons. We usually
10 try to look at the buildings that the
11 individual is working in and make a good
12 judgment as to the radiation energies that he
13 was exposed to.

14 MEMBER LEMEN: The question I'm
15 really getting at is is there any -- in the
16 ability to do reconstruction, are there any
17 buildings that are really under represented?
18 And secondly, are there any job categories
19 that are really under represented?

20 MR. ROLFES: We haven't broken
21 down a stratification of the monitoring data

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1 by building, by job category if that's what
2 you're referring to.

3 MEMBER LEMEN: Those two questions
4 seem to me to be key as to completeness of
5 data sets. That's all I got to say. I'd like
6 to see that breakdown --

7 MR. KATZ: That garbled --

8 MR. HINNEFELD: He's saying he'd
9 like to see that --

10 MR. KATZ: -- if possible.

11 MR. HINNEFELD: I don't know.
12 We'll have to go find out. I don't know if we
13 have enough information to do that or not.

14 MR. ROLFES: Don't know if we'd be
15 able to from an individual's exposure record.
16 In order to do that, we'd have to have that
17 building reported with each individual
18 exposure history. And when we complete a dose
19 reconstruction, we don't need to know what
20 building an individual is in if we have the
21 badge data and their bioassay data.

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1 MEMBER LEMEN: But doesn't the
2 dose -- doesn't the job category have an
3 important role as well as the building?

4 MR. ROLFES: Well, in establishing
5 monitoring criteria for individuals, it does.
6 However, in our program, it doesn't
7 necessarily. If we have monitoring data, for
8 example, for -- well, I guess it depends. For
9 example, if we would see a chemical operator
10 that had no monitoring data, that would
11 certainly be important. However, if we have a
12 chemical operator that has, you know, plenty
13 of external and internal bioassay data,
14 knowing what job category or building they
15 were in and when they worked in this building
16 or that building is not going to be important
17 in the dose reconstruction process. We
18 usually apply claimant-favorable assumptions
19 based upon our Site Profile in order to
20 interpret that individual's records.

21 MR. HINNEFELD: This is Stu. I

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1 think, Dick, where you're going, and I'm not
2 sure that the program follows, but I think I
3 want to understand the question and see what's
4 possible and how we go with this. Where
5 you're going is that you're looking for just
6 the data that we have sufficiently
7 representative of not only building location
8 but also of job title --

9 MEMBER LEMEN: Absolutely. You
10 said it better than I did.

11 MR. HINNEFELD: Okay. And so I'm
12 not 100 percent sure what we can do at Weldon.
13 I'm not 100 percent sure, you know, what we
14 can do at other sites as well on that. It has
15 to do with how well we can reconstruct an
16 individual's work history essentially because
17 the data are going to be linked to an
18 individual.

19 And so we would have to, for each
20 individual, track their job assignments and
21 sort of put them in a category by year

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1 depending on what job they held that year, and
2 then put them in a building by -- based on my
3 experience, I suspect there will be job titles
4 that will never be specific to one building
5 but rather will be working throughout the
6 plant, and maintenance is the obvious answer.

7 Very few places that I am aware of would have
8 kept a maintenance staff that worked in Plant
9 4 and no one else ever went into Plant 4. You
10 know, millwrights would work where a
11 millwright was needed and whatever building
12 that was in, by and large. So that would be
13 my expectation at least.

14 So I think there would be some job
15 titles that would be distributed. You know,
16 their work experience would be distributed
17 among the site, and there are some job titles,
18 I would suspect, for some period of time would
19 be restricted to one building. I would think
20 a chemical operator probably was assigned to a
21 specific chemical process and worked on that

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1 until the workload required that he move and
2 do something else or until a more desirable
3 job opened up that he could bid out to. This
4 is my experience from a very similar plant is
5 that's how things worked.

6 So that's -- it's a fairly
7 complicated answer and even if it -- even to
8 simplify it, I'm not so sure we have the
9 information that would allow us to do it, but
10 I'll see what we can do.

11 CHAIRMAN GIBSON: This is Mike.
12 It seems to me that Dick's question has
13 everything to do with you being able to verify
14 that you have sufficient data to do coworker
15 modeling.

16 MR. HINNEFELD: Well, I mean this
17 is going to be a broader question in terms of
18 coworker, and I don't know if the Board's
19 getting ready to take that up or not. I see
20 coworker is on the Board's agenda for the
21 February meeting, a coworker presentation.

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1 Coworker approaches, as we have
2 generally done them up to now, provide
3 essentially -- treat the population of the
4 work site as the coworker, and for those
5 categories of workers who are heavily exposed,
6 they receive an exposure typically of the most
7 -- that we would judge be heavily exposed.
8 They would get a percentile of the population
9 distribution, of that exposure distribution
10 that equates to among the most highly exposed
11 in the monitored population.

12 For people who are intermittently
13 exposed, for instance, I don't know what the
14 examples we would use, rad tech maybe, maybe a
15 transportation worker, who are in the work
16 areas but not dealing with radioactive
17 material all the time would probably receive a
18 somewhat less level on that percentile.

19 And administrative workers would
20 receive probably receive an environmental dose
21 or a lower percentile of the monitored

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1 population.

2 Now I'm only speaking here about
3 people who are not monitored who fit into
4 those categories. That heretofore has been
5 the standard coworker approach, and when you
6 start -- and the reason for that is that when
7 you start subdividing your worker population
8 the various ways you can, I mean you can slice
9 and dice this worker population on more ways
10 than just this, on job title and building, you
11 end up with vanishingly small populations to
12 try to draw a coworker distribution from.

13 And so you are essentially
14 starting out trying to achieve something that
15 on the face of it, you're not going to be able
16 to achieve because you won't have the data in
17 sufficient quantity to fill all these niches.

18 So that argument has occurred.
19 That discussion has occurred. I don't know
20 that there's been any resolution to it.

21 MR. FITZGERALD: Going back to

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1 Dick's comment, I mean, and what Mark was
2 saying earlier, one approach would be simply
3 chemical operators, a pretty central -- you
4 know, there's enough population in there --

5 MR. HINNEFELD: I would think
6 there would be.

7 MR. FITZGERALD: -- think there
8 would be. I would say, okay, for chemical
9 operators, how many rostered chemical
10 operators did you have at Weldon --

11 MR. HINNEFELD: -- your question
12 of --

13 MR. FITZGERALD: -- versus how
14 many files, how many dose files did DOE --

15 MR. HINNEFELD: That depends on
16 finding roster information.

17 MR. FITZGERALD: Well, as I'm
18 saying, you know, then you compare it against
19 how many individual dose files do you have
20 against that, and if you had 98 percent of the
21 rostered chemical operators who you had dose

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1 files for, I think your distribution's going
2 to be pretty sound. You could use it to
3 assign that one or two that are missing a dose
4 record, just, you know, a coworker dose
5 without too much qualification. But if it
6 turns out there's 85 chemical operators
7 rostered, you have dose files on 40, then I
8 would say, yes, problem, because you don't --
9 you know, if you're looking for the 95th
10 percentile, something up there, you don't know
11 if you've captured it because you're missing
12 half your records.

13 MR. HINNEFELD: That I certainly
14 understand where you're coming from, and I
15 don't object to it. You know, it's one of the
16 things that I've noted here that we're going
17 to try to do. I'm just feeling that -- and if
18 we went with chemical operators and maybe a
19 couple of other heavily exposed populations
20 where you would expect they should have
21 monitored these people, and you should have a

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1 fairly complete set, I would think that we
2 could do that.

3 Now when you start going down --
4 especially when you start bringing out
5 maintenance crafts --

6 MR. FITZGERALD: I agree with --

7 MR. HINNEFELD: -- you're going to
8 break down a millwright from an electrician
9 from a pipe fitter from whatever else, you're
10 going to have vanishingly small populations.

11 MR. FITZGERALD: It's population
12 driven. Otherwise, the statistics get a
13 little funky, so I don't disagree with that
14 either.

15 MR. KATZ: So are you saying, Stu
16 -- I just want to be clear about something.
17 So are you saying, Stu, you can -- since you
18 don't hold all these records, you only get the
19 records as you get claims --

20 MR. HINNEFELD: Yes.

21 MR. KATZ: -- but -- so are you

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1 saying that if you can get a roster, you can
2 also go to DOE and ask them for all of their
3 information on all chemical operators for
4 Weldon Spring, or what have you, whatever the
5 bin might be?

6 MR. HINNEFELD: Well, whatever
7 we're going to use for a coworker, you know,
8 if we're going to have a coworker approach,
9 whatever we are going to use for coworker, we
10 would have to demonstrate is sufficiently
11 broad. And so as a general rule, if we have
12 250 or 240 claimants and there were how many
13 people worked at Weldon Spring over the 15 or
14 20 years it was open -- I guess a little less
15 than that -- that 250 claimants we have may
16 not be a very complete set. So the actual
17 exposure -- building a database out of the
18 exposure responses we got may not be
19 appropriate. I don't know. We'd have to take
20 a look at it.

21 But on the other hand, if, for

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1 instance, a CER database -- should be
2 relatively complete in terms of the workers
3 there, I would think. If you were going to
4 use something like that in a coworker, and I
5 don't know, I'm not saying we're doing that,
6 but if you're going to do something like that,
7 that you would compare that to some sort of
8 rostering for completeness on that.

9 Whatever you're going to use for
10 this coworker is what you have to demonstrate
11 is sufficiently complete and sufficiently
12 representative. That's what I'm saying.

13 MR. KATZ: My only question was
14 whether you have access to the denominator --
15 whether the DOE can pull all that up.

16 MR. HINNEFELD: I don't know.

17 MR. KATZ: It sounds like it's
18 hard copy. I mean it seems like --

19 MR. HINNEFELD: I don't know --

20 MR. KATZ: -- that would be an
21 enormous effort for them to respond --

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1 MR. FITZGERALD: Yes, and that's
2 where I was throwing out the possibility that
3 they did do that for CER. I don't know but --

4 MR. HINNEFELD: I don't know and -

5 -

6 MR. FITZGERALD: -- and it is a
7 lot of work.

8 MR. HINNEFELD: It's generally not
9 universally true that we know the roster of
10 the workers or even the total number of
11 workers.

12 CHAIRMAN GIBSON: So it sounds
13 like to me then for issue one, what we need to
14 have at the next meeting and hopefully maybe
15 satisfy SC&A and maybe close this, is DCAS is
16 going to find out if there was any V&V done on
17 the CEDR data, and also DCAS will present what
18 information they have to show that they have
19 sufficient data to generate coworker dose
20 models. Is that --

21 MR. HINNEFELD: Yes. And then the

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1 other thing we said was that we would take a
2 sampling of the responses that we got and do
3 some sort of evaluation of whether there are
4 pervasive holes in what should be there or
5 just, you know, maybe on occasion, you know,
6 somebody failed to turn in a badge --

7 MR. FITZGERALD: And you'd have to
8 design that to some extent so it's a random
9 over maybe several years, you know, just
10 different years.

11 MR. HINNEFELD: Yes. We would
12 want to sample -- I'm sure there are sampling
13 strategies that people who are smarter than me
14 can think up and the size of the sample and
15 everything be dictated by the number of
16 claims.

17 MR. FITZGERALD: But going back to
18 what Ted was saying, yes, I think maybe the
19 biggest challenge will be whether or not, you
20 know, if it's all hard copy, whether you can
21 get that denominator --

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1 MR. HINNEFELD: Yes, whether the
2 denominator is knowable is an open question.
3 I don't know if we --

4 MR. FITZGERALD: But that sort of
5 opens the door to well, at some point, you may
6 have to open that door and how would you do it
7 in this case. And I don't think there's an
8 easy answer. Maybe one possibility, as Mike
9 was pointing out, that they, keep your fingers
10 crossed, did something similar on CEDR, and
11 that might be a big step forward. If they
12 didn't do it, then nobody has actually done it
13 at Weldon Spring, which is a real question
14 mark.

15 MR. HINNEFELD: Yes, if CER --
16 they may have made some statements about that.
17 When they built that database, they may have
18 made some --

19 MR. FITZGERALD: They may have
20 gone back and done exactly this, said, how do
21 we know we have all the chemical operators.

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1 MR. HINNEFELD: Since that was
2 done for epidemiology, I would think that they
3 would be looking for essentially the entire
4 population. They would want to try to find
5 out.

6 MR. FITZGERALD: They would want
7 to make sure they had everybody.

8 MR. HINNEFELD: Yes, who do we --
9 you know, who's in this study.

10 MR. FITZGERALD: How do they find
11 out if they had everybody.

12 MR. HINNEFELD: Or if they can't
13 get everybody, I guess, they would -- they
14 could do their study on the monitored
15 population. I don't know.

16 DR. BUCHANAN: Okay. This is Ron.
17 I'd like to move on. I did have a couple of
18 clarification questions.

19 MR. ROLFES: Can we take a quick
20 break before we --

21 DR. BUCHANAN: This is just to

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1 finish this off.

2 MR. ROLFES: Can we take a quick
3 break before we carry on, please?

4 DR. BUCHANAN: Okay.

5 MR. KATZ: Okay, wait. So, yes,
6 we've been going on for almost two hours
7 straight, so Mike is right, a 10 minute break.

8 I don't have a watch on to tell what time it
9 is right now.

10 DR. BUCHANAN: 10:51.

11 MR. KATZ: So about a little bit
12 past 11, we'll get started again. I'm just
13 putting the phone on mute, folks on the phone.

14 (Whereupon, the above-entitled
15 matter went off the record at 10:50 a.m. and
16 resumed at 11:01 a.m.)

17 MR. KATZ: Let me just check and
18 see that we have our Board Members on the
19 line. Dr. Lemen and Mr. Presley?

20 MEMBER LEMEN: Yes, I'm here.
21 Ted?

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1 MR. KATZ: Yes, hi. Thanks, Dick.

2 And, Bob, we have you, too?

3 (No response.)

4 MR. KATZ: Okay, no Mr. Presley
5 right now. Anyway, carry on.

6 DR. BUCHANAN: Okay. This is Ron
7 from SC&A. I just had two clarifying
8 questions, and then I think we need to move
9 on. Mark, when you said that there were 244
10 claims that met SEC at Weldon Spring and 207
11 had internal and 192 had external monitoring,
12 now this, are you saying they were complete
13 records, or if they had one point, one badge
14 or one bioassay, it was counted as having --
15 do you know the details just briefly on that?

16 MR. ROLFES: Well, if they have
17 external monitoring data, that would have
18 counted as one. We don't look to see how
19 comprehensive that data set is. Some
20 employees, you know, there were some people
21 that only had a few weeks of employment. You

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1 would only expect to have one point. Other
2 people might not have had any because they
3 might not have been a radiation worker. But
4 within each individual case, that's not
5 something that we've done for the SEC
6 evaluation. We've just generalized or
7 summarized the information.

8 However, on the dose
9 reconstruction process, we do go through each
10 claim to make sure that the data is complete
11 and look to -- check to make sure that there
12 is enough information to do a dose
13 reconstruction there.

14 DR. BUCHANAN: Okay. Thank you.
15 The other point I'd like to make is this is --
16 matrix issues number 1A, C, and D. A and C
17 was the internal and external data
18 verification. C was the coworker model, and I
19 think that we have spent enough time on that.
20 I would like to emphasize that the coworker
21 model is necessary.

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1 From what I understand, the ER,
2 when we get into the environmental section,
3 there was a lot -- in the Site Profile review,
4 there was a lot of environmental monitoring
5 issues, and according to the ER, that they
6 planned on using the workers' exposure to
7 limit exposure to people that might not have
8 been monitored from environmental exposure,
9 and that that would cap -- limit -- would
10 bound their exposure. And so the coworker
11 model would be important if that's going to be
12 used to bound the unmonitored person either in
13 the workplace or in the environmental.

14 So with that, I'd like to move on
15 to issue number 1B, which is the daily
16 weighted average alpha concentration. Now I'd
17 like to get a little bit of history on this.

18 The issue was that in the ER, they
19 presented some hair sampling data for uranium
20 and thorium, and if I remember correctly, said
21 that that could be used for limiting exposure

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1 for SEC purposes. And so there wasn't a whole
2 lot of detail, but I believe that was the gist
3 of it.

4 And now the daily weighted average
5 of alpha exposure measurements has been an
6 ongoing issue at Fernald. And so we didn't
7 want to waste resources on recovering it at
8 Weldon Spring just yet. And so what SC&A has
9 done was since Weldon Spring received this
10 material from Fernald, we wanted to work with
11 the Fernald and see its outcome before we
12 apply that directly to Weldon Spring or NIOSH
13 applies it to their details at Weldon Spring.

14 I want to get a little bit of
15 background on that so that you know where SC&A
16 is coming from on that. At Fernald, in
17 February of 2002, NIOSH issued a Fernald DWE.
18 That was Morris reference 2009. We discussed
19 this a little bit at the last Weldon Springs
20 meeting. I need to go down through this list
21 of documents at issue so you see where we

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1 stand today.

2 In July of 2009, SC&A issued a
3 White Paper concerning the use of DWEs for the
4 Fernald site. And then we had our meeting
5 here on the 19th of October 2010, and that was
6 discussed at that meeting, and SC&A was tasked
7 to look at that for Fernald and extrapolate it
8 to Weldon Spring.

9 November 2010, NIOSH issued
10 Revision 3 of their White Paper for Fernald,
11 and that was too late for SC&A to include that
12 in their response to NIOSH's Revision 2 that
13 came out earlier. It came out about the same
14 time. And so SC&A, what they did, they
15 reviewed NIOSH's Revision 2 and 3 in light of
16 Davis and Strom's 2008 Health Physics article.

17 And in December of 2010, they issued a report
18 using Revision 2 of NIOSH's paper. And I
19 talked to the head of that task, and they plan
20 on taking NIOSH's Revision 3 into
21 consideration and reissuing that now that they

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1 have that in hand. That was planned on being
2 done in February. I contacted them recently,
3 and they said they weren't sure when it was
4 going to be issued, but in the near future.

5 So for Weldon Spring, what SC&A is
6 doing is waiting on that revision from SC&A's
7 paper evaluation of NIOSH's Revision 3 and
8 then look at that in terms of Weldon Spring.
9 And so, of course, NIOSH will want to look at
10 that Revision 3 reply from NIOSH and see how
11 that affects their plans for their ER at
12 Weldon Springs. And so that is pending really
13 at this point.

14 MR. FITZGERALD: Maybe I missed
15 it, but putting in perspective the White Paper
16 that we did present, the Stiver-Chmelynski
17 paper that was dated November, how does that
18 bear -- I mean it's not up to date, or is that
19 two different things?

20 DR. BUCHANAN: No. And, in fact,
21 I think we're coming to some sort of an

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1 agreement as NIOSH has went back and re-
2 evaluated their position in light of the Strom
3 & Davis article of 2008. And I think SC&A is
4 in agreement except for two points or so. I
5 don't want to speak for the author of it, but
6 I think we're coming to an agreement.

7 MR. FITZGERALD: So the paper that
8 was provided in November that NIOSH now has
9 from us is going to be tweaked based on
10 Revision 3 --

11 DR. BUCHANAN: Right.

12 MR. FITZGERALD: -- but it still
13 embodies a lot of the issues that we're
14 concerned about relative to the Strom paper?

15 DR. BUCHANAN: Right.

16 MR. FITZGERALD: Okay.

17 DR. BUCHANAN: And so it appears
18 that SC&A's first read of NIOSH's Revision 3
19 looks like we're coming to very much of
20 agreement except for a couple points they're
21 going to point out.

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1 DR. MAURO: Ron, this is John. I
2 spoke to John Stiver this morning about the
3 status of that report since we are also
4 getting ready for the Fernald meeting. And we
5 expect to have our new White Paper on this
6 issue coming out, ready to go out toward the
7 end of this week, early next week, along with
8 some other White Papers, and that will address
9 this issue certainly as it applies to Fernald,
10 but, as you've mentioned, it has direct
11 applicability, the technique that was
12 developed. And in talking to John, we've come
13 a long way to achieving closure on most of the
14 important issues, but that's -- there are
15 still a couple of things we do need to talk
16 about. But we will have our draft Fernald
17 report out real soon, and I think that should
18 help out here.

19 DR. BUCHANAN: Okay, thanks, John.
20 And, John, make sure that Mark and Stu get
21 copied on that when it's appropriate if you

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1 would.

2 DR. MAURO: Very good.

3 MR. MORRIS: Ted, Bob Morris here.

4 MR. KATZ: Yes, Bob.

5 MR. MORRIS: I have a question.

6 John just referred to the draft report. Do
7 these reports ever get marked as non-drafts?

8 DR. MAURO: I guess the answer is
9 -- all our reports -- maybe I can help a
10 little bit with SC&A's reports.

11 MR. MORRIS: Okay, please.

12 MR. KATZ: Yes. SC&A reports go
13 out for use in these types of deliberations
14 that we're having right now, and there was a
15 question that came up many years ago on do we
16 try to then, as we move through this
17 protracted process, like we're having now and
18 that we will have in the future, try to
19 somehow in the end finalize one of our reports
20 and say it's a final report. And it was
21 determined that it was impractical because of

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1 the protracted nature.

2 The record that we are forming
3 right now on the transcript and the matrix
4 that we issue represent the documentation of
5 the status of issues resolution regarding all
6 of our reports. So our written reports, as
7 they are put up on the web and as they're
8 distributed to all interested parties, remain
9 in draft form in perpetuity. And it is only
10 the record that we are forming right now that
11 will allow a person to see how -- and the
12 matrix, which makes that a little easier --
13 how, in fact, the status of issues resolution
14 and how, in fact, they ultimately were finally
15 resolved.

16 I believe eventually, of course,
17 some decision is made and judgment is made by
18 the Board on, let's say, an SEC-related
19 matter. And, of course, therein lies the end
20 of the process when that recommended --
21 recommendation is made. But unfortunately,

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1 no, we do not try at that point to say, okay,
2 let's revise our report. It's just not
3 practical. And I believe, Ted, you were part
4 of that conversation we had some time ago.
5 Now do you feel that I characterized that
6 properly?

7 MR. KATZ: This is correct, and I
8 guess it's unfortunate. Up front and when
9 this all got started, they probably should
10 have just been called working papers. That's
11 really what they are in a sense, working
12 papers for the Board, and that's why, you
13 know, in this other construction, they're
14 called drafts, but they're working papers.
15 But they move things along, but the Board's
16 the one that's the actor in this process at
17 the end of the day.

18 MR. MORRIS: Okay, thanks very
19 much.

20 MR. HINNEFELD: Yes. Bob, this is
21 Stu Hinnefeld. If it relates to knowing what

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1 to prepare -- what to use in preparation for
2 these meetings, any product that SC&A delivers
3 to the Advisory Board or a Working Group or a
4 Subcommittee of the Advisory Board, they also
5 copy us on those deliveries. And that is
6 their contribution to the discussion. Whether
7 it says draft or what it says, you don't worry
8 about that. That's their contribution to the
9 discussion, and that's the issues that we are
10 to respond to or deal with. Okay?

11 MR. MORRIS: Excellent. Thank
12 you.

13 DR. BUCHANAN: So let's move on to
14 issue number two in the matrix --

15 CHAIRMAN GIBSON: So just a
16 minute. What was -- so what did we decide
17 here about the use of the daily weighted
18 average? Was --

19 DR. BUCHANAN: Okay. In SC&A's
20 response that will be issued next month to
21 NIOSH's Revision 3, that will be sent to Stu

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1 and Mark to evaluate, and I will receive a
2 copy and evaluate it and see if there are
3 issues left at Weldon Spring or if we have
4 reached agreement on it.

5 CHAIRMAN GIBSON: Okay. So we'll
6 have an answer to that at the next meeting
7 then?

8 DR. BUCHANAN: Right, we should
9 come to the next meeting either in agreement
10 or hash out --

11 MR. ROLFES: That's assuming that
12 we resolve it at Fernald.

13 MR. KATZ: So, Mike, there will be
14 the SC&A contribution that's coming out that
15 John mentioned, and there will be ultimately a
16 NIOSH response to that out of the Fernald.

17 MR. FITZGERALD: And it's being
18 done for Fernald, and we're taking advantage
19 of that discussion for Weldon Spring, so to
20 some extent, what Mark was saying is it's
21 going to be debated at Fernald, and then we'll

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1 have to figure out whether there are issues
2 that are specific to Weldon.

3 DR. BUCHANAN: Hopefully, it's a
4 little simpler at Weldon, so it should trickle
5 down. That's probably wishful thinking.

6 MR. KATZ: It's good thinking I
7 think.

8 MR. FITZGERALD: Is that sequence
9 going to work out? Is there a Fernald Work
10 Group meeting before --

11 MR. KATZ: Yes.

12 MR. FITZGERALD: -- coming up.

13 MR. KATZ: -- one coming up.

14 MR. FITZGERALD: Okay. So that
15 should work out then.

16 MR. ROLFES: About two weeks away?

17 MR. KATZ: Two or three weeks
18 away, yes.

19 MR. FITZGERALD: All right. So
20 that'll be on the table --

21 MR. KATZ: Yes, so the quicker we

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1 can get that Fernald paper, the better, John,
2 for DCAS having time to consider it for this
3 Work Group.

4 DR. MAURO: Yes. I think it's
5 going to go out -- this, that and others are
6 going out this week.

7 MR. KATZ: That's great.

8 DR. MAURO: So we're in good
9 shape.

10 MR. KATZ: Thanks.

11 DR. BUCHANAN: Okay. Are we ready
12 to move on to Issue 2?

13 CHAIRMAN GIBSON: Yes.

14 DR. BUCHANAN: Okay. Issue 2 in
15 the matrix was the lack of personnel
16 contamination and egress monitoring. And this
17 consists of -- at Weldon Spring, they did some
18 bioassay and they did some external monitoring
19 as we briefly discussed. However, there was
20 some contamination monitoring within the
21 immediate work area where they handled the

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1 uranium. However, back in the 50's, uranium
2 was considered a chemical hazard and not too
3 much of a radiation hazard, more of a chemical
4 hazard. And so it wasn't controlled like you
5 would see it in later years and today.

6 And so they did not have any
7 portal monitors or hand monitors or anything
8 like that as the workers left. And so of
9 concern, especially in interviewing the
10 workers, was that there was material that was
11 in unwanted places outside the operating area,
12 in the cafeteria, in the parking lots, on cars
13 and stuff, and the workers left without
14 monitoring themselves to much extent at all.
15 They were required to wear some sort of
16 protective clothing, and showers were
17 available if they wanted them.

18 It wasn't a set rule that they had
19 to shower before they left. And so workers
20 could have left with the uranium in the
21 creases and on their hands and stuff and

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1 transported it to the other places not
2 considered contaminated at the work site and
3 also in their automobiles, in the home and
4 stuff. And so even if they showered, a lot of
5 this material could have stayed in the creases
6 around the neck in the folds and stuff.

7 And so we are concerned that there
8 wasn't any egress monitoring, and the last
9 time we discussed this at the meeting, there
10 was indication that this was a general problem
11 at some of the other sites, too, and that
12 NIOSH is going to look into how it was
13 addressed at other sites.

14 MR. ROLFES: Yes, that's correct.

15 I think Jim and Stu had agreed to take a look
16 at that as a general across the complex type
17 issue. To give you an answer specific to what
18 we would -- you know, try to bring it to
19 Weldon Spring plant. For example, I just
20 drafted this and had these thoughts in my
21 mind, so I just wanted to relay those as some

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1 working ideas, I guess.

2 You'd have to take a look to see
3 what the probability that only the
4 individual's skin was contaminated because if
5 an individual was heavily contaminated, it
6 wouldn't just be his skin that was
7 contaminated. His badge would also be
8 contaminated as well. So if an individual
9 showered at the end of shift or when they got
10 home, they'd wash the majority of that
11 contamination off if any was present.
12 However, the badge, if the badge was
13 contaminated as well, wouldn't be washed. So
14 the badge would continue to irradiated by the
15 uranium deposited on it. And that would have
16 triggered something when the badge was
17 developed, and you can usually identify a
18 contaminated badge. So you'd have to take a
19 look at some specifics.

20 The other thing to consider would
21 be what is the chance that that individual had

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1 contamination on their skin and then was
2 subsequently diagnosed with a cancer in that
3 exact location where they had that skin
4 contamination. So those are some of the
5 things that you have to take a look at, the
6 records that we have for individuals,
7 individual statements. Those are some of the
8 things that we do, in fact, look at in the
9 dose reconstruction process.

10 It's usually also the direct
11 radiation from working with hands-on
12 radioactive material that would contribute the
13 greatest majority of the individual's exposure
14 that they received on their film badge or to
15 their body rather than contamination. A
16 contamination dose is not very significant
17 from uranium just because of it's low specific
18 activity.

19 MR. HINNEFELD: I guess the bottom
20 line though is we owe a written response.

21 DR. BUCHANAN: Okay. And will

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1 provide it. Okay, issue number 3. If there
2 are no questions on 2, we will pursue further
3 information how NIOSH wants to handle that on
4 issue number 2.

5 Issue number 3 is the lack of
6 information for workers during 1967, and
7 that's the reason I set the stage a little
8 earlier on what happened at the site is that
9 it closed down December 1966. It was pretty
10 much idle for a number of years, 1967, perhaps
11 '68, but the SEC goes through '67, so we'll
12 just talk about that.

13 There was no -- I could not find
14 any internal or external monitoring data for
15 '67 for people that worked. According to
16 their documents, they worked through '67. I
17 think I found five individuals and could not
18 find any data for '67 that they were
19 monitored.

20 This was kind of a different
21 situation in that it wasn't production and it

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1 wasn't D&D. The Army had a contractor tear up
2 some of the bricks. And the facilities where
3 a worker could have been exposed, we have
4 several interview reports on that and that
5 there just wasn't any records. And so what
6 they were going to see -- I think last time
7 the action item was to check with DOL to see
8 who was legally responsible for the site in
9 1967.

10 MR. ROLFES: We said that we would
11 provide documentation showing the transfer
12 dates. We believe we had found a document
13 that showed it was officially transferred in
14 August of 1967, so we still owe SC&A that
15 document.

16 Also, looking at the number of
17 claims that we've received, I went back
18 yesterday and looked at the number of claims
19 in the NIOSH OCAS Claims Tracking System that
20 had employment during 1967 at the Weldon
21 Spring plant, and there were 17 cases that had

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1 employment. Of those 17, some might have had
2 just a couple of days of employment in 1967;
3 others worked the entire year. So, yes, we do
4 need to check with the Department of Labor to
5 determine whether it's a covered facility and
6 when the exact cutoff date is.

7 But taking a look at those 17
8 cases that I had identified, 15 of those were
9 compensable already. So it comes down
10 essentially to the employment for two cases,
11 and that's where we stand at the moment.

12 DR. BUCHANAN: Okay, thank you.
13 Issue number 4 in the matrix is the radon and
14 thoron determination for both monitored and
15 unmonitored workers. And a little background
16 on that is that most of the material, if not
17 all the material used at Weldon Spring was ore
18 concentrate, which means it did not have a lot
19 of radium in it like the material at, say, the
20 downtown St. Louis facility had. And so there
21 was no -- thought that there was no need to

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1 monitor for radon, and when thorium was used,
2 they did not monitor for thoron gas.

3 And so the proposed method in the
4 Site Profile and, I think, in the ER, too, is
5 to do a calculation using the throughput and
6 the probability of emission of radon from what
7 radium might be present, and then do a
8 calculation assuming that the indoor intake to
9 the workers in the building did not come
10 directly from the material, but it was
11 exhausted outside, and then use a simple
12 dispersion model outside to calculate the
13 amount of curies released and the
14 concentration, and then the inside
15 concentration was equal to the outside
16 concentration with a slightly larger
17 equilibrium factor of .5 instead of .3.

18 For the thorium, when it was used
19 in '63 forward, there was a similar type of
20 model set up, but the calculations weren't
21 actually done. It gave the parameters that

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1 could be used.

2 And so SC&A found that there was
3 no measured values. We did look at the
4 downtown facility. There was a measured value
5 down there showing that the indoor
6 concentration was about four times higher than
7 the outdoor concentration, and these aren't
8 identical facilities, but it is the indication
9 that perhaps this isn't a good assumption.
10 And so we have an issue over the radon and
11 thoron method used in the ER.

12 MR. ROLFES: The important thing
13 in your comparison is you're comparing apples
14 and oranges, and you've got to take a look at
15 the Destrehan facility, the indoor measurement
16 where they were handling a large radium source
17 term is completely different than the Weldon
18 Spring plant where they're only handling ore
19 concentrates where the radium was stripped
20 down. So you wouldn't expect to have elevated
21 air concentrations at the Weldon Spring

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1 facility as you would at the Mallinckrodt
2 facility. There's a different source term at
3 the Mallinckrodt facility than there is at the
4 Weldon Spring facility.

5 DR. BUCHANAN: I agree, but when
6 you got radon, regardless of where it comes
7 from, it all comes from the radium. And the
8 intensity may be much greater at the
9 Mallinckrodt facility I realize. I agree with
10 that. But I'm just looking at whether the
11 equilibrium would be similar just to say is it
12 a good assumption to assume that the indoor
13 concentration is equal to the outdoor
14 concentration and that very little escapes
15 from the process to the worker inside. That's
16 the assumption made is that the workers
17 working at the vat or whatever, they got a
18 hood over it, it sucks it out, and that none
19 of that comes back to the worker -- or
20 noticeable amount comes to the worker. All
21 that comes back is what is sucked into the

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1 building from the outside. And the main
2 problem is there were no measurements to
3 benchmark it with. And so we feel that the
4 radon and thorn method used in the ER and the
5 TBD just is not sufficient to be showing that
6 it's technically reasonable.

7 MR. ROLFES: Okay, technical
8 reasonability versus claimant-favorable and
9 bounding, we presented the bounding analysis
10 in our Evaluation Report, and we feel that it
11 is defensible based upon the source term data
12 that we have. It would certainly be nice to
13 have additional data to validate it, but this
14 isn't something, you know, outside of what we
15 would normally do. I don't know if there is
16 anything else that maybe Monica or Bob might
17 have to offer on the discussion.

18 MS. HARRISON-MAPLES: No. I don't
19 have any further thoughts.

20 MR. MORRIS: No. I don't have any
21 other significant comments. It's a model

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1 distribution, and I agree, though, with Mark
2 that using the Destrehan facility as a
3 reference point is sort of arbitrary. It had
4 a different process going on. Other
5 industrial buildings might be better
6 candidates for a comparison, some that didn't
7 have significant radon source terms in them if
8 that's necessary to come up with another
9 comparison.

10 MR. HINNEFELD: This is Stu. I
11 guess I'm still at the same place I was at the
12 last Weldon Spring meeting. I don't
13 understand yet why radon is an issue if they
14 didn't ever get ore, if all they got was
15 uranium concentrates. I mean is there any
16 data out there on radium concentration in
17 uranium concentrates?

18 MR. ROLFES: I'm sure we can pull
19 some out of a mill, you know, from the Western
20 United States, but --

21 DR. BUCHANAN: This is Ron, and I

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1 agree, and I wasn't trying to equate this to
2 the downtown facility. I was just trying to
3 use that as an example because there wasn't
4 any measurements made. But perhaps a better
5 way to approach it would be is there a
6 facility that handled ore concentrate that did
7 any radon measurements within the DOE complex
8 at any time. I don't know.

9 You know, this model is a paper
10 model that describes something, but we have no
11 way to check it. Usually, you want some sort
12 of benchmark to show this is true, and if we
13 could find another facility that did at least
14 a few radon measurements and say, yes, this is
15 an overkill or it's reasonable, it would be a
16 better deal. But the way it is -- and the
17 dispersion model, I'm not a dispersion model
18 expert, but according to those I've talked to
19 is that using a simple dispersion model around
20 buildings is not a viable technique.

21 And so I would just like to see

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1 some sort of stake in the ground saying that
2 this is a reasonable method to use by
3 comparing it to something else that's similar.

4 MR. MORRIS: Excuse me. Robert
5 Morris. With regard to the atmospheric
6 dispersion modeling, we took some very
7 conservative factors to make the assumptions
8 that went into the model, which I think would
9 certainly overwhelm any wake effect from
10 buildings. So, you know, I think the model
11 stands as written, and let's just see if you
12 can find a reason to think the building wake
13 effects that you're suggesting would be
14 overwhelming of the conservative assumptions
15 that we put in.

16 MR. HINNEFELD: This is Stu. Help
17 me out here. What did we do? What were those
18 conservative assumptions that we used to --

19 MR. MORRIS: Well, we assumed
20 pessimistic dispersion factors in terms of,
21 say, the offsite -- or the fence line doses

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1 coning back into the center of the plant, and
2 we used factors that are modeled out of recent
3 NRC documents in terms of the dispersion
4 factors themselves, the tabular look-up data.

5 So we went back to nearby -- data from St.
6 Louis and came up with relatively pessimistic
7 assumptions about the atmospheric dispersion.

8 DR. BUCHANAN: This is Ron. We're
9 talking about the radon coming from the
10 process building, the stack at the process
11 building and determining what the
12 concentration was by throughput and the amount
13 of radium that might have been present in the
14 decay of radium into radon and its equilibrium
15 and how much would have went out the stack and
16 then -- but the dispersion would have been
17 around that building and then drawn back into
18 the facilities where they worked. Now this
19 didn't go out to -- unless I'm wrong -- I
20 don't recall this being a parameter of the
21 site --

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1 MR. MORRIS: So you're saying
2 about the intake back into the building?
3 You're not talking about the fence line
4 calculations we made otherwise?

5 DR. BUCHANAN: Correct. I'm
6 talking about what's taken back in to the
7 workers.

8 MR. MORRIS: I'm sorry. I moved
9 on to a different topic that was closely
10 related, but --

11 DR. BUCHANAN: Right, in the
12 environmental.

13 MR. MORRIS: Right.

14 DR. BUCHANAN: No. I'm talking
15 about the workers that were exposed inside
16 working close to the material where there
17 wasn't any radon measurements, and so they
18 used this model instead.

19 DR. MAURO: This is John. I've
20 looked at lots of radon issues, as you all
21 know, for various facilities here and this

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1 issue of releasing radon in the stack. Let's
2 call it a stack at the top of a vent on a
3 building. And, of course, on many occasions,
4 we looked at, on this program and many, many
5 other programs, this downwind dispersion.
6 Just like Bob explained it, very conventional
7 stuff.

8 But what was just brought up is
9 something new, I believe, whereby, and new for
10 this program in terms of discussing an issue,
11 that is the re-circulation of effluent back
12 into an air intake. Is that what I'm hearing?

13 The question is is it possible that something
14 that was coming out of the stack going to the
15 atmosphere may very well have been caught up
16 in the downdraft of the building wake effect
17 and brought in close to the air intake on the
18 building, and then that stuff comes back into
19 the building again? Is that the issue we're
20 talking about?

21 DR. BUCHANAN: Essentially, that's

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1 the way the model was set up.

2 DR. MAURO: Okay. This particular
3 question, which is something I do not believe
4 that we've looked at -- I mean I haven't
5 looked at on this program -- I have looked at
6 it in other capacities at commercial nuclear
7 power plants for example -- this is an issue
8 that people have dealt with. And I'm just
9 offering this up to let you know that there
10 are concerns related to how you design
11 buildings to avoid this. As you can imagine,
12 you don't want to do this.

13 However, in some of the older
14 designs, it's been my experience that this has
15 happened in the past in some locations and
16 that there are probably ways in which you
17 could try to figure out what the consequences
18 could be in terms of how much you might take
19 back in again. Of course, now we're getting
20 into the realm of assumptions models, and I
21 know that's always a little troubling. But

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1 just to let everyone know that this issue that
2 is being raised here is a real issue that has
3 been raised in other venues and has been
4 addressed in other venues. I do not believe
5 we've yet addressed this re-circulation issue
6 on any site under this program that I can
7 remember.

8 DR. BUCHANAN: This is Ron again.

9 I think that one of the other issues is not
10 only how much is drawn back in is that you
11 don't account for any that's released into the
12 room, that it's assumed that it's all sucked
13 out the stack, negligible amount is in the
14 room, and this may be true. I just don't see
15 -- I'd like to see some verification of a
16 measurement made in a similar situation or
17 something that would support these
18 assumptions. The assumptions may be
19 conservative, they may be correct, but I just
20 don't see anything that verifies them.

21 DR. MAURO: As far as the uranium

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1 concentrates go, it's not unusual for the
2 concentrates to have a little bit of radium-
3 226 and thorium-230 even though the
4 concentrates, yellowcake, when they're
5 shipped, have been, you know, long since been
6 separated.

7 But there is, to varying degrees,
8 I think there are data on the levels of 226 in
9 thorium-230 that might be present in the
10 concentrates. I'm not sure whether that gets
11 up there, in other words, in terms of
12 picocuries per gram, you know, how much might
13 be in there if it's substantially elevated
14 above, let's say, soil. I don't know. But I
15 know that there is a little bit in there, so,
16 yes, in theory, there could be some radon
17 being emanated from the concentrates and
18 either be released directly into the air in
19 the room or going out a stack from the
20 building.

21 But, yes -- but, of course, it is

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1 nowhere near what you're dealing with when
2 you're dealing with ore or even phosphate,
3 whether it's ore, you know, with the uranium
4 ore, crushed ore or even phosphate which
5 itself has much lower concentrations of
6 uranium and, of course, much lower
7 concentrates of radium.

8 So this is a question that, you
9 know, I don't recall us looking at before.
10 But in theory, yes, there might be a little
11 bit of radium in the concentrates.

12 MR. ROLFES: It may turn out that
13 the background levels of radon in the area are
14 actually higher than that which would be
15 introduced to the plant from an ore
16 concentrate as well. And we can take a look
17 to see if we can find any information on ore
18 concentrate radium concentrations and move on
19 from there, I guess.

20 MR. POTTER: This is Gene Potter.
21 If I might try and answer one of Stu's

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1 earlier questions?

2 MR. KATZ: Sure, go ahead.

3 MR. POTTER: The model that Ron is
4 talking about came from NCRP Report 123, and
5 what was used in there are the suggested
6 defaults in the model along with some Weldon
7 Spring specific data like average wind
8 velocity. And this model does take into
9 account building wake effects for close in
10 receptors. So the screening model,
11 undoubtedly, it is conservative, but, as Ron
12 says, there's no benchmark for that. We have
13 to rely on the NCRP's good judgment. I don't
14 think that we can say that this is a complete
15 fabrication on the part of the ER team.

16 DR. MAURO: And I would add to
17 that. In addition to NCRP 123, if you really
18 want to get conservative, you go with COMPLY.

19 This is the EPA's screening tool for
20 demonstrating compliance with the radionuclide
21 NESHAPS for radionuclide emissions from

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1 facilities. And there's a graded approach.
2 The very first step in the process is simply,
3 get ready for this, you simply say, okay, if
4 you know the number of curies per second that
5 are being produced by the inventory that you
6 might have in your room of radium and,
7 therefore, the decay rate of the radium, then,
8 therefore, the production rate of the radon
9 and that the discharge is going out a fanned
10 exhaust that has a certain number of cubic
11 feet per second. You dilute that radon, you
12 know, curies per second into the cubic feet
13 per second that's going out the stack, and
14 that's the concentration in the stack. It
15 can't be any worse than that outdoors.

16 So I mean that's a screening tool,
17 by no means represented as being, for the
18 purpose of COMPLY, and this is a compliance
19 issue, there is no way that it could ever be
20 higher than that outdoors. And, in fact, it
21 really can't ever really be that high.

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1 But you're correct. There are
2 many, many ways of dealing with the downwind
3 outdoor concentration of radionuclides that
4 are released to the atmosphere, and any number
5 of assumptions could be used that could place,
6 certainly, an upper bound or a plausible upper
7 bound. In my opinion, once you have a source
8 term from a facility and you're interested in
9 figuring out what the downwind concentration
10 might be at the worst locations at any given
11 distance or any given direction, this is a
12 standard, very well accepted, widely used tool
13 for doing dose calculations. And you can use
14 any one of a number of assumptions to make it
15 as conservative as you feel is appropriate.

16 This other issue that is mentioned
17 about it coming back in the window or being
18 actually generated within the building, that
19 is a little bit more challenging. So I
20 wouldn't say that there's not an answer to
21 that, but it's certainly, the other part, you

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1 know, the outdoor concentration is very
2 conventional.

3 MR. POTTER: But John, you'd agree
4 that it couldn't be worse than 100 percent
5 recirculation.

6 DR. MAURO: Could not be worse
7 than 100 percent recirculation, exactly right.

8 MR. POTTER: Which I think is what
9 we modeled.

10 DR. MAURO: Oh, is that right?
11 Oh, okay. And you got the numbers then? You
12 know the radium concentration in your
13 concentrates?

14 MR. POTTER: For this modeling,
15 yes.

16 DR. MAURO: Oh, okay.

17 MR. RICH: John, this is Bryce
18 Rich.

19 DR. MAURO: That would be from
20 recirculation though, okay. In other words,
21 it could be worse than that from

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1 recirculation.

2 MR. KATZ: Bryce, did you want to

3 --

4 MR. RICH: Yes. This is Bryce
5 Rich. Just as a data point, the radium in
6 yellowcake typically is -- they were worked at
7 Fernald and Weldon Spring of about a factor of
8 hundred less than that in pitchblende ore.
9 There was some but it was in the nanocurie per
10 gram range of raffinate.

11 DR. MAURO: Okay, nanocurie.

12 MR. RICH: Right.

13 DR. MAURO: So it's well above
14 what you would see in soil, but it's well
15 below what you would see in ore?

16 MR. RICH: Yes. It's a couple of
17 steps down from what you'd find in ore.

18 DR. BUCHANAN: So do we have an
19 action item on issue number 4, on radon and so
20 on? Does NIOSH feel they can find any
21 benchmark at other facilities, or do you agree

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1 to do that or don't agree?

2 MR. HINNEFELD: We'll consider
3 what we're going to do. We may send a written
4 position and we may decide based on what we've
5 written, what we're going to stand on, so but
6 we'll decide not in this room what we're going
7 to do.

8 DR. BUCHANAN: Okay. That brings
9 us to issue number 5 which is recycled
10 uranium. Two issues here. I think one can be
11 cleared up very easy, and the other one we'll
12 want to discuss is that in the different
13 documents, the use of recycled uranium coming
14 from Fernald, assumably, started in anywhere
15 from 1960 to 1962. And so there are some
16 inconsistencies in how that was worded. And
17 so I don't know if you've looked into that or
18 not, but SC&A would just suggest that you
19 document when that date was and have it
20 consistent in the TBDs and ERs and stuff so if
21 a dose reconstructor is assigning it at the

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1 correct the time.

2 MR. ROLFES: We can certainly
3 double-check on the date when the recycled
4 uranium would have arrived at the Weldon
5 Spring plant. And I believe what we have in
6 the TBD is 1961. There was some wording about
7 pre 1962 or post 1962 in the Evaluation
8 Report. We'll double-check on that for you
9 though.

10 DR. BUCHANAN: Yes. Several
11 different documents, I quote them in the
12 report, use different dates. Okay, that was a
13 minor thing that just needs to be corrected
14 for proper dose reconstruction.

15 The main issue with recycled
16 uranium was that the way I understand it is
17 that according to the TBD and according to
18 Fernald's TBD which it took from, Weldon
19 Spring took from Fernald was that the decision
20 was to use 100 parts per billion of plutonium
21 per uranium, and if a person had a uranium

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1 bioassay, then take that amount and add it to
2 his -- because they were not bioassayed for
3 plutonium at Weldon Spring -- and so to
4 compensate for that, and the worker at Weldon
5 Spring had had a bioassay for uranium, then
6 take 100 parts per billion plutonium for
7 uranium.

8 And there's an equation there that
9 you can decipher and figure out how you
10 actually assign that in the Fernald TBD and
11 have that listed in the report and it is
12 correct.

13 But what I have an issue with is
14 that then in the ER, we come down to a table
15 which lists like 2.9 parts per billion
16 plutonium for uranium. In addition, I went
17 back and looked at some of the dose
18 reconstruction where the person it'll say was
19 less than 50 percent, and he was not assigned
20 any plutonium dose with the measure of uranium
21 dose there in '63 to '66.

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1 And so I don't know where the
2 number 2.9 came from in the ER and why it was
3 less when -- for SEC to try and bound the
4 dose, why that was less than what the TBD was.

5 MR. ROLFES: Okay. I'd be happy
6 to explain that. If you took a look at the
7 Fernald Site Profile and take a look at
8 historical documentation on recycled uranium,
9 the reactor sites, when they would reprocess
10 uranium and send it back to a place like
11 Fernald or Weldon Spring, tried to control the
12 plutonium concentrations under 10 parts per
13 billion on uranium S basis. And NIOSH had
14 reviewed the recycled uranium data in
15 preparation of the Fernald Site Profile and
16 then subsequently for the Weldon Spring Site
17 Profile.

18 And if you take a look, NIOSH
19 found that some of the highest concentrations
20 of transuranics in the recycled uranium being
21 sent back to the Fernald site occurred in the

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1 more recent era of late 70's, early 80's. And
2 those were not direct shipments back from the
3 reactor sites but instead came from the
4 gaseous diffusion sites. And it's a separate
5 source term, a separate type of recycled
6 uranium which really wasn't the recycled
7 uranium that we refer to in the normal context
8 of things. These were exceptions to recycled
9 uranium. These are essentially waste left
10 over, junk that came out of a fluoridation
11 tower from Paducah that were sent back to the
12 Fernald site. These were some shipments that
13 had greater quantities of transuranics in
14 them, because they concentrated them in this
15 waste product from which they decided they
16 wanted to try to recover the uranium from at
17 Fernald.

18 We used that single shipment
19 essentially or those couple of small shipments
20 from the Paducah site to increase our defaults
21 from the 10 parts per billion control level up

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1 to 100 parts per billion. And by default, we
2 used that at the Weldon Spring plant. Now the
3 Weldon Spring plant never received any Paducah
4 tower ash like Fernald did, and so we provided
5 a good basis for that in our Evaluation Report
6 and put together a 95th percentile plutonium
7 concentration in recycled uranium, and that
8 was 6.9 parts per billion plutonium on a
9 uranium S basis. We feel that the 100 parts
10 per billion that we defaulted to is very
11 conservative for the Weldon Spring site.

12 DR. MAURO: This is John. I might
13 be able to help out a little, too, here.
14 Certainly, RU is a very important issue. I
15 would say the most important issue that we're
16 dealing with right now at Fernald, and it's an
17 important issue at Fernald because of just the
18 reasons that Mark explained, that Fernald was
19 the recipient of recycled uranium coming from
20 a variety of sources, including the tower ash
21 from Paducah and many other places. And so it

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1 was sort of the starting point of okay, now
2 we're going to be processing uranium that is
3 recycled and what is the plutonium, neptunium
4 and others, technetium, radionuclides that
5 might be present there. And there's a long
6 story that we need not go into.

7 However, once processed through
8 Fernald, then of course, there were other
9 subsidiary operations where they went off to
10 other facilities after Fernald had to deal
11 with it. I think what Mark just said, namely
12 the output that might come out of Fernald that
13 might -- now this is something that I think is
14 -- I don't have the answer to, but in
15 principle, if Fernald received its material,
16 did what it did with its material and then
17 moved it on to, let's say, Weldon or any other
18 materials facility that would do some further
19 handling -- now we know a lot about recycled
20 uranium at Fernald, and we also know that, you
21 know, once it has been diluted down and

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1 handled and then moved on for other management
2 purposes, whether it goes through an AWE
3 facility, for example -- whether it's true
4 also for Weldon, I can't speak to that -- but
5 the 100 parts per billion number is probably a
6 very bounding number for facilities other than
7 Fernald that were not receiving.

8 However, Mark, as we will see
9 soon, we still have a lot to talk about
10 regarding Fernald. I guess my question to the
11 group here is did Weldon receive material,
12 recycled uranium directly from Hanford,
13 Savannah River, Paducah, or any material, RU,
14 that went to Weldon, was that after it went
15 through the Fernald dilution down and
16 processing?

17 MR. ROLFES: It was after it went
18 to Fernald that it was shipped to Weldon. It
19 wasn't received by Weldon Spring directly from
20 the reactor sites.

21 DR. MAURO: Okay. Well, I have to

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1 say, you know, my first reaction to that is
2 favorable, that is not the 2.9 percent. I
3 think the 2.9 percent probably is a very good
4 overall average for what the plutonium might
5 be. The 100 parts per billion plutonium as
6 being an upper bound for a place that received
7 material from Fernald after it was diluted
8 down is a very good number.

9 DR. BUCHANAN: This is Ron. Yes,
10 but John, the ER states 10.9 for average
11 concentration and 6.3 as bounding for Weldon
12 Spring. The 100 was removed.

13 DR. MAURO: Oh, okay. I thought I
14 just heard Mark saying you were using 100 for
15 Weldon.

16 MR. ROLFES: That's what's in the
17 current Site Profile which we've been using
18 for dose reconstructions for the past 8 years
19 I believe. The Evaluation Report we actually
20 went back and did a site specific evaluation
21 for the Weldon Spring plant and found that the

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1 actual data for the Weldon Spring plant was
2 much lower than what we had defaulted to in
3 our claimant-favorable TBD.

4 DR. MAURO: You know, I would have
5 no doubt, on average, the material, the RU
6 that was received by Weldon or anywhere else
7 was well below 100. However, there could have
8 been -- well, when you look at the -- one of
9 the problems we always run into in this
10 situation is when you look at things in the
11 aggregate over time and you look at the
12 quantity that was handled and diluted and then
13 produced, it averages out to some number, 6
14 percent certainly a good number, perhaps even
15 2 percent.

16 But on a case-by-case basis,
17 shipment-by-shipment basis where a given
18 worker might -- is it possible that there
19 might have been some workers over some time
20 periods that might have received 100. You
21 know, right now I can't say -- I recall that

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1 you used 10 at some of the AWE facilities, not

2 --

3 MR. RICH: This is Bryce, John.

4 May I just make a comment quickly?

5 DR. MAURO: Yes.

6 MR. RICH: The tower ash that came
7 from the gaseous diffusion plants was enriched
8 as a result of the fact that plutonium was not
9 volatile in the 6 form, and so it fell out in
10 the tower ash and so it was elevated. It was
11 -- they resisted taking that material in.

12 However -- and they were quite
13 aware that it was coming in. The intent was
14 to blend that tower ash in with virgin
15 material like a processing material from
16 yellowcake and others that they were
17 processing at the time and blend it down so
18 that the plant-wide transfer rate between
19 plants of 10 parts per billion was always
20 maintained so that, you know, they didn't ship
21 anything from Fernald, and their sensitivity

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1 following that receipt from the tails from the
2 gaseous diffusion plants was very high.

3 DR. MAURO: I'd say I agree
4 because I've looked at AWE sites, many of them
5 and the end part per billion was 10.

6 MR. RICH: The stuff that they
7 sent out of Fernald would have had to have
8 meant the 10 parts per billion, not 100.

9 DR. MAURO: I agree. And I'm
10 saying that I agree with you for the AWE
11 facilities I looked at. I just can't speak to
12 whether or not that also applies to Weldon. I
13 certainly could speak to that 100 if that's
14 what you were originally using for Weldon
15 would certainly have been bounding. Backing
16 off from 100 down to a lower number and if
17 basically Weldon was receiving material just
18 like other AWE facilities were receiving it
19 after dilution down, 10 is probably a good
20 number, too. But I can't speak to that
21 specifically for Weldon, because I know there

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1 was a special relationship between Weldon and
2 Fernald and Malinckrodt, and I don't -- and
3 when I talk about AWEs, I'm not talking about
4 those facilities. Those were DOE facilities I
5 believe. I'm talking about many of the AWE
6 facilities that when we looked at that
7 closely, we found the 10 number to be
8 certainly a good number, 10 parts per billion
9 number.

10 MR. ROLFES: I had a question also
11 for you, Ron. This is Mark Rolfes. You had
12 mentioned that there were some dose
13 reconstructions that had been completed
14 without the recycled uranium constituents
15 added in on top of the uranium intakes?

16 DR. BUCHANAN: Yes.

17 MR. ROLFES: Do you remember the
18 specifics of those dose reconstructions or
19 was, for example, like the uranium bioassay
20 data used to estimate the uranium intake --

21 DR. BUCHANAN: Yes.

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1 MR. ROLFES: And -- okay. So were
2 there any other things that might help us to
3 understand why that might not have been done?

4 I was wondering for some additional details.

5 You know, could it have been that it was a
6 dose reconstruction completed during the 50's
7 rather than the 60's that might have been the
8 reason recycled uranium wasn't added in, or
9 was the dose reconstruction compensable? I'm
10 just trying to get a better understanding of
11 why that constituent might not have appeared
12 in there.

13 DR. BUCHANAN: Okay, this is Ron.

14 I would have to go back and look at those. I
15 have my notes here that we had -- SC&A
16 reviewed the claims indicating this method was
17 correctly applied in one of the full dose
18 reconstruction best estimate cases. However,
19 in several of the DR cases where the
20 Probability of Causation is less than 50
21 percent and a full DR should have been

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1 performed and the EE worked during the 1961 to
2 1966 period, no internal intake from RU was
3 assigned. I'd have to go back and get those
4 case forms.

5 MR. ROLFES: Let me ask. Is it
6 possible that we used OTIB-2, for example, in
7 the completion of those dose reconstructions?

8 DR. BUCHANAN: Used what?

9 MR. ROLFES: OTIB-2 which would
10 have been the application of the 28
11 radionuclide worse case scenario intakes.

12 DR. BUCHANAN: I don't know.

13 MR. HINNEFELD: This is Stu. I'd
14 like to suggest if Ron can find those case
15 numbers and refer those case numbers to us,
16 that's the best way to proceed here, because
17 if that happened, we'd need to figure out what
18 happened.

19 DR. BUCHANAN: Okay. I'll look
20 for those and send you that information.

21 MR. HINNEFELD: Thanks.

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1 MR. ROLFES: Thank you.

2 DR. BUCHANAN: But that still does
3 not answer our main question. Is this 6.9
4 bounding on Weldon Spring?

5 MR. ROLFES: Well, John Mauro did
6 say that he agrees that the 100 parts per
7 billion is currently bounding, and that's what
8 we're currently using for dose reconstruction.
9 We've just proposed the actual result site
10 specific to Weldon. Because of the concerns
11 from the petitioner about using surrogate
12 data, we went back and looked at site specific
13 data for the Weldon Spring plant, and it
14 indicated much lower concentrations of
15 plutonium in the uranium being sent to the
16 Weldon Spring plant.

17 DR. BUCHANAN: Yes. And the case
18 that I did review that did use it used 100.

19 MR. ROLFES: Okay.

20 DR. BUCHANAN: But that was before
21 the ER. You know, that was -- they used

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1 appropriate according to the TBD.

2 MR. ROLFES: So further, you know,
3 make a statement across the board, recycled
4 uranium doesn't contribute too much dose to
5 the entire body as a whole but certain organs
6 do have higher, not necessarily higher than
7 the uranium doses, but can be significant to
8 certain organs, certain metabolic organs. So
9 for a systemic organ, for example, like the
10 prostate or the skin or something like that,
11 when you're calculating internal dose, the
12 recycled uranium constituents are not
13 significant in comparison to the uranium.

14 MR. KATZ: Can I ask
15 clarification?

16 DR. BUCHANAN: Yes.

17 MR. KATZ: This is an SEC issue at
18 this point? I mean given that -- it doesn't
19 sound like one since even, I mean, John just
20 said 10 parts per billion is the most that
21 would ever go out, so you're already 10 versus

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1 6 and whatever is correct --

2 DR. MAURO: Let me clarify that a
3 little bit, Ted. The 10 is for the sites that
4 I did review which was not Weldon but for
5 other facilities that received --

6 MR. KATZ: That's right, John. It
7 was Bryce who said that they never -- they
8 wouldn't ship above 10 period off the site.

9 DR. MAURO: Right, and that's
10 true. That's a spec that they worked from
11 that other -- and we saw that at other AWEs,
12 but what I'm hearing is there's a little
13 ambiguity whether or not the -- whether 10 or
14 100 is being used at Weldon. I could say
15 right now if 100 is being used at Weldon, that
16 is going to be bounding without a doubt. I
17 can't really speak to whether, for Weldon, 10
18 would be bounding.

19 MR. FITZGERALD: You're saying the
20 TBD in place, the one that's actually being
21 applied does use 100 as a default. Until that

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1 TBD is revised, then I would assume that
2 you'll continue to use 100. And in what Ted
3 was saying, it sort of sounds like we're in
4 Site Profile space.

5 DR. MAURO: I mean we're sort of
6 just --

7 DR. BUCHANAN: I think we are if
8 we use it as stated in the TBD. If we go down
9 to using an average of 2.6 or bounding a 95
10 percent of 6.9 at Weldon, then we are in
11 questionable --

12 MR. KATZ: It's still TBD.

13 MR. FITZGERALD: It is a question
14 of what's appropriate and what the data
15 supports. And I would think that it doesn't
16 switch from 100 down to 2.9. I mean that's a
17 pretty dramatic shift, and you'd have to
18 provide some justification for lowering the
19 default down to that level. And you said you
20 have site specific information. That would
21 have to be presented. You know, I think

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1 there's a due process on changing the TBD that
2 way.

3 DR. BUCHANAN: I have no problem
4 with leaving it as a TBD issue. I mean I
5 don't think it's -- I didn't know it's a TBD
6 issue, but not as an SEC issue as long as the
7 ER doesn't override the TBD.

8 MR. FITZGERALD: Doesn't sound
9 like it.

10 MR. ROLFES: No. It wouldn't be
11 used in completing dose reconstructions. We
12 could certainly revise the TBD if the Working
13 Group would like us to lower the plutonium
14 intake that we're assigning, but I don't think
15 we intend to do that. We just wanted to make
16 sure that we've shown our basis.

17 DR. BUCHANAN: Okay. Well, I'll
18 still send you those case numbers just for
19 your information, so you can check out, you
20 know, from a dose reconstruction point of
21 view. You know, I might have missed something

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1 on it, because I wasn't doing a complete audit
2 on it. I was just checking. And just to make
3 sure that that is being incorporated
4 correctly. Okay, that's issue number 5.

5 We have a little after 12.
6 Chairman, did you want to continue or what?

7 CHAIRMAN GIBSON: I guess we can
8 move on to maybe 12:30 and then take a lunch?

9 MR. KATZ: I'm good with whatever.

10 DR. BUCHANAN: Okay. Issue number
11 6 was the neutron dosimetry, and I'd like to
12 clarify that, set a little space there. When
13 you use the enriched uranium of 1 or 2
14 percent, then you have the possibility of
15 alpha-N reactions in the material and net
16 neutrons.

17 And so what SC&A -- I guess one of
18 the questions we have right now -- they were
19 badged, some of them that were working with
20 this material and had NTA film, but
21 apparently, they weren't recorded, or if it

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1 was recorded, they weren't kept. And so there
2 is no data for neutrons.

3 And so there have been several
4 proposal methods in the TBD and in the ER for
5 neutron dose assignments. And so I guess at
6 this point, I'd like -- and they're different
7 somewhat -- I'd like a clarification on when,
8 to whom, and how you currently propose to
9 assign neutron dose?

10 MR. ROLFES: Right now the current
11 TBD has information from the study that was
12 done at the Fernald site. They had placed
13 some bubble dosimeters in areas of green salt
14 drums, et cetera at the Fernald site and
15 characterized, taken some measurements with --
16 I don't recall if it was rem ball or what it
17 was -- I'd have to look back at the source
18 documents, but we developed a proposed
19 approach for the Fernald site and also applied
20 that to the Weldon Spring site.

21 What we've developed is to assign

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1 a neutron dose equal to 10 percent of the
2 photon dose received by the employee, and then
3 the 95th percentile neutron to photon ratio
4 would be .23 to 1 neutron to photon. We
5 discussed this quite a bit at the Fernald site
6 and came to agreement that that was, in fact,
7 a bounding value to apply.

8 You know, for applicability to the
9 Weldon Spring plant, there's not really
10 anything unusual at the Weldon Spring plant
11 which would negate us from applying that same
12 neutron to photon ratio to the employees at
13 the Weldon Spring plant. You know, for
14 example, the types of materials, the
15 quantities of materials and the composition of
16 the materials that were received by the Weldon
17 Spring plant were equal to or of lesser
18 quantity or enrichment than the Fernald site.

19 DR. BUCHANAN: This is Ron. Now
20 there was mentions of assigning missed dose.
21 Was that in terms of strict definition of

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1 missed dose in the ER, assigning neutron
2 missed dose? When there's no TLD -- I mean
3 when there's no dosimetry record, you can't
4 assign missed dose.

5 MR. ROLFES: No. We would really
6 assign missed dose if an individual was shown
7 to have been monitored for neutron exposures
8 and we had a bunch of zeros reported to us, in
9 that case, we would assign half of the limit
10 of detection for that badge and multiply that
11 by the number of badge exchanges recorded in
12 their dosimetry information.

13 For an individual who was not
14 monitored at all for neutrons, we would assign
15 a neutron to photon ratio based upon what
16 we've documented in the Site Profile at Weldon
17 Spring, and that's what I mentioned before.
18 The 10 percent is the median neutron to photon
19 ration, .1 to 1 neutron to photon, and the
20 95th percentile is .23 to 1.

21 DR. BUCHANAN: So when you use the

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1 term missed dose in the ER, you were talking
2 about unmonitored dose, because there is no --

3 MR. ROLFES: Correct.

4 DR. BUCHANAN: Dosimetry records
5 for neutrons. Okay. Now as described, and
6 maybe this is a TBD issue, but we disagree
7 with the method used to determine the neutron
8 to photon ratio at Fernald. If I recall
9 right, it was a one-time measurement done with
10 certain geometry, and then a couple of years
11 later, the gamma was measured, neutron was
12 measured, and then a couple years later, gamma
13 was measured. I don't remember all the
14 details. And so I guess the question at this
15 point is should we leave -- data is not
16 recorded for neutron exposure? Okay, there's
17 potential for neutron exposure but data is not
18 recorded? They have come up with a method in
19 the TBD to assign it using Fernald data which
20 we disagree with, and do we want to leave this
21 as a TBD issue or move it -- or keep it as an

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1 SEC issue?

2 MR. ROLFES: We did close this at
3 the Fernald site with SC&A's agreement that it
4 was an acceptable approach and it was
5 certainly bounding. We have to look back at
6 the transcripts to pull that up, but we did
7 close it for the Fernald Work Group.

8 MR. HINNEFELD: This is Stu. I
9 don't recall the gamma and neutron
10 measurements not being taken together.

11 MR. ROLFES: They used bubble
12 dosimeters at the Fernald site on tops of the
13 green salt barrels I believe. Then I think
14 they had also done some gamma surveys at the
15 same time.

16 MR. HINNEFELD: Should probably
17 keep my mouth shut, because I'm conflicted --

18 DR. BUCHANAN: If I remember, the
19 thing that sticks out is that they were done
20 at separate times and, you know, usually, if
21 you're going to do a N/P ratio, you're going

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1 to do the measurements simultaneously. And I
2 recall that was one fly in the ointment is
3 that they weren't done simultaneously. But if
4 --

5 MR. HINNEFELD: Ron, can you find
6 the evidence found, where you see the evidence
7 for that because that does not sound at all
8 familiar.

9 MR. KATZ: Sounds like we need to
10 check the record, because Mark's saying that
11 this was closed at Fernald, but you're
12 remembering that it hasn't been closed --

13 DR. BUCHANAN: Oh, I don't know
14 about Fernald. It might have been closed. I
15 wasn't on Fernald. I'm just looking back at
16 the data that was extrapolated to Weldon
17 Spring which didn't seem the way you normally
18 determine N/P ratio.

19 MR. HINNEFELD: If you could find
20 back the evidence for your conclusion that
21 they were taken at different times, that would

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1 be interesting.

2 MR. FITZGERALD: It would be useful
3 to look at the transcripts for the last
4 Fernald meeting, but just that discussion to
5 see if that issue surfaced. Sounds like it
6 was closed which means sort of a little bit of
7 double jeopardy if -- because if they're a
8 buy-in, at least for Fernald, on the
9 methodology, so it is sort of question, what
10 exactly -- how did they decide that? John, are
11 you on? Maybe not.

12 MR. KATZ: John, are you still
13 with us?

14 MR. FITZGERALD: Guess not.

15 MR. KATZ: Okay. But checking the
16 transcript is an easy thing to do.

17 MR. FITZGERALD: Yes, just to shed
18 some light on that question, because they're -
19 - at different times, that would be a little
20 harder to accept.

21 MR. KATZ: So that seems like a

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1 starting place. Let's look at the
2 transcripts.

3 DR. BUCHANAN: Right. I'll check
4 and make sure of that.

5 MR. FITZGERALD: Maybe talk to
6 John, just try to get some more comments. You
7 don't remember that coming up, Mark, as far as
8 questions of difference in times, timeframes
9 for the gamma versus the --

10 MR. ROLFES: No, I don't remember
11 that. It's been a few years probably since
12 we've discussed that issue I believe, so --

13 MR. FITZGERALD: Okay, so it's
14 quite a while a back.

15 DR. BUCHANAN: And it's been a
16 while since I've looked at the details of
17 that, since the Site Profile really.

18 MR. KATZ: So are you saying this
19 was closed at Fernald a few years ago?

20 MR. ROLFES: Correct.

21 MR. KATZ: Okay. So --

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1 MR. FITZGERALD: So we'll take the
2 action to research -- figure out which meeting
3 it was.

4 CHAIRMAN GIBSON: So SC&A is going
5 to review the data and then you'll report back
6 to us at the next meeting?

7 DR. BUCHANAN: Yes. Well, I'll
8 send it out before so that they can see it if
9 that's okay.

10 MR. KATZ: Absolutely. You can
11 send a memo out to the Work Group and just say
12 you looked into this, this is what you found,
13 whatever it is.

14 DR. BUCHANAN: As long as it's on
15 CDC website, right -- I mean computer? Okay.
16 You don't remember, Mark, to save me a lot of
17 hunting, when that was approved at Fernald?

18 MR. ROLFES: I'm taking a look.
19 I'm trying to find the transcripts. I'll try
20 to find them over the lunch break to see if I
21 can get that to you.

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1 DR. BUCHANAN: Okay, because I'm
2 not familiar with Fernald. I haven't been
3 involved in that. Okay. So that was item 6
4 on neutrons.

5 Item 7 is the issue of quarry and
6 the raffinate pits exposures. As I brought up
7 earlier, there are three main areas at Weldon
8 Spring. There was the main processing plant,
9 and they discharged to the evaporation ponds
10 or raffinate pits, and there were 4 of those,
11 2 small ones to begin with in the early years,
12 and then pit 3 and 4 were larger ones that
13 were pumped into in the later years. And then
14 there was rock quarry down the road which had
15 a hole and water in it, and they dumped a lot
16 of stuff in it from the downtown site and also
17 from the Weldon Spring site. And initially,
18 when they started doing some cleanup, they put
19 some stuff in there, and then they took all
20 that back out and put it under the rock pile I
21 spoke of early for D&D.

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1 And so what SC&A is concerned with
2 with issue 7 was whether, you know, a person
3 working out at the pits or down at the quarry
4 probably wasn't considered an operation-type
5 person, either laborer or something, and so he
6 might or might not have been monitored. And
7 to use the workers -- if you construct a
8 coworker model for internal and external in
9 the plant, would this be applicable to the
10 people working in the quarry and the raffinate
11 pit or around them or spending significant
12 amounts of time around them, and so like
13 maintenance workers, laborers and stuff, and
14 so this is the issue on number 7.

15 MR. ROLFES: Okay. I guess we'd
16 have to take a look at, you know, the specific
17 individual, whether they spent a significant
18 amount of time, you know, only at the quarry
19 versus in the plant. And, you know, I'd put
20 my money that if we assign doses based upon
21 them working in the plant versus those in the

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1 quarry, I could almost guarantee that the
2 doses in the plant would be higher than what
3 we would assign at the quarry, so it would be
4 more claimant-favorable to assume that they
5 were in the plant.

6 I think you had also mentioned
7 about the radon. You had replied about the
8 concern about decay products, and we had
9 identified some radon measurements at the
10 quarry of about .65 plus or minus .4
11 picocuries per liter.

12 I took a look to see what the
13 background outdoor concentrations of radon
14 from naturally occurring radioactive material
15 in the continental United States was, and it
16 ranges from about .27 picocuries per liter up
17 to about .81 picocuries per liter. So the
18 measured result from the quarry at the Weldon
19 Spring site falls within that range of
20 naturally occurring radon outdoor values.

21 You know, furthermore, if the

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1 quarry is wet, it's going to do a pretty good
2 job at keeping dust down, keeping
3 environmental exposure potential to a minimum
4 versus a dry environment as well.

5 DR. BUCHANAN: Well, the main
6 concern was that the quarry received quite a
7 bit of material from downtown, and so that
8 would be different than what the material
9 processed in the plant, so that worker, the
10 operator in the plant, especially internal
11 dose, would not -- you know, they might not
12 look for isotopes and stuff of a guy working
13 at the quarry or in the raffinate pits. Of
14 course, contained discharges that would
15 concentrate the byproducts, where they
16 wouldn't be present in the operating realm,
17 and so that was our main concern was not only
18 the magnitudes but also the quantity or the
19 radionuclides present would be different in
20 the quarry and the pits than it would be in an
21 operating plant.

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1 MR. ROLFES: I think what we would
2 have to do would be to look at some specific
3 claims maybe to determine who was actually
4 working at the quarry and didn't work at
5 Weldon Spring or at Mallinckrodt, because as
6 you said, Mallinckrodt dumped materials into
7 the quarry as did Weldon Spring I believe,
8 correct?

9 So, you know, the quarry is sort
10 of unique, I guess, in that it's physically
11 separated by a mile or more off the site, and
12 it's almost a separate facility on its own.
13 So I guess what we would need to do is look to
14 see, you know, on a case-by-case basis, who
15 worked at that facility and if they, you know,
16 exclusively worked at the quarry versus in the
17 plant.

18 Let's see, did I cover what you've
19 asked here? Did you ask any other questions
20 that I didn't address there?

21 DR. BUCHANAN: Well, is that an

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1 action item on your part?

2 MR. HINNEFELD: Yes, we've got an
3 action there.

4 DR. BUCHANAN: Right. And also --

5 MR. HINNEFELD: We need to provide
6 a written response.

7 DR. BUCHANAN: Also, the Mason
8 document of 1958 missed some quantitative or
9 semi-quantitative information, and that can be
10 compared to later years. I know some of the
11 measurements, unfortunately, weren't made
12 until the 80's when they started quantifying
13 the site for D&D, and so very little was made
14 earlier. Mason did have a document in 1958
15 that does list some of the concentration
16 values for the different radionuclide if I
17 recall correctly, and that's their reference
18 number 15016 which, you know, that would be
19 kind of a milestone you could check and see if
20 there was a large difference or significant
21 difference between '58, which would be a very

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1 good year to compare it to compared to `88 or
2 whenever, some of the later measurements were
3 made, see if much have changed or not.

4 MR. ROLFES: Okay. We'll take a
5 look at that and also provide a written
6 response to that.

7 DR. BUCHANAN: Okay. The next
8 one, number 8, is off-normal situations and
9 accidents and incidents. I realize this is a
10 very subjective subject and issue.

11 When I did the interviews at
12 Weldon Spring couple of years ago, one of the
13 main issues was that their accidents and
14 things that today would be considered a
15 radiological incident, accident were not
16 documented in their files. And it was mainly
17 if something happened, like a furnace blowout
18 or an accident, they covered it from a medical
19 point of view, and it might appear in the
20 medical files, but there is no radiological
21 measurements or incidents recorded from a

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1 radiological point of view.

2 So I went through some of the
3 files to see and I state there one had a very
4 serious accident in 1960 and in the medical
5 files, there was no radiological information
6 in his dosimetry or anything. There was just
7 a medical aspect, you know, cut or bruise or
8 burns and that sort of thing.

9 And then there was another one
10 that said there was another major accident,
11 and there wasn't anything in the files.
12 Fortunately, in that one, the dose
13 reconstructor went back and looked at some of
14 the records and was familiar enough to know
15 there was an accident that took place at that
16 time.

17 So I guess it's kind of an open-
18 ended question, but how do we know that these
19 are being documented in their files and taken
20 into consideration, not only the accidents but
21 things that wouldn't be considered

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1 radiological hazard back then, such as, you
2 know, some of the workers, maybe a truck
3 driver or something transporting material from
4 the downtown site out there, or going and
5 picking up the irradiated -- they sent some of
6 the uranium samples to betatron to be
7 irradiated 25 MeV electrons to look at certain
8 things, and back then, they probably just
9 threw it on the truck and brought it back, and
10 the airport site, some stuff was dumped there,
11 and, of course, into the quarry.

12 Some of these workers, they
13 weren't considered production workers. How
14 can we determine whether these things are
15 taken into account, and this is the issue.

16 MR. ROLFES: Well, as you pointed
17 out, said the dose reconstructor was pretty
18 familiar with the incident that had occurred,
19 and so they did, in fact, account for this
20 incident that you mentioned in 1960. I'm not
21 directly familiar with it myself, but the one

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1 important thing that we would have to look for
2 is did that individual -- you had said in the
3 medical file -- now that's sort of separate
4 from the dosimetry file -- do you recall if
5 that individual had some uranium bioassay
6 results in his dosimetry results from DOE?

7 DR. BUCHANAN: If I recall right,
8 he had some. He had uranium bioassays and
9 external monitoring but not necessarily
10 connected with that incident. You know, it
11 was like, if I recall right, it was like in
12 the middle of a -- it wasn't like you could
13 say, oh, yeah, it happened on the 23rd and he
14 had bioassay on the 24th, 25th and the 26th.

15 MR. ROLFES: Sure. That's
16 important to know that the bioassay data are
17 there, because a previous exposure would
18 certainly be integrated into a later uranium
19 excretion quantity, and we certainly would
20 look at that. And when we complete a dose
21 reconstruction, we look at all the data that

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1 we received, all the bioassay data and
2 estimate an intake. If an individual was
3 routinely being exposed, we will take that
4 into account, and that's visible in their
5 urinalysis data. We would assign a chronic
6 intake which would typically account for that
7 exposure that had occurred in a smaller
8 incident.

9 If individuals have additional
10 information, that certainly can help us focus
11 in on a best estimate type of case for that
12 specific incident. But usually, when we are
13 completing dose reconstructions, we assign a
14 chronic intake rather than multiple smaller
15 acute intakes. And the way we do the chronic
16 intakes, the chronic intakes usually result in
17 more internal dose than evaluating specific
18 acute intakes.

19 I'd need some additional
20 information about this particular case, I
21 guess, to make any kind of judgment as to

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1 whether we've done a good job in estimating
2 the radiation exposure that he potentially
3 received from that acute intake versus how
4 much we assigned in the dose reconstruction in
5 a chronic intake, which is typically what we
6 default to.

7 DR. BUCHANAN: Is there an
8 accident incident file for Weldon Spring?

9 MR. ROLFES: As far as something
10 that we've developed, I don't know. We may
11 allude to some specific occurrences in the
12 Weldon Spring Site Profile. Sometimes we
13 receive information from individuals that were
14 directly firsthand involved in that incident
15 such as during a telephone interview for a
16 claim in a computer-assisted telephone
17 interview report, the individual claimant
18 might have said, you know, there was a furnace
19 blowout or, you know, I was contaminated with
20 uranium during this incident. So those things
21 are available.

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1 Also, we do have DOE records from
2 our data capture efforts that will identify
3 occurrences that have taken place where
4 employees were exposed to higher than normal
5 airborne uranium or something for example.
6 You know, whether it's consolidated into one
7 place, I couldn't say that it is 100 percent
8 complete consolidated in one single location,
9 but the important thing is if there is
10 bioassay data associated with that intake from
11 which we can use to complete an intake
12 estimate in our dose reconstruction.

13 MR. HINNEFELD: This is Stu. Ron,
14 you said there was a particular case that you
15 looked at that had to do with a furnace
16 accident and there was information in the
17 medical file?

18 DR. BUCHANAN: The medical aspect.

19 MR. POTTER: This is Gene Potter.
20 I might offer a little information.

21 MR. HINNEFELD: Okay.

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1 MR. POTTER: In the interview done
2 at Oak Ridge with Monte Mason, he mentioned
3 two individuals by name that had been involved
4 in the most serious incidents at Weldon
5 Spring, including one guy who had fallen or
6 partially fallen into a vat of uranium-bearing
7 material. And I was able to look those guys
8 up in the CER data unambiguously. We just had
9 their last names, and I didn't have an
10 incident date. But both of those gentlemen
11 were pretty heavily bioassayed.

12 DR. BUCHANAN: Around the incident
13 time or you don't know?

14 MR. POTTER: Well, I don't know
15 what the incident time is, but I think I can
16 see it, you know, in the bioassay results,
17 fairly major peaks on both of those guys.

18 MR. ROLFES: So as long as we have
19 that data, you know, the bioassay data is the
20 key. It's a matter of our interpretation of
21 the data, how we assign intakes, and we don't

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1 necessarily have to have a written specific
2 data, because if we have enough bioassay data,
3 we can actually pinpoint it based upon the
4 excretion curve. And on top of that, we
5 always use the most claimant-favorable
6 solubility for the dose reconstruction target
7 organ during the dose reconstruction process.

8 And we do this in an effort to make sure that
9 we're not underestimating someone's actual
10 internal dose to that target organ.

11 DR. BUCHANAN: Chairman, I don't
12 have any more specifics on that. It's just an
13 issue that we were concerned with, and I guess
14 at this point, unless we come up with other,
15 we'll leave it open. If we come up with any
16 other examples, we can bring them up. At this
17 time, I don't have any other evidence to
18 present. I don't have any evidence other than
19 what the interviews told me, and so I can't
20 really bring anymore than that on it.

21 CHAIRMAN GIBSON: You had

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1 interviews with workers that documented
2 events, and do you guys have that information
3 from those interviews, and did you consider
4 that in your dose reconstructions or --

5 MR. HINNEFELD: Well, I think what
6 we should do is at least consider it in our
7 response, because, you know, the next action
8 here is our response. And I'm sure this is
9 written more expansively in your review of the
10 Evaluation Report than it is on this matrix.
11 So the matrix provides summaries and findings,
12 and those are written more expansively in the
13 review of the Evaluation Report. So from our
14 standpoint, I think we can take the action and
15 go see that writeup. It could very well refer
16 to interview summaries as references that
17 would say, here are the summaries of these
18 interviews. That would allow us to see the
19 kinds of things that are being described.

20 I mean there have been instances
21 where people will talk about chip fires in

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1 this instance at a uranium plant, for instance
2 a chip fire, and there were all these chip
3 fires, and we just put them out and so on.
4 And if it were an event like that, a bioassay
5 record would provide probably an adequate way
6 to reconstruct to doses for those people.
7 There are a lot -- and what is an incident is
8 largely in the mind of a person's personal
9 experience. You know, something happens to me
10 that did not usually happen to me, I remember
11 that as an incident.

12 And in fact, it may be,
13 unfortunately, consistent with the operating
14 envelope expected for the plant and the
15 programs set up for the plant so that a lot of
16 metals plants really -- well, I'm sorry, the
17 one uranium metal plant that I was familiar
18 with, right up until the 1980's, had a certain
19 view of inevitability of uranium chip fires.
20 And so the expectation was that there was a
21 sufficient bioassay program that exposures

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1 from those uranium chip fires would be
2 captured and the doses reconstructed
3 appropriately from that. Whereas if someone
4 was not, you know, did not have chip fires as
5 part of their common experience, a chip fire
6 would be an event.

7 So there is a little bit of that
8 view, you know, that information you have to
9 carry with you and read it, but I think it's
10 really important for us to actually go look at
11 those interviews and see those interviews and
12 see if, in fact, we feel good about whether
13 they're addressed by the exposure record or
14 not, because there's no way to know unless we
15 know what they said.

16 CHAIRMAN GIBSON: Well, yes, and I
17 guess -- and that's personally my concern
18 here, and it's not necessarily just with
19 Weldon Spring, but if you have workers giving
20 input to the system that's specific about them
21 and somehow even though it was given to SC&A,

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1 I mean all of their information is owned by
2 the government. And so for them to go ahead
3 and have a dose reconstruction and then this
4 information not be considered, that falls a
5 little bit more into the worker outreach type
6 thing that, you know, I'm just a little
7 concerned about that.

8 MR. HINNEFELD: Yes. And it's
9 possible that the interview that occurred with
10 SC&A and we'd do the dose reconstruction
11 later. I mean that's possible. I think
12 oftentimes that happens all the way around,
13 like we've done a dose reconstruction before
14 that interview occurred.

15 But by all means, our walk away
16 position, our walk away thought, though, is
17 that we need to first of all carefully read
18 the Evaluation Report, not the matrix part but
19 the Evaluation Report's description of this
20 including finding the interviews. If they're
21 not referenced, we can get a hold of SC&A and

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1 say what are the interviews that this finding
2 is based on and sort of determine a reaction
3 to those interviews and whether we feel like
4 what we've done is appropriate or not or
5 whether there's something different that needs
6 to be addressed.

7 CHAIRMAN GIBSON: So that's what
8 you guys -- you guys want to do that and come
9 back to us --

10 MR. HINNEFELD: Yes.

11 MR. ROLFES: Now, Ron, do you have
12 a separate report of interviews? I don't
13 recall if you provided that. I know you
14 provided some summary data in your writeup of
15 the Site Profile review. I don't remember
16 seeing individual interview reports.

17 MR. POTTER: Mark, this is Gene
18 Potter. I've looked at SC&A's report and
19 these interviews are summarized in an
20 attachment I believe, but there is not enough
21 information to identify the individuals

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1 involved. So if SC&A can provide those to
2 you?

3 MR. ROLFES: That's what I was
4 getting to, Gene.

5 MR. HINNEFELD: That would be
6 important for an individual dose
7 reconstruction. In terms of the broad
8 question, do these incidents describe things
9 that are beyond what we think would have
10 happened and accounted for appropriately, that
11 may or may not be necessary.

12 MR. ROLFES: I think as part of
13 the Evaluation Report, we did consider some of
14 SC&A's site expert interviews in our
15 evaluation process, and I think we had
16 included some analysis of what was said.
17 Monica, do you happen to recall -- am I
18 remembering this correctly that we did take
19 some of SC&A's employee interview statements?
20 One sticks in my mind here, and I think it
21 was related to the receipt of pitchblende at

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1 the Weldon Spring site. There was an
2 interview, I think, from SC&A that they had
3 conducted, and the interviewee had said that
4 pitchblende was processed at Weldon Spring.
5 Does this ring a bell, Ron? Am I --

6 MS. HARRISON-MAPLES: I don't
7 recall it the same way that you're going over
8 it right now. I do recall there was some
9 interview summary information that we received
10 that talked about storage of some other
11 material. It wasn't so much pitchblende as it
12 was cylinders --

13 MR. ROLFES: Enriched uranium
14 hexafluoride.

15 MS. HARRISON-MAPLES: That's it
16 and so we did a lot more investigation looking
17 for that. We went out and we did some
18 additional interviews asking other people did
19 they recall any information about UF6 cylinder
20 storage. So I do know that we did follow-up
21 on anything that we received from their

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1 summaries that we hadn't received earlier.

2 MR. ROLFES: Then, Monica, could
3 you answer one other thing? Did we put that
4 in our Evaluation Report?

5 MS. HARRISON-MAPLES: I believe we
6 did. I believe we referenced it and said that
7 we followed up and that the additional people
8 that we followed up with were not aware of UF6
9 cylinder storage.

10 MR. MORRIS: Mark, Bob Morris.

11 MR. ROLFES: Yes, Bob.

12 MR. MORRIS: This topic you're
13 were talking about, pitchblende. Actually, it
14 came through as the uranium ore concentrates
15 that were received were actually called "ore"
16 by the local workers. And we followed that
17 through to completion where we determined
18 pretty conclusively that that was a misnomer.
19 It was a local term, that they meant
20 concentrates but they called it ore.

21 MR. ROLFES: Okay. Thank you,

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1 Bob.

2 MS. HARRISON-MAPLES: Thank you,
3 Bob. I didn't make that connection. You're
4 right. That was another one we followed up
5 on.

6 DR. BUCHANAN: This is Ron. I
7 believe, Mark, that if I recall right, in the
8 ER, the terms used -- the petitioner's
9 concern. Now I don't know if he used that
10 interchangeably with interviewee's concern,
11 but I know in the ER, you said petitioner's
12 concern, like you took those points from the
13 actual petition, and so I didn't get the gist
14 when I read it that it was taken from the
15 transcripts of the interviews we conducted --

16 MR. ROLFES: We'd have to look
17 back. I know that we had identified some of
18 those issues as part of our Evaluation Report,
19 and I thought that they had been -- you know,
20 I thought maybe it might have been the same
21 individual from an interview and also in the

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1 petition, but certainly, we can look back at
2 the interviews that you completed and take a
3 look there to make sure that we've accounted
4 for the statements. That might make a
5 difference in a dose reconstruction.

6 MS. JOHNSON: Hi, this is the
7 petitioner, Karen Johnson, one of the
8 petitioners. I just wanted to make a
9 statement too that I did have an interview
10 with Monte Mason's right-hand man who did
11 confirm UF6 cylinders stored on site.

12 MR. HINNEFELD: This is Stu
13 Hinnefeld. Do you remember his name?

14 MS. JOHNSON: I don't have offhand
15 right now, but I can get it for you.

16 MR. HINNEFELD: Okay. If you
17 could provide that to us at our -- are you
18 familiar with our website and our email
19 address?

20 MS. JOHNSON: Yes, I can get that.

21 MR. HINNEFELD: And you send it

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1 there or you could call our general phone
2 number, or really, you can submit it to
3 whomever you want and however you want. It
4 will get to us. If there is anybody involved
5 in this process you have contact information
6 from, if you can provide it --

7 MS. JOHNSON: Okay. I might do
8 that because I do have some contact with some
9 other workers and there aren't very many
10 living workers anymore, but they did talk
11 about the frequency of blowouts and
12 explosions. And I think you might want to
13 probably talk to them as well. I'm not sure
14 if anybody's ever talked to them before, but I
15 can pass on their information as well.

16 MR. HINNEFELD: Okay. That would
17 be fine. Thank you.

18 DR. BUCHANAN: This is Ron.
19 Karen, awhile back, you told me that one
20 person said he seen Congo or pitchblende or
21 something marked on a barrel. Did you find

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1 out anymore information on that?

2 MS. JOHNSON: You know, I talked
3 to him a couple of months ago at the Weldon
4 Spring site, and I can give you his contact
5 information. I think he had actually
6 originally talked to one of the resource
7 centers and they referred him to me. So I can
8 give you his contact information if you want
9 to contact him and ask him a question.

10 DR. BUCHANAN: Okay. He couldn't
11 provide you with any further details than what
12 you've provided me?

13 MS. JOHNSON: You know, I can't
14 recall some, but he did talk about trucks
15 coming on site with plutonium labels on them.

16 And I don't know if they were heading to the
17 quarry, but he said they often would stop off
18 at the facility first.

19 DR. BUCHANAN: Okay. Well, if you
20 could provide me with his information or
21 contact later, I'll follow-up on that.

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1 MS. JOHNSON: Okay, I'll do that.

2 CHAIRMAN GIBSON: Okay. That was
3 all for number 8 then?

4 DR. BUCHANAN: I believe so.

5 CHAIRMAN GIBSON: So do we want to
6 take a break at this time and have some lunch?
7 It's 12:40.

8 MEMBER PRESLEY: What time are you
9 coming back?

10 CHAIRMAN GIBSON: About an hour or
11 as soon as the restaurant can get us through
12 depending on how busy they are.

13 MR. KATZ: Okay. So break until
14 1:40? Is that what we're saying?

15 CHAIRMAN GIBSON: Yes.

16 MR. KATZ: Okay. Thank you for
17 hanging in there on the line, and we'll --

18 MEMBER LEMEN: This is Dick again.
19 How much longer do you think it'll take to
20 get through the rest of the stuff? Do you
21 have any idea?

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1 DR. BUCHANAN: We got one more
2 issue and then the summary action item list.

3 MR. FITZGERALD: We have the TBD
4 issues. It's up to you if -- we're certainly
5 going to have time for Site Profile issues if
6 you want to go through those, too.

7 CHAIRMAN GIBSON: Yes. I'd like
8 to get as far as we can.

9 MEMBER LEMEN: All right, thanks.

10 MR. KATZ: Okay, thanks, Dick.

11 (Whereupon, the above-entitled
12 matter went off the record at 12:39 p.m. and
13 resumed at 1:43 p.m.)

14 MR. KATZ: Good afternoon. This
15 is the Weldon Spring Work Group Advisory Board
16 on Radiation and Worker Health. We're just
17 reconvening after lunch break. It sounds like
18 from the number of people on the line that we
19 have everyone back, but let me check on the
20 Board Members.

21 MEMBER PRESLEY: Ted?

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1 MR. KATZ: Yes.

2 MEMBER PRESLEY: I just talked to
3 Dick Lemen. We both got cut off. Dick said
4 he'll be back on in about 15 minutes.

5 MR. KATZ: You both were cut off.
6 I mean we broke for lunch but --

7 MEMBER PRESLEY: Well, we were
8 talking and all of a sudden, everything went
9 dead.

10 MR. KATZ: Oh, I see. Okay. So
11 he said he'd be back in 10 minutes? Is that
12 what you said?

13 MEMBER PRESLEY: Fifteen.

14 MR. KATZ: Okay. Well, I think we
15 should just go ahead and proceed, because we
16 got a good bit ahead of us if we're going to
17 go through TBD issues. Mike?

18 CHAIRMAN GIBSON: Okay. I think
19 we've finished with the eighth issue just
20 before lunch, so we'll turn it back over to
21 SC&A and start on the ninth issue.

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1 MR. ROLFES: Mike, this is Mark
2 Rolfes. If I could interject something here
3 before we start again. We and been discussing
4 about neutron monitoring before the lunch
5 break at Fernald, and I pulled up a reference
6 which was a neutron monitoring position paper
7 that was written for the Fernald site. The
8 Site Research Database Reference I.D. is 3568,
9 and this issue was discussed during the
10 Working Group meeting that was held in October
11 of 2008. It was October 28, 2008.

12 To summarize the discussion, if
13 you look -- well, I'm looking at page 365 of
14 those transcripts, and John Mauro has
15 identified last item under 4.5 has to do with
16 neutron doses. SC&A had raised the issue
17 about the neutron to photon ratio where they
18 had looked at our ratio of .23 to 1. John
19 Mauro indicated that they had looked at that
20 ratio and had done some calculations. They
21 assumed some different kinds of geometries and

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1 arrays of UF4, for example, in drums or piles,
2 and they came up with a higher neutron to
3 photon ratio. But he had indicated that they
4 had made a mistake, said that they made
5 certain assumptions regarding what types of
6 materials were there and their assumptions
7 essentially were so large that it would have
8 caused a criticality issue.

9 He said they made a mistake and
10 they redid the numbers, checked it again, and
11 they concurred that the neutron to photon
12 ratio of .23 to 1 was claimant-favorable. As
13 far as their concerned, they no longer had an
14 issue on that matter.

15 And then Hans Behling had also
16 chimed in and had referred to a neutron
17 monitoring position paper as well where they
18 had detailed some neutron dose rates and
19 photon dose rates. It was approved by Stu
20 Hinnefeld at the Fernald site. And he said so
21 rather than looking at theoretical

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1 calculations that are the basis for the .23 to
2 1 neutron to photon ratio, he looked at the
3 data in the neutron position paper, and it
4 turns out the empirical data in that
5 particular report, Hans' opinion was that the
6 .23 was very claimant-favorable. And Hans
7 reiterated what John had said, that they
8 agreed that the .23 is a claimant-favorable
9 dose ratio for neutron to photons and he
10 things they should drop the issue. So that
11 discussion took place over page 365 through
12 367 of the transcripts. Thank you.

13 MR. KATZ: Thank you, Mark.

14 DR. BUCHANAN: All right, thanks.
15 Well, SC&A will look at that and confirm and
16 send you the information.

17 DR. MAURO: This is John. I'm
18 sorry, I picked up just a moment ago. You
19 were referring to some exchange at Fernald?

20 MR. ROLFES: That's correct.

21 DR. MAURO: Okay. Good, yes, and

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1 I do recall that exchange. Now how are we
2 applying that here? I just didn't build that
3 relationship between that discussion analysis,
4 and I agree, by the way, with everything. I
5 recall that and I just didn't pick up the
6 applicability here to Weldon.

7 MR. ROLFES: The same -- we're
8 using the same neutron to photon ratios for
9 Weldon Spring plant dose reconstructions.

10 DR. MAURO: Okay, yes. So there
11 wouldn't be any differences in, for example,
12 the levels of enrichment? And I remember when
13 we did that calculation, we made certain
14 assumptions regarding levels of enrichment
15 that would have been -- you're correct -- we
16 would have had a criticality situation with
17 the quantities that we were assuming, and,
18 therefore, our original numbers were off. So
19 you don't have any -- so you would have the
20 same circumstance here. I'm just sort of
21 getting myself oriented. Yes, I understand

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1 what you're saying.

2 DR. BUCHANAN: Okay. So that
3 brings us to SEC issue number 9, which is
4 geometry and extremity monitoring. The
5 geometry issue and extremity arises from the
6 fact that at Weldon Spring, they did have
7 monitoring badges on their chests for those
8 working with radioactive material in general.

9 However, there was no mention of geometry
10 factors such as, for example, people that work
11 in glove boxes, we're aware of that, TIB-10
12 where that was calculated, how you would -- if
13 your badge is on your chest and you have
14 anything between you and the material, such as
15 a person working on a lathe or that sort of
16 grinder with radioactive material, say, at
17 Weldon Spring, and then have even just a
18 plastic shield, a physical protection for eye
19 protection and stuff, then the lower part of
20 the body would be irradiated more than what
21 the badge would register for beta radiation.

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1 And one example I give in the
2 report is that, you know, a simple plexiglass
3 shield went from a very high rate down to
4 background. And people working, say, in areas
5 where the radioactive material was lower on
6 the floor, a lower position than their badge,
7 and unfortunately, there was an extremity
8 dosimetry at Weldon Spring that I didn't find
9 at all where the fingers and hands were
10 monitored for people working, say, on
11 machining and stuff.

12 And so I bring up the issue of how
13 that can be corrected for the people that
14 might have had that sort of exposure geometry.

15 MR. ROLFES: I think we had looked
16 into this prior to the last meeting, and from
17 what I recall, we had looked to see if there
18 were any skin cancers on an individual's
19 extremities and then on top of that to see if
20 there were any that were non-compensable.
21 Based upon our review that I did probably

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1 about a year ago, we didn't find any non-
2 compensable skin cancers of the extremities at
3 that time. So that would be something that we
4 would need to apply extremity doses and would
5 need to develop the correction factors. If
6 there's a non-compensable skin cancer case for
7 an individual's extremity, we would need a
8 method basically to assign shallow doses to
9 the skin of the extremity, a way to correct
10 for what might have been received by the hand
11 versus what was recorded by the badge.

12 But from what I recall now -- and
13 we can put together a number of -- we can look
14 through the cases once again and put together
15 a written report on this.

16 DR. BUCHANAN: What about geometry
17 other than skin cancer or hand cancer if
18 you're calculating the dose to other organs
19 that may be under estimated by the badge on
20 the chest? What about those situations?

21 MR. ROLFES: We did a similar

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1 analysis for basically a cleaner
2 contamination. We assumed that an infinite
3 plane was contaminated with radioactive
4 material. This is something that we can pull
5 together and see what its applicability to
6 Weldon Spring is. But we had done this
7 similarly for the Nevada Test Site to look at
8 correction factors for gamma doses from
9 contaminated soils for example. And we can
10 see if that would be applicable to the Weldon
11 Spring Plant site.

12 And also, at the last meeting, I
13 think we had agreed to look at the
14 Mallinckrodt review that SC&A had done
15 regarding unusual exposure geometries. And
16 that work, ORAU Team's beginning to look into
17 the review of the geometrical correction
18 factors for gamma doses.

19 DR. BUCHANAN: So you're going to
20 look at the Mallinckrodt geometry factors, how
21 that was handled there?

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1 MR. ROLFES: I think Arjun, at the
2 last meeting, had asked us to take a look at
3 their work on Mallinckrodt, on the review of
4 Mallinckrodt TBD.

5 MR. HINNEFELD: Yes. There is a
6 Mallinckrodt TBD procedure that describes
7 certain geometry adjustments based on, I
8 think, its three different source and receptor
9 geometries, one of which is a lathe I
10 remember.

11 And there are comments on that
12 document in the Procedures Review
13 Subcommittee, so I mean the entirety of it
14 kind of has to be addressed for this. But I
15 remember lathe as a specific one. An extended
16 spill or a contamination, I think, on the
17 floor I another one and then maybe an overhead
18 source. I forget the third. There were three
19 different source receptor geometries described
20 in the existing procedure or TBD. And in
21 conjunction with that, we would have to look

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1 at the review findings of that procedure TBD
2 from that other Subcommittee and our response.

3 DR. BUCHANAN: Okay. That is the
4 nine SEC issues and that then leads us to the
5 matrix on the TBD issues. Now the TBD issues
6 were addressed starting on page 12 of the
7 matrix, and this gets a little hard to
8 coordinate all the TBD issues with SEC issues,
9 because some of the SEC issues include some of
10 the TBD issues, maybe more than one of them.
11 And so I guess what I'll go over here, we
12 mainly came prepared for the SEC issues. The
13 TBD issues, we will go over and see if they
14 will be addressed by the SEC issues, so
15 there's no use rehashing them again if they
16 will be.

17 And so number -- page 12 there
18 where we have TBD finding number 10, this is
19 lack of atmospheric monitoring, now we also
20 want to consider number 10, 11, and 12
21 somewhat together, because all this is

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1 environmental. And so I guess what I'd like
2 to ask is now in the original TBD, we had
3 mainly three sections, the environmental,
4 internal and external. And in there we had a
5 lot of questions on the environmental, and we
6 brought those out in the issues.

7 And then in the ER, the main gist,
8 if I recall right, is that the environmental
9 issues could be bound by the fact that the
10 worker could be assigned an operator's dose.
11 And so I guess the question at this point,
12 which way will it be? Is the TBD-4 going to
13 be revised any? Are we just going to assign a
14 coworker dose of an operator? Where do we
15 stand on that?

16 MR. ROLFES: The TBD, to cover
17 those three topics that you had just listed --
18 what was it, 9, 10, and 11 here -- the
19 environmental TBD, TBD-4 for the Weldon Spring
20 site has been revised in its draft form at
21 ORAU. What we'd like to do is pull out the

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1 relevant sections to answer those topics as a
2 White Paper, and we'll send that over to SC&A
3 to take a look at. And that should respond to
4 your environmental ambient doses issues.

5 DR. BUCHANAN: And that answered
6 item number 10, 11, and 12.

7 MR. ROLFES: Does Bob Morris or
8 Monica -- does that sound okay? Does that
9 sound like something we can do relatively
10 easily is pull out information to respond to
11 these three topics identified by SC&A into a
12 White Paper in advance of the publication of
13 our revision of the TBD?

14 MR. MORRIS: This is Bob Morris.
15 I think we can do that. The topics that are
16 in the revised TBD-4 are -- should cover all
17 of this information in finding 10, 11, and 12.
18 Yes, I think we can do that.

19 MR. ROLFES: Okay. Thank you.

20 MR. FITZGERALD: Just offhand, I
21 mean given the specific topics, are these

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1 topics that are addressed in the TBD? It's
2 suggested that they are by how you're
3 referring to them.

4 MR. ROLFES: I believe so. I know
5 we've re-written quite a bit of the
6 environmental TBD and the other TBDs as well
7 as a result of the SEC Evaluation that we had
8 done.

9 MR. FITZGERALD: You had the Site
10 Profile review for a couple of years also so -
11 -

12 MR. ROLFES: Right.

13 MR. FITZGERALD: Okay.

14 DR. BUCHANAN: Okay. So SC&A will
15 receive a White Paper outlining or revising
16 TBD-4 to address those Site Profile issues 10,
17 11, and 12. That brings us to page 14.

18 This is Site Profile issue number
19 18, and this is uranium decay product. For
20 the last meeting, I have a note here that you
21 intend to revise the TBD to include this

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1 product and that the wording before initial
2 processing would be explained. Have we
3 arrived at that report?

4 MR. ROLFES: That is also in part
5 of the revision to the TBD, and what we need
6 to do is pull that out as a White Paper as
7 well I believe. I wanted to check with ORAU
8 on the status also, once again, to make sure
9 that this is something that we can do. And
10 Bob, we have revised part of the internal TBD.

11 Do we know how complete it is or do we have
12 information responsive to this topic in our
13 current draft that we might be able to pull
14 out into a White Paper as well?

15 MR. MORRIS: Let me refer to Gene.

16 MR. ROLFES: Okay.

17 MR. MORRIS: You there, Gene
18 Potter?

19 MR. POTTER: This is Gene Potter.

20 Sorry. Ron, could I ask what page you're on
21 for this particular one?

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1 DR. BUCHANAN: Page 14. It's the
2 SC&A TBD finding number 18. It's incomplete
3 assessment of uranium decay products. You had
4 a reply. In your TBD reply for the last
5 meeting, it was your number 4.

6 MR. POTTER: Okay.

7 MR. ROLFES: Gene, this is Mark.
8 I wondered if we might be able to -- I
9 wondered if we had information responsive to
10 the uranium decay product, Gene, in our
11 current draft revision of TBD-5 that we might
12 be able to pull out as a White Paper?

13 MR. POTTER: Yes. I believe that
14 is the case. What we did was ratio to --
15 ratio some of the thorium 230 to the other
16 radionuclides in the raffinate pits, and came
17 up with a bunch of ratios there and an upper
18 bound on them.

19 MR. ROLFES: Okay. So our action
20 item is to basically pull that relevant
21 information out of the TBD draft into a White

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1 Paper for SC&A.

2 DR. BUCHANAN: Okay. And do you
3 recall if the -- in that revision or did you
4 check into what these changes will -- only be
5 applicable to intakes before initial
6 processing? Did you check into that wording,
7 because I wasn't sure what they were talking
8 about there.

9 MR. POTTER: This is Gene Potter.
10 Was that question directed to me?

11 DR. BUCHANAN: Well, if you can
12 answer it. This is Ron. In the TBD-5, they
13 said -- your present wording is "These changes
14 will only be applicable to intakes before
15 initial processing," and we couldn't figure
16 out on our last meeting what that really
17 meant.

18 MR. POTTER: Right. I'm not sure
19 if we've reworded that in the TBD draft of
20 not, but the idea is that when the
21 concentrates are received and they go through

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1 the initial processing in, what is it,
2 Building 103 -- I'm probably incorrect in
3 quoting from my memory -- but that's where
4 they have all the other constituents, and
5 basically, as the uranium goes down the line,
6 it essentially becomes pure uranium and all
7 the rest of it goes to the raffinate pits. So
8 we could probably take another look at that
9 description, but that's the idea.

10 DR. BUCHANAN: Okay. Yes, if you
11 can clarify that statement, it would help.

12 So that brings us to page 15, TBD
13 finding number 20, solubility classes, and I
14 think that we addressed that last time in that
15 my question was how could you have all these
16 solubilities for all the different things,
17 because uranium is uranium, so you couldn't
18 have different solubilities for the 234, 235,
19 238, at Weldon Spring's condition anyway. And
20 your statement was that they were all to chose
21 from, however, they did not have to -- didn't

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1 mean they were all present in that form. And
2 so I don't know if he's going to put a
3 clarification in the TBD on that or not. You
4 know, you clarified that. I have no real
5 further question on that.

6 MR. ROLFES: Yes. The dose
7 reconstructors will chose the solubility class
8 of the uranium materials that's most claimant-
9 favorable for the dose reconstruction target
10 organ.

11 DR. BUCHANAN: So we really don't
12 have an action item on that except for reply
13 on primary finding number 20 in the TBD.

14 MR. KATZ: So is that one closed?

15 DR. BUCHANAN: Yes. We can close
16 that. So that brings us to page 15, still on
17 page 15, TBD primary finding number 21. And
18 this is internal missed dose, MDAs. I believe
19 that in the figure that was going to be used
20 in the TBD was 0.08 milligrams per liter
21 value, and what SC&A wanted to know was how

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1 that was derived, you know, to sustain that
2 number that was going to be used.

3 MR. ROLFES: Well, let's see. I
4 think our response to the document -- I think
5 this is something that we previously put in
6 for the last meeting, and the response here
7 was that the TBD doesn't contain a formal
8 coworker study. We've summarized the urine
9 data in Tables 528 through 517 for the dose
10 reconstructors to use to estimate doses if an
11 employee's do not contain data in a given
12 period. And since we have the data
13 distributions, we can always calculate a best
14 estimate or a maximum dose that the employee
15 received.

16 MR. POTTER: Mark, this is Gene
17 Potter. I have some information on that.

18 MR. ROLFES: Okay. Please go
19 ahead, Gene.

20 MEMBER LEMEN: This is Dick Lemen.
21 I'm back on.

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1 MR. KATZ: Welcome back, Dick.

2 MR. POTTER: I've started to look
3 into this MDA issue. I think there was a
4 discussion in the last Working Group meeting
5 where it wasn't clear to SC&A how this MDA
6 value was in there, but should be,
7 incidentally, .008 milligrams per liter or 8
8 micrograms per liter, the actual number. And
9 what was done in the original TBD, and it will
10 be in the Rev as well, was there was no use of
11 modern MDA concepts, of course, in those days,
12 so what the original authors did was to take a
13 look at a site with similar technologies at a
14 similar time and looked at the actual blank
15 values and came up with that particular MDA.

16 Now at Weldon Spring, it turns out
17 that that concept probably would never be
18 used. In the CER data, I looked at the lowest
19 non-zero value recorded for each year, and
20 it's 1 microgram per liter, so a far lower
21 value than what might be considered a

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1 reasonable MDA from the blank values was being
2 used. So if you have a zero at Weldon Spring,
3 there were a number of things that the dose
4 reconstructors could do, but the lowest
5 recorded value would be 1 microgram per liter,
6 so, for instance, you might use .5 micrograms
7 per liter. I'm not saying that that is the
8 policy, but it's a value much lower than what
9 one would come up with for an MDA.

10 And then of course, since this is
11 a uranium we're talking about, of course,
12 you're not actually measuring zeros in the
13 background population of workers. There is
14 some exposure to uranium from diet and
15 possibly drinking water, so I looked at the
16 CER data again.

17 There are nearly 700 samples coded
18 in a CER data as pre-job samples. A hundred
19 and seven of those were zeros, and so I
20 substituted a uniform distribution for the
21 zeros so is an equal chance of between 0 and 1

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1 microgram per liter. And those fit a log-
2 normal distribution fairly well with an r-
3 squared of .88. The median value was .4
4 micrograms per liter. So this is the
5 background of uranium you're seeing in your
6 worker population.

7 What NIOSH is doing is assuming
8 that the 1 microgram per liter is
9 occupational. More than likely, those numbers
10 are background numbers, but they're being
11 treated as occupational doses. So that's why
12 this is very conservative without, you know,
13 having a modern MDA concept specific to the
14 site. That's all I have.

15 MR. ROLFES: Thank you, Gene.

16 DR. BUCHANAN: This is Ron. A
17 little clarification here. You say the MDA
18 value in the TBD is .008 milligrams per liter,
19 8 micrograms?

20 MR. POTTER: Yes, sir.

21 DR. BUCHANAN: Okay. And you say

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1 that the data sheets from the workers in the
2 files show less than 1 microgram?

3 MR. POTTER: I'm saying what's in
4 the CER data is either a 0 or the lowest non-
5 zero recorded number is 1 microgram per liter,
6 and that's true over the whole site's 10-year
7 history.

8 DR. BUCHANAN: And then you looked
9 at 700 samples and they ranged from 0 to 1
10 microgram per liter? Is that what you said?

11 MR. POTTER: No. I looked at 700
12 samples that were coded as pre-job samples to
13 the 50th percentile. Fitting those to a log-
14 normal distribution of 50th percentile was 4
15 micrograms per liter.

16 DR. BUCHANAN: Four micrograms per
17 liter.

18 MR. POTTER: Now some of these
19 folks, you know, way out on the tail may have
20 come from other uranium sites, but the bulk of
21 the data fits the log-normal pretty well with

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1 a 50th percentile of 4 micrograms per liter.

2 DR. BUCHANAN: Okay. So where did
3 the 8 micrograms per liter actually come from?

4 MR. POTTER: That was some work
5 done by the original authors of the TBD, and
6 what they did was looked at the -- where they
7 had actual logbooks of fluorometric data from
8 a similar era at Rocky Flats so they could --
9 you know, how you would run a modern program
10 would be to keep track of your blank
11 population very carefully. And from that
12 blank population, you would calculate a
13 decision level which is the value that you
14 would decide something is above background.
15 Given that decision level, there is an MDA
16 which is the value that you could reliably
17 detect with that program given that blank
18 population.

19 DR. BUCHANAN: Is any of this
20 written up in the Revised TBD-5?

21 MR. POTTER: I think the Revised

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1 TBD, at the moment, has essentially the same
2 writeup as was in Rev 0. We were planning on
3 providing this information to Mark separately.

4 DR. BUCHANAN: Okay.

5 MR. ROLFES: What we intended to
6 do was to pull this information, once again,
7 out of the TBD, since these TBDs are in draft
8 form still, into White Papers for response to
9 SC&A. And Gene, you are saying that this is
10 documented in the draft revision of TBD-5?

11 MR. POTTER: Currently, the MDA
12 description is the same as in Rev 0.

13 MR. ROLFES: Okay.

14 MR. POTTER: This work on looking
15 at pre-job samples has just recently been
16 done, and this is one of the things we were
17 going to provide to you within the next week,
18 a little writeup on this.

19 MR. ROLFES: Okay. And we'll take
20 a look at that and then subsequently send that
21 on to SC&A.

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1 DR. BUCHANAN: Okay. So that was
2 the TBD Primary Finding Number 21, internal
3 MDA. We'll move on to page 16 now, which is
4 Primary Finding Number 26, and this says
5 "badging policy not consistent." Now this is
6 one that spills over into SEC issue on
7 coworker dose. I mean the main reason this
8 has been here is to determine whether coworker
9 data would be adequate or not. And so unless
10 you have anything to add to that, I would say
11 this would probably be wrapped up in our
12 coworker dose for the SEC.

13 MR. ROLFES: I don't think we have
14 anything to add right now.

15 DR. BUCHANAN: Okay. This moves
16 us to page 17 of TBD Primary Finding Number
17 27, and that's coworker data development. And
18 that, again, is in Item 1D of the SEC.

19 Page 17 again, Primary Finding
20 Number 3 for the TBD, individual exposure
21 versus average exposure. Okay, when it was

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1 evaluated on the TBD, we were looking at the
2 enriched uranium and recycled uranium and the
3 thoron, the radium and the radon and thorium
4 such as being outside the normal uranium
5 processing bioassays and such and external
6 dosimetry. And so I would say that the issue
7 there is covered in our various SEC issues
8 concerning RU and other factors, the pits and
9 the fire issues. Anybody disagrees with any
10 of this, raise your hand.

11 MR. ROLFES: I had a little
12 statement if you want me to summarize it.

13 DR. BUCHANAN: Okay.

14 MR. ROLFES: I just put down in my
15 notes, the current approach in dose
16 reconstructions assigns a claimant-favorable
17 natural uranium intake based upon the
18 individual's bioassay. But the way that we
19 calculate the internal dose, we use the
20 isotope that delivers the largest dose in the
21 isotopic makeup of natural uranium. That

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1 would be U-234.

2 In addition to the uranium intakes
3 that we assign, we also assign thorium intakes
4 and other radionuclides, so we're not focusing
5 on only assigning one radionuclide in a dose
6 reconstruction. It's actually several we
7 assign.

8 DR. BUCHANAN: Okay. Number 6, 7,
9 and 8 are medical X-ray questions.
10 Apparently, at Weldon Spring, it was all the
11 medical -- they did have a medical nurse there
12 I guess, and they contracted all their medical
13 MDs, exams and X-rays and stuff to the
14 outside. And apparently, maybe they had a
15 doctor come on site once in a while, but they
16 did no medical X-rays on site as far as I can
17 tell.

18 They were required to have certain
19 X-rays at certain times. However, in the
20 documents I had looked at, I could not find
21 anything that lists anything specific for

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1 Weldon Spring as far as the frequency and PFGs
2 obviously did a much higher dose. At that
3 time, they could have required them. They
4 might not have and so we couldn't find out for
5 sure, and the lumbar spine exams were often
6 given to certain people with lifting and such.

7 And so I could not find any information on
8 what was required there. So I was wondering
9 if NIOSH had determined any of those any
10 further than what the TBD-3 said, which said
11 essentially they didn't have any information.

12 MR. ROLFES: Well, if X-rays were
13 not done on site at the Weldon Spring plant,
14 they were outside of the covered facility, and
15 so they wouldn't be included under EEOICPA in
16 the dose reconstructions.

17 MR. ROLFES: So if they truly were
18 all taken off site, we wouldn't be including
19 those as covered exposures.

20 DR. BUCHANAN: Okay. I don't
21 think that that's the way it was done at other

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1 sites, is it? I believe --

2 MR. HINNEFELD: Not consistently.

3 That's a fairly recent interpretation. The
4 question was raised fairly recently to others
5 outside of our office in NIOSH about what you
6 do in this situation. And our advice back was
7 that the law requires reconstruction of the
8 dose at the site and doses received off the
9 site can't be included. That was sort of to
10 our chagrin. That's the advice we got and
11 that's fairly recent advice we received.

12 CHAIRMAN GIBSON: That's a NIOSH
13 decision? I mean that's not something that
14 DOL or DOE -- DOL would make?

15 MR. HINNEFELD: It is -- no, no.
16 DOL gives decisions about how to reconstruct
17 the dose, what doses to reconstruct -- they
18 leave those up to us essentially. This is
19 from -- this is an interpretation, a
20 recommendation based on the specific language
21 in the statute. And I could find it

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1 eventually and provide additional information
2 about what this means, but I don't remember
3 right off hand. But I do remember it is a
4 recommendation to our division from others in
5 -- well, others in HHS at least -- HHS about
6 what that language in the statute, actually,
7 it has to be interpreted.

8 CHAIRMAN GIBSON: So since the
9 decision came from within the Agency --

10 MR. KATZ: Within the Department.

11 MR. HINNEFELD: It would have been
12 the Department.

13 CHAIRMAN GIBSON: It would be
14 something that the Board could at least
15 address and make a recommendation or --

16 MR. HINNEFELD: I think they could
17 advise the Secretary as they see fit. That
18 would then be for consideration. You know,
19 the entire consideration of it would be
20 outside of our division but within HHS, so I
21 would guess that would be true. I don't know

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1 exactly.

2 CHAIRMAN GIBSON: Because, you
3 know, it just seems odd that irregardless of
4 where the X-ray took place, if it was required
5 because of your employment, it looks like it
6 should be --

7 MR. HINNEFELD: Understand
8 exactly. I'm not arguing the point.

9 MR. KATZ: That's exactly how we
10 originally came out determining --

11 MR. HINNEFELD: That's why we were
12 doing things differently at other sites --

13 MR. KATZ: So that's why things
14 had been done differently as you're thinking
15 all along, but I gather -- I'm not familiar
16 with this, but if this is current legal
17 interpretation, I do -- I am familiar with the
18 language in the statute that says it's at such
19 facility, the exposure, so I can understand
20 where that might be coming from.

21 CHAIRMAN GIBSON: I mean this

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1 could get into different areas. You know, for
2 example, you had drivers at Mound that would
3 take radioactive material in trucks and
4 transport it off site to a different location,
5 so from the minute they cross the boundary
6 line of a site, we quit recording their dose
7 or --

8 MR. HINNEFELD: I think in those
9 situations, if you could do that, that we
10 would be expected to do that.

11 MR. KATZ: Same with airplanes, so
12 I think that's already in play. That already
13 operates with people off site. They don't --
14 aren't credited with exposures that occur off
15 site, even if they're doing their job.

16 MR. FITZGERALD: I think they came
17 up at Los Alamos with an airborne --

18 MR. KATZ: It did. But that's
19 just a question of how the statute is written
20 and how it can be interpreted.

21 DR. BUCHANAN: So essentially,

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1 we're saying, no one will be assigned medical
2 dose at Weldon Spring?

3 MR. HINNEFELD: If there is
4 definitive evidence that they occurred with
5 the X-ray exposures, medical exposures
6 occurred off site, then they would not be
7 included in a dose reconstruction. If it's
8 subjective, if it's a question, if we don't
9 know where they were performed, then our
10 presumption is we're going to presume that
11 they were performed on the site and be done,
12 and then we would have deal with the issues.

13 So in this instance, we expect --
14 we're relying on definitive evidence that they
15 occurred off site in order to exclude them.
16 If there is not definitive evidence, we
17 consider as occurring on the site.

18 DR. BUCHANAN: Okay. And so
19 what's the dose reconstruction being done now
20 or have been done --

21 MR. HINNEFELD: Up to now, I

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1 believe they're probably doing them according
2 to the Site Profile, which was written before
3 we got this advisement, so they're probably
4 being included.

5 DR. BUCHANAN: Okay. So how are
6 addressing these different exam frequencies
7 and PFG and lumbar spine.

8 MR. ROLFES: The Site profile does
9 have a statement about photofluorography not
10 being present on the site, so that technically
11 is not included in dose reconstruction
12 practice. And I believe the default that we
13 have for medical X-rays would be to assign an
14 annual X-ray dose for an employee for -- it
15 basically would be a pre-employment exam, an
16 annual physical, and then a termination X-ray.
17 Unless we have records in the individual
18 employee's medical history that they received
19 more frequent X-rays, we would typically
20 default to an annual X-ray.

21 MR. HINNEFELD: Yes, and lumbar

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1 spines are usually done when there's evidence
2 of a lumbar spine. It's usually not assumed.

3 But if there's evidence that lumbar spine
4 exams were done, the screening exams, then
5 those are included. And without evidence,
6 they generally are not.

7 DR. BUCHANAN: So you're just
8 assigning a PA --

9 MR. HINNEFELD: Yes, PA chest.

10 DR. BUCHANAN: Now this -- with
11 that ruling, I don't know that SC&A --

12 MR. FITZGERALD: Well, it makes
13 some of this moot. I guess the question of
14 ambiguity, you know, if there's no firm
15 evidence which way it went, then we'll tilt
16 toward including it. But if it's clear like
17 PFGs, they were done definitely off site,
18 they're out according to this rule.

19 DR. BUCHANAN: So that brings us
20 to page 20, TBD Secondary Finding. Most, I
21 think, of what's left here are secondary

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1 findings which, you know, we had some
2 questions on, but it wasn't necessary to
3 change drastically a dose assigned. The
4 primary findings we feel are -- would
5 materially change the dose assigned to a
6 significant number of workers.

7 So TBD Secondary Finding 14, the
8 ratios used during operations should be used
9 with caution. I don't know if -- I guess we
10 were looking for some clarification on that.
11 They say in the TBD-4, so again, if we're not
12 going to use TBD-4 as is, we reviewed the Rev
13 0. Do you know if anything has changed on
14 that I guess would be the first question.

15 MR. ROLFES: If it is, I believe
16 we will capture that in our White Paper that
17 we pulled out of the revision of the
18 environmental TBD, and we'll clarify the
19 locations if we need to.

20 DR. BUCHANAN: Okay. Finding 15
21 on page 20 was the thorium-232 process. I

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1 think that with the SEC issues that we -- that
2 would be involved in answering those questions
3 unless NIOSH had anything else to add to that.

4 MR. ROLFES: I'd just put a note
5 here that in addition to the uranium intakes
6 that we assigned based upon bioassay data,
7 NIOSH also assigns thorium-232 intakes as
8 we've described in the Weldon Spring Site
9 Profile which is currently approved, and we're
10 going back to revisit that because of the
11 additional data that were located since the
12 TBD was written and also to be consistent with
13 what we've said in our Evaluation Report.

14 DR. BUCHANAN: Will that be in the
15 Revised TBD or will that be in the White Paper
16 also?

17 MR. ROLFES: This will be in a
18 White Paper, I believe. I'll have to double-
19 check on that just because -- maybe Gene or
20 Bob might be able to elaborate a little bit
21 further. Did we consider thorium effluent in

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1 our revision of the environmental TBD?

2 MR. MORRIS: This is Robert Stand
3 by, and I'll answer that.

4 MR. ROLFES: If you'd like to move
5 on to the next one, Bob can come back with --

6 DR. BUCHANAN: Okay. That takes
7 us to page 21, top of the page, Secondary
8 Finding 16 for the TBD. This is environmental
9 dose used from Fernald. Now in the original
10 TBD, there was data used from Fernald in that.

11 Now I understand from the ER, you were not
12 going to use that. Is that correct?

13 MR. ROLFES: That's correct.
14 We've used site specific data for the Weldon
15 Spring plant, and this will also be put
16 together in our White Paper for -- we'll pull
17 out a response from the revision of the TBD-4
18 into a White Paper for SC&A.

19 MR. MORRIS: Mark, Bob here with
20 the answer to --

21 MR. ROLFES: Yes, Bob.

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1 MR. MORRIS: What will be included
2 in -- there will be a table in the White Paper
3 that you will receive that is entitled
4 "Estimated Average Annual Inhalation Intake of
5 Radioactive Particulates in Radon at Weldon
6 Spring Plant, Weldon Spring Quarry," and it
7 will have U-238, U-234, radon, and natural
8 thorium and thorium-230.

9 MR. ROLFES: Great. So that should
10 respond to the issue that they've identified.

11 MR. MORRIS: And then for a few
12 years after the operational period, we'll have
13 gross alpha and radon and -- yes, there will
14 be an added column "gross beta and gross
15 alpha" for those post op years.

16 MR. ROLFES: Thank you, Bob.

17 DR. BUCHANAN: That brings us to
18 page 21, Secondary Finding Number 22, "cost
19 center codes may not be reliable for doses."
20 That kind of brings us back to the question of
21 the coworker and the validity of the

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1 representativeness and stuff. There was a
2 statement on one of the documents I think I
3 quoted in our review where -- that the cost
4 center codes were there, but they didn't
5 really represent necessarily where the person
6 worked and his job function.

7 And so I guess my question at this
8 point with the revisions and stuff, are you
9 using the cost center code for any
10 categorization or anything that would affect
11 dose assignment?

12 MR. ROLFES: No. To my knowledge,
13 no. We would basically start off with the
14 individual's own dosimetry records, his
15 bioassay data and use those to assign a
16 uranium intake, use his own dosimetry records
17 to estimate his external dose and then apply
18 claimant-favorable assumptions about how we go
19 about calculating those doses to the target
20 organ, including claimant-favorable assumption
21 of the solubility class which results in the

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1 highest internal dose to the target organs.

2 So there is --

3 MR. MORRIS: Mark, Robert Morris.

4 MR. ROLFES: Yes.

5 MR. MORRIS: I'd like to add to
6 that. That statement was attributed to a
7 person regarding the operations of
8 Mallinckrodt at the Destrehan facility. We
9 specifically asked some of the people we
10 interviewed who were in a position to know the
11 quality of that data as they moved forward in
12 time to the Weldon Spring site, and they said
13 that they purposefully improved the quality of
14 that data as they kept up with it much more
15 rigorously in the later years and said they
16 would have no problem with believing that they
17 had it correct in the operational years at
18 Weldon Spring.

19 MR. ROLFES: Thank you, Bob.

20 MR. MORRIS: You're welcome.

21 DR. BUCHANAN: Well, I guess my

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1 question would be if the cost center code
2 would be used in coworker dose determination
3 or model or anything, there would be a caution
4 you -- I don't know exactly what he's talking
5 about there. You know, maybe it's true, but
6 the cost center code might be checked before
7 we use it to create any coworker model.

8 MR. ROLFES: We'll keep that in
9 mind.

10 DR. BUCHANAN: Number 23 on page
11 22, thorium was not bioassayed for -- at
12 Weldon Spring in vivo. There was one last --
13 just before they closed down, there was an in
14 vivo portable counting facility came there and
15 counted like 148 or something workers for
16 thorium. This was used to determine -- a few
17 had -- most had negative reports, of course,
18 if they're MDA or they may not have called
19 that MDA in that time but what they could
20 detect. A few were on the borderline.

21 I guess I understand though that

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1 you're not going to use this in vivo counting
2 for any coworker or dose reconstruction
3 directly.

4 MR. ROLFES: We agree -- NIOSH
5 agrees with that, and we don't typically use
6 the results of the in vivo thorium-232 counts
7 during the dose reconstruction process.

8 DR. BUCHANAN: So -- or coworker--

9 MR. ROLFES: Correct.

10 DR. BUCHANAN: So I think we can
11 close that issue then.

12 MR. KATZ: And just for clarity,
13 the issue before, it sounds like that -- is
14 that closed, too, that we just covered, the
15 coding? It's closed unless it comes into play
16 for a coworker model.

17 DR. BUCHANAN: Correct. That
18 brings us to Number 24 on page 22, the last
19 secondary TBD findings, and enriched uranium
20 not -- addressed, and this is coming from the
21 fact that this was taken from Fernald. We

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1 used 1 percent enriched uranium, but SC&A
2 really didn't see that it was documented well
3 that this was an upper limit. In the dose
4 reconstruction, we're using 1 percent?

5 MR. ROLFES: That's correct.

6 DR. BUCHANAN: Okay. Do we have
7 documentation showing that there was nothing
8 else supplied to Weldon Spring above a 1
9 percent, because in the Fernald, I think if
10 you go back and read its TBD or some of its
11 associated documents, they say 1 to 2 percent.

12 MR. ROLFES: Yes. We switched to
13 2 percent as a default for Fernald. I believe
14 the year was around 1965 or 1966, and that's
15 separate from the Weldon Spring plant. If you
16 take a look at the documentation, they
17 actually have some procedure manuals for
18 handling .85 percent enriched and .95; .947 is
19 probably what it was actually. But anyway,
20 you know, if you take a look at the
21 probability that a worker was only exposed to

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1 1 percent enriched uranium, I don't think you
2 could find anybody that was routinely and
3 exclusively exposed to 1 percent at the Weldon
4 Spring site.

5 Looking back at the Fernald data
6 that we had analyzed, we had identified some
7 individuals who had been involved in handling
8 some low enriched uranium during various
9 campaigns that lasted weeks to months, and
10 some of the enrichments were between 4 and 6
11 percent. And we had taken a look at their
12 lung counts, their in vivo lung results, and
13 also had basically inferred from those data
14 reported in the lung counts what enrichment
15 they had been exposed to.

16 And if you take a look, even
17 though they were working with some 5 percent
18 enriched materials, on average, their lung
19 counts showed that they were roughly under 1
20 percent enrichment, pretty conclusive that it
21 was maybe a slightly higher value than natural

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1 uranium but certainly under 1 percent
2 enrichment. And I think during that time
3 period that that work had taken place, we had
4 defaulted to the 2 percent enrichment.

5 So I looked back in the Site
6 Research Database as well for Weldon Spring
7 data, and the maximum enrichment that I saw
8 for any product at Weldon Spring was the .95
9 percent enriched, and these were for some
10 specific Hanford fuel cores. I think they
11 were the Mark V external cores.

12 DR. BUCHANAN: So these came from
13 Hanford rather than Fernald?

14 MR. ROLFES: I believe the
15 material came from Fernald for Weldon Spring
16 to produce the cores for Hanford, but I'd have
17 to take a look back in the procedure. I just
18 happened to look through last night. And
19 there is also a similar procedure for .85
20 percent enriched. I might be able to identify
21 the couple of Site Research Database documents

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1 if you like right now, if you can give me two
2 or three minutes here hopefully.

3 Okay. The first one here is --
4 it's under Weldon Spring plant. It's 11814.

5 DR. BUCHANAN: 11814.

6 MR. ROLFES: Correct. And that is
7 the Manual for Criticality Safeguards and
8 Processing, and there's a typo. It says .086,
9 but it should be .86 Percent Enriched Uranium.
10 The second one is 11819, and it is Additions
11 to the Mallinckrodt Chemical Works Manual for
12 Criticality Safeguards and Processing .95
13 Percent Enriched Uranium. I didn't see any
14 other documentation of enrichments which
15 exceeded that.

16 DR. BUCHANAN: And so you say the
17 2 percent at Fernald didn't start taking place
18 until what year, 60-what?

19 MR. ROLFES: From my memory, it's
20 1965, I believe was the time period because of
21 the requirements for the N reactor at Hanford.

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1 If anybody knows differently, please correct
2 me. And I believe most of that stuff wasn't
3 even 2 percent. It was a very limited amount.
4 It was actually 2.1 percent which was the
5 requirement for the N reactor, I believe, and
6 most of the stuff was .947 percent or 1.25
7 percent enriched.

8 DR. BUCHANAN: Yes. I'll look at
9 those two documents, you know, just to verify
10 the 1 percent. Mr. Chairman, I'm done with
11 the Site Profile issues.

12 CHAIRMAN GIBSON: Okay. So are we
13 all clear on what actions we got?

14 MR. KATZ: Do we need to run
15 through the actions now before you guys trade
16 emails on them and stamp them in concrete, or
17 do you think you guys have good notes and --

18 CHAIRMAN GIBSON: Need more
19 clarification?

20 DR. BUCHANAN: I don't need more
21 clarification. I think for the record, so we

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1 would go back, look at the transcript. We
2 don't have to go through 365 pages to find out
3 what our action item was. So I will read off
4 what I think I am to do, and anybody correct
5 or addition to that. And then Mark can read
6 off what he thinks he's going to do, and that
7 way, it'll be at the end of the transcript, if
8 that'll be okay with you --

9 MR. KATZ: Well, actually, I mean
10 so if you want to do that, that sounds great,
11 but what I'd like to do following this meeting
12 then is once you've traded this discussion
13 right now, just go back and trade emails so
14 that we can actually just put out -- we don't
15 have to wait for the transcript, which takes
16 at least 30, more like 40 days to come out.
17 So just trade emails so that we'll have an
18 action list via email.

19 MEMBER PRESLEY: This is Bob.
20 Could you get that action list to us?

21 MR. KATZ: Yes. The action list

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1 will go to the whole Work Group, of course,
2 but they'll trade emails until they've got it
3 where they're happy with what it says.

4 MEMBER PRESLEY: Thank you.

5 DR. BUCHANAN: Now the point of
6 contact for NIOSH will be Mark. The point of
7 contact for SC&A will be -- okay. So then we
8 can distribute it to your group, and I'll
9 distribute it to SC&A. Now who wants to
10 distribute it -- do you want --

11 MR. KATZ: If you just send it to
12 me, I'll distribute it to the whole Work Group
13 --

14 DR. BUCHANAN: You'll get it to
15 the Work Group?

16 MR. KATZ: Yes, that's fine.

17 DR. BUCHANAN: Okay. And we don't
18 want to miss anybody.

19 MR. KATZ: Right. Thank you.

20 DR. BUCHANAN: If you want, take a
21 short break or something. I'll have to go

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1 through and see exactly what I'm supposed to
2 do. Do you know exactly what you're supposed
3 to do?

4 MR. ROLFES: I'll have to organize
5 my notes. It might take me a little time
6 because I'm probably going to have to request
7 Stu's help here to make sure I've captured
8 things.

9 MR. FITZGERALD: Would it be
10 better just to trade -- I'm not sure if we're
11 going to gain --

12 CHAIRMAN GIBSON: If we're going
13 to do what Ted said, do we really need to go
14 over it here?

15 MR. KATZ: Unless you want to talk
16 about it right now because some things are
17 unclear and it will be easier, we can just do
18 this off line by email.

19 DR. BUCHANAN: Okay.

20 MR. KATZ: Either way.

21 DR. BUCHANAN: That will be fine

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1 with me. There's a lot of --

2 MR. KATZ: I took notes, too, so
3 if both of you come up short on something, you
4 can ask me, and maybe I'll have it.

5 CHAIRMAN GIBSON: Okay. Is there
6 anything else we need to talk about while
7 we're here other than possibly another
8 meeting?

9 MR. KATZ: I don't believe so. It
10 sounds to me a little premature to schedule
11 another meeting until there's -- unless you
12 have a rough sense already -- and most of the
13 action items are in your plate, Mark.

14 MR. ROLFES: Right. We're
15 currently working to come up with dates for
16 our responses, so without having those dates
17 yet, I can't really give an idea of when the
18 next Working Group meeting might be. As soon
19 as we get the dates scheduled and our action
20 items here, I'll try to get an update to the
21 Advisory Board Working Group on when we hope

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1 to have those work products completed and sent
2 over.

3 MR. KATZ: That'd be good, so when
4 you do that, then we'll figure on -- we'll
5 schedule once we --

6 CHAIRMAN GIBSON: I'd like to at
7 least think about no more than a couple of
8 months, I mean just to keep this thing on
9 track. There's so many of these Work Groups
10 that have, at least mine, have got off track.

11 MR. KATZ: The other option is we
12 can book something and then reschedule if it's
13 -- if we want to look out a couple of months
14 now, we can do that if you guys are prepared
15 to do that.

16 CHAIRMAN GIBSON: Yes. Let's put
17 something on there --

18 MR. KATZ: Let's put something on
19 there then, and we can re-book if it doesn't
20 seem feasible anymore once Mark's done his
21 homework. Let me run out to March and see

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1 what we have on the books already.

2 CHAIRMAN GIBSON: We got a Dose
3 Recon on the 14th and then a Procedures on the
4 22nd.

5 MR. KATZ: Procedures on the 22nd.
6 The 22nd seems more closer to the ballpark of
7 at least giving two months. I mean the 23rd
8 right now is open for example. We don't have
9 that much -- we don't have -- let's see,
10 Procedures. And Dick is on Procedures, too,
11 Subcommittee, so that might make things easier
12 for him as well. Dick, are you still with us?
13 Dr. Lemen?

14 (No response.)

15 MR. KATZ: Might have lost him,
16 but I know he can make the 22nd, so how does
17 the 23rd look for folks? This is March 23rd.
18 That's a Wednesday.

19 Does that look okay to you? And
20 Mark?

21 MR. ROLFES: As far as I know --

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1 MR. KATZ: I know. This is just a
2 place to start.

3 MR. HINNEFELD: As far as I know,
4 it's okay for us. It's okay for me.

5 MR. KATZ: Okay. So tentatively,
6 we'll send out a notice for the 23rd, but I'll
7 check with Dick before I do that actually.
8 And, Bob, are you still with us?

9 (No response.)

10 MR. KATZ: so I'll check with Bob
11 and Dick. If the 23rd looks good for them,
12 we'll pencil that in for now and, you know, a
13 few weeks down the road when Mark knows what's
14 going on, we'll reconfirm. Very good.

15 MR. HINNEFELD: We'll start at 9
16 o'clock again?

17 MR. KATZ: Yes.

18 CHAIRMAN GIBSON: See if Ted can
19 get us moved to Dayton by then.

20 MR. KATZ: I'm sorry, but that's
21 just -- actually, for this Work Group, that

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1 would work, but -- anything more for the good
2 of the order or --

3 CHAIRMAN GIBSON: I don't believe
4 so. Nothing else, then we're adjourned.

5 MR. KATZ: Okay. Then we're
6 adjourned. Thank you everyone on the line
7 that's out with this Work Group. Nice
8 meeting. Take care.

9 (Whereupon, the above-entitled
10 went off the record at 2:48 p.m..)

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