

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

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

+ + + + +

ADVISORY BOARD ON RADIATION AND
WORKER HEALTH

+ + + + +

WORK GROUP ON WELDON SPRING

+ + + + +

MONDAY
MAY 9, 2011

+ + + + +

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

PRESENT:

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

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ALSO PRESENT:

TED KATZ, Designated Federal Official
RON BUCHANAN, SC&A
MEL CHEW, ORAU Team*
JOE FITZGERALD, SC&A
MONICA HARRISON-MAPLES, ORAU Team*
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
MATTHEW SMITH, ORAU*
BILLY SMITH, ORAU Team*
JOHN STIVER, SC&A*
DAVE SUNDIN, DCAS
TINA TRIPLETT*

*Participating via telephone

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

2 9:01 a.m.

3 MR. KATZ: Good morning everybody
4 on the line. This is the Advisory Board on
5 Radiation Health. Welcome to spring Work
6 Group. We're just getting started, getting
7 ready for roll call here while the Chair looks
8 for a chair. Let me just check with Mr.
9 Presley, are you on the line, Bob?

10 MEMBER PRESLEY: Yes.

11 MR. KATZ: Great. Good morning.
12 How are you?

13 MEMBER PRESLEY: Good morning.

14 MR. KATZ: So let's start with
15 roll call. Since we're speaking about a
16 specific site please speak to conflict of
17 interest. Beginning with Board Members, the
18 Chair in the room.

19 CHAIRMAN GIBSON: Mike Gibson,
20 Chair of the Work Group. No conflict.

21 MEMBER LEMEN: Richard Lemen,

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1 Board Member, no conflict other than being
2 raised in Missouri.

3 MEMBER PRESLEY: Bob Presley,
4 Board Member, no conflict.

5 MR. KATZ: Are there any other
6 Board Members on the line? Okay. NIOSH ORAU
7 team in the room.

8 MR. SUNDIN: Dave Sundin, no
9 conflict.

10 MR. ROLFES: Mark Rolfes, NIOSH
11 health physicist, no conflict of interest.

12 MR. KATZ: NIOSH ORAU team on the
13 line.

14 MS. HARRISON-MAPLES: This is
15 Monica Harrison-Maples, ORAU team, no
16 conflict.

17 DR. CHEW: Mel Chew, ORAU team, no
18 conflict.

19 MR. MORRIS: Robert Morris, ORAU
20 team, no conflict.

21 MR. RICH: Bryce Rich, ORAU team,

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1 no conflict.

2 MR. B. SMITH: Billy Smith, ORAU
3 team, no conflict.

4 MR. M. SMITH: Matthew Smith,
5 ORAU, no conflict.

6 MR. KATZ: Welcome all of you.
7 SC&A team in the room.

8 MR. FITZGERALD: Joe Fitzgerald,
9 SC&A, no conflict.

10 DR. BUCHANAN: Ron Buchanan, SC&A,
11 no conflict.

12 MR. KATZ: And SC&A team on the
13 line.

14 DR. MAURO: John Mauro, SC&A, no
15 conflict.

16 MR. STIVER: John Stiver, SC&A, no
17 conflict.

18 MR. KATZ: Welcome to both of you
19 on the line. There are no members of the
20 public in the room. Any members of the public
21 on the line?

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1 MS. K. JOHNSON: This is Karen
2 Johnson and my mother Mary Johnson.

3 MS. TRIPLETT: And Tina Triplett.

4 MR. KATZ: Welcome Ms. Johnson and
5 Ms. Triplett. And HHS or other federal
6 officials or contractors of the feds in the
7 room?

8 MS. LIN: Jenny Lin, HHS.

9 MR. KATZ: And on the line?

10 (No response.)

11 MR. KATZ: Okay, that does it for
12 roll call. Let me just remind folks on the
13 line to mute your phones except when you're
14 speaking to the group, *6 if you don't have a
15 mute button and then press *6 again to take
16 yourself off mute. And Mike, the agenda is
17 yours.

18 CHAIRMAN GIBSON: Okay. I'd like
19 to thank everyone for being here. It's been
20 awhile since our last meeting. We've had -
21 the program's been pretty busy so we've had a

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1 little trouble getting some things
2 accomplished between NIOSH and SC&A but I
3 think we have enough put together today to
4 have a meeting. I thank SC&A for putting out
5 a draft agenda that we're going to try to
6 stick to. I have some things that have been
7 discussed and possibly resolved between SC&A
8 and Weldon Spring so we'll just, we'll start
9 at the top of the agenda and go with that. So
10 if, Ron, if you want to start out.

11 DR. BUCHANAN: Okay.

12 MR. KATZ: Let me just note for
13 the folks on the phone the agenda is on the
14 internet. It's on the NIOSH website or it
15 should be, under the board section. Go ahead,
16 Ron.

17 DR. BUCHANAN: Okay. This is Ron
18 Buchanan of SC&A and this is our third meeting
19 on Weldon Spring Work Group, the SEC. And so
20 I know that we've - it was January 25th since
21 we had our last meeting and so I think it'd be

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1 beneficial if I just do a very brief recap of
2 Weldon Spring and where we're at on the Site
3 Profile and the SEC issues and then we'll
4 discuss some in detail. I'll discuss SC&A's
5 action items first since we have a shorter
6 list and then turn it over to NIOSH to discuss
7 their action items. Then we'll have a mutual
8 discussion of the issues and where we need to
9 go from there.

10 So just a brief recap. Weldon
11 Spring of course was an Army ammunition site
12 from the '40s through to '53 or so and then in
13 '54 to '57 they constructed the uranium
14 processing plant there. '57 to '66 it was in
15 operation and these dates have something to do
16 with SEC issues, it's the reason I'm going
17 over them. There in '57 to '66 they received
18 uranium yellowcake ore which they processed
19 into mostly uranium metals. They did receive
20 some recycled uranium starting in the early
21 '60s. They received some enriched uranium in

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1 '63 to '67 and some recycled uranium right
2 along in that time period too.

3 Then in December 31st, 1966 was
4 the official close-down date of the plant.
5 The 1967 to 1969 was a period that they were
6 going to generate Agent Orange at the
7 facility. There were some renovations done
8 but that never actually took place. It laid
9 in monitoring and maintenance from '70 to '85.

10 And in '85 to 2001 it was a decommissioning
11 period and it was all the plant and the quarry
12 and the pits were taken and put into an
13 engineering disposal pile which is, if you've
14 ever been there, it was finished in about
15 2002. It's a big white pyramid-looking rock
16 stone structure with all the material inside
17 encased in some cement, slurry and that sort
18 of thing. So that's - and of course it's
19 under monitoring now and there's a visitor
20 station there that you can get information
21 from.

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1 And so SC&A went there, we
2 interviewed some of the workers when we
3 received the Site Profile. And then the SEC
4 was evaluated by NIOSH after it had been filed
5 and they had done a Site Profile in June of
6 2005. SC&A issued their review of the Site
7 Profile in March of 2009 and we started with
8 that about a year before that. In April 2010
9 NIOSH issued their ER report for SEC 143
10 covering the period 1957 through 1967. We had
11 our first Work Group meeting in October of
12 2010 here in Cincinnati. I've outlined some
13 of the issues. In December of 2010 SC&A
14 issued their review of the ER report. In
15 January 25th of 2011 we had our second Work
16 Group meeting here and then we were scheduled
17 for one in March of 2011 and that was
18 postponed until today for our third Work Group
19 meeting. So that brings us a little up to
20 date of where we're at on the site. Any
21 comments or corrections to that?

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1 MR. KATZ: Thank you, that is
2 helpful.

3 DR. BUCHANAN: Okay. So that's
4 the item one on the agenda. And so we want to
5 move to item two which is our progress report
6 on SC&A's action item. We just have four
7 action items from the January meeting and I
8 should probably say that there was nine SEC
9 issues and 28 Site Profile issues. I did find
10 a lot of Site Profile issues were covered in
11 SEC issues. The nine SEC issues were the data
12 accuracy and completeness, daily weighted
13 average for air exposure and we'll have a
14 session on that in a little bit and then
15 coworker data. Number two is egress
16 monitoring. Number three was the data for
17 1967. Number four was radon and thoron.
18 Number five was recycled uranium. Number six
19 was neutrons. Number seven was quarries and
20 pits. Number eight was accidents and
21 incidents, and number nine was the geometry

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1 and dosimetry.

2 And so of these nine SEC issues we
3 had four action items from the last group and
4 one was the daily weighted average on air
5 concentration. This is where you use the
6 material in the environmental - excuse me,
7 NIOSH's Evaluation Report on pages 39 through
8 45. They list the available data for air
9 sampling. And now the reason that we kind of
10 held off on this issue was Fernald had the
11 same issue. We didn't want to spend time
12 doing it both at Weldon Spring and Fernald
13 since they're similar issues and Weldon Spring
14 received their material from - most of their
15 material from Fernald. And so there was a
16 group that was working on the DWE for Fernald
17 and several papers went back and forth between
18 Fernald and - I mean, excuse me, between NIOSH
19 and SC&A on Fernald. And so what we wanted to
20 do was to get that ironed out and then
21 extrapolate it to Weldon Spring. And so we

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1 have John Stiver on the phone. He's the one
2 that was handling this for SC&A and we'll put
3 him on in a minute. And so he has some
4 handouts that I'll hand out from the ER
5 report. John, are you there?

6 MR. STIVER: Yes, I am.

7 DR. BUCHANAN: Okay. Now, we
8 cannot hand out those slides but you can talk
9 through them because they haven't been
10 cleared, but I do have copies of the ER pages
11 that you wanted me to make. And so you want
12 to give a brief rundown of why this is an
13 issue and where we're going with it?

14 MR. KATZ: Ron, I mean you can
15 hand out here.

16 DR. BUCHANAN: I have the - the
17 data from the ER report. Yes.

18 MR. KATZ: Okay.

19 MR. STIVER: Yes, they're just
20 five pages from the Evaluation Report, a look
21 at the site-specific data. I thought it would

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1 be handy for everybody to look at.

2 MR. FITZGERALD: What we were
3 sensitive of was the slides for obvious
4 reasons.

5 MR. KATZ: Oh, I see. Okay.

6 DR. BUCHANAN: PowerPoint
7 presentation. Okay, John could you give us a
8 brief -

9 MR. STIVER: Okay. I had just put
10 together some slides but it's really not
11 critical that everybody have them. We're
12 going to be talking in broad brush strokes for
13 the most part. However, I thought it would be
14 helpful for everybody to have the site-
15 specific data when we get to that point. And
16 what I wanted to do today is really kind of do
17 an overview and look at, you know, the DWE
18 concept and what it entails, what the
19 advantages and limitations are, look at some
20 of the historical milestones that led up to
21 this review and then take a look at the

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1 highlights from the Adam Davis and Dan Strom
2 Health Physics Journal article in 2008 which
3 is really a seminal article that provides the
4 fundamental underpinnings for the new NIOSH
5 methodology. I'll take a look at some of the
6 highlights of the NIOSH methodologies and then
7 finally get into the Weldon Spring site-
8 specific data and see if there are any issues
9 that may arise in applying those methods to
10 that particular data set.

11 Let's go ahead and get started
12 here about the daily weighted exposure
13 concept. And this was a concept that was
14 introduced by the Atomic Energy Commission's
15 Health and Safety Laboratory way back in the
16 1940s. And what they intended to do is really
17 provide an estimate of the average worker
18 exposure by job type that would then be used
19 to assess radioactive dust levels and to
20 better control those levels in a plant. And
21 it's really pretty amazing because that

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1 methodology that was devised back in the '40s
2 was basically unchanged all the way through
3 into the late 1960s, especially at least at
4 Fernald when they finally introduced in vivo
5 accounting methods.

6 And so you have about a 20- and
7 25-year period where the methodologies did not
8 change, a pretty good understanding of how it
9 was done and in many cases the raw data are
10 available for review. And this method is
11 based on the - basically a gross alpha air
12 activity concentration measured on a filter
13 that was then counted in a zinc sulfide
14 detector. And it's applicable to workplace
15 alpha emitters whether it be uranium, RU,
16 thorium and/or their progeny.

17 Take a little look at this here.
18 The time-weighted alpha air concentration in
19 the individual sample is really the
20 fundamental unit of the DWE. They're job- and
21 facility-specific. There were typically

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1 several tasks that were performed for any
2 given job. Again, I'm using Fernald as my
3 basis here. In that data set we had anywhere
4 from three to more than 20 tasks per job. And
5 the reports reported three values, a high
6 value, the low value and the average alpha air
7 concentration in units of dpm per cubic meter
8 of air. And this was reported for each task
9 associated with the job. The time to complete
10 the task was reported and also the sample type
11 which would be either a breathing zone sample
12 which would be like a lapel-type monitor that
13 an individual worker would wear during a task
14 and also fixed general air samples were placed
15 at various locations throughout the facility.

16 I had an example here which I had
17 shown at Fernald. It's actually the same
18 example that Bob Morris has in his - in the
19 NIOSH White Paper. And basically it's just a
20 table that shows, you know, it lays out how
21 the DWE reports were formatted. You have an

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1 identification, a breathing zone, general air,
2 time per shift, give you the number of
3 samples, the high, the low, the average and
4 then how this would - the DWE would work. For
5 each of those tasks it would take the time to
6 create or to perform that particular task
7 multiplied by the average concentration. So
8 you'd have a time by average value which is
9 then summed up for all the different tasks and
10 then divided by the total amount of time per
11 day. So what you have then is a weighting by
12 - a time weighting for each given task.

13 I have an example here, we don't
14 really need to go through that particular
15 example. But in summary what you have, the
16 DWE represents a task-weighted average air
17 concentration for any given alpha emitter for
18 specific days in which the samples were
19 collected and for the monitored workers. And
20 the time-weighting is really the salient
21 feature of this methodology. It really kind

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1 of gives a better idea of what workers were
2 actually exposed to. It's really the link
3 between the air concentration at a given
4 location time to the potential worker
5 exposure.

6 And in actuality what you have is
7 a distribution of DWEs because these processes
8 were going on continuously for a number of
9 years. Not so much with thorium where you had
10 more of short-term campaigns that would last
11 anywhere from a couple of months up to maybe a
12 year or so. But for uranium that was going on
13 all the time. And you have a few little
14 snapshots in time where these studies were
15 done. And so you might, you know, you have an
16 idea of what a particular worker was exposed
17 to on a particular day for the time that the
18 sample was done, but you don't really know,
19 you know, how about all the workers for a
20 given period of time. So you really have a
21 distribution of these. And probably the

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1 biggest drawback to DWE was that there's no
2 uncertainty estimates were provided. And it
3 really wasn't intended to use as a dose
4 estimate, it was really to control workplace
5 dust levels and potential exposures. So you
6 have spatial and temporal variation in air
7 concentration that were experienced by a given
8 worker.

9 And now what I'd like to do is
10 kind of recap the history of this DWE issue
11 for Fernald and Weldon Spring. Basically it's
12 a global issue and this methodology is really
13 applicable to any facility that used this
14 approach for assessing or estimating intakes.

15 And my experience with this goes back to when
16 I first started with SC&A in February of 2009
17 and that's when NIOSH issued their White
18 Paper, revision 2 of the White Paper which we
19 called Morris 2009. Bob Morris was the
20 author.

21 In July of 2009 SC&A issued our

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1 White Paper that was in response to a Board
2 request that we do a review and we came up
3 with 20 findings in that paper. 19 October as
4 we know was the first Weldon Spring meeting
5 when the issue of DWE came up. In November
6 2010 NIOSH issued revision 3 of the White
7 Paper concerning DWEs but our review of that,
8 we came out a little too late and our review
9 of that methodology was based on revision 2.
10 We then issued another revision to our White
11 Paper which looked at Rev 3. And again, as
12 you know the last Work Group meeting was on
13 the 25th. We published our White Paper review
14 of Rev 3 in February and now here we are.

15 So what I'd like to take a look at
16 now is just some summary highlights of the
17 Davis and Strom paper since it is a seminal
18 paper that really underlies all these
19 methodologies. What they did was they
20 reviewed six of the HASL reports covering five
21 sites. There were three involved in uranium

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1 production, one thorium and one radon and
2 thoron. There were a total of 63 job titles
3 for which the DWEs were reported. Each title
4 was held for one to 12 employees. There was a
5 total of 165 employees over a 7-year period.
6 Anywhere from one to 13 operations per job.
7 Each operation would be characterized by up to
8 27 samples. So you have a total of about 428
9 air samples that were analyzed for this study.

10 It's also kind of interesting to note that
11 about 65 percent of these workers were exposed
12 to levels above the maximum allowable
13 concentration which I believe was about, let's
14 see, before 1963 was 70 dpm per cubic meter
15 and after '63 was 100 dpm per cubic meter for
16 alpha values at least.

17 They focused on the variability in
18 the observations that was evidenced in the air
19 sample data themselves. The idea was to
20 generate an uncertainty analysis that could
21 then be used in EEOICPA to assist in dose

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1 reconstruction. They really needed to get an
2 idea of what type of distributions are we
3 looking at and what are the GSDs. What's the
4 best characteristic of the uncertainties. And
5 the main sources of uncertainty are
6 variability in the data, what are the particle
7 size distributions, process variability,
8 placement of the air samples, changes in
9 ventilation, you know, the kind of things
10 you'd expect. And there was also
11 uncertainties basically in whether the samples
12 were representative of actual worker
13 exposures. They also identified what they
14 called blunders. Doesn't mean it was a
15 stupidly performed task, it just meant that
16 there were mistakes made, mathematical errors,
17 transcription errors, things of that nature.
18 And it turned out that these were fairly
19 significant in their study.

20 And so they ran a Monte Carlo
21 simulation to generate distributions of

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1 discrete DWEs as well as log-normal fits to
2 the DWEs. And what they did was they'd just
3 go through and for each of those tasks for
4 discrete distribution they'd go through it for
5 each run, they'd pick at random one of the
6 AACs multiplied by the time and generate a
7 DWE. And they'd go back and do this 10,000
8 times and generate that alpha distribution.
9 Typical Monte Carlo techniques.

10 The fits, the log-normal fits of
11 course are more claimant favorable typically
12 because they allow for the possibility of
13 exposures that were larger than the actual
14 measurements. And as you can see because of
15 the data limitations that's going to be pretty
16 important. They found the upper 95th
17 percentile of the GSDs for their data were
18 about 4. The 99th percentile is between 7 and
19 8. And so that lends support to the use of a
20 GSD of 5 when a concentration measurement is
21 available but there's no information on

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1 uncertainty.

2 They indicated that using the
3 distribution of air samples without time-
4 weighting or assignments to jobs didn't really
5 produce a DWA or any kind of a value or GSD
6 that's representative in any given worker.
7 They noted that the median of the unweighted
8 site-wide distribution was typically higher
9 than the DWAs for all the workers except for
10 three. So of all those 63 job types, only
11 three of them exceeded the median of the
12 unweighted distribution. And they indicated
13 finally, it was kind of a critical point here,
14 the site-wide average is really, you know,
15 while it is a biased estimator of exposure it
16 could be used in making compensation decisions
17 and those would be required to be favorable to
18 the claimant.

19 Take a look at the NIOSH DWE White
20 Paper Rev 3. Basically you can distill this
21 down to five different bits of guidance here.

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1 Now one is that they propose to use the DWE
2 data to estimate chronic daily intake rates
3 for exposed workers. They assign a DWE for
4 the job description with the highest DWE in
5 the plant where the material was handled for a
6 specific year to every worker in that plant
7 with a GSD of 5. So you take - you look at
8 that whole distribution of GSD - or of DWEs,
9 you take the highest one, the most highly
10 exposed job type. They assign that to
11 everybody in the plant and they use this GSD
12 of 5 for uncertainty. So you have a situation
13 where you've got - essentially you do have a
14 plausible intake for certain workers, for the
15 most highly exposed workers because you're
16 using their data. These were actual
17 measurements for those breathing zone samples.
18 And then you're using the GSD of 5 from Davis
19 and Strom. And so you have kind of a shortcut
20 method that's based on a fairly rigorous
21 analysis. And this obviates the need to go

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1 through for every single site and analyze
2 data, generate your own distributions and then
3 go through that. At the end of the day you're
4 going to come up with something that's not all
5 that different from a GSD of 5.

6 For situations where the data are
7 judged to be inadequate or incomplete they
8 propose to use a high DWE from adjacent year
9 again with a GSD of 5. And then they propose
10 to use the 95th percentile of the unweighted
11 air sample when time-weighted average data are
12 not available. And then finally they
13 recommend to the dose reconstructor to search
14 the SRDB if they have reason to believe that
15 exposures have taken place that are not
16 identified in the existing data sets.

17 And our particular - or the point
18 we come to after two years of discussions and
19 White Paper exchanges is that we - we accept
20 NIOSH's latest White Paper. Revision 3 is
21 scientifically sound and claimant-favorable.

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1 However, there is about - there are three
2 technical issues that we feel still need to be
3 resolved. First involves this issue of
4 blunders in the raw data. In Davis and Strom,
5 I believe there were 16 out of 63 of these
6 sets where you had blunders that resulted in
7 either a high or a low measurement by greater
8 than 20 percent. In most cases where the
9 significant blunders did occur they caused
10 twofold underestimated exposure and the worst
11 case was a factor of 10. So you can see
12 they've got an absolute worst case where
13 you've got a factor of 10 underestimate and
14 you throw a GSD of 5 on it you're still
15 underestimating by a factor of 2. Now granted
16 that's a pretty unlikely event but it was seen
17 in this particular analysis. And we feel that
18 the DWE data should be validated for a
19 particular site just to identify the frequency
20 and magnitude of blunders that may have
21 occurred in the raw data transcription and

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1 calculations.

2 We also feel that NIOSH should be
3 using the 50th percentile of unweighted air
4 sample data when DWEs for adjacent years are
5 not available. And that was called out right
6 there in the Davis and Strom paper that the
7 50th percentile, I mean you captured 60 out of
8 the 63 job DWEs by just using 50th percentile.

9 And in our paper, in our review of Rev 3
10 we've made an example there. That was for
11 Fernald, I think the highest thorium exposure.

12 You had a situation where the - they took the
13 worst sample which occurred for I think it was
14 scrubbing out reduction pots in the metals
15 reduction. I can't remember exactly what it
16 was. You had a value of about a million dpm
17 per cubic meter and this is a short-term
18 incredibly dusty operation experienced by a
19 few workers in a very short period of time.
20 And if you take that and apply it to everybody
21 it just kind of goes against the concept of

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1 plausibility. I mean, eventually you get
2 something that's bounding but is it really
3 plausible. Is this something that any
4 particular worker could have actually
5 experienced. So we feel that the 50th
6 percentile is probably a better number to be
7 using. Finally, we feel that the TBD should
8 make available the necessary DWE data. We
9 think that's an undue burden on the dose
10 reconstructor to go looking for more data and
11 it could result in inconsistencies from case
12 to case.

13 Finally, if you'd like to go ahead
14 and get out the handout that Ron provided, on
15 page 39 it kind of gives you a little bit of a
16 description here and section 6.1.3, Airborne
17 Dust Studies. And they introduced a different
18 concept here for the uranium data at least
19 where they used what they call a DWA index.
20 And so what they did was because workers - and
21 a given worker rotated through the job they

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1 did a secondary weighting by manpower
2 allocation I believe is the word they use
3 here.

4 DR. BUCHANAN: Excuse me just a
5 minute, John. This is Ron Buchanan, SC&A.
6 What we're looking at for those on the phone
7 is page 39 through 45 of NIOSH's ER report
8 that lists the uranium and thorium air
9 concentration measurements at Weldon Spring.
10 Okay, sorry, go ahead John.

11 MR. STIVER: Oh, that's fine.
12 Yes, I kind of got ahead of myself on that.
13 This is the SEC ER report 143, page 39, just
14 at the bottom of that page. And the last line
15 there is the interesting thing because they
16 indicate that some of the raw data are
17 actually available and also provide a
18 reference for that which I've listed, a
19 Mallinckrodt publication in 1966. It's
20 entitled Summaries of Dust Concentrations at
21 Production Jobs, Life of Operation from Year

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1 1957 to 1966. I believe that's in the SRDB.

2 It would certainly be easy enough to find.

3 Let's take a look at the uranium
4 data. This was on page 40 of 92. And you see
5 what you have here is you've got data for 10
6 different plants. This is a uranium
7 production facility so it's set up pretty much
8 the same as Fernald was. You had sampling
9 plants, digestion, a refinery. You had green
10 salt production where the tetrafluoride was
11 produced and you had the metals plant where
12 the tetrafluoride was reduced to metal. You
13 had chemical pilot plants and scrap plants.
14 So it's set up the same way. There are
15 anywhere from four to 11 job titles per plant,
16 a total of 78 job titles, and the data go from
17 1958 to 1966. Like I said, the number of
18 workers in the summary table are not provided
19 but I believe that type of information would
20 be in the source data. Most of the job titles
21 here you can see, if you look at the key here,

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1 some of them didn't - because there weren't
2 enough workers for a particular task they just
3 reported the DWA, they didn't use the DWE
4 index.

5 And if you look down, the second
6 to last row, chemical - the pilot scrap plant,
7 if you look at the worker title which is the
8 third column over. You see that there's
9 various - there's values, a little superscript
10 F and these, basically what they did is they
11 used the median unweighted air concentration
12 because they didn't have the time-weighting
13 for that. This is an example of what we were
14 talking about earlier of when you don't have
15 the data. What they did, they chose to use
16 here was to report the median value.

17 Summary, you can see there's no
18 data provided for 1957 for any of the plants
19 and the most comprehensive data sets are for
20 the sampling plant and the green salt plant.
21 From 1958 to 1965, a pretty robust data set

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1 there. And the most sparse data are found for
2 the metals core area, that's building 301. We
3 only have data for 1960. However, you do have
4 data other than for 1958 for the other
5 portions of the metals plant. So you have
6 data from different areas within the metal
7 plant. And that's another thing that Davis
8 and Strom pointed out was that the - just to
9 digress a little bit - that the uncertainty
10 within a given area in time was typically
11 greater than the uncertainty between areas.
12 And so using data from another portion of the
13 plant may be appropriate, especially given the
14 uncertainty values that are assigned here.
15 And in this case you've got the reduction
16 operations which are - you can see the values
17 here are the highest. So if those are being
18 applied then to the core area you can be
19 pretty reasonably sure that you're assigning a
20 bounding value. You can see there's gaps of
21 from three to six years for the core area and

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1 the pilot scrap special projects plant. And
2 the others you have missing single years. So
3 you have a situation where all the different
4 aspects of Rev 3 come into play here.

5 And let's take a look now, the
6 next few tables here, table 6-5 of the thorium
7 data and we have a lot better granularity in
8 this data set than we had for Fernald, that's
9 for sure. You have - basically you have the
10 same type of situation you had at Fernald
11 where you've got short-term campaigns. And
12 you can see if you go down, column 5 time
13 period. This gives you the idea, it tells you
14 when those particular operations were going
15 on. And then over here in the notes column
16 it'll tell you what the test date was. So
17 look at that first set of data in table 6-5
18 Sampling 101. This first line, oven-drying
19 thorium oxide in the pan transfer. This took
20 place in March of '65 and you have one day,
21 March 20, 1965 where they did the air

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1 sampling. And you also notice in the notes
2 column that they give you a lot of information
3 here. They give you the manpower allocation
4 to thorium work for some of the jobs and they
5 identify when the airline masks were
6 prescribed and worn.

7 So you have a pretty robust data
8 set here. You can see the highest DWAs,
9 that's something we pointed out in our report
10 for Fernald. So it's the re-drumming or the
11 repackaging of the thorium. And you see that
12 I believe is on the second, the next page here
13 on page 44, bottom of that first table,
14 repackaging thorium oxide and recast. This
15 was the metals area. And you got the highest
16 value, 2,060 dpm per cubic meter.

17 DR. BUCHANAN: It's page 43.

18 MR. STIVER: Yes, excuse me, page
19 43. My mistake. I just got a summary output
20 here. And so you'll see the notes along the
21 side here that tell you what was going on,

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1 when the samples were collected and the test
2 days. So you have a pretty solid data set
3 here.

4 So I guess in summary what we can
5 say is that if there are any issues here with
6 uranium it's - with the metals area, the core
7 area, you'd have to use data from other parts
8 of plant 301. The pilot scrap plant, I would
9 think that the 50th percentile of the
10 unweighted distribution would be appropriate
11 for that area. The gaps in the special
12 projects area would require professional
13 judgment whether to use the - maybe the
14 highest - go back to the uranium data. The
15 highest DWA here was 320 in '63. So there'd
16 be a question. You've got a gap of - from '58
17 to '62 there's no data there so would you
18 assign the highest of that set to that value
19 or would you use the 50th percentile. This
20 will be something that would require some
21 professional judgment on the part of the dose

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1 reconstructor. It should be provided in the
2 TBD. For thorium, like I said, the
3 granularity appears to be pretty good and I
4 would think that a GSD of 5 would adequately
5 address the uncertainty.

6 And that's really all I have to
7 say. I guess if anyone has any questions or
8 comments I can entertain those.

9 DR. BUCHANAN: Okay. So your
10 bottom line down there is saying that the main
11 issue would be to do some verification of the
12 raw data.

13 MR. STIVER: Really, yes. I think
14 that probably the one thing that still needs
15 to be done is some sort of a validation
16 exercise. It wouldn't have to look at every
17 single report or every single piece of paper
18 in the raw data, but certainly some kind of
19 sampling could be done that would give you
20 some kind of reasonable confidence that you've
21 got a decent handle on the frequency and the

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1 magnitude of the blunders such as they exist.

2 Without even looking at it all I think you've
3 got this additional source of uncertainty
4 there that could really potentially
5 underestimate your intakes.

6 DR. BUCHANAN: Okay, thank you
7 John. Questions on - in the room or on the
8 phone?

9 MR. ROLFES: John, when you - this
10 is Mark Rolfes. When you had mentioned the -
11 there were a couple of factors that the
12 blunders resulted in under- and overestimates.

13 You had quoted a factor of 2 for the
14 underestimate and then also quoted a factor of
15 10. So -

16 MR. STIVER: That was the worst
17 case scenario. They had one value that it was
18 an underestimate of 10. I believe it was a
19 time. They put in the wrong time value.

20 MR. ROLFES: Okay. I wasn't sure
21 if that was an overestimate or underestimate.

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1 MR. STIVER: That was an over.
2 You had others that were underestimates - or
3 overestimates. The worst - the most probable
4 was an underestimate of 2 and the worst case
5 was an underestimate of 10.

6 MR. ROLFES: Okay.

7 MR. MORRIS: This is Robert
8 Morris. Can I?

9 MR. KATZ: Yes, Robert.

10 MR. MORRIS: I was - wanted to go
11 to closure on whether or not this is an SEC
12 issue at this point or a TBD issue at this
13 point.

14 MR. STIVER: For this particular
15 site and for Fernald I think this is more than
16 a TBD issue at this point. That would be my
17 particular - that would be my opinion.

18 MR. MORRIS: That's my impression
19 of what we had agreed to on a prior call but I
20 wanted -

21 MR. STIVER: Yes, when we did I

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1 think it was the April meeting and also the
2 February meeting for Fernald. So we came to
3 that conclusion.

4 MR. MORRIS: But we do have this
5 blunders evaluation on our schedule.

6 MR. STIVER: Yes, the blunder
7 evaluation I think is the final thing that
8 needs to be done here.

9 DR. MAURO: Yes, this is John
10 Mauro. That's correct. For Fernald we really
11 have gotten to the point where we think that
12 our position is to recommend that this be
13 treated as a Site Profile issue. We see sort
14 of like the light at the end of the tunnel on
15 how this could be resolved, especially this
16 blunder issue. So, and I think what I'm
17 hearing from listening it sounds like this is
18 a very similar situation you have here with
19 Weldon.

20 MR. STIVER: Yes.

21 DR. BUCHANAN: Okay, thank you

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1 John, both Johns. Appreciate you being on the
2 phone. Wanted to get this off, completed
3 first. Chairman, do you have any further
4 questions or issues on this issue?

5 CHAIRMAN GIBSON: So are we going
6 to keep this open as a Site Profile issue for
7 Weldon Spring as well until it's resolved?

8 DR. BUCHANAN: Yes, I think that
9 the check for blunders, mistakes and posing
10 the information would be a Site Profile issue
11 as far as the methodology. Looks like it can
12 be taken off the table as far as an SEC issue.

13 MR. FITZGERALD: As a matter of
14 efficiency - this is Joe - it sounds like we
15 have the same people working the issue between
16 Bob Morris and people like John Stiver so it
17 just sounds like in concert with the
18 resolution for Fernald the TBD-scoped
19 resolution for this would certainly be, hand
20 in hand would be something that would be
21 important all together.

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1 CHAIRMAN GIBSON: So do we have
2 any kind of time idea when this might be put
3 to rest or?

4 DR. BUCHANAN: John? John? I
5 mean, I guess Bob.

6 DR. MAURO: Yes, let me help out a
7 little bit with that. I know our St. Louis
8 meeting is coming up and I know that there is
9 some discussion going on regarding Fernald.
10 And you know, there are issues that are Site
11 Profile issues and there are some very serious
12 SEC issues. The strategy and certainly Ted
13 could weigh in as to the thinking here, but
14 when we have moved to a place where there is
15 an emergence of - it looks like a judgment is
16 taking form that there might be an SEC issue
17 before us and perhaps even granting some SEC
18 for some time period the Board and the Work
19 Group usually says okay, though we have not
20 resolved many issues and in fact many issues
21 may be unresolved and on that borderline area.

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1 Let's say they're in a borderline area on
2 whether they might be - I'm sorry, SEC or Site
3 Profile issues. Nevertheless, if it becomes
4 clear that there are certain issues that are
5 clearly unresolvable SEC issues I notice that
6 the Work Groups will start to zero in on those
7 and start to actually move forward with
8 perhaps a recommendation for that. Without
9 closing the door on possibly expanding the
10 Class at some point in the future if it turns
11 out that what appears to be a Site Profile
12 issue may be in fact a more serious SEC issue.

13 So I mean, I hope I characterized that
14 properly and Ted, I'll defer to you on these
15 kinds of judgments.

16 MR. KATZ: Well, I mean I think
17 Weldon Spring and Fernald are different. Like
18 I said, they have this common issue but in
19 other ways they're quite different. I mean
20 Fernald, we have reporting out on Fernald.
21 We've been trying to report on that for awhile

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1 actually and been working up towards that.
2 And because it's a big and complex site we
3 wanted to sort of lay a lot of groundwork with
4 the Board which is why we started the
5 reporting out actually in the last meeting,
6 we're going to do some more in this meeting,
7 so to bring the whole Board up to speed not
8 just on one issue but on a number of issues.

9 So I'm not sure what I'm
10 summarizing about what you said, about whether
11 - I mean, the Work Groups report out when they
12 feel like they've taken their issues as far as
13 they can bring them whether they have
14 clarified that they have an SEC recommendation
15 or not and in a number of cases the Work
16 Groups actually don't have necessarily an SEC
17 recommendation. They have sort of I think
18 like you were saying, John, this sort of gray
19 area where they have some difficult issues and
20 they think they've brought them as far as they
21 can and they're ready for really, for the

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1 whole Board to engage and dig a little deeper
2 as a Board. So.

3 MR. FITZGERALD: Yes, John?

4 DR. MAURO: Yes.

5 MR. FITZGERALD: Joe. Just to
6 clarify for Mike's benefit. I think the
7 question is as far as time frame on this,
8 settling the blunders issue and I think what
9 we're saying is similar to Fernald it's
10 certainly tilting toward more of a TBD/Site
11 Profile context.

12 DR. MAURO: Yes.

13 MR. FITZGERALD: But I know you're
14 trying to resolve the very same issues with
15 Fernald and I suspect these will be joined in
16 the sense trying to figure out how to deal
17 with blunders. Is there any time frame on
18 that front? You know, understanding that yes,
19 there's some pressing SEC matters.

20 DR. MAURO: I mean to me in my
21 mind if we try to create an analogous

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1 situation which could be helpful is it's clear
2 that the world of issues that we have engaged
3 on Fernald have come down to one particular
4 issue that may or may not emerge as an SEC
5 that perhaps the Board is going to have to
6 address very seriously as a possible SEC for
7 Fernald. All the other issues have been put,
8 I would have to say have been either
9 tentatively resolved with maybe some minor
10 mop-up. A couple of them are a little bit
11 more serious but still within the realm that
12 perhaps they could end up being something that
13 would cause an expansion of a - the SEC
14 definition of the Class. So I mean, if
15 there's an analogous situation I would say the
16 blunder issue in the case of Fernald is
17 clearly being placed in a box that we'll say
18 we're going to put this in the Site Profile
19 and we're going to leave it in the parking lot
20 and not worry about it right now until we come
21 to grips with the - what we consider to be

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1 very serious SEC issues and try to get closure
2 on those which may end up meaning, you know, a
3 recommendation for an SEC for a particular
4 time period without closing the door on these
5 other issues. But the other issues I have to
6 say have waned into the background. Many of
7 them either have been resolved, actually
8 formally resolved and everyone agreed to close
9 the issue that's been resolved. There have
10 been a number of those on Fernald. But there
11 were also a number in the gray area that we're
12 calling Site Profile issues and there's
13 general agreement and we've put those what I
14 call in the parking lot while we zero right in
15 on the ones that everyone knows are the hot
16 SEC issues. That process means unfortunately
17 that we don't have a schedule for closure of
18 the blunder issue and it puts you folks in the
19 same position.

20 MR. KATZ: Well I think, I thought
21 I heard Robert say that ORAU has - is going to

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1 be working on the blunders issue and analysis
2 of that isn't it? Didn't I hear you say that,
3 Robert?

4 MR. MORRIS: Yes, that's true, it
5 is on our - it's on our work chart, the - what
6 we used to call the Gantt chart.

7 MR. KATZ: Right, so I guess the
8 question right now is really it's not really
9 in SC&A's ballpark right now, it's in yours to
10 move this forward. Do we have a sense right
11 now at least where is it on the Gantt chart
12 right now in terms of you doing an analysis of
13 this?

14 MR. MORRIS: Well, I don't have my
15 Gantt chart open right this minute. I'm
16 thinking that it's the end of this month.

17 MR. KATZ: Oh, okay. So
18 relatively short term.

19 MR. MORRIS: Monica, have I got it
20 right?

21 MS. HARRISON-MAPLES: I'm not sure

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1 because that's a Fernald issue. I mean, it's
2 not on the WSP part of the Gantt chart I don't
3 believe at this point.

4 MR. MORRIS: I think it is.

5 MR. ROLFES: This is Mark Rolfes.

6 And at the Fernald Work Group meeting we were
7 asked to address the SEC-related issues
8 primarily first and then with the second set
9 of issues being the TBD issues. So you know,
10 without getting out the Gantt chart and
11 discussing our specific, you know, dates that
12 we've got planned right now let's, you know,
13 we can probably put something together I'm
14 thinking within a matter of a month or so,
15 but.

16 MR. KATZ: Okay, so let's just
17 have an action item for - DCAS can sort out
18 its scheduling and give us a note by email
19 just letting us know where this falls out in
20 their schedule.

21 MR. FITZGERALD: Sounds like the

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1 important consideration just - I just
2 overheard Monica say something about WSP not
3 being sort of on there with Fernald on this
4 particular issue. It sounds like it would be
5 useful just to make sure Weldon is listed
6 along with Fernald for this issue on whatever
7 scheduling so that it's clear that it's
8 feeding two sites as far as information.

9 I guess the important take-home
10 message is that as with Fernald this is more
11 in the Site Profile context and it would be
12 handled in concert with the analysis that's
13 being done on this issue with Fernald. But it
14 is program and will be done in the relatively
15 short term.

16 MR. STIVER: This is John Stiver.

17 I'd like to make one extra comment here. I
18 think we also need to be cognizant of the
19 issue of the site-specific data. So whether
20 this is resolved for Fernald and Weldon Spring
21 we'll be looking at two different data sets

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1 and so it may turn out to be more of an issue
2 for one or the other.

3 MR. KATZ: Good point, John.

4 MR. STIVER: We need to keep that
5 in mind as well.

6 MR. ROLFES: Yes, that was one of
7 the concerns with the petitioners as well
8 that we focus on Weldon Spring data rather
9 than on Fernald data for the discussion of the
10 Weldon Spring Plant SEC evaluation. That's
11 what we tried to do and we've tried to keep it
12 separate to address that concern.

13 CHAIRMAN GIBSON: I just want to
14 keep on the schedule because I want to keep
15 moving. I don't like these parking lot
16 issues. They seem to just kind of -

17 MR. ROLFES: Languish.

18 CHAIRMAN GIBSON: - get behind a
19 lot of things.

20 MR. STIVER: They do. This is
21 John. You're absolutely right. I've seen it

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1 happen. It's so easy to focus in on the SECs
2 and once something happens there we sort of
3 forget that, wait a minute, we still have a
4 lot of things to deal with. You're absolutely
5 right.

6 MR. FITZGERALD: It may be better
7 just to keep them separate then. Sounds like.

8 DR. BUCHANAN: This is Ron
9 Buchanan, SC&A. That's true. We approached
10 the generic issue of DWE because it was going
11 on at Fernald and we didn't want to waste
12 resources redoing it at Weldon Spring. But I
13 think at that point it stops. We've agreed to
14 methodology, the science behind it is set but
15 the actual data set is a completely separate
16 issue with Weldon Spring. So addressing its
17 for correctness is a different issue than
18 Fernald. We can't say that Fernald was
19 correct, that doesn't mean that Weldon Spring.
20 So definitely we want to do the Weldon Spring
21 as a separate issue as far as accuracy of the

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1 data that's being used in this model.

2 DR. MAURO: This is John again.

3 Let me add to that a little bit. The process,
4 the thinking that goes into it, that they want
5 you to go through some data evaluation on
6 blunders for Fernald which is on your Gantt
7 chart. I think that the strategy that's
8 adopted for dealing with the problem, let's
9 say you make a determination that this percent
10 of the data were, you know, mistranscribed and
11 could have had an effect on some small but
12 real number of people, could have been
13 underestimated by a factor of 10 or whatever
14 it is. You know, wherever you come out on it.

15 The big question is going to be okay, how do
16 we factor that into the dose reconstruction
17 process to make sure you have a coworker model
18 in effect that - which is what we're building
19 here, that factors that in. That's going to
20 be very interesting and I think something - so
21 the process, the thinking that goes in is

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1 going to be very valuable and of course will
2 be transferrable to Weldon which would make it
3 clearly - and once it's all agreed that yes,
4 that's a good way to deal with the blunder
5 issue. Then it becomes a matter of applying
6 that same methodology to Weldon Spring. So
7 it's almost a two-step process.

8 MR. MORRIS: Ted, this is Robert.

9 MR. KATZ: Yes, Robert.

10 MR. MORRIS: I think I
11 misunderstood. We have that as a task on our
12 Weldon Spring work effort. We're not talking
13 about validating for Fernald right now, we're
14 talking about validating for Weldon Spring and
15 it's scheduled in my older notes that I've got
16 here at the end of this month.

17 MR. KATZ: That's how I understood
18 you. Thank you, Bob.

19 MR. STIVER: John Stiver. As John
20 was saying, I mean, it could go either way.
21 As long as you develop a methodology for one

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1 of those sites which would then be applicable
2 for the other at the time horizon.

3 MR. MORRIS: Well, and I guess the
4 other thing that I'd say in response to what
5 John just said, how do we factor in - whether
6 it's small or large, how do we factor in the
7 finding unless the - never anything is ever
8 observed. So I think you have to say a GSD of
9 5 is a pretty doggone generous assumption in
10 most cases and it was probably bounded unless
11 we find some real outliers.

12 MR. STIVER: It would be a matter
13 of factoring it into the overall uncertainty
14 term and whether that - would that GSD of 5 be
15 accurate would be a statistical issue.

16 DR. MAURO: And that would be one
17 approach to dealing with this that I, you
18 know, certainly it should be entertained by
19 the Work Group.

20 MR. MORRIS: Well anyway, I think
21 we'll deal with that and if it's obvious that

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1 the blunders are obvious and important in
2 scale, whether it's rounding errors and
3 mathematics or you know, did we do the
4 arithmetic wrong, those are two different
5 kinds of questions and so I think it remains
6 to be seen how we answer that question you
7 raised, John.

8 DR. MAURO: Let me ask you
9 something. Once - I'm trying to deal with
10 this. Once you say that, okay, here is all
11 the data and a couple of places where there
12 was a blunder. Then do you - and maybe I'm
13 not thinking right about this, but you could
14 fix the blunder and then go back and say
15 here's what the results would have been if you
16 didn't have the blunder.

17 MR. MORRIS: Of course you can and
18 that's - that's a possibility. If there are a
19 lot of blunders it raises the question of how
20 extensive does your sampling have to be.
21 Maybe you would fix the blunder and say well,

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1 it made a 0.01 percent difference in what our
2 dose reconstruction for thorium intake would
3 have been. And so you go, well, these
4 blunders were not important in the overall
5 picture and so maybe we can just relax on the
6 rest of them. But if the blunders had a
7 really significant change on the outcome of
8 the dose reconstruction then you'd have to say
9 well, let's go look farther and harder.

10 DR. MAURO: So you could see why
11 you would consider this to be a Site Profile
12 issue. There are strategies for wrestling
13 this problem to the ground some of which are
14 easier and some of which are more difficult,
15 but in our opinion it's doable. And you know,
16 and how that fix will actually be implemented
17 might differ on Weldon and Fernald, but in
18 both cases they seem to be tractable.

19 MR. MORRIS: I agree with you.

20 MR. STIVER: I would agree as
21 well.

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1 MR. KATZ: Okay.

2 DR. BUCHANAN: Okay. So I think
3 we've reached a conclusion on that. Do we
4 want to break or do you want me to continue?

5 CHAIRMAN GIBSON: Go ahead.

6 DR. BUCHANAN: Okay. I didn't
7 know. Okay. So we had four action items,
8 that was number one, and we - so that brings
9 us up to speed on DWE. Okay, number two was a
10 recycled uranium question. I had brought up
11 the fact that - that to bring - kind of get a
12 summary, bring everybody up to date is that
13 recycled uranium was introduced at Weldon
14 Spring in the '60s and so it can contain more
15 impurities of course than the uranium ore so
16 it invades the contaminant of radioactive
17 material. And usually it's around 2 to 10
18 percent parts per billion of plutonium for
19 uranium. And so the - the Weldon Spring TBD
20 said that 100 parts per billion of plutonium
21 for uranium would be a sign to the workers as

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1 a bounding amount. And so we agree that this
2 is probably a reasonable intake to assign and
3 would cover what anybody would take in.
4 However, we went back and did some claim
5 analysis and I did five claims and I could
6 only find one where they had actually added in
7 the 100 parts per billion of plutonium for
8 uranium.

9 And so I sent that information to
10 NIOSH on the second of February, those five
11 claim numbers, and so what I'd like to do is
12 wait until they give their response and see.
13 The main issue here is okay, we agree the
14 methodology is okay, but is it being applied.

15 Is this limiting 100 parts per billion being
16 applied in actual dose reconstruction. So
17 that was item number two we responded to.

18 Item number three was -

19 CHAIRMAN GIBSON: So on item
20 number two then, so DCAS, when do you think
21 that you'll have that response ready for SC&A?

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1 MR. ROLFES: As far as a date I
2 couldn't tell you honestly. We've been trying
3 to get some of the bigger issues addressed
4 right now and this is more of a claim-specific
5 issue at the moment. I haven't had the
6 opportunity to look at these claims. I do see
7 what SC&A has provided here. Monica, do you
8 have any feel? I don't have a copy of the
9 Gantt chart here in front of me. We were
10 provided a list of five claims for which SC&A
11 looked at to determine whether or not the type
12 of contaminants were applied. They found one
13 of them did have the default 100 parts per
14 billion plutonium on a uranium S basis
15 applied. The other four did not. I haven't
16 looked at those four cases to see possibly if
17 we used some other, like an OTIB-2 approach or
18 something for example. I don't know. Do you
19 recall, Ron, if that might have been the case?

20 DR. BUCHANAN: It's been awhile
21 but I don't believe so at least for job

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1 titles. I picked out five job titles,
2 chemical operators and stuff that you'd expect
3 and I didn't analyze - go through all the dose
4 reconstruction in detail but I didn't see
5 anything that jumped out and said well, this
6 is the reason they weren't assigned the
7 plutonium from the TBD. And so anyway, that -
8 SC&A responded and that's where it sits as far
9 as our action item goes.

10 MR. ROLFES: So Monica then I
11 don't know if you could give me a quick update
12 if you might know the answer?

13 MS. HARRISON-MAPLES: I don't know
14 the answer offhand. I can get with you after
15 this call. I'll find out the answer and get
16 it to you.

17 MR. ROLFES: Okay, thank you.

18 MS. HARRISON-MAPLES: You're
19 welcome.

20 DR. MAURO: This is John. As you
21 probably know, recycled uranium is probably

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1 the most important issue we're dealing with
2 and have been dealing with, and certainly Mark
3 Rolfes is well aware of the discussions we've
4 had. I just have a question for you that
5 maybe others might have on their minds also.
6 Did Weldon receive any of this special
7 material that is referred to as either tower
8 ash or the CIP/CUP material directly from
9 let's say Paducah or did they - did Weldon
10 just get down-blended, material that was
11 already down-blended at Fernald and then
12 shipped from Fernald to Weldon?

13 MR. ROLFES: John, the answer
14 regarding, you know, the shipment of the
15 highly contaminated transuranic containing
16 uranium materials from the Paducah facility or
17 the other gaseous diffusion facilities, none
18 of that material was ever sent to Weldon
19 Spring. It was only sent to Fernald and it
20 was only sent really in a couple of shipments
21 in the mid-'70s and early '80s.

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1 DR. MAURO: Very good. That's
2 what I thought but I wanted to confirm. The
3 second thing, Mark, as you remember, one of
4 the fixes dealing with one of the concerns and
5 John Stiver could speak to it in greater
6 detail, but and we want to sort of step back
7 and look at the big picture, the business of
8 the bomb reduction and the dolomite. As you
9 know, one of our concerns was that as you did
10 that process and reused the magnesium fluoride
11 I guess, or that comes out of the process you
12 get a reconcentration of the plutonium in that
13 dolomite and you folks eventually came up with
14 what we considered to be a very good fix.
15 This is one of the subjects we discussed on
16 Fernald and we came to I believe it would be
17 fair to say a general consensus that the 400
18 part per billion number that reflects the
19 assumption that would be used for those kinds
20 of exposures where a person may have been
21 exposed to the airborne uranium that is

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1 associated with the bomb reduction process and
2 the dolomite might very well have as much as
3 400 parts per billion as opposed to 100 parts
4 per billion. I know you folks have offered
5 that up as a way to deal with that scenario
6 for Fernald. Do you have a similar
7 circumstance for the reduction process going
8 on at Weldon?

9 MR. ROLFES: Well, to address what
10 you said previously we didn't observe up to
11 400 parts per billion in that magnesium
12 fluoride, it was only up to - it was around 96
13 parts per billion I believe which was still
14 under our 100 parts per billion default.

15 DR. MAURO: Okay, and you're
16 saying that's at Weldon now?

17 MR. ROLFES: No, no, this is at
18 Fernald.

19 DR. MAURO: Okay, then I
20 misunderstood. I thought that there were a
21 large number of samples of this material

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1 collected. John, you can help me out a
2 little.

3 MR. STIVER: John, this is John
4 Stiver. Yes, when you look at the source data
5 that came out of the DOE Ohio Field Office
6 reports they had about 400, a little more than
7 400 samples for the dolomite for plutonium.
8 And what NIOSH proposed was to do a log-normal
9 fit on that data and then take off the 95th
10 percentile. And that's where the 400 parts
11 per billion comes from.

12 DR. MAURO: Oh, okay.

13 MR. STIVER: And then our point is
14 that you can't really look at the feed
15 material concentrations because at Fernald,
16 for example, even though this material came
17 in, the CIP/CUP residues in the '70s and the -
18 the POOS material, the tower ashes in 1980
19 which is the biggest one, that material was
20 down-blended on the front end, at plant 1 and
21 plant 4 before it ever even went into the

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1 refinery. So what you're seeing going into
2 the reduction area which is the highest
3 concentration of all for all the workers is
4 material that's already been down-blended. So
5 at that point it didn't really matter whether
6 it was CIP/CUP, PTA or the tower ash or some
7 other source, you've got that concentration
8 mechanism. That was our real point is that
9 you can't just look at kind of the more
10 simplistic view of what's coming in in the
11 feeds and set your time periods on that
12 because that's - 400 is probably a good number
13 to bracket the - or to bound the potential
14 intakes of the plant 5 and also the plant 1
15 mill rise people that, you know, reconstituted
16 the dolomite for reuse. And that's that
17 subgroup, the most highly exposed subgroup.
18 And so we were saying oh that 400 is a good
19 number, but it's a good number all the way
20 back too, not just for the '70s. But then
21 you've got the other issue of this other

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1 group, you know, the down-blenders.

2 DR. MAURO: Right. But that
3 doesn't exist.

4 MR. STIVER: That doesn't exist
5 for Weldon Spring.

6 DR. MAURO: That's the only -

7 MR. STIVER: Four hundred parts
8 per billion would certainly be applicable at
9 Weldon Spring.

10 DR. MAURO: Okay.

11 MR. STIVER: You're looking at the
12 same type of process.

13 DR. MAURO: Okay. My question I
14 guess and to Mark and to everyone around the
15 table is it sounds to me that one of the
16 strategies that is being considered, and
17 correct me if I'm wrong, at Fernald is to go
18 to a 400 part per billion versus a 100 part
19 per billion base because it's the 95th
20 percentile of those 400 samples. Is there any
21 reason - whatever approach you select, maybe

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1 I'll say it a simpler way. Whatever approach
2 you do select regarding RU as your baseline
3 for Fernald, is there any reason why it should
4 be different at Weldon?

5 MR. ROLFES: Yes, and that's the
6 second part of your question that I didn't get
7 to answer before.

8 DR. MAURO: Okay.

9 MR. ROLFES: You can take a look
10 at page 27 of 90 of the SEC Evaluation Report
11 for Weldon Spring. We actually have the
12 maximum recycled uranium contaminant levels
13 within Weldon Spring Plant. And the 95th
14 percentile level of plutonium was 6.3 parts
15 per billion of uranium. So that in comparison
16 to the previous approach that we documented in
17 using 100 parts per billion for Weldon Spring,
18 the actual data upon review showed that the
19 recycled uranium materials process at the
20 Weldon Spring Plant were of lower transuranic
21 contamination.

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1 We have a note under this table 5-
2 6 and these bounding values that we reported
3 in the table were calculated as the 95th
4 percentile of an unblended uranium trioxide
5 PUREX source and assuming a log-normal
6 distribution. This provides the highest
7 values for the two subgroups of recycled
8 uranium like we received by Weldon Spring and
9 this comes from DOE 2000.

10 DR. MAURO: Very good. Thank you
11 very much.

12 MR. STIVER: This is John Stiver.
13 There's still one little thing that kind of
14 bugs me. This is once again, what you're
15 looking at at 6.3 is the feed material
16 concentration. It's not really the magnesium
17 fluoride concentration. It wouldn't be of
18 concern for the metal workers. So I think we
19 kind of still have the same problem here that
20 we have at Fernald.

21 MR. ROLFES: Okay. I actually

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1 received a White Paper on recycled uranium.
2 Well, I haven't received it yet but it's
3 sitting in my office. So I haven't had the
4 opportunity to review the most recent response
5 on recycled uranium. I don't know if anybody
6 on the line, either Bob, Bryce or Monica might
7 have any details or updates for me as the
8 status of our response on recycled uranium at
9 Weldon Spring.

10 MR. RICH: This is Bryce, Mark.
11 We looked at this again and using some Fernald
12 data, primarily operational subgroup 6a which
13 is the recycled uranium directly from Hanford
14 prior to its being down-blended at all and
15 that was from mainly the material, a
16 representative material that went to Weldon
17 Spring. And that, the 95th percentile is in
18 the 7 parts per billion range. So the
19 material that went to Weldon Spring from
20 Fernald and the material that came from the
21 gaseous diffusion plant prior to the time that

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1 they sent the - the ash and the tail and all,
2 it was probably in the 10 to 20 parts per
3 trillion. They decided on a foundation factor
4 in the gaseous diffusion system. But we - we
5 need to discuss this just a tad more.

6 MR. ROLFES: Okay. As soon as I
7 have the opportunity to review the recycled
8 uranium White Paper that I just received then
9 we'll send that out to SC&A and the Work Group
10 Members. So if it doesn't specifically
11 discuss this we'll have to work to put some
12 revised information in there so that we do
13 discuss this.

14 MR. FITZGERALD: So really, just
15 to recap, there's two issues. One is the 100
16 parts per billion, but it sounds like this
17 paper will certainly address that issue
18 relative to Weldon Spring anyway. Right now
19 it suggests that maybe the 100 certainly is
20 the conservative value for Weldon. I'm just
21 saying we'll see that.

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1 The other issue is the one that
2 you're going to be checking on with Monica
3 which is the sampling that Ron was talking
4 about, whether in fact I guess this factor,
5 this RU factor is being added in on dose
6 reconstructions and if not, why not, and just
7 sort of some feeling for that. I think those
8 are two parts, that issue is in that report.

9 DR. BUCHANAN: Yes, that's
10 correct.

11 MR. KATZ: For clarity for binning
12 things, that second part of the cases that you
13 looked at, I mean that - it's almost like -
14 that's a DR review issue, not even a TBD issue
15 really except how it was implemented, like you
16 said, which is really a reconstruction case
17 review. I'm a little bit - I mean I
18 absolutely should follow it up since you dug
19 into that but it really in a sense, once you
20 get results, unless they indicate there's a
21 technical problem, a TBD, if it's just an

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1 implementation issue it's really an issue that
2 belongs in the Dose Reconstruction
3 Subcommittee's court because they're the ones
4 who worry about the quality of dose compliance
5 with our own procedures and so on. Or I'm
6 missing -

7 MR. FITZGERALD: Yes, I think
8 we've done this in other SECs, I think it's
9 just a matter of understanding you know the
10 rationale for how the factor is applied, not
11 so much whether it was or wasn't and that part
12 of which you're right, it's a task for dose
13 reconstruction. But just trying to get a
14 sense of if this is the application,
15 understanding the rationale for how the
16 application is used. And it's not clear how
17 it's actually used. And I think that would
18 help. It's not a - I guess the other is a QA
19 function, I agree. That's not what we're
20 doing here. But just understand if we're
21 somehow not comprehending how that 100 is used

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1 in this application, it's just a puzzle right
2 now, so that's really the question.

3 MR. KATZ: Thank you, that's a
4 helpful clarification.

5 MR. ROLFES: I suspect, you know,
6 without looking at the specific cases I
7 suspect that you know I do see from Ron's
8 review of these cases that a hypothetical 12
9 or 28 radionuclide was not used in these
10 cases. We did assign thorium intakes but we
11 did not assign recycled uranium intakes in
12 four of the five cases. You know, I'd have to
13 take a look back at the specifics of that dose
14 reconstruction because if we did a best
15 estimate of an individual's uranium intake and
16 the internal dose from uranium and then add in
17 the recycled uranium contaminants that would
18 be more of an issue than if we basically
19 overestimated the individual's uranium intake
20 and you know, used another bounding approach,
21 an overestimating approach, early on. You

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1 know, there could be some other approach that
2 we'd used so I have to take a look back and
3 we'll do what we can to provide a date after
4 this Work Group meeting with the response.
5 It's probably not going to be till June before
6 I can respond so.

7 DR. BUCHANAN: Okay. Our third
8 item on the - our action - SC&A's action item
9 list was the neutrons at Weldon Spring. And
10 at the last meeting I brought up the fact that
11 the neutron N/P value was obtained at
12 different times, the neutrons obtained in '95,
13 the gamma was obtained in 2001. And Stu asked
14 me to send that information to him and I did,
15 I sent that out to the Work Group and to Stu
16 and NIOSH on the second of February. This was
17 quoted from the Fernald TBD. And so that was
18 one issue we wanted NIOSH to respond to was
19 while the numbers came out, the N/P ratios are
20 reasonable, the technical method of
21 determining them did not look solid.

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1 Issue number four was - or item
2 number four I should say -

3 MR. FITZGERALD: Do you want to -

4 CHAIRMAN GIBSON: Does DCAS have
5 some response on issue 3? I mean that's.

6 MR. ROLFES: Well, we did look
7 back. This has been discussed quite a bit for
8 Fernald and the information that was presented
9 to us by SC&A identified, you know, that - I
10 don't know if you wanted to summarize your
11 data here, but it basically pointed out that
12 the neutron dose rate was taken in 1995 and
13 the photon dose rates were conducted in 2001.

14 It was in a green salt storage area. We
15 discussed this quite a bit and it came to a
16 resolution in the Fernald Working Group that
17 this wasn't an issue. We're using the 95th
18 percentile neutron-to-photon ratio of 0.23 to
19 1 from Fernald measurements to assign
20 unmonitored neutron doses for Fernald workers
21 that were in areas where they handled enriched

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1 uranium. And it was primarily like the green
2 salt storage areas. Really, since we're using
3 the 95th percentile value there's no
4 indication of, you know, it being in excess of
5 that at the Weldon Spring Plant. And that's
6 especially considering that the types and
7 quantities of materials at the Weldon Spring
8 Plant as well as the enrichments of the
9 materials at the Weldon Spring Plant were
10 lower than those materials that were handled
11 at the Fernald site. So we really don't see
12 any kind of reasonable scenario where we could
13 have gotten a higher neutron-to-photon ratio
14 or a higher neutron dose rate at the Weldon
15 Spring Plant.

16 DR. MAURO: Mark, this is John. I
17 have to apologize, you know, I don't recall
18 the details of that. I do recall at one point
19 we did some MCNP modeling of alpha Ns for I
20 think it was green salt that might have been
21 in storage that was enriched and you folks had

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1 an approach for deriving the neutron dose from
2 that. I don't recall neutron-to-photon ratios
3 having some play there. It may have. So I
4 hear what you're saying but I have to say it
5 doesn't, you know, I'm drawing a complete
6 blank on how that issue was resolved. I do
7 not remember it being resolved from a neutron-
8 to-photon perspective. I remember it being an
9 MCNP run on alpha N. But I think maybe we owe
10 John Stiver, maybe we could take a look at
11 what the history of that issue was and how it
12 was resolved and so we have a better
13 understanding of the context and how it was
14 resolved and whether it is in fact applicable
15 to Weldon. It sounds like, Mark, you're
16 drawing upon some experience we had a few
17 years back on Fernald and I apologize, I just
18 don't recall.

19 MR. STIVER: John, I just stepped
20 out for a second and missed that little
21 exchange. Could you -

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1 DR. MAURO: The idea, the bottom
2 line is they were discussing doing neutron
3 dose calculations and using a neutron-to-
4 photon ratio strategy that was originally
5 developed, applied and accepted at Fernald and
6 that the situation at Weldon is identical and
7 therefore should solve the problem. There are
8 some concerns that were brought up by Ron
9 regarding the methodology used to get to the
10 ratio, the neutron-to-photon ratio. It
11 sounded like Ron wasn't all that disturbed by
12 the ratio itself, but the methodology that -
13 by which they got to that ratio.

14 MR. STIVER: The basis for the
15 ratio.

16 DR. MAURO: Yes. And then of
17 course reference was being made that we went
18 through this process already for Fernald. And
19 I have to say this must go back several years.

20 I don't recall it and perhaps it would be
21 appropriate for us to sort of refresh our

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1 memory on what the process was, you know, how
2 we came about whatever we came about regarding
3 the resolution of neutron issues because there
4 are no neutron issues on the table at Fernald
5 right now.

6 MR. STIVER: That seems
7 reasonable, yes.

8 DR. MAURO: Right. Let us do a
9 little homework, it won't take very much time,
10 and feed back. And then I think maybe Ron and
11 John, you could work out the degree to which
12 the issue was in fact appropriately resolved
13 on Fernald and the degree to which it applies
14 to Weldon.

15 MR. STIVER: Okay, will do.

16 MR. ROLFES: This is Mark Rolfes.

17 And to give you a little bit of background,
18 what we had discussed at Fernald, SC&A had
19 reviewed our approach and had tried to come up
20 with an approach that would result in a higher
21 neutron-to-photon ratio, or a higher neutron

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1 dose rate. And our comment on the approach
2 that was taken was that you had produced 2
3 percent enriched green salt array that was not
4 in a safe storage configuration so there was
5 neutron multiplication going on. And so I
6 think SC&A withdrew their review at that time.

7 DR. MAURO: Yes, see I do remember
8 that. I remember when we ran - we ran a
9 calculation where we were trying to do a
10 bounding and our bounding was such that we'd
11 have a criticality situation and it couldn't
12 occur. But I didn't remember it within the
13 context of a neutron-to-photon ratio. I
14 remembered it more within a context of running
15 an alpha N calculation for a pile, some
16 conical pile and you were right. I remember
17 we made the error that assumed a certain size
18 pile that would have been a critical mass and
19 of course that could not have occurred. But I
20 don't remember it within the context of
21 neutron/photon ratios. And it won't take us

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1 long to get up to speed and clarify.

2 MR. FITZGERALD: Let me offer an
3 alternative. I defer to the Work Group but
4 maybe NIOSH could just simply for the purposes
5 of this Work Group since this Work Group in
6 toto hasn't been involved with the Fernald
7 discussions so we're completely ignorant of
8 all this history. If Mark, you can simply,
9 you know, lay it on the table as you did at
10 Fernald for this Work Group and John and John
11 and Ron and Joe and Work Group can together
12 understand how that would be applied in this
13 context. Because I think you said something
14 important which I wasn't fully aware of, the
15 you know, the enrichment levels that are lower
16 at Weldon so there's a degree of conservatism
17 that would be factored in in applying that
18 approach to Weldon. And that would be useful
19 just to lay that out as well. And then all of
20 us can take a look and sort of judge in this
21 Work Group whether it makes sense.

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1 MR. ROLFES: I actually sent an
2 email to Ron awhile back with the excerpt from
3 the Fernald Working Group where this issue was
4 discussed and I think I also provided some
5 additional information. I - unfortunately I
6 can't get into my email right now, I'm sort of
7 blocked out here for some reason. I was
8 trying to find the date of the email that I
9 had sent out.

10 MR. FITZGERALD: It sounds like it
11 was some kind of analysis or something beyond
12 the discussion.

13 MR. ROLFES: Well, from us, from
14 our standpoint. I don't know if we have
15 addressed this in the Evaluation Report as
16 well, but let me flip through here. Maybe
17 someone on the phone, maybe Monica or Bob or
18 anyone out there, could you point out anywhere
19 in our Evaluation Report where we might have
20 addressed neutron exposures?

21 MR. FITZGERALD: I guess what I

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1 was looking for is this - sort of cribbing off
2 the Fernald discussion maybe just providing a
3 brief analysis that can reference Fernald but,
4 you know, for the situation at Weldon. It
5 would at least provide a basis for the Work
6 Group to come to closure on it.

7 DR. CHEW: Mark, this is Mel.
8 It's on page 60 of 92 on the ER.

9 MR. ROLFES: Okay. Let's see
10 here.

11 CHAIRMAN GIBSON: And rather than
12 go through something that we don't have in
13 front of us, you know, I think from what Joe's
14 saying, and not only this issue. I think it's
15 important that any issue for this Work Group
16 that applies as any Work Group that SC&A and
17 DCAS has worked on, that final product needs
18 to be brought before this Work Group so that
19 we can look at it on the agenda and see that
20 we agree, and secondly so that it's - it's on
21 the transcript, it's on the record for the

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1 claimants. You know, this - we've had quite a
2 long time between meetings, we've had a list
3 of action items and it's - well, this was
4 discussed and resolved because of Fernald and
5 we go on to something else. And I just, I
6 don't think that's - that's not fair to the
7 Work Group, it's not fair to the claimants. I
8 think we need to be a little more detailed in
9 making sure that everything is clear on the
10 record, especially for the claimants.

11 MR. ROLFES: Okay, thanks Mike.
12 I'll read our little section here. This is
13 actually on - from SEC Evaluation Report 143
14 dated March 23, 2010. It's on page 32 of 90
15 of my copy here. It's section 5.2.2.3. It
16 says, "The Weldon Spring Plant was operated as
17 an integrated facility for the conversion of
18 uranium ore concentrate from small quantities
19 of recycled scraps of pure uranium trioxide,
20 uranium tetrafluoride and uranium metal.
21 During these processes and during the storage

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1 of uranium tetrafluoride neutrons were not
2 anticipated at the Weldon Spring Plant. Any
3 neutrons would have resulted from the alpha
4 neutron reaction from uranium tetrafluoride,
5 green salt, or processing the slightly
6 enriched uranium which was 1 percent or less
7 U-235.

8 "Most Weldon Spring operational
9 employees were involved with the processing of
10 natural and depleted uranium and were assigned
11 to regular beta gamma dosimeter badge
12 monitors. However, in a special study of the
13 feed materials production center, neutron
14 measurements were made in and around the
15 arrays of drums and stored uranium
16 tetrafluoride up to 2 percent enrichment to
17 determine the potential for neutron exposures.

18 The study included the use of Landauer
19 NEUTRAK ER dosimeters as area badges over the
20 period of one quarter and a special survey
21 using a Nuclear Research Corporation model NP2

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1 portable neutron meter. The results of the
2 study indicate neutron exposures were minimal,
3 a maximum of 0.089 millirem per hour for the
4 area badges and less than the minimum
5 detectable level of 0.02 millirem per hour for
6 the portable neutron monitor. Calculations
7 performed for Battelle TBD-6001 on similar
8 materials are in agreement with the Fernald
9 measurement data and support the conclusion
10 that neutron dosimetry is not needed when
11 processing uranium tetrafluoride under these
12 parameters because there's no significant
13 potential for neutron exposures."

14 It goes on to say in the next
15 paragraph that, "Even though the Weldon Spring
16 Plant received enriched uranium it was always
17 less than 1 percent enriched. Therefore, the
18 potential for neutron exposure was very low.
19 The slightly enriched uranium was processed in
20 buildings 103, 105, 201 and 301, and those
21 employees that processed the slightly enriched

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1 uranium were assigned special neutron
2 dosimeter badges to be worn in connection with
3 the regular film badge dosimeters. Neutron
4 dose results for these Weldon Spring employees
5 have not been located, probably because there
6 was no measured neutron doses." So that's
7 what we've discussed in our Evaluation Report
8 and that was providing our basis for the use
9 of Fernald data to assign neutron doses to
10 workers who were not monitored at the Weldon
11 Spring Plant.

12 MR. FITZGERALD: Ron, do you want
13 to elaborate on some of this? I think you had
14 some questions on the technical basis.

15 DR. BUCHANAN: I really don't have
16 a problem with your statement. Just from a
17 scientific point of view when you do
18 neutron/photon ratio you try to do the same
19 experimental setup as similar as you can to
20 measure, and usually you do it simultaneously
21 measure your neutron/photon doses and then

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1 determine the N/P value. What I have a
2 problem with is that - is that this was
3 measured in 1995 on canisters for the neutron.

4 Six years later the gamma was measured in
5 2001 on drums. Just from a technical point of
6 view that is not a sound way to measure N/P
7 values. That was my main concern and that's
8 the reason I brought the issue up and
9 forwarded that information to NIOSH from the
10 last meeting. I really don't have a problem
11 otherwise, it's just that technically it's not
12 a sound way to determine N/P values.

13 MR. ROLFES: To make a difference
14 though, in defense of what we have here, you
15 know some major changes would have to take
16 place. For example, the enrichments that were
17 handled or the quantities of material that
18 were handled at the Weldon Spring Plant and we
19 have no indications that the materials that
20 were handled at the Weldon Spring Plant ever
21 exceeded the material quantities and storage

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1 configurations and enrichments that were
2 handled at Fernald. So you know, certainly I
3 agree with you, you try to keep, you know, as
4 many variables as - try to keep as few
5 variables as possible in any kind of
6 scientific measurements but then again, you
7 know, in looking at what was done we would
8 have to have some question, you know. There
9 would have to be a significant change in a
10 source-term to drastically affect the neutron
11 dose rates or the N/P ratio resulting from
12 them.

13 DR. BUCHANAN: And I don't argue
14 with that. I'm not arguing using Fernald data
15 for Weldon Spring. My concern is just from a
16 technical point of view that the measurements
17 done, the way the N/P values were determined
18 is not scientifically valid.

19 DR. MAURO: Ron, where you refer
20 to the N/P values as they were determined and
21 described we just heard or read to us, is that

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1 the measurements that were made at Fernald or
2 are those the measurements that were made at
3 Weldon?

4 DR. BUCHANAN: At Fernald.

5 DR. MAURO: Okay.

6 DR. BUCHANAN: This is directly
7 out of the Fernald TBD page 18 and 19.

8 DR. MAURO: Okay. We at SC&A
9 certainly need to go back and take a look at
10 that to see, you know, clearly we have
11 resolved that issue and I'll be the first to
12 say well, maybe there are some questions
13 regarding it. Hate to do that, but we'll take
14 a look at it and let you know what we find.
15 And then of course we could all make a
16 judgment as to whether or not everything's
17 okay or not, not only for Weldon but also for
18 Fernald.

19 MR. KATZ: Is that your point,
20 Ron?

21 DR. BUCHANAN: My point is -

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1 MR. KATZ: I mean you're saying
2 technically it's not correct, but I'm just
3 trying to understand what you're saying you
4 would like to see to resolve it.

5 DR. BUCHANAN: Well, I'm just
6 bringing up the fact that if you're doing N/P
7 values and you go in the lab and you measure
8 them, this is not the way you do it, that you
9 don't do it six years later. You don't do the
10 neutron one time and six years later do the
11 gamma under a different geometry. You would
12 go and set up a lab and you would do the
13 measurements simultaneously if you're going to
14 use those values to assign dose to someone.
15 You don't do it six years later using drums in
16 one case and canisters in another case.

17 CHAIRMAN GIBSON: And so
18 just to clarify for me, this is really non-
19 scientific. Maybe you've already explained
20 this. Why was that done? At one time one
21 measurement and six years later the other

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1 measurement.

2 MR. ROLFES: Is that question for
3 me?

4 CHAIRMAN GIBSON: Yes.

5 MR. ROLFES: I'll have to take a
6 look back but basically they were - at the
7 Fernald site they were actually looking with
8 different methodologies to try to detect
9 neutron dose. Because the dose rate was so
10 low they weren't able to detect it with
11 typical detection equipment. They had
12 actually put in a few different types of
13 materials and CR-39 trackage materials as well
14 as some bubble dosimeters I think. So I'm not
15 sure, I'd have to take a look back at the
16 data. I don't know if anybody on the line
17 might be able to help me out with that, but
18 they measured neutron dose rates at Fernald
19 based upon the sensitive, let's see here.

20 DR. BUCHANAN: Bubble detectors I
21 believe.

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1 MR. ROLFES: Yes, it was the
2 bubble detectors I believe. And let's see
3 here. So we've got a neutron dose rate and
4 that neutron dose rate wouldn't differ unless
5 you increased the enrichments or increased the
6 amount of material that would increase the
7 alpha neutron interactions that were primarily
8 responsible for that neutron dose rate. We
9 have no indication that that was done at
10 Fernald and certainly not at Weldon Spring.
11 So you can say that that 0.089 millirem per
12 hour would be a bounding value for neutron
13 dose rates. Now, you'd have to compare that
14 to the gamma dose rate to get your N/P ratio.
15 And we have a neutron dose rate so it's not,
16 you know, we don't - I'm trying to think. I
17 don't know, is there anyone on the line, maybe
18 Monica or Bob possibly or Mel that might be
19 able to elaborate a little bit on the neutron
20 dose measurements and, you know, any reasoning
21 why the - or explanation for why the time

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1 period wasn't the same?

2 CHAIRMAN GIBSON: Or why didn't
3 they take the photon readings in '95 as well.

4 MR. ROLFES: Right, right.

5 DR. CHEW: Mark, this is Mel. I'm
6 looking at the distribution again. I think we
7 don't really need to have the photon
8 measurements or calculation because we do have
9 direct readings from the portable neutron
10 meters, as you said, of 0.089 millirem per
11 hour, and that's what we should be using. So
12 I don't think we need to even use that N/P
13 ratio at all.

14 CHAIRMAN GIBSON: Okay, that's
15 another approach as well. I mean, if we've
16 got a bounding value of 0.089 at Fernald based
17 upon the materials that were stored there
18 versus the Weldon Spring Plant, the Weldon
19 Spring Plant handled lower enrichments and
20 lower quantities of the same chemical form of
21 uranium. So that bounding value of 0.089 from

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1 the Fernald site should certainly encapsulate
2 or bound any values at the Weldon Spring
3 Plant.

4 DR. BUCHANAN: Yes, this is Ron,
5 SC&A. That's true if the geometry, the mix
6 and everything is the same. If your
7 container's the same, you've got the same
8 amount of attenuation, you've got the same
9 amount of liquid and solid concentration.
10 Your neutron emissions and attenuation within
11 the source itself is going to vary depending
12 on the geometry of the container and so your
13 neutron, if you're going to use direct neutron
14 measurements then your geometry, your
15 container and everything has to be similar at
16 both sites. If you're going to use N/P ratio
17 then it isn't quite as crucial. But if you
18 measure neutrons on a barrel filled with water
19 and you measure gamma on something else, a
20 drum filled with solids you're not getting the
21 same attenuation of the neutrons or gammas

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1 that you're going to see if they're mixed and
2 measured at the same time.

3 MR. FITZGERALD: Just coming into
4 this a little more fresh than a lot of folks
5 on the phone, it seems to me that it's not
6 even the application part. It sounds like
7 once you have these basic values whether it's
8 the N/P route or just neutron measurements,
9 beyond that I don't know if there's as much of
10 an argument given the enrichment issues you've
11 talked about. But that source, that source
12 calculation seems to be a little bit fuzzy
13 right now. There's a couple different options
14 that you might want to look at. It sounds
15 like maybe that would be useful for the Work
16 Group to get your, you know, get your
17 thinking, whether it's a new thinking or maybe
18 the old thinking once you look at it and have
19 that presented back and then we could react to
20 it. But it's not so much - it does sound like
21 there's an issue relative to applying it to

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1 Weldon once you do come up with that value.
2 It sort of goes back to Fernald as, you know,
3 what that value means and where it came from
4 and whether it's the basis for that value that
5 seems to be in question right now.

6 MR. ROLFES: I'm looking back from
7 the, let's see, from ORAU-TKBS-0017-6.

8 MR. FITZGERALD: What site?

9 MR. ROLFES: This is the Fernald
10 site and it's discussing the development of
11 the neutron-to-photon ratios. I'm just
12 looking here. What we have - one of the
13 explanations - or explanations for the
14 difference in the measurements, couldn't store
15 2 percent enriched green salt in a drum so it
16 was stored in a smaller canister. So you've
17 got, let's see, we've got some data in there,
18 table 6-9, measured neutron dose rates at
19 Fernald for different types of material.
20 We've got average measured neutron dose rates
21 for depleted and low-enriched uranium which

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1 range from 1.25 percent to 2 percent. So that
2 was compared to the photon doses measured on a
3 large array of drums. And so that's primarily
4 what I suspect one of the bases or one of the
5 reasons for the differences in how the
6 measurements were made because we couldn't
7 store 2 percent enriched uranium in a drum
8 because of safe storage requirements.
9 Enriched uranium was stored in a smaller
10 canister.

11 DR. BUCHANAN: And it would have
12 been great if they had just put a gamma survey
13 meter there with the neutron meter and got a
14 point. And you know, and then I wouldn't have
15 a problem.

16 MR. ROLFES: Sure, sure.

17 DR. CHEW: This is Mel. Can I
18 address John Mauro's comment about the - using
19 a modeling? John, I think you really need to
20 look at actually the amount of neutron
21 production from the alpha N reaction. We all

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1 know, we know the cross-sections are very,
2 very low for this kind of reaction. You want
3 to confirm that with your own internal
4 calculation?

5 DR. MAURO: Yes, we actually - I
6 recall when we were looking at this issue. We
7 modeled the - and it may have been to see if
8 the neutron/photon ratio sort of rang true.
9 We modeled the alpha N using 2 percent
10 enriched uranium which is sort of the upper
11 bound number that has been used for Fernald as
12 being a reasonable value. And I remember it
13 being a conical pile actually stored outside
14 and not in a drum. And we ran it, and so we
15 came up with numbers. Whether it was
16 expressed in terms of a neutron dose rate or
17 it was expressed in terms of a neutron/photon
18 ratio that later on was shown to be
19 inappropriate because the cone, the conical
20 pile we assumed would have created a critical
21 mass. So we withdrew that analysis as being

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1 erroneous. Now, how the issue eventually was
2 resolved and you know, and accepted is
3 something that I don't recall and is probably
4 worth us going back and taking a look at it.
5 And then of course between us and John, myself
6 and Ron we can just take a look and say okay,
7 you know, was the issue resolved appropriately
8 on Fernald and if so, does it have direct
9 applicability to Weldon. So I mean, that
10 seems to be the way to get - to bring this
11 thing to closure pretty quickly.

12 DR. CHEW: Okay. I think you need
13 to realistically model what the real piles
14 need to be because I think Stu Hinnefeld was
15 there when he mentioned that the pile that you
16 did model would have gone critical.

17 DR. MAURO: Right, oh yes, I
18 remember that and you know, we were
19 embarrassed.

20 DR. CHEW: No, don't worry.

21 DR. MAURO: And it's not difficult

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1 for us to go back and redo that. Those kinds
2 of things are done quickly.

3 DR. CHEW: Okay. And I think you
4 need to look at the total neutrons produced,
5 neutrons per second, and then you can do any
6 geometry you want to to get the dose rate.
7 Okay?

8 DR. MAURO: Oh yes. We actually
9 get the fluxes, energy flux coming off, you
10 know, as a function of distance. Yes, we'll
11 take a look at it and get back. We'll
12 basically be talking to Bob Anigstein and
13 looking back at the history of this thing. It
14 shouldn't be difficult sort of to reconstruct
15 the history of how this issue was resolved.

16 DR. CHEW: Make sure you keep on
17 building this model so it looks like a
18 reactor.

19 DR. MAURO: Yes.

20 DR. CHEW: Okay, thanks John.

21 DR. MAURO: Okay.

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1 MR. KATZ: Okay, so this has ping-
2 ponged back and forth a little bit as to who
3 has an action item. John is suggesting that
4 SC&A do the homework of reconstructing -

5 MR. FITZGERALD: Workers -

6 DR. MAURO: Ted, the only reason I
7 bring it up is that, you know, the very fact
8 that I'm sitting here, we're talking about
9 Fernald and I don't remember how that issue
10 was resolved, but it certainly was resolved
11 and I think we owe it to not only the Weldon
12 group but also the Fernald group to be clear
13 on how we did it. Because it's possible that
14 we resolved the issue but maybe there still
15 are some matters of the type that Ron is
16 describing that we need to take a look at. I
17 hate to reopen an issue, but I feel that given
18 the way this is unfolding we do need to take a
19 look at it, you know, and make sure that we
20 close that issue appropriately.

21 MR. KATZ: I don't have a problem

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1 with that if that's -

2 CHAIRMAN GIBSON: Well, I want to
3 say this, is I want it brought back to this
4 Work Group how it was resolved at Fernald and
5 then I also want a final discussion on this
6 issue 3 that SC&A raised explaining in layman
7 terms why the neutron doses were taken in '95
8 and why the photon readings were taken in
9 2001. Would there have been a difference if
10 they had taken them both in '95? Would there
11 have been a difference if they had taken them
12 both in 2001? And just so that the Work Group
13 can feel that it's satisfied with the issue
14 and also so it makes a little more sense to
15 the claimants.

16 MEMBER LEMEN: And what time frame
17 are you talking about?

18 MR. KATZ: For reporting back?

19 CHAIRMAN GIBSON: As soon as
20 possible. You know, we - you know, I know
21 everyone's busy and I'm not trying to bust

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1 anyone's chops but it's been some time since
2 we had a meeting. We had a meeting scheduled.

3 It was canceled because there was no progress
4 and it seems to me that this meeting is
5 becoming, well, there's issues on the table,
6 it's been resolved and we try to move on and
7 I'm just not satisfied with that. I think
8 there needs to be a little more detail on the
9 table so that this Work Group can try to say
10 we agree with some of these issues and they're
11 closed or we have some specific questions that
12 we want you guys to go back and look at.

13 DR. MAURO: Mike, this is John.
14 We're going to jump on this immediately and
15 I'm going to have an answer on how this issue
16 was closed and whether there are problems or
17 not on Fernald by next week. Because I do not
18 want any matters like this sort of hanging out
19 at the time of the St. Louis meeting. So
20 we're going to close the door and understand
21 exactly where we are by next week on this

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1 matter for Fernald.

2 CHAIRMAN GIBSON: Well, and I
3 understand that we have a meeting coming up in
4 St. Louis but I don't want to have a few
5 convenient if you will answers for the people
6 in St. Louis. I want this Work Group to make
7 some substantive progress regardless of
8 whether we have a meeting in St. Louis, you
9 know. I want to see some things get done. I
10 just think we're getting behind on it.

11 MR. KATZ: Right, okay. But John
12 says he'll close the book on this one or he'll
13 try to close the book on this one before St.
14 Louis which is certainly before another Work
15 Group meeting.

16 DR. MAURO: Sure, absolutely.

17 MR. FITZGERALD: And John, the
18 second part, I'm sort of intrigued by Mel's
19 comment. I mean, if in fact because of the
20 temporal and the source-term differences there
21 may be some fault with using the N/P ratio,

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1 could you in fact use the neutron readings
2 directly or not. I mean, it might as well I
3 think answer those kind of questions as well
4 so the Work Group gets the full picture.

5 DR. BUCHANAN: Yes, would there be
6 strict limitations if you used a neutron dose
7 directly, would restricted limitations on
8 where that would apply or would it be sort of
9 a general, that the geometry wouldn't make a
10 lot of difference? You know, we have to know
11 how versatile using the neutron dose would be
12 directly.

13 CHAIRMAN GIBSON: And Dick, was
14 your question just on this one issue or was it
15 in general? Did you get your question
16 answered?

17 MEMBER LEMEN: No, I think you
18 answered it.

19 CHAIRMAN GIBSON: Okay.

20 MEMBER LEMEN: And John answered
21 it.

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1 CHAIRMAN GIBSON: Okay.

2 DR. BUCHANAN: Is NIOSH going to
3 provide anything on the neutron or are they
4 going to wait on that? What's your decision
5 there?

6 MEMBER LEMEN: You mean the issue
7 of the gap in time?

8 DR. BUCHANAN: Right. I imagine
9 it was when data was available. I mean that's
10 probably the answer. If they didn't just
11 happen - they didn't use gamma measurements in
12 '05 so NIOSH found the data in '01 - I mean
13 '95 and they found data in '01 and applied it
14 back to '95. That's probably the answer, that
15 the data wasn't there.

16 MEMBER LEMEN: Well, that
17 shouldn't be hard to find out then. I mean,
18 you should be able to get that in the very
19 near future. Right? NIOSH?

20 MR. ROLFES: Sure. Let's see.
21 I've been searching for the transcripts where

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1 this was discussed at Fernald and the
2 transcripts of the discussion on neutron doses
3 at Fernald came from our Work Group meeting on
4 October 28th, 2008. It was pages 365 to 367.

5 DR. MAURO: Give that to me again?

6 I'm writing it down and catching up to you.
7 October 28th?

8 MR. ROLFES: October 28th, 2008
9 and it was pages 365 through 367.

10 DR. MAURO: Thank you very much.

11 MR. KATZ: So I think we could
12 just assume DCAS will come prepared to discuss
13 this at the time we discuss it at the next
14 Work Group meeting.

15 CHAIRMAN GIBSON: Sounds good. Is
16 there anything else going to be discussed on
17 SC&A's issue 3 or did we about close that out?

18 DR. BUCHANAN: On the neutron
19 issue, no. None.

20 CHAIRMAN GIBSON: So before we go
21 on to 4 you want to take about a 10-minute

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1 break?

2 MR. KATZ: Okay, 10 minutes and
3 I'm going to put the phone on mute.

4 (Whereupon, the above-entitled
5 matter went off the record at 10:47 a.m. and
6 resumed at 11:04 a.m.)

7 MR. KATZ: Okay, this is Ted Katz.
8 Welcome back. It's the Weldon Spring Work
9 Group, the Advisory Board on Radiation Worker
10 Health. We're just returning from a short
11 comfort break. Ron?

12 DR. BUCHANAN: Okay. Ron
13 Buchanan, SC&A again. Just to get everybody
14 on the same page here we're on item number 2
15 of the agenda. I'm going through our action
16 items and we - I covered item number 1, 2 and
17 3. We're looking at item number 4 which is
18 enriched uranium question. We brought up the
19 fact that perhaps Weldon Spring received
20 greater than 1 percent enriched uranium. And
21 last time NIOSH was to send us two references

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1 which was to illustrate that it was less than
2 1 percent. And so I looked at those
3 references that they sent from the Site
4 Research Database and both references coded
5 handling procedures to handle something like
6 0.86 percent and 0.90 percent enriched
7 uranium. I agree that those were both less
8 than 1 percent. However, they were handling
9 procedure SOPs, not necessarily any
10 documentation that the site handled less than
11 1 percent enriched uranium.

12 That was the four items we had on
13 our action item list. Now two other items
14 that we did participate in. Do you want that?

15 MR. FITZGERALD: Did we resolve
16 that?

17 DR. BUCHANAN: I didn't know if we
18 wanted to talk about it when they responded or
19 do you want to talk about it now?

20 MR. FITZGERALD: It might be good
21 to resolve it.

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1 DR. BUCHANAN: Okay.

2 MR. ROLFES: I was just going to
3 say, you know, the site didn't typically
4 document what they didn't have, they only
5 documented what they did process or what they
6 did have. So we found no indication that they
7 had greater than 1 percent enriched uranium in
8 our reviews of the records for, you know, the
9 Weldon Spring site as well as any other
10 documents tied to them possibly, like for
11 example you know any shipments from Fernald
12 for example. So we have no indication that
13 greater than 1 percent enriched uranium was at
14 the Weldon Spring Plant.

15 MR. FITZGERALD: Which I think is
16 a more definitive answer. I think the SOP
17 sort of talked about what you would do rather
18 than whether or not there was anything. What
19 you're saying is that you haven't seen
20 anything -

21 MR. ROLFES: Correct.

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1 MR. FITZGERALD: - to give you
2 pause.

3 MEMBER LEMEN: And no interviews
4 have indicated otherwise.

5 MR. ROLFES: Let's see. Mel, I
6 know you were responsible for conducting a few
7 of the interviews with Weldon Spring Plant
8 former workers. Do you recall if there was a
9 discussion of the enrichments that were
10 handled at the Weldon Spring Plant in any of
11 those interviews?

12 DR. CHEW: I think we asked the
13 question to the interviews and I just don't
14 recall right now. I think pretty much we had
15 confirmed that yes, there was low enrichment.

16 I don't remember exactly the number, but so
17 that's how much I recall. But I think the 1
18 percent was generally discussed.

19 MR. MORRIS: Mark, this is Robert
20 Morris. If you give us a few minutes we can
21 go back and review while you're continuing the

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1 conversation and see what we've got.

2 MR. ROLFES: Okay. I think in our
3 Evaluation Report one other thing we had
4 identified as well, that 99 percent of the
5 throughput for the Weldon Spring site was
6 natural and/or depleted uranium. So you know,
7 the 1 percent would have been of materials
8 other than natural or depleted uranium would
9 have been either thorium or the slightly
10 enriched uranium. So based on everything I've
11 seen the slightly enriched uranium that was at
12 the Weldon Spring Plant was less than 1
13 percent enriched in U-235.

14 MR. RICH: Mark, this is Bryce.

15 MR. ROLFES: Yes, Bryce.

16 MR. RICH: The Ohio Field Report
17 on Appendix B-4 has a documentation of the
18 enriched and normal and depleted uranium. So
19 it is documented there.

20 DR. BUCHANAN: Is that on the
21 Research Database?

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1 MR. RICH: Yes.

2 DR. BUCHANAN: And can you give me
3 that number?

4 MR. RICH: Yes, hold on.

5 MR. ROLFES: Was this Appendix B
6 of the DOE 2000?

7 MR. RICH: SRDB 3644.

8 DR. BUCHANAN: Thirty-six forty-
9 four. And do you have a PDF page number that
10 that's on?

11 MR. RICH: It's Appendix B-4.

12 DR. BUCHANAN: Appendix B-4.
13 Okay. I think that the last time I tried to
14 look - is that on the Site Research Database
15 now? Last time I tried to pull up 3466 it
16 wasn't available.

17 MR. ROLFES: Thirty-six forty-
18 four.

19 DR. BUCHANAN: Thirty-six forty-
20 four.

21 MR. ROLFES: And you know,

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1 actually Stu had asked me about that reference
2 the other day and I had a problem accessing
3 it. It is available, we can make a copy
4 available to SC&A on the K: drive. So -

5 MR. RICH: I have it on my
6 database and it is in reference to 3644 I
7 think, although I haven't tried pulling it up
8 within the last week or so.

9 MR. STIVER: Well, this is John
10 Stiver. I have a copy I can provide to you.

11 DR. BUCHANAN: Because I tried to
12 pull that up about a month or two ago and it
13 wasn't available.

14 MR. ROLFES: I had the same
15 problem.

16 MS. HARRISON-MAPLES: I just
17 pulled it up. It is available now.

18 DR. BUCHANAN: Okay, thank you.

19 MS. HARRISON-MAPLES: You're
20 welcome.

21 MR. RICH: It's on page 15 of the

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1 enriched uranium on B-4.

2 DR. BUCHANAN: Okay, thank you
3 very much, that'll be helpful.

4 DR. CHEW: Hey Ron? This is Mel.
5 Can you hear me?

6 MR. KATZ: Yes, Mel.

7 DR. CHEW: This is a briefing with
8 John. John, I'm sorry I had to leave but -
9 right before you went on break here. When you
10 guys start modeling the neutrons make sure
11 that - I don't need to tell you that the -

12 MR. KATZ: Can you stop one
13 second? I think you may have a speaker phone
14 or something. Someone has a speaker phone or
15 something because we're getting sort of
16 reverb, an echo of everyone speaking. It just
17 stopped so maybe you're good now, Mel.

18 DR. CHEW: I hear a child
19 actually. Hey John, I think just to make sure
20 that when you folks model this thing you're
21 going to model for 2 percent and 1 percent so

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1 it would be relevant to Fernald and Weldon
2 Spring. And we'll be very interested in
3 looking at the - what you're going to be using
4 for assumptions for modeling. And especially
5 as you start building this pile as you well
6 know there will be attenuation in moderation
7 and using the right cross-section. I don't
8 need to tell you.

9 MR. FITZGERALD: Flipping back to
10 the previous issue. On this issue I guess it
11 sounds like the action is with us to go
12 validate what is in those report - that
13 report.

14 DR. BUCHANAN: That report and see
15 if it does document that.

16 MR. FITZGERALD: Document the
17 historic source-term. I think that will
18 address the issue.

19 DR. BUCHANAN: We have no issue
20 really. We can handle 1 percent and our
21 question was is there any documentation that

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1 they didn't handle over 1 percent.

2 MR. KATZ: Hold on a second.
3 Someone has their line open and we're getting
4 an echo. So if everyone on the line who, when
5 you're not addressing would you please mute
6 your phones, *6 if you don't have a mute
7 button. Thanks.

8 MR. FITZGERALD: And we can take
9 that action in realtime so I mean, it's just a
10 matter of looking.

11 DR. BUCHANAN: Yes and if we look
12 at that and it looks like that it does
13 document that Weldon Spring did not receive
14 over 1 percent enrichment then we can close
15 the issue. But at this time we'll leave it
16 open until we do document that.

17 Okay, so that was item, action
18 item 1 through 4 for SC&A. Now, two other
19 events have occurred I just want to summarize
20 and I turn it over to NIOSH. Mark asked that
21 I send him some accident case numbers and I

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1 did that -

2 MR. KATZ: I'm sorry. We're just,
3 we're getting this echo. Someone doesn't have
4 their phone muted on the line. If you don't
5 have a mute button please use *6. It's -
6 we're still hearing it. Someone on the line,
7 someone has the line open and they don't have
8 their phone muted. Please use *6, mute your
9 phone. Maybe you have - right. Maybe you
10 have a speaker phone on instead of using the
11 handheld. Maybe that's the problem. Okay,
12 I'm just going to turn down the volume so we
13 don't hear it so much. Okay, go ahead.
14 Sorry, Ron.

15 DR. BUCHANAN: Okay. And so I did
16 send those three accident cases to Mark to
17 analyze for accidents in the incident
18 question. And the last item is that SC&A
19 received NIOSH's reply to some of the issues
20 on - a couple of weeks ago on April the 21st
21 and we read over some of those. Some of the

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1 simpler ones we were able to address or
2 discuss when Mark goes through. Those will
3 have - take more time to analyze some of the
4 longer papers. And so at this point SC&A has
5 completed their action item list and I'll turn
6 it over to Mark unless there's questions on
7 anything that we were to do or have done.

8 MR. ROLFES: Okay, thank you Ron.

9 Yes, as you had discussed I'll just go
10 through the responses that we prepared as a
11 result of the past couple of Work Group
12 meetings on Weldon Spring Plant. We prepared
13 responses to SC&A's review about concerns of
14 documentation for an accident or an incident
15 that was issued, 2-7. We've prepared a
16 response to the Weldon Spring Plant Evaluation
17 Report issue number 7 which was comparison of
18 operational activities and Work Group issue 1.

19 The third White Paper we provided a response
20 on was issue 3 regarding a lack of information
21 for workers during 1967. The fourth was a

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1 response on the lack of personnel
2 contamination monitoring. We've also provided
3 a response on the Weldon Spring Plant
4 environmental intake rates and external dose
5 rates and previously we've provided an
6 evaluation of the minimum detectable amount
7 for uranium urinalyses. Let's see. I don't
8 know if you have questions on what you've
9 looked at so far or if you want me to go
10 through these in a little bit more detail.

11 MR. KATZ: Please do.

12 MR. ROLFES: Okay. Well, SC&A
13 provided a list of three claimants to us that
14 had indicated that they were involved in some
15 incidents. And what we found, we went back
16 and looked to see primarily if there were
17 bioassay data available to us for dose
18 reconstruction purposes. We did find bioassay
19 data for the three individuals. We looked in
20 our Site Research Database. We searched first
21 on keywords such as "accident,"

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1 "contamination," "incident," "intake,"
2 "uptake," "release" and "wound." We found
3 some documents from the operational period.
4 We had referenced 15847 - or excuse me, 874.
5 That's 15874 had approximately 320 uranium in
6 urine results above the Weldon Spring action
7 level in 1960. There were some above action
8 level 2 which would have been 0.1 mg per liter
9 to 0.2 mg per liter and there were some
10 explanations associated with those higher
11 results such as incidents. Let's see. We had
12 another reference, 15865 which contained
13 approximately 150 urine results for 1961 that
14 were over action levels. We had some
15 information on action level 2 urinalyses with
16 some explanations that said that there were
17 high-exposure incident reports, investigations
18 of high-exposure incidents and results of an
19 investigation of high urinary uranium
20 exposure. So it appears when you look into
21 the records that the information we have

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1 available to us does show that there is
2 documentation of incidents available to us.
3 If we don't have per se, you know, something
4 documenting that there was a radiological
5 incident that occurred we do still have the
6 bioassay data available to us and that
7 bioassay data would reflect a significant
8 intake from an incident or accident. Is there
9 any questions or comments about?

10 CHAIRMAN GIBSON: None of the data
11 was out of line as far as exposures?

12 MR. ROLFES: Nothing - I mean, we
13 had different action levels at the Weldon
14 Spring Plant and if an employee had a higher
15 exposure then they would track that employee a
16 little bit closer to make sure that his
17 urinary excretion came down below an
18 acceptable level. They'd pull him out of the
19 work area, for example. We didn't find any
20 inconsistencies that - in the data. Let's
21 see. I'll read our summary here. It says,

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1 "NIOSH finds that the accident incident
2 information is not available in all cases.
3 However, the specific examples given by SC&A
4 reflect the fact that favorable outcomes for
5 claimants are still likely. The work group
6 monitoring method that was used by Weldon
7 Spring does not present an obstacle to NIOSH's
8 ability to do dose reconstructions. In fact,
9 the use of work group monitoring data is
10 likely to result in a more favorable dose
11 estimate."

12 There were even - one of the
13 former health physicists responsible for the
14 site had actually, in order to better explain
15 some urine excretion patterns had ingested
16 capsules of uranium sodium diuranate and
17 compared that - he basically ingested 0.11 and
18 10 times the daily limit of sodium diuranate
19 and monitored his urine excretion. I don't
20 know if there's anything else that we haven't
21 identified here that - without reading the

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1 entire thing. Any other questions?

2 DR. BUCHANAN: This is Ron
3 Buchanan, SC&A. This came about was that
4 during some of the interviews the workers felt
5 that their accidents were not recorded in
6 their files and because at that time they
7 weren't necessarily considered radiological
8 incidents. A furnace blowout or something was
9 a physical accident they considered at the
10 time. And so my question was I looked at
11 three of the major incidents that was related
12 to me, found the claim numbers and then had -
13 sent those to NIOSH to look to see was the
14 dose reconstruction, you know, did they have
15 bioassay for those incidents. And so although
16 the file, in the worker's file it didn't
17 necessarily always list it as a radiological
18 incident was there data there to reconstruct
19 the dose. And that was the purpose of this
20 exercise. And so you know, this is kind of a
21 subjective thing. Every site comes up with

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1 radiological accidents and incidents, were
2 they recorded and how could you find them, and
3 so I wanted to explore this to a reasonable
4 degree. And I do have a few questions.
5 Number one, I understand that Weldon Spring
6 does not have a list of accidents that you can
7 go to and look at, but you do make the
8 statement that accident information can be
9 found in a global search from the Research
10 Database by last name. Okay. Can you explain
11 a little bit what you're talking about? Can
12 you just put in a worker's last name and
13 they'll come up and give you accidents he's
14 involved in or what are you speaking of there?

15 MR. ROLFES: Within our Site
16 Research Database sometimes the document
17 title, it depends upon the descriptive
18 information put into the Site Research
19 Database. It's very possible that, you know,
20 if there's a significant incident you know
21 there might be an investigation of the high

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1 exposure to such and such. So in that case
2 that's one approach that might identify an
3 incident in addition to looking at, you know,
4 just a keyword search for "accident,"
5 "incident," "contamination." So but we have
6 identified though that not every incident
7 necessarily has a document tied to it. And so
8 there could be an exposure scenario as shown
9 by an individual's bioassay results where they
10 investigated a high exposure. And in those
11 instances there are notes sometimes that say
12 this was a result of such and such that
13 occurred in this plant on this date or
14 something.

15 DR. BUCHANAN: Okay. And then on
16 page 3 of your response you say in fact the
17 use of work group monitoring data is likely to
18 result in a more favorable dose estimate.
19 Would you care to explain the basis of that
20 statement, what you - how you get at that
21 fact?

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1 MR. ROLFES: Okay. Well, the work
2 group monitoring, they actually focused on the
3 people that had the highest potential for
4 exposure within that work group. And I'd also
5 like Bob Morris, Bob, I believe you'd be the
6 right person about the statement regarding the
7 work group monitoring, if you might be able to
8 elaborate a little bit as to why that would
9 result in a more claimant-favorable dose
10 estimate. Is that you, Bob, or maybe Monica
11 would be the other one?

12 MR. MORRIS: I'm not - this is
13 Robert. I'm not prepared to say anything
14 right now.

15 MR. ROLFES: Okay. Monica, might
16 you have anything to add about this?

17 MS. HARRISON-MAPLES: I'm just
18 reading on page 3 of the response I think it
19 kind of summarizes it. It talks about we
20 spoke about the work group monitoring relies
21 on the highest exposures in any given week to

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1 determine - is determined from the work group
2 data. And that's why we're saying it would be
3 favorable because it couldn't - it would be
4 bounded.

5 DR. BUCHANAN: Okay. Well, this
6 is Ron again. How do we extract that? When
7 they do actually do dose reconstruction they
8 look for Worker X, they look for his data, it
9 looks for his bioassay data, and does the
10 internal dose assignment using IMBA through
11 his bioassay results. And so I guess what I'm
12 trying to do is connect how the work group
13 monitoring would be used for his actual dose
14 reconstruction.

15 MS. HARRISON-MAPLES: I would not
16 like to really go into that at this time. Liz
17 Brackett was unable to stay on the call, she
18 had to travel today, and she would be the
19 person to speak to that point directly.

20 DR. BUCHANAN: Could we get an
21 answer to that question how the group

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1 monitoring data would be used in an actual
2 individual dose reconstruction to cover the
3 group monitoring.

4 MR. ROLFES: We can certainly do
5 that. I don't know if when you send your
6 action items if you could identify that and
7 we'll certainly -

8 DR. BUCHANAN: Okay.

9 MR. ROLFES: - have a response
10 prepared for that question.

11 MEMBER LEMEN: I have a question.
12 You're reading from the report that they sent
13 you. Have you sent that to the Board Members
14 too? Because I just asked Mike, he doesn't
15 remember getting it and I don't remember
16 getting it.

17 MR. ROLFES: Was the question for
18 me?

19 MEMBER LEMEN: Yes.

20 MR. ROLFES: I have prepared
21 responses and sent them out - thank you, Dave.

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1 I sent out an email on April 21, 2011 at
2 10:31 a.m. and it contained six attachments.
3 Those attachments are also available on the
4 Advisory Board document review folder under
5 Weldon Spring in a folder titled NIOSH
6 Responses 4/21/2011.

7 CHAIRMAN GIBSON: It went to the
8 NIOSH email address.

9 MEMBER LEMEN: Okay. That's why I
10 didn't get it.

11 MR. FITZGERALD: You can hold on
12 to that for now. I mean, I think I can look
13 over his shoulder.

14 MEMBER LEMEN: Okay.

15 MR. FITZGERALD: What we're
16 talking about is the very last attachment at
17 the very end.

18 CHAIRMAN GIBSON: Okay, so DCAS is
19 going to put together something for that
20 issue. Then you mentioned something else,
21 Weldon Spring operational activities. Was

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1 that?

2 MR. ROLFES: Yes. Let's see here.

3 Okay. The next response that we had, let's
4 see here, let me make sure I've got the right
5 one.

6 DR. BUCHANAN: By the way, that
7 was SEC number 8, of accidents and incidents
8 that was just addressed.

9 MR. ROLFES: Okay, let's see. The
10 next one that I have here is regarding a lack
11 of information for workers during 1967. So
12 basically 1967 there were no operational
13 activities ongoing at the site. The
14 production was shut down of - the uranium
15 production operation at the Weldon Spring
16 Plant was shut down December 31, 1966. We
17 have included 1967 as part of the covered
18 period. The Department of Labor has actually
19 approved 1967 as a covered year even though no
20 operational activities were ongoing. So what
21 we wanted to do, because there was not

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1 anything going on there we felt that the use
2 of data from 1966 for the employees that were
3 working at the site in 1967 would be
4 applicable for dose reconstruction if need be.

5 And what we did, we took a look
6 back at - let's see here. Here's - I'll just
7 read our summary statement here. It says,
8 "NIOSH concludes that while the working
9 conditions and thus the exposure potentials
10 were different in 1967 from those during the
11 operational period, SC&A's original statement
12 is not accurate. NIOSH contends that
13 production worker data and environmental data
14 from the production area can be applied to the
15 1967 time period. The work activities and
16 thus exposure potentials at the quarry and
17 raffinate pits were similar before and after
18 the facility shut down. The exposure
19 potential due to the limited maintenance and
20 shuttering operations in 1967 during the
21 transition to the Department of the Army

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1 control of the facility would also be bounded
2 by operational period data." So there were
3 concerns primarily about the raffinate pits
4 and quarry exposure potential, and nothing was
5 being done in the raffinate pit areas or in
6 the quarry during 1967 so the use of the 1966
7 data would provide a bounding intake value or
8 dose assignment value for the 1967 time
9 period.

10 We also did look back at the cases
11 that would be impacted and without going into
12 what those cases were I - we queried the NIOSH
13 OCAS Claims Tracking Software database, NOCTS,
14 for Weldon Spring Plant employees to identify
15 claims with employment during 1967. We found
16 17 claims with covered employment during the
17 1967 year. We identified those on February
18 17, 2011. Of those 17 claims five were
19 included in the Special Exposure Cohort
20 designation from another site, for example,
21 Mallinckrodt. Ten received dose

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1 reconstructions and had a Probability of
2 Causation of greater than 50 percent, and two
3 had dose reconstructions with a result of less
4 than 50 percent. We looked back at the
5 methodology that was used for those two claims
6 and without getting into the specifics of
7 their dose reconstructions I recall one of the
8 two individuals at least we applied an OTIB-
9 228 radionuclide overestimate and also
10 assigned I believe an overestimate of the
11 individual's external dose. And the approach
12 that we used, we actually assigned that
13 overestimate of external dose for every year
14 that the employee was onsite, even though
15 after 1967 it wasn't a covered site. So we
16 assigned some dose for years that we
17 essentially shouldn't have because they
18 weren't covered. So in that scenario to look
19 back at specific information from a previous -
20 from 1966 for example it would result in a
21 lower dose estimate for that particular case.

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1 And I don't recall the details of the other
2 one. Let's see if I can take a look here.
3 Monica, was the other case one that we had
4 assigned an environmental intake I believe?

5 MS. HARRISON-MAPLES: That's
6 correct. The other one was a crane operator -

7 MR. ROLFES: Okay.

8 MS. HARRISON-MAPLES: - and we
9 assigned in the internal and external
10 exposures the information from 1966 we felt
11 would extrapolate to 1967 given our
12 understanding of the job responsibilities and
13 what kinds of things were going on at the site
14 at the time.

15 MR. ROLFES: Okay, thank you.

16 MS. HARRISON-MAPLES: You're
17 welcome.

18 MR. ROLFES: Are there any
19 questions about this?

20 DR. BUCHANAN: This is Ron
21 Buchanan, SC&A. Now you're referring to

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1 number 3 on your list, information of dose
2 reconstruction, 1967, correct?

3 MR. ROLFES: That's correct.

4 DR. BUCHANAN: Okay. And where
5 this comes out, Mike, is that as I was - of
6 course in the meeting I discussed is that
7 Weldon Spring shut down operations December
8 31, 1966 and then 1967 was a period that they
9 - a gray area, okay? And then between '67 and
10 '69 the Army contracted people to come in and
11 decontaminate and revamp some of the buildings
12 to do Agent Orange and that never did come
13 about, they closed it down. And so my
14 question was when did the facility actually
15 transfer over to the Army and NIOSH did
16 provide documentation showing that it was
17 transferred on December 31, 1967, a year after
18 the official operation started. Now, the
19 quarry and the pits, the raffinate pits, were
20 not transferred, just the chemical plant
21 acreage. And so my question was since the

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1 SC&A - SEC went through 1967 what about that
2 year because according to the records I could
3 not find any bioassays or dosimetry records
4 for 1967. And so what NIOSH proposed to do is
5 to use 1966 data to cover 1967 and my
6 contention was, well, they were different
7 situations between the two. Okay, now if 1967
8 was a transition year that not much activity
9 was going on then '66 data would meet or
10 exceed '67 exposures.

11 But what we were trying to get
12 verified was what happened there in 1967. And
13 really the way it stands now is that we have
14 not located, NIOSH has not provided
15 documentation regarding what happened in 1967.

16 At some point they went in and started taking
17 out some of the bricks and that sort of thing
18 and redoing the floor and some people were
19 exposed during that time and NIOSH in this
20 paper here contends that that was in March
21 1968 and forward. And so I guess where we

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1 stand is we don't have anything to show what
2 was done in '67 and really hasn't been any
3 information presented showing that nothing was
4 done in 1967. And so that's where it kind of
5 stands is what was 1967, that's why I call it
6 the gray area, what activity was going on
7 there and we haven't found any document that
8 actually shows one way or the other what was
9 going on in '67.

10 CHAIRMAN GIBSON: I think that
11 clearly needs to be determined because the
12 production data - production bioassay data
13 wouldn't necessarily cover a period of
14 decommissioning and decontamination. There
15 could be higher exposures during that period
16 than there are in operational periods.

17 MR. ROLFES: There was actually no
18 - nothing done at the site during 1967 as far
19 as remediation or decontamination of the site.
20 That wasn't done really back until the DOE-
21 covered time period 1975 forward when the Army

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1 - do I have that date correct, Monica? Is it
2 1975 when DOE took the property back?

3 MS. HARRISON-MAPLES: I believe
4 that's correct.

5 MR. ROLFES: Okay. But yes, as
6 Ron had indicated there was some individuals
7 that had indicated that there was some work
8 done and we've got in our summary on page 4
9 there were some operations conducted by
10 Thompson-Stearns-Rogers, TSR Incorporated,
11 which were consistent with the preparation of
12 construction for the herbicide facility
13 beginning in March of 1968 under the
14 Department of Army. So that right now is not
15 covered work because it's outside of the DOE-
16 covered employment time period. We didn't
17 find any type of indication of decontamination
18 work that was conducted under the DOE-covered
19 time period at Weldon Spring.

20 CHAIRMAN GIBSON: So there was no
21 information found or I mean is the

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1 documentation complete just that you didn't
2 find any?

3 MS. HARRISON-MAPLES: Can I just
4 say that we did find some memos that were
5 indicative although they were not definitive.
6 They indicated that there were discussions
7 going on, there was negotiations going on back
8 and forth between AEC and DOE that seemed to
9 imply that the site was in a shutdown state
10 waiting for them to make this transfer, cross
11 their t's and dot their i's in terms of
12 paperwork. However, there's been absolutely
13 no indication that we can find of any
14 substantive work that was going on at the site
15 during 1967. Ongoing, you know, reviews say
16 things like looking at the quarry and the - to
17 make sure that there was no leakage, you know,
18 that kind of routine monitoring would have
19 been continuing and there would have been
20 safeguards and security issues in terms of,
21 you know, walking the fences, but other than

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1 that we have no indication of any kind of
2 disruptive work going on at the site, nothing
3 that would indicate any kind of decon or
4 decommissioning going on at the site during
5 '67.

6 MR. KATZ: Probably be good for
7 SC&A to put your eyes on that documentation
8 that Monica just mentioned that's sort of
9 suggestive at least that the site was static
10 at the time for that year and didn't have any
11 kind of disruptive activity.

12 MS. HARRISON-MAPLES: Like I said,
13 that wasn't definitive, but that was the
14 indication. That was why I didn't reference
15 it.

16 MR. KATZ: No, I understand, I
17 said it's suggestive.

18 MS. HARRISON-MAPLES: Yes.

19 MR. KATZ: Sort of trying to
20 paraphrase what you were indicating.

21 MR. FITZGERALD: Is that in the

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1 SRDB?

2 MS. HARRISON-MAPLES: I don't have
3 that in front of me right now but I can send
4 it by email.

5 MR. ROLFES: Monica, this is Mark.
6 I can provide some Site Research Database
7 references here. We've listed them on - I
8 think primarily on page 3. There's a few
9 references here. Let's see. Got some
10 discussion of the 1966 shutdown. There's some
11 documentation regarding transfer of
12 operations, materials, technical records and
13 equipment. Talking about the orderly and
14 thoroughly planned shutdown, SRDB 52726,
15 52759, 52770. And then there is a 1967 memo
16 regarding Weldon Spring disposal. It is noted
17 that extensive decontamination would be
18 required for any other than the building's
19 previous use and that elaborate health
20 precautions and radiation monitoring would be
21 necessary during any equipment removal or

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1 extensive building alteration which implies
2 that neither was ongoing at the time of the
3 memo. That memo was in Site Research Database
4 document 13475.

5 MR. KATZ: What's the date of that
6 memo?

7 MR. ROLFES: 1967.

8 MR. KATZ: And the month?

9 MR. ROLFES: It doesn't - it's not
10 listed here.

11 MR. FITZGERALD: I guess that was
12 Monica on the phone. Are one of those three
13 documents in the memo what you're referring
14 to, one of those documents?

15 MS. HARRISON-MAPLES: Yes.

16 MR. FITZGERALD: Okay.

17 MR. ROLFES: And then there's
18 another one here. It goes on to say, "The
19 lack of any record of health protection
20 oversight by the AEC may also support the
21 implication that extensive renovation work was

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1 not being done at Weldon Spring Plant in
2 1967." The November of 1966 memo, which is
3 SRDB 11806, mentions, "Since the new
4 contractor brought onsite may not have a great
5 deal of competence in the nuclear business it
6 was agreed that AEC staff onsite may have to
7 provide guidance from time to time in matters
8 related to health protection. And if the
9 contractor appears to be having a sustained
10 operation with a relatively stable staff it
11 may be desirable to collect urine samples once
12 or twice, for example during the beginning and
13 conclusion of operations for record purposes."
14 So.

15 MR. KATZ: Sorry, what was the
16 date of that?

17 MR. ROLFES: That one was in
18 November 1966.

19 CHAIRMAN GIBSON: So is there any
20 documentation or such about layoffs or
21 anything during '67? Or did they keep their

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1 full complement of staff?

2 MR. ROLFES: The majority - from
3 looking back, the majority of the claimants'
4 employment from my recollection terminated in
5 1966. We were - we had queried our - excuse
6 me, our NOCTS claims database to look for
7 individuals that were employed during the year
8 1967 and we had identified the 17 cases that
9 were employed during the 1967 time period. So
10 and then I summarized the dose reconstruction
11 outcome or the - whether or not they were
12 included in the SEC. So it came down to
13 essentially two individuals' claims that had
14 employment during 1967 and had a Probability
15 of Causation of less than 50 percent.

16 DR. BUCHANAN: This is Ron
17 Buchanan. The plant actually shut down in
18 December of '66 and operation stopped. There
19 was a few people kept over but the support
20 staff and everything is the way I understand
21 it in the other documents I've read on the

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1 history of the plant is that everybody left.
2 You know, there wasn't any secretaries,
3 managers or anything after December 31st of
4 '66. Apparently they - a few people still
5 worked to drain some of the lines and package
6 some of the leftover uranium ore, but there
7 wasn't any operations, there wasn't any
8 uranium metal being made and there was - it
9 sounded like there was no medical staff or
10 health physics staff or almost anything left
11 after December 31st of '66. So '67 wasn't a
12 production or operation or anything like that
13 taking place.

14 I guess the question comes up is
15 when did they start - when did any employees
16 working for AEC, what did they do there in '67
17 and were they exposed to anything that was
18 worse than '66. If they weren't exposed to
19 anything worse than '66 then the method would
20 work. If they were exposed to different
21 conditions, the conditions were different,

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1 they weren't operating, but were the
2 radiologic exposures worse, the same or less.

3 Well, then that's the question that we're
4 looking for, some documentation there in '67
5 that there wasn't any operations that wouldn't
6 be covered by the '66 or '65 extrapolation.

7 These references, I did look
8 briefly at some of these references and
9 unfortunately you know, this isn't one of the
10 matters where - it doesn't really say, you
11 know, it says we plan on shutting down, this
12 takes place, this takes place, but we don't
13 have anything from '68 saying hey, '67 report,
14 this is what happened here in 1967 at the end
15 of the year. We kind of have what they
16 planned on doing in '66, what they were going
17 to do in '67, and then a little bit in '67, a
18 memo or two saying you know, if this happens
19 then we need health physics support and stuff.
20 But we don't have anything in '68 to say hey,
21 in '67 this is a summary of what happened.

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1 MR. FITZGERALD: So it doesn't
2 sound like our review or a closer review of
3 these documents is going to provide the
4 definitive answer that Mike was referring to
5 earlier which may not be possible. There may
6 not be documentation that really delineates
7 that.

8 DR. BUCHANAN: Right.

9 MR. FITZGERALD: So we're going to
10 be left with some uncertainty about '67.

11 MR. SUNDIN: This is Dave Sundin.
12 I noticed one of the citations was that the
13 transfer of the site to the Army Corps of
14 Engineers was actually on the 31st of
15 December, '67. So I mean, it seems not too
16 logical that there would be work being done by
17 the recipient of that property until the
18 transfer had occurred.

19 DR. BUCHANAN: That's true, it's
20 just the question. And that's okay because it
21 doesn't cover the Army and it doesn't cover

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1 '68. And so the question is what did - did
2 AEC workers do there in 1967 at the plant.

3 MR. SUNDIN: In terms of
4 refurbishing it or changing its purpose.

5 DR. BUCHANAN: Yes, right.

6 MR. SUNDIN: It seems unlikely.

7 DR. BUCHANAN: That would be
8 different from '66. That would exceed any
9 exposure, biological or intake or external
10 exposure. That would be different. That
11 wouldn't be bound by '66 data.

12 MR. KATZ: I think at the end of
13 the day you've got to look at the
14 documentation that you do have and the
15 interviews that you had and make a judgment as
16 to what's the likely story here. I mean
17 because it wouldn't necessarily have any kind
18 of end-of-year report that says here's what we
19 did when we weren't doing anything and
20 whatever. I mean, you wouldn't necessarily
21 have such a report.

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1 DR. BUCHANAN: Because there's no
2 staff there.

3 MR. KATZ: Yes.

4 DR. BUCHANAN: Overseeing staff.

5 CHAIRMAN GIBSON: On the other
6 hand, if these claimants in '67 recalled
7 something they were involved in and they gave
8 an affidavit to that point, if the program
9 doesn't have anything to refute that, then
10 their word should be taken as valid.

11 MR. KATZ: I mean I think you
12 weigh your evidence that you have. You can
13 weigh all the evidence that you have as sort
14 of the normal course.

15 CHAIRMAN GIBSON: Right and what I
16 hear DCAS saying is there's a lack of evidence
17 that anything went on. So if you have, you
18 know, documentation or an affidavit from a
19 claimant of what they did and there is no
20 evidence to the contrary you have to be
21 claimant-favorable I think. The program has

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1 to put the weight, you know, in what they're
2 willing to swear to.

3 MR. MORRIS: Ted, this is Robert
4 Morris.

5 MR. KATZ: Yes, Robert.

6 MR. MORRIS: Section 5.1 of the
7 Evaluation Report has one sentence in it. I
8 was not involved in writing it but I can - I'd
9 like to read it for you. It says, "During
10 shutdown several buildings were used for
11 interim storage of drummed yellowcake." So
12 that's in the context of the sentence before
13 it saying shutdown was started in '67 and it
14 was turned over to the Army in August '67, so.

15 MR. KATZ: Thanks, Bob.

16 DR. BUCHANAN: Well, the
17 negotiations took place in August '67. The
18 way I understood the documents that NIOSH
19 referred to it actually took place on December
20 31st of - midnight, December 31st 1967. Yes.

21 MS. HARRISON-MAPLES: Can I just

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1 interject something? The comment about
2 affidavits. One of the interviews
3 specifically laid out some of the work that
4 the person did at the site and they were
5 saying that they did this work in 1967. And
6 it is - if you look at the summary of this
7 documentation I'd like to read a paragraph.
8 "The operation of Thompson-Stearns-Rogers
9 described in SC&A SEC 2010 at 0015 seem to be
10 consistent with the preparations for
11 construction of the herbicide facility that
12 began in March of 1968 under the Department of
13 the Army. As described in the Site Profile,
14 the Army began decontamination and equipment
15 removal in buildings 103 and 105, used a high-
16 pressure hot water solution containing an
17 acidic wetting agent to partially
18 decontaminate the buildings and remove
19 portions of some concrete floors to be covered
20 with tar and new concrete. This description
21 is consistent with the work described by the

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1 EE interviewed by SC&A as that having been
2 done by TSR between '67 and '69. NIOSH has
3 not located any exposure records for the work
4 by TSR but the EE interviewed by SC&A
5 described monitors and removals of workers
6 from the building. This is indicative of some
7 oversight for health and safety. Assuming
8 this work was performed for the Department of
9 the Army it would logically follow that such
10 oversight would have also been directed by the
11 Army. Work performed by contractors to the
12 Department of the Army would not be eligible
13 for dose reconstruction under EEOICPA."

14 I point that out because the
15 person that was interviewed said that the work
16 was done between '67 and '69 and it sounds
17 like we do have documentation supporting what
18 this person said. The only question is when
19 exactly the work was done and I think that's
20 the judgment that has to be made is whether
21 this was in '67 which we have no

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1 documentation, we have no indication of
2 anything going on in '67, or if as it states
3 in this other document, if that work was done
4 in March of '68. That's all.

5 MR. KATZ: Thank you, Monica, I
6 think that's helpful.

7 CHAIRMAN GIBSON: Okay, is there
8 any other issues that DCAS responds to or put
9 out reports or White Papers on?

10 MR. ROLFES: Yes. Let's see here.
11 We've got four more here. Let's see. I
12 don't know what order I gave them to you in
13 before but let's see. This one was the -
14 regarding the lack of personnel contamination
15 and egress monitoring. We have provided a
16 short response here. Some of the things you'd
17 need to consider if you were concerned about
18 an individual being contaminated with uranium,
19 you know, you'd have to take a look at the
20 probability that an individual - well
21 basically, first of all if, you're concerned

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1 about skin contamination, the dose rate from
2 skin contamination from uranium is usually not
3 of concern in comparison to the direct
4 radiation from working with large quantities
5 of uranium. If an individual is significantly
6 contaminated it's pretty unlikely that they
7 would have contamination exclusive to one
8 portion of their body. So it increases the
9 likelihood or the probability that an
10 individual would have also contaminated their
11 badge. And if an individual had a
12 contaminated badge that dose from the
13 contamination on that badge would be recorded.
14 So it's not necessarily an unmonitored
15 exposure.

16 We've also discussed some of the
17 radiological control practices to minimize the
18 possibility of skin contamination. And these
19 are on page - I think it's page 3 here of our
20 response. And this, let's see. The measures
21 involved instituting a work permit program

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1 which was aimed primarily at protecting
2 maintenance workers in hazard areas which
3 involved establishing time limits and
4 conducting survey meter checks for areas with
5 radioactive materials. The second was
6 conducting investigations and counseling to
7 study causes for exposure trends or unusual
8 individual exposures and also to educate
9 employees about protective measures. The
10 third was protective shielding, semi-remote
11 operations and worker rotation to control
12 exposure. The fourth was providing work
13 clothing from the skin out for personnel
14 working in regulated areas where radioactive
15 materials were processed and handled which
16 could not be worn outside of the production
17 area except under cover clothing. The use of
18 respirators is specified by the Mallinckrodt
19 health department and six, instituting a job
20 time limit program for personnel who worked
21 routinely in areas where the exposure rate was

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1 known to be above AEC-based tolerance limits.

2 I think that covers. Let's see if there's
3 anything else. Monica or anyone on the line,
4 do you have anything to add to my brief
5 summarization?

6 MS. HARRISON-MAPLES: I don't have
7 anything to add.

8 MR. ROLFES: Okay, thank you. Are
9 there any questions regarding our response
10 here?

11 DR. BUCHANAN: This is Ron
12 Buchanan, SC&A. Mike, this came up because
13 contrary to you know like today's facilities
14 where you go through a hand-and-foot monitor
15 and that sort of thing when you left that
16 Weldon Spring didn't have any egress
17 monitoring for contamination. They did have
18 showers and they did have - provide work
19 clothing to be changed, however. During some
20 of the interviews the concern was that the
21 workers could - it wasn't rigidly enforced and

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1 they could leave without integral monitoring
2 as far as a final point. There might have
3 been some monitoring inside for growth
4 contamination stuff but there wasn't any
5 individual hand-and-foot monitor, that sort of
6 thing, either to go into the cafeteria, the
7 offices or go out through the parking lot and
8 leave. And so, you know, we brought this up
9 as a point of - the fact that the workers
10 weren't egress monitored, and main concern was
11 the uranium in folds of the skin which would
12 concentrate and perhaps cause irradiation that
13 wouldn't be detected on the badge which would
14 be on the chest. And now contrary to the
15 point brought up here, I don't think that it's
16 ever been - I've never seen any scientific
17 studies showing where a contaminated badge
18 gave any sort of correlation to body dose or
19 skin dose. But that aside, this is a common
20 problem at most older uranium sites and so one
21 suggestion at the last meeting was that NIOSH

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1 look at what was done at Mallinckrodt which is
2 a very similar facility and Bethlehem Steel
3 which had the same issues. And according to
4 their response and from what I've found, you
5 know, that Weldon Spring operated the same as
6 the others did for that time period when
7 material was handled. And so it's more of a
8 global issue than a site-specific issue for
9 Weldon Spring and so I don't have any solution
10 on how you would correct the - the thought.
11 We can't go back and correct it. And during
12 dose reconstruction there are programs for
13 bare skin and that sort of thing that
14 calculates skin dose. And so it was a point
15 that was brought up, that there was that
16 lacking egress monitoring at Weldon Spring,
17 but I don't have anything more to add than
18 what's been discussed so far.

19 CHAIRMAN GIBSON: It seems also
20 the issue that if there was a problem with
21 skin contamination that could result in

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1 additional intakes too.

2 DR. BUCHANAN: Yes, that was -
3 right.

4 MR. ROLFES: Go ahead. That's
5 correct.

6 DR. BUCHANAN: Yes, there was one
7 that was brought up. Go ahead.

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

9 And if there is, you know, intake from you
10 know eating something with uranium
11 contamination on your hands for example when
12 we would estimate the intake of uranium using
13 the individual bioassay data that route of
14 intake from ingestion would also be detected
15 or measured by the bioassay results. So when
16 we complete a dose reconstruction, however,
17 it's more claimant-favorable to assume that
18 the uranium was inhaled rather than ingested
19 because it results in a higher internal dose
20 estimate for the claimant. So we wouldn't
21 assume that the individual was ingesting

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1 uranium because that wouldn't result in the
2 bounding dose values.

3 MR. KATZ: Can I ask a legal
4 question, Jenny? And maybe it's something you
5 guys already handle in dose reconstructions
6 but just theoretically if someone has
7 contaminated clothing and brings it home and
8 say you know, spends the day in their clothing
9 or what have you, you're offsite, you're off
10 the DOE site, is that a covered - is that
11 actually a covered exposure at that point when
12 they're not on site? How does that work?

13 MS. LIN: Well, if NIOSH isn't
14 able to distinguish the dose value when the
15 contamination actually happened at home or is
16 it a continuous contamination at workplace or
17 at home, then we have to estimate that dose.
18 But if it's something - this is very different
19 than saying something that is a distinct
20 exposure offsite.

21 MR. KATZ: I see. So if they

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1 bring contamination with them home you cover
2 that exposure -

3 MS. LIN: If we can't distinguish
4 it.

5 MR. KATZ: If you can't. If they
6 were to stay - for example, we've heard
7 stories of in one case of someone bringing a
8 contaminated item home in their pocket or what
9 have you. You would cover that exposure
10 offsite?

11 MS. LIN: I mean, NIOSH is using
12 the kind of -

13 MR. ROLFES: I was going to relay,
14 you know, there's also been occurrences where
15 individuals have brought their film badges
16 home and placed them in a little orange dish,
17 Fiestaware, for example, that contains uranium
18 in it and it's resulted in some elevated doses
19 to that person's badge in excess of you know
20 workplace controls and such. So situations
21 like that have been investigated by health

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1 physics staff to try to understand or you know
2 figure out where that exposure came from and
3 it turns out in some instances those were from
4 employees putting their film badges into
5 Fiestaaware bowls. So there's I guess
6 different - it would be a little more
7 difficult to sort out when an intake occurred
8 using bioassay data. If for example it was an
9 external dose it'd be a little bit easier to
10 you know for example, if a person went to
11 another facility that isn't a covered facility
12 and received a bunch of external dose, that
13 wouldn't be covered. However, if they were
14 potentially exposed to uranium at another
15 site, for example, a mill that isn't covered,
16 yet they work at the Weldon Spring Plant and
17 come and get a bioassay data - a bioassay
18 taken and the data shows that they were
19 positive, you know, there was a positive
20 exposure to uranium, if we had no indication
21 that that work was done at some other non-

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1 covered site we would include it and assume
2 that it occurred at Weldon Spring.

3 MR. KATZ: I mean, I was just
4 thinking of the simple situation you have skin
5 contamination, you spend the next 12 hours
6 with that skin contamination offsite, so.

7 MR. ROLFES: Yes, as far as that's
8 - that's more of a legal question rather than
9 a dose reconstruction question.

10 MS. LIN: I think what Mark is
11 describing is a more consistent approach
12 towards dose reconstruction. If we can't
13 distinguish when the intake occurred.

14 MR. KATZ: Yes, it's not intake in
15 this case. It's skin contamination.

16 MS. LIN: Well, but still I'm
17 talking about what you absorb into your body.
18 If you can realistically say well, 20 percent
19 of this happened -

20 DR. MAURO: There's a lot of
21 dialogue that's not coming across the

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1 telephone.

2 MR. KATZ: Okay, I think that's
3 just because some folks are a little more
4 remote from the audio.

5 MS. LIN: So I mean, whether
6 that's a legal question or a technical
7 question, I mean, NIOSH has followed a very
8 consistent approach and using a very claimant-
9 favorable bounding calculation. So we'd be
10 more comfortable with that.

11 MEMBER LEMEN: I have a question
12 related to that. I think I know the answer.
13 In relation to taking clothing home continuing
14 to be contaminated, contaminating the home.
15 Are any family members? They're not covered
16 under this at all, are they?

17 MR. KATZ: No.

18 MEMBER LEMEN: So there's no
19 claimant could be given to the family members
20 even though the family members may have
21 received a dosage.

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1 MR. KATZ: That's correct. It's
2 not covered.

3 MEMBER LEMEN: That's what I
4 thought.

5 CHAIRMAN GIBSON: That's where
6 lawyers get involved.

7 MR. KATZ: Okay, I was just trying
8 to understand where this leads, this question
9 about skin contamination if it's contamination
10 offsite.

11 CHAIRMAN GIBSON: Okay, anything
12 else on that issue? And if not, do we want to
13 continue on? Do we want to break for lunch?
14 Just how does everyone feel?

15 MR. ROLFES: It's up to you guys.
16 I don't know if you would like to work
17 through lunch. We've got three more topics.
18 Two of them are small and I think we discussed
19 one of the two previous. The third and final
20 one is the environmental intake rates and
21 external dose rates, and I think these are

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1 directly responsive to some of SC&A's previous
2 questions about environmental exposures from
3 site operations. I don't know, that's up to
4 you to decide. I mean, I can do whichever you
5 like.

6 CHAIRMAN GIBSON: If there's no
7 objections we'll just work on through.

8 MR. KATZ: For the record, Bob
9 Presley has dropped off the call.

10 MR. ROLFES: Let's see here. I
11 guess we can go ahead to the NIOSH response to
12 SC&A SEC issue number 7 on the quarry and
13 raffinate pit exposures. Monica, I'm probably
14 going to need some help from you to introduce
15 this one. Sorry if I'm putting you on the
16 spot.

17 MS. HARRISON-MAPLES: That's okay.
18 I was just hoping we would take a break.

19 MR. KATZ: Why don't we take a 10-
20 minute comfort break.

21 MS. HARRISON-MAPLES: A 10-minute

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1 comfort break would be very good right now.

2 MR. KATZ: Absolutely.

3 MR. ROLFES: Okay, sorry about
4 that. Good suggestion, Monica.

5 (Whereupon, the above-entitled
6 matter went off the record at 12:07 p.m. and
7 resumed at 12:20 p.m.)

8 MR. KATZ: Okay, we're coming off
9 of a short break. Weldon Spring Work Group.
10 Where are we?

11 MR. ROLFES: All right. Thank
12 you, Ted. This is Mark Rolfes once again and
13 we were getting ready to introduce our
14 response on the quarry and raffinate pit
15 exposures at the Weldon Spring Plant. And
16 basically we have the quarry where the
17 materials were disposed of. You know we have
18 some indication that some drums of material
19 were dumped into the quarry. They were
20 encapsulated at the time that they were dumped
21 in, however, could have degraded over time.

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1 We felt that the operational data that we have
2 available to us would bound any potentially
3 unmonitored exposures during the years that
4 the quarry and raffinate pits are still
5 covered facilities but that the main
6 production facility at Weldon Spring Plant was
7 no longer a covered facility. So we're
8 talking about the 1967 period. Let's see, I
9 don't recall. And then I don't recall -
10 Monica, this is where I need your help. The
11 dates for the covered facility right now for
12 Weldon Spring Plant are '57 through '67 and
13 the AEC retained ownership of the raffinate
14 pits and the quarry. Could you -

15 MS. HARRISON-MAPLES: That's
16 correct, they retained - well, they retained
17 direction for the raffinate pit and the quarry
18 for the whole time up through '85 I believe.

19 MR. ROLFES: Okay. Could you - I
20 didn't really speak to the exposure scenarios.

21 Could you maybe detail a little bit you know

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1 the exposure potential and operations being
2 conducted at the quarry during the covered
3 time period versus - well excuse me, during
4 the Weldon Spring Plant proper's covered time
5 period versus.

6 MS. HARRISON-MAPLES: The data
7 that we have?

8 MR. ROLFES: Yes.

9 MS. HARRISON-MAPLES: Yes, I can.
10 We were specifically asked about the
11 operation - the comparison of the operation at
12 the quarry and the raffinate pit compared to
13 the data from '76 and '80 which we rely on
14 relatively heavily and what's the
15 justification for why that data is applicable
16 to the operational period. But just as we
17 were asked for more detail on the operations
18 at the quarry and the raffinate pit. So
19 that's what this response is attempting to
20 deliver. At the quarry there's a pretty
21 detailed I think description of operations

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1 starting in about '59 when they started
2 constructing a dyking system at the quarry.
3 Then sometime in the early '60s is when the
4 Destrehan Street plant rubble was delivered to
5 the quarry. There's - and in '63 barrels of
6 radioactive waste material were delivered to
7 the quarry. So basically we just tried to
8 summarize in one place what all was going on
9 over the operational, you know, the years that
10 are considered operational for Weldon Spring
11 in terms of the rest of the plant.

12 Those operations didn't really
13 change between those years and on down the
14 road the whole time that the AEC maintained
15 responsibility for the quarry, and let me
16 handle these two separately if I may. The
17 quarry was the repository, it was a place
18 where materials had been deposited. There was
19 no operational activity. It is an outdoors
20 facility obviously. There are no enclosed
21 structures. The question also arose having to

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1 do with radon exposure to the quarry and why
2 we applied environmental kinds of exposures
3 and the answer is because it is an outdoor
4 facility. We provided one schematic, a cross-
5 section of the quarry and sort of tried to lay
6 out where things were deposited, the drums
7 versus the debris, that kind of thing. Then
8 basically the answer to the question that was
9 asked is yes, we do believe that the later
10 data is still applicable because of the in-
11 growth within the material that would have
12 been deposited of radium daughters would have
13 made that a conservative estimate as opposed
14 to underestimating any potential exposure.

15 As far as we know there were only
16 a very limited subset of personnel that would
17 have been putting in any time, any significant
18 amount of time at the quarry as well,
19 environmental monitors and security staff,
20 other than when materials were actually being
21 deposited at the quarry. So those kinds of

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1 operations didn't necessarily change. Well,
2 actually they didn't continue on very much.
3 There was some additional dumping in the
4 quarry by the Army at some point but as far as
5 AEC exposures they should not have changed.

6 Then the raffinate pit is actually
7 kind of a similar story except that there
8 should not have been any additional or any
9 additions to the raffinate pit after the
10 operational years other than I believe the
11 Army was allowed to put some materials into
12 before, after the ceasing of AEC plant
13 operations at Weldon Spring. The question has
14 been brought up that the material - the
15 chemical composition would have changed, may
16 have changed and I can't find any
17 justification for believing that it would
18 have. Basically the plant operated and
19 raffinates were delivered into the raffinate
20 pit through the piping system and at the
21 cessation of operations it would have stopped

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1 and the material just would have been sitting
2 there in the raffinate pit.

3 As far as the exposure conditions
4 at the raffinate pit, it would not have been a
5 high exposure potential place because of the
6 nature of the pits themselves. My
7 understanding is that it was kind of a
8 quicksand type consistency so you couldn't
9 really walk out into the pits or there was not
10 any monitoring out over top of the pit. It
11 was a sludge kind of a material. I can't
12 remember any other specifics. The primary
13 hazard would be if there were any dusting from
14 the pits drying out and we found different
15 studies that said that the raffinates were 75
16 percent water in 1967, had effectively zero
17 communication with groundwater at the time and
18 that the pits had up to several feet of water,
19 from several inches to several feet of water
20 over the surface throughout the year was one
21 reference that we found.

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1 In 1974 there was the
2 environmental assessment stabilization of the
3 raffinate pit. It said that they were
4 constantly underwater and the residue the pits
5 went into even in the dryer - needed to stay
6 moist, the areas around the pit and levees.
7 So that was our understanding as of the end of
8 the operational period which is what we were
9 asked about, what were the activities there
10 and what sort of exposure conditions were
11 there during the operations period and why we
12 felt that the later data was representative.
13 Are there any questions?

14 DR. BUCHANAN: This is Ron. Do
15 you know if the pits were fenced during
16 operation? Do you recall reading anywhere
17 about that?

18 MS. HARRISON-MAPLES: I believe
19 they were. The pits were somewhat segregated,
20 they were off to one side of the facility. I
21 believe, I've got a schematic here in this

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1 response document, yes. So they were part of
2 the plant but they weren't integral to the
3 plant, they were off on one side. Yes, they
4 were fenced. The quarry was also fenced.

5 DR. BUCHANAN: Okay, the - this is
6 Ron, SC&A. The reason this question was
7 brought up was that was there a difference in
8 the operation of the quarry and the pits after
9 the closedown of the plant and also during the
10 plant that it would be different than
11 measurements taken later on. They did take
12 parameter measurements of uranium by air
13 samples, but there wasn't during operations
14 '57, during the SEC period '57 to '67 there
15 wasn't any air measurements around the quarry
16 or the pits in themselves and the question
17 that we raised. And so what they did was they
18 used, when they started to, you know,
19 remediation, before they did that they took
20 samples and they have samples during the '70s
21 and '80s to extrapolate - NIOSH extrapolated

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1 those back to the '60s. And what SC&A's
2 question was, was there any major difference
3 between the pits and the quarries during the
4 operational period compared to when the
5 samples were taken or would that bound the
6 exposures during the operational period. And
7 so that's the reason we raised the question
8 and at this point we don't have anything that
9 indicates, you know, that there was a major
10 difference in exposure between the two
11 periods. We don't have anything that
12 indicates that that wouldn't be usable and
13 what NIOSH was supposed to do was to look at
14 and see if there was any major difference
15 between the two periods.

16 CHAIRMAN GIBSON: Any questions on
17 that? Okay.

18 MR. ROLFES: All right. Thank
19 you, Monica, for the -

20 MR. KATZ: Is that item closable
21 at this point?

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1 CHAIRMAN GIBSON: Yes.

2 MR. ROLFES: Okay. We had
3 previously sent - we were asked a question by
4 SC&A about our basis for a limit of detection
5 for fluorometry which was the method used to
6 analyze urine samples for their uranium
7 content. We provided a brief 3- or 4-page
8 explanation of how that 0.08mg per liter
9 minimum detectable amount value was calculated
10 and we've basically shown an equation to
11 calculate the minimum detectable amount where
12 you multiple a factor of 3.29 times the
13 standard deviation of blank samples and divide
14 that value by a calibration factor. That
15 gives us a value of about 0.07mg per liter and
16 supports the justification for our use of
17 0.08mg per liter for uranium in urine. Oh,
18 0.007, thank you Dave. I said 0.07, but
19 that's 0.007mg per liter or 7 micrograms per
20 liter. I guess if there's any questions.

21 The significance of this I guess,

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1 if an individual has a urine sample that's
2 reported in their file that is less than
3 0.008mg per liter we would assign a missed
4 intake by actually assuming that they had a
5 value less than the MDA and we would default
6 to one-half of that MDA value of 8mcg per
7 liter. We would give them credit for a
8 potential exposure even though they didn't
9 have a positive bioassay. So that's.

10 DR. BUCHANAN: This is Ron of SC&A
11 again. This was not a SEC issue, this was a
12 Site Profile issue number 21. And this was
13 brought up because TBD didn't really - a good
14 explanation to where this number came from and
15 so that's the reason we asked for it and I
16 have no problem with their explanation. I did
17 have a question on page 3 of your last
18 sentence there. It says the MDA calculated
19 from the - well actually, blank value of 0.008
20 is of no practical use in these circumstances.
21 That last paragraph, are you going to use the

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1 one-half MDA or why is that put in there? I
2 didn't follow that.

3 MR. ROLFES: Well, I think for
4 claim-specific information if an individual
5 has a value of less than 8mcg per liter then
6 we would apply an intake equal to one-half of
7 that MDA value to calculate their missed
8 uranium intake. I don't know if we have the
9 author. Mel, is Gene available to respond
10 regarding Ron's question?

11 DR. CHEW: I think Gene's on the
12 line.

13 MR. ROLFES: Gene?

14 MR. POTTER: This is Gene Potter
15 from the ORAU team.

16 MR. ROLFES: Hi Gene.

17 MR. POTTER: Yes, that last
18 statement probably should not have been
19 included. It was merely intended to - one
20 thing that Mark didn't discuss is that we
21 looked at the pre-job samples and showed that

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1 there was a 50 percent probability - to a log-
2 normal is 50 percent probability that an
3 unexposed worker would have a value of
4 0.0036mg per liter or greater as an unexposed
5 worker. So it amounts to about the same
6 thing, something like assigning an MDA or a
7 half of the MDA of 0.008. So I can see how
8 that, taken by itself is not - it's not - was
9 not intended to be a statement about how dose
10 reconstructions are done.

11 DR. BUCHANAN: Okay, so what was
12 intended there was saying that one-half MDA is
13 about the same as the non-exposed worker's 50
14 percent value.

15 MR. POTTER: That's correct.

16 DR. BUCHANAN: Okay. Okay, no
17 problem.

18 MR. ROLFES: Thank you, Gene. Any
19 other questions on that one? Okay. The last
20 response that we prepared -

21 MR. KATZ: That item is closed,

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1 just for the record.

2 MEMBER LEMEN: Yes.

3 MR. ROLFES: The last item that we
4 prepared in response to SC&A's review was I
5 guess SC&A had some comments about how the
6 environmental intakes were assigned at the
7 Weldon Spring Plant. This contains some
8 updated information on our proposed
9 environmental intake rates as well as external
10 dose rates. There were some comments about
11 the radon exposure potential. We've addressed
12 the radon exposure potential in here. Let's
13 see, I'm trying to think of any other specific
14 things that. Let's see. Oh, this is 38 pages
15 long here and I don't want to go through point
16 by point, but if there's specific questions we
17 can try to focus on those.

18 DR. BUCHANAN: Okay.

19 MR. KATZ: It would be good to
20 have an overview at least at some level.

21 MR. ROLFES: Okay.

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1 MR. KATZ: To tee up the -

2 MR. ROLFES: All right. Well,
3 let's see here. I'll just go through some of
4 the brief tables in here and that'll try to
5 capture the important data because that's
6 where we've got -

7 MEMBER LEMEN: Is there a summary
8 of it? Don't you just have a summary there at
9 the back? That'd probably be easier.

10 MR. ROLFES: I don't believe we
11 have a summary in this document. The tables
12 are probably our best bet for the
13 summarization of - I guess that's the end
14 product of the doses that we'd be assigning or
15 the intakes that we'd assign. And this is
16 just off of page 3 of 38. We've got tables in
17 here that have the average airborne
18 particulate and radon concentrations at the
19 Weldon Spring chemical plant, the raffinate
20 pits and the quarry. We have a table which is
21 the estimated average annual inhalation intake

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1 of radioactive air particulates and radon at
2 Weldon Spring chemical plant, the raffinate
3 pits and the quarry. We have estimated
4 ambient onsite dose for each of those same
5 three facilities. We have the estimated site-
6 wide maximum inhalation intake of radioactive
7 air particulates and radon at Weldon Spring.
8 And a table, the fifth table in here is the
9 estimated maximum site-wide ambient dose at
10 Weldon Spring Plant. And I could ask maybe
11 Bob and/or Billy if there's any details. I
12 know radon was one of the key issues that we
13 had updated in this site - or in this White
14 Paper here from our previous version of our
15 Site Profile. But might you have anything to
16 add about any significant changes from our
17 previous Site Profile to what we currently
18 have in this White Paper?

19 MR. MORRIS: This is Robert
20 Morris. I would say that there is an
21 interesting change or two, that it's going to

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1 be hard to describe in enough detail to
2 satisfy right now, but it's all documented now
3 in this paper. What we've done is taken the
4 perimeter air monitoring data and using a
5 Gaussian plume dispersion model we've reversed
6 the flow so that we can predict the
7 concentrations near the center of the
8 operating facility based on the perimeter data
9 that were measured. And it's sort of like
10 going backwards from a smokestack to a
11 perimeter, we're going - going from the
12 smokestack to the perimeter, we're reversing
13 that process and using - just solving the
14 equation backwards. So what you come up with
15 is a relatively large and consistent set of
16 perimeter data that we can then use to infer
17 the concentrations in the operating area, and
18 that's where the intake rates come from.

19 MR. ROLFES: Thank you, Bob. I do
20 recall now that you say that that we had a
21 discussion about which particular assumptions

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1 we would use and whether we would use, you
2 know, what type of dispersion model we were
3 going to use and such.

4 MR. MORRIS: Yes, I guess I'd just
5 add to that we've been mindful of the comments
6 that SC&A has made over the years about which
7 kinds of dispersion factors to use, where
8 they're drawing from and we got these from the
9 NRC recent assumptions that seem to be in
10 favor at this point. And I think that you
11 know, although you're certainly dependent on a
12 model to go backwards we did use the Lambert
13 Field St. Louis met. data and came up with
14 what looks to me to be a fairly conservative
15 claimant-favorable approach to this problem.

16 MR. ROLFES: Thank you, Bob.

17 MR. MORRIS: You're welcome.

18 CHAIRMAN GIBSON: If I'm not
19 mistaken - aren't calculations you come up
20 with from dispersion models and everything
21 else, isn't that mainly for environmental or

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1 public exposures or readings and stuff like
2 that?

3 MR. ROLFES: Well, this is - these
4 are environmental exposures that we're talking
5 about so these are basically for an individual
6 who was not monitored at the site essentially.

7 And what we've done, we've used data from the
8 perimeter of the site to basically model back
9 to in-plant conditions or conditions on the
10 outsides of buildings for whom if there was
11 some employee that was onsite that wasn't a
12 radiation worker, for example, who could have
13 potentially been exposed to something above
14 background levels we have modeled this
15 approach to assign intakes to that individual.

16 CHAIRMAN GIBSON: I understand
17 that calculation, but that still to me just
18 seems to be kind of a stretch that - to use
19 that as opposed to some recognized type of
20 worker monitoring.

21 MR. MORRIS: This is simply

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1 supplemental to the existing data that
2 otherwise wouldn't be used, and so we're just
3 using it to inform the rest of the
4 information. I refer you to a spreadsheet
5 that was carefully done to support all the
6 data tables in this intakes rate paper that
7 we're talking about. And I don't think you
8 can actually understand how we got from that
9 without reviewing the spreadsheet. But we
10 were careful to document it in the spreadsheet
11 for you so I'd encourage you to look at them
12 both at the same time.

13 MR. ROLFES: Bob, in referring to
14 the spreadsheet here, is this the last page
15 here that we're referring to of our response,
16 page 38?

17 MR. MORRIS: Let me see. I don't
18 recall how it actually ended up being edited
19 so.

20 MR. ROLFES: Okay. This was
21 primarily related to the radon concentrations

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1 for the Weldon Spring Plant buildings and this
2 was really the one where we focused on. I
3 think most of the effort was related to and
4 most of the concern was also related to radon
5 exposures. So I think that's - this is going
6 to be one of the primary things that we needed
7 work, or this was one of the things that we
8 didn't have as much documentation on in our
9 previous version of the TBD. And I think SC&A
10 had pointed out we had quite a bit of
11 discussion about how much of the radon release
12 outside of the buildings could have been
13 potentially brought back into the buildings
14 and I believe we had assumed that, correct me
15 if I'm wrong someone out there, but I think we
16 believe that you know 100 percent of the radon
17 that was released was brought back in via the
18 ventilation system. Is that correct?

19 MR. MORRIS: We, I think we all
20 converged to the idea last time that that
21 would be a claimant-favorable assumption, that

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1 really didn't depend on modeling the wake
2 effects or anything else. And so as I recall
3 that was the successful conclusion about the
4 inside concentration based on that.

5 MR. ROLFES: Okay.

6 MEMBER LEMEN: When you mentioned
7 the samples taken at Lambert were those simply
8 for background comparison?

9 MR. MORRIS: When I talked about
10 Lambert Field I'm talking about the
11 meteorological data that is taken for the
12 Weather Service.

13 MEMBER LEMEN: Okay. Not anything
14 with background or anything like that.

15 MR. MORRIS: No, it was simply in
16 order to - what the typical wind speed, wind
17 direction -

18 MEMBER LEMEN: Okay.

19 MR. MORRIS: - the parameters that
20 you need to run a simple Gaussian plume model
21 -

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1 MEMBER LEMEN: Okay.

2 MR. MORRIS: - are - across by
3 ordinary data sets like that.

4 MEMBER LEMEN: Okay. Thank you.

5 MR. MORRIS: You're welcome.

6 DR. BUCHANAN: Now what
7 spreadsheet - are you referring to Appendix A
8 on page 38 or are you referring to something
9 that's on the Research Database or something?

10 MR. MORRIS: Ron, it was posted
11 with the White Paper right next to it and
12 provided to you at the same time. It's
13 titled, at least the title that I've got is WS
14 Environmental Intake rate. And so you can
15 look for that and read that spreadsheet at the
16 same time you read the White Paper.

17 The logics, you know, what
18 happened between this year and that year
19 because sometimes we had different data sets
20 and so we put a flow chart in so that you
21 could figure out how we got from, you know,

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1 some years we had gross alpha data, some years
2 we had uranium data, some years we had radon
3 data. If you don't have this decoder ring
4 you're not going to be able to figure out
5 where the number came from that got posted
6 into the table.

7 DR. BUCHANAN: Okay. Could I ask
8 some questions then?

9 MR. ROLFES: Sure.

10 DR. BUCHANAN: I guess Bob, he's
11 the one that has the details, if you don't
12 mind. This is Ron, SC&A. The question that -
13 I just had a chance to read over this a time
14 or two. We haven't done a thorough
15 evaluation. I guess on - are you saying, I
16 think it's on page 14, that the thoron
17 concentration was much, much less than the
18 radon concentration and therefore you weren't
19 going to model that. Is that what the third
20 paragraph on page 14 is saying?

21 MR. MORRIS: I'm sorry, my

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1 government computer is really slow, I can't
2 even page up or down right now. So I can't
3 tell you what's on page 14 right now.

4 DR. BUCHANAN: Okay.

5 MR. MORRIS: But it seems to me
6 that that's correct. There were some times
7 when the concentrations of radon were so small
8 that we said we're not going to - they're
9 negligibly - they're negligible. My
10 computer's locked up, sorry.

11 DR. BUCHANAN: Okay. Well, on
12 page 14 when you do get to look at it, it
13 looks like you're saying that the radon-222
14 release could approach 70 percent of the
15 radon-222. The 220 could be 70 percent - the
16 222. However, if I go through your
17 calculations it looks like more like 3
18 percent. That was a question I have but if
19 you can't read that I can't discuss that with
20 you.

21 MR. MORRIS: I'm sorry, my

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1 computer just won't respond to me right now.
2 So all I can tell you is we were very careful
3 and if we didn't get the data in the logic
4 chart that's in that flow sheet for how we got
5 the numbers then that's certainly we need to
6 revisit. But you should be able to follow
7 through from any given point in the table back
8 up to what our assumptions were from our
9 spreadsheet.

10 DR. BUCHANAN: Okay. Also, you
11 have your tables, you have tables 1 through 5
12 and table 2 I believe is the intake according
13 to the major facilities. Let's see. Yes, the
14 pits, the plant and the quarry. And you'd
15 have for different years and uranium and
16 thoron and that sort of thing, tritium. And
17 then in table 4 it says maximum intakes. Now,
18 I would assume that means that you selected
19 the intake for that year from those three
20 major facilities and entered it in there that
21 that would be maximum intake. Is that

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1 correct?

2 MR. MORRIS: Yes. We wanted to
3 simplify it for the dose reconstructor. So we
4 documented what each facility had as the
5 maximum concentration or excuse me, intake
6 rate. And then we said okay, which of the
7 columns on this line give us the highest
8 value. That's the one we posted for the
9 assumption, for the default assumption for
10 that year.

11 DR. BUCHANAN: Okay. Well, I went
12 through that and it didn't appear that that's
13 what happened. For example, 1957, uranium is
14 1^3 in both tables but thorium-230 is 8.2 times
15 10^2 and on the maximum chart it's only 7.1
16 times 10^2 . And so I just wondered if I'm
17 reading this wrong or is there an error in
18 filling in that maximum or something.

19 MR. MORRIS: I don't know from off
20 the top of my head right now.

21 DR. BUCHANAN: Yes. Well, that

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1 would be one thing. I'd like for NIOSH to
2 check their figures going from table 2 to
3 table 4 because if they're correct then I'm
4 missing the concept somewhere.

5 MR. MORRIS: The spreadsheet has -
6 I can see it although I cannot manipulate it
7 to move around in it. What I can see is that
8 there's a set of columns that have the maximum
9 - the concentration by facility and then over
10 to the right of it it's like find the maximum
11 of these three posted in that column. So that
12 was the idea, Ron.

13 DR. BUCHANAN: Okay. And then
14 appendix, on page 38, just as an overview
15 there you're essentially releasing 34 curies
16 of activity per year into a certain size room
17 and it's stagnant in there. I mean, you don't
18 have an air exchange or anything like that,
19 you're just filling that room with that much
20 material and then doing a breathing rate and
21 then calculating the working levels per year,

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1 is that correct?

2 MR. MORRIS: Those are - those are
3 the variables that were used in the
4 spreadsheet. They were just appears to be
5 copied and pasted into that appendix. And the
6 38 curies per year or 34 curies per year, that
7 was the value out of Meshkoff's paper, that
8 was what went up the stack, part of what we
9 transported to a receiver location. So it
10 looks to me like this appendix came right out
11 of the spreadsheet and you'll see how it's
12 used when you see it in the spreadsheet.

13 DR. BUCHANAN: Okay. Well, like I
14 say, we've only had this for a couple of
15 weeks. We haven't had a thorough evaluation
16 of it yet. I had some questions before I got
17 dug deeper into it. I'll take a look at the
18 spreadsheet and also have someone that's
19 really familiar with radon look at this and
20 probably write a short summary of our findings
21 on it.

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1 MEMBER LEMEN: Do you think you
2 can have it ready by our next meeting?

3 DR. BUCHANAN: By our next Weldon
4 Spring meeting, yes.

5 CHAIRMAN GIBSON: That was the
6 last issue that you guys had prepared?

7 MR. ROLFES: Correct, that's
8 correct. That summarizes the six responses
9 we prepared.

10 CHAIRMAN GIBSON: Okay.

11 DR. BUCHANAN: Excuse me, but you
12 did issue number 1 is the data. Issue 1, SEC
13 issue A and C is the validity of the data
14 that's used for dose reconstruction. That's
15 number 2, let me see, I don't know which one
16 it is on your list there. It's NIOSH's
17 response to issue number 1 identified in the
18 Work Group.

19 MR. ROLFES: All right. Let me
20 see.

21 DR. BUCHANAN: Verification of

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1 accuracy and adequacy of the data, issue 1 A
2 and C.

3 MR. ROLFES: Okay that's on the
4 back page. Let me make sure I've got the same
5 thing. Okay, yes, thank you Dave. Okay.
6 Yes. I didn't notice. Good catch, thank you.

7 We had an additional response, NIOSH response
8 to issue number 1 identified in the Weldon
9 Spring Plant Working Group meeting. Thanks,
10 Ron. It says, "During a meeting of the Weldon
11 Spring Plant Work Group NIOSH was requested to
12 respond to a question regarding the origin of
13 the exposure record that NIOSH receives for
14 the Weldon Spring Plant workers and what
15 information is available to verify the
16 pedigree of that information." I'll just go
17 ahead and read it, it's two paragraphs here.
18 "Considerable analysis of the Weldon Spring
19 Plant bioassay data has been performed
20 comparing available data to the original data.
21 The comparison of hard copy data to the CER

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1 database performed during the SEC petition
2 evaluation was not intended to provide
3 evidence relative to records used by the dose
4 reconstructor. The dose reconstructor is
5 provided with all available records and uses
6 the hard copy original data for dose
7 reconstruction purposes whenever available.
8 Weldon Spring did not produce an electronic
9 dosimetry database before the facility
10 operations shut down and DOE has not developed
11 a database for Weldon Spring dosimetry
12 records. The dose reconstructors do not have
13 direct access to the CER database. The
14 primary hard copy records from the site are
15 the original records that don't require
16 validity - excuse me, validation of V&V and
17 quality assurance. The CEDR and CER databases
18 are not primary records but were derived from
19 primary records. The CER bioassay data was
20 computerized by 1978. Around that time Dr.
21 Ellis reviewed the Destrehan and Weldon Spring

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1 files and removed duplicate entries and took
2 care to verify outlier results against the
3 hard copy records. Additionally, Dr. Ellis
4 did a sample comparison of the electronic
5 files against the hard copy primary files.
6 The external dosimetry electronic file was
7 reviewed and the accuracy of that file did not
8 satisfy Dr. Ellis. CER rebuilt the electronic
9 file from scratch from the primary hard copy
10 medical records."

11 DR. BUCHANAN: Okay, the reason
12 this came up was that they were, I guess part
13 of the process, the protocol is to verify the
14 accuracy of the data used for the dose
15 reconstructor and the completeness of it. And
16 so we had been debating where this information
17 was because CER came up, database came up and
18 that sort of thing. And so we wanted to know,
19 you know, what was the dose reconstructor
20 actually using. So that's what was the
21 question we asked I think at the last meeting.

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1 And so it looks like, and I've looked at some
2 of these dose reconstructions, and I did find
3 that the photocopy of the original handwritten
4 record or typed record is what the dose
5 reconstructor receives. So he's not using
6 some CER database or something to do dose
7 reconstruction. And so that's good.

8 Now that does bring up the
9 question of accuracy. That's as far as that
10 half of the question. The other half is
11 completeness, okay. And so I think that we're
12 supposed to due diligence to make sure that
13 the records that they received, bio and
14 external, are complete as possible. You know,
15 are there large gaps or whatever. And so
16 that's where issue number 1 A and C for both
17 internal and external respectively set at this
18 point. It looked like the accuracy is
19 satisfied. However, the completeness has not
20 been addressed, but that can be - or whatever.

21 Has there been any efforts made to show that,

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1 you know, there's not large gaps, there's not
2 - no files missing. And of course that's a
3 subjective opinion but that's something that
4 the worker needs to address.

5 CHAIRMAN GIBSON: So do you have
6 enough information to go back and see if the
7 data is complete or do you need more
8 information from DCAS to verify your - or to
9 do the review? Or have you, your question is
10 you don't think there is adequate data.

11 DR. BUCHANAN: No, we don't have a
12 - we don't have an opinion one way or the
13 other at this time. We just, all we're saying
14 is that it's chartered that is supposed to be
15 done and it has not been done.

16 MR. FITZGERALD: Well, I think the
17 Board has its own procedures to look at
18 adequacy of the data and traditionally SC&A
19 has taken a look at that on behalf of the
20 Board. And on completeness, just looking at
21 precedent, what we've done in the past is

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1 we've sampled. You know, you really can't
2 look at every single data point obviously.
3 You sample and see if there's obvious gaps in
4 terms of years or in terms of operations. You
5 know, whether it's clear certain operations
6 didn't have any data or it's clear you're
7 missing, you know, months without any obvious
8 explanation. You do a relatively small sample
9 and that comes out pretty much, you know,
10 okay, you typically stop there. If you do a
11 small sample but it comes up with some
12 discrepancies then you might take a larger
13 sample, if the Work Group wishes, and that's
14 worked in the past. That tends to be
15 effective given the circumstances. So that's
16 how we would do completeness. I think what
17 NIOSH has done in terms of looking at accuracy
18 is fine. But you know, again, I think the
19 completeness thing is a sampling exercise.

20 CHAIRMAN GIBSON: So we still need
21 to do that.

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1 MR. FITZGERALD: Yes and you know,
2 I think we can do that. I mean, without
3 splitting too many hairs, we can actually do
4 some small degree of sampling. I think we can
5 propose to the Work Group what a sample size
6 would look like and just do it and if it comes
7 up without any aberrations, say, or obvious
8 discrepancies by year or by you know scope of
9 operations then that would be it and we
10 wouldn't go any further.

11 CHAIRMAN GIBSON: Okay.

12 MR. FITZGERALD: I mean, so I
13 think what we would propose to the Work Group
14 is here's our sampling plan, a modest one, and
15 we would conduct that once we get your
16 approval and provide the results back to the
17 Work Group before the next meeting. And that
18 would be kind of it.

19 MR. KATZ: So if you want to send
20 a plan for that to the Work Group Members.

21 MR. FITZGERALD: Yes.

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1 MR. KATZ: You guys can email me,
2 say if you have any issues with it, and then I
3 can task this accordingly. That way we can
4 get it done without having another Work Group
5 meeting.

6 MR. FITZGERALD: Well, I think
7 again the dimension would be scope by virtue
8 of the operations and scope by virtue of the
9 years. Seems to be obvious gaps.

10 CHAIRMAN GIBSON: Okay.

11 DR. BUCHANAN: Do I send the
12 initial plan to you or?

13 MR. KATZ: Well, send it to the
14 Work Group Members and copy me too please.

15 DR. BUCHANAN: Okay.

16 MR. KATZ: And you might as well
17 copy everyone in case they have any comments
18 on the sampling plan as well.

19 MEMBER LEMEN: Would you send it
20 to both our email addresses, not just our CDC
21 address?

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1 MR. KATZ: That's fine. If you
2 send it to me, if you don't have that I can
3 forward it on.

4 DR. BUCHANAN: Okay.

5 MR. FITZGERALD: But given the
6 size of this site, we did this for Class at
7 some of the bigger sites, this is definitely
8 going to be contained and modest but we'll see
9 if there's any indication first before we
10 propose anything further.

11 MR. KATZ: So officially - I mean
12 the Work Group doesn't meet when it's not
13 needed, so you can just individually tell me
14 if you have any issues. If you were to have
15 issues we can have a Work Group meeting to
16 iron them out.

17 CHAIRMAN GIBSON: Okay. So at
18 this point next point on the agenda, is there
19 any discussion of SEC issues either from DCAS
20 or SC&A? Or have we?

21 DR. BUCHANAN: There's one more.

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1 It goes along -

2 CHAIRMAN GIBSON: Oh, I'm sorry.

3 DR. BUCHANAN: This is Ron. On
4 1(d) is coworker model - and I guess at this
5 point we would like clarification on what
6 coworker model NIOSH plans to use both
7 internally and externally. Because there's
8 been different statements for the TBD, the ER
9 and then this - the environmental part. We'd
10 like clarification on what coworker model is
11 proposed.

12 MR. ROLFES: For external and
13 internal, is that what you said? For both?

14 DR. BUCHANAN: Yes, for both.

15 MR. ROLFES: As of right now I
16 don't believe we've identified a need for one
17 because it appears that the people who needed
18 to be monitored have been monitored. If we
19 identify cases where that's not the case, if
20 we identify claims that, you know, someone
21 should have been monitored but was not we

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1 would consider it at that time I believe.

2 DR. BUCHANAN: Well, because - the
3 reason I bring it up is in the - because the
4 environmental work here paper that you just
5 gave out said that - well, you just told Mike
6 that the person that was onsite but not in
7 operations, the reason he was doing the
8 modeling and stuff was to assign dose to that
9 person. And so I guess that indicated that
10 there would be some coworker model data used.

11 MR. ROLFES: Well, the
12 environmental ambient intakes would be for
13 someone who didn't work necessarily in the
14 production area and we have indication that
15 the people that were working in the production
16 area were monitored appropriately. There may
17 have been some people that worked next to the
18 production area and really, it's not really
19 appropriate for us to assume that they were
20 exposed at the same level as the production
21 workers onsite. We're talking, you know, more

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1 administrative type personnel that aren't
2 working inside of the production areas.

3 MR. MORRIS: Mark, this is Robert
4 Morris.

5 MR. ROLFES: Yes.

6 MR. MORRIS: I'd clarify that.
7 You know, nobody was monitored for radon that
8 I'm aware of so -

9 MR. ROLFES: Right.

10 MR. MORRIS: So to the extent that
11 that's true we will have to use environmental
12 doses for radon for anybody. Whether the dose
13 is from inside of the building where it's
14 higher or outside the building where it's not,
15 where it's lower concentrations, the
16 dispersion modeling is the only difference
17 there. So that is the exception as I
18 understand it.

19 MR. KATZ: That doesn't sound like
20 a - that's not a coworker model per se.

21 MR. MORRIS: No, I don't think of

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1 that as a coworker model, Ted.

2 MR. FITZGERALD: I guess - this is
3 Joe. Just as an extension of what we just
4 talked about on the completeness review, what
5 - I guess is the interest on the basis for I
6 guess the conclusion that everybody who should
7 be monitored was monitored, the data is
8 complete. Because that's kind of what we're
9 sampling so I'm curious as to how you got
10 there because that would help us understand.

11 MR. ROLFES: Sure. For example,
12 there was a subset of employees, the female
13 population in the earlier years was not
14 monitored because they weren't working within
15 the production area.

16 MR. FITZGERALD: Right.

17 MR. ROLFES: So there's approaches
18 that we can use certainly if we have
19 indications that a female was you know
20 routinely entering a production area or an
21 unmonitored person. And that has to be taken,

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1 you know, as a case by case basis. If there's
2 information that supports that did occur, that
3 an individual was not monitored and was in the
4 production area then that would be, you know,
5 we'd I guess have to address that when it was
6 identified to us. Based on my knowledge on
7 the review of dose reconstructions that have
8 been done there have not been any incidents
9 where we've seen someone that should have been
10 monitored and was not monitored.

11 MR. FITZGERALD: Okay. Well, I
12 just want to draw the distinction. You're
13 saying it was an empirical judgment because
14 you're basically saying that you haven't seen
15 it yet so therefore it's not likely.

16 MR. ROLFES: There's always
17 exceptions and -

18 MR. FITZGERALD: Well, I'm just
19 saying that in terms of coworker, a coworker
20 decision I think what we - I think we've
21 established the completeness as a going-in

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1 proposition as to whether a coworker model
2 would be warranted. I'm just saying that this
3 is - so we're kind of approaching it from that
4 perspective. I think what you're saying is
5 that empirically you've done enough dose
6 reconstructions, you haven't seen any gaps so
7 at this point in time you feel comfortable. I
8 just want to make sure that's clear to the
9 Work Group. And we're going to validate that,
10 maybe doing a little more upstream and going
11 through that analysis. You're looking at
12 things like I guess, you know, maintenance
13 workers, kind of those category workers where
14 you tend to maybe find issues with gaps. But
15 okay, that helps. So I guess it doesn't
16 change anything we're planning on doing as far
17 as completeness, but - one - the useful thing
18 of course would be seeing whether or not we
19 think there are certain gaps in certain
20 categories or years and then marrying that up
21 with the dose reconstruction experience to see

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1 if it in fact uses - actually have done it.
2 So that would kind of answer that issue. Does
3 that?

4 DR. BUCHANAN: Yes, okay.

5 CHAIRMAN GIBSON: Okay. Ron, do
6 we have any SEC issues that we need to
7 discuss, that we're prepared to discuss? Or
8 are there some we're not prepared to discuss
9 but we need to keep on the agenda?

10 DR. BUCHANAN: This covered all of
11 my issues - oh no, no, let's see. Let me - he
12 didn't - yes. The issues that were covered
13 today did not include site with uranium to -
14 let's see. We did discuss that to a certain
15 extent, okay.

16 MR. ROLFES: But we do have
17 another response that is in the works that
18 we'll send out as soon as it's available.

19 DR. BUCHANAN: Was the geometry
20 and extremity, issue 9, was not addressed. It
21 was on the chart last time.

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1 MR. KATZ: For RU? Didn't we have
2 a time frame for that, we already talked about
3 that?

4 MR. ROLFES: Yes, the report's
5 actually sitting on my desk.

6 MR. KATZ: Oh, that's right.
7 That's the one. Okay. So that's fairly soon
8 that that'll be presumably delivered to the
9 Work Group.

10 MEMBER LEMEN: What, the geometry?

11 MR. KATZ: The RU. RU.

12 MEMBER LEMEN: Okay.

13 MR. ROLFES: Now, as far as
14 geometry I think we have an approach
15 documented in our - I'm trying to recall what
16 document it is. But there were some comments
17 I think that we had received previously and I
18 think we looked at those and I'm probably
19 going to ask for help on the phone. The
20 geometry issues I think SC&A had identified
21 that they had reviewed the NIOSH approach to

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1 interpret film badge data for Mallinckrodt
2 Chemical worker employee exposures and we have
3 a specific TIB that addresses those geometry
4 correction factors. I think SC&A had reviewed
5 that and had some comments on them and I
6 believe we're in the process or have resolved
7 those comments with SC&A. And so I don't know
8 what else there might be that we need to
9 respond to there, but we can - we can -
10 Monica, is there anything else in there that -
11 I know we had discussed this a little bit. We
12 had - let's see.

13 MS. HARRISON-MAPLES: Are you
14 asking me in terms of other issues that need
15 to be?

16 MR. ROLFES: Yes. I remember
17 there was some uncertainty we would - we said
18 that we would look at some of SC&A's comments
19 on the external geometrical correction factors
20 that were applied for Mallinckrodt workers.
21 And I want to say that we had looked at that

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1 but didn't see anything applicable.

2 MS. HARRISON-MAPLES: We did. I
3 think that is in - that was in one of the
4 responses that we -

5 MR. ROLFES: Yes. Okay, I do have
6 it here. This was part of the NIOSH response
7 to SC&A's Weldon Spring site SEC petition
8 finding 2, a lack of personnel contamination
9 egress monitoring. And on the last page of
10 that document the last paragraph states that
11 NIOSH has reviewed both the Mallinckrodt
12 Chemical Works and Bethlehem Steel Site
13 Profile review documents and found nothing
14 that would suggest either of those sites did
15 anything different than Weldon Spring Plant to
16 address skin contamination nor was there any
17 greater in-depth review or treatment of skin
18 doses as was suggested previously. So maybe
19 we need to address the geometrical correction
20 factor portion of that, but from what I recall
21 I think we've got an approved OTIB and I don't

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1 know the number off the top of my head as to
2 what that - it's - I think it's like special
3 dose reconstruction considerations for
4 Mallinckrodt Chemical workers. Does that ring
5 a bell to anyone?

6 MR. M. SMITH: Yes, it's OCAS TIB-
7 10. I'm sorry, OCAS TIB-13.

8 MR. ROLFES: OCAS TIB-13. Okay.
9 That must have been Matt.

10 MR. M. SMITH: Yes, it's Matt.

11 MR. ROLFES: Thank you, Matt. So
12 we need to take a look at that.

13 DR. BUCHANAN: So that's for
14 Mallinckrodt Chemical workers, right? TIB-13?

15 MR. ROLFES: That's correct, and I
16 think that's what SC&A had asked us to look
17 at. So we went back and looked at that and I
18 don't believe we saw anything. We should have
19 specified that in our response here. We only
20 addressed skin contamination. But let me give
21 you an update on that as well. When I get

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1 back into the office I'll send out an update
2 about the geometrical correction factor
3 issues, if there's anything that's different
4 between Mallinckrodt and Weldon Spring.

5 DR. BUCHANAN: Okay.

6 MEMBER LEMEN: Anything else?

7 DR. BUCHANAN: Yes, that's us.

8 MR. KATZ: So I think we still
9 need to clarify then whether the Work Group
10 has anything more to do with respect to the
11 '67 discussion and also the - let's start with
12 that I guess. I think there was one other.
13 The path forward was a little bit murky, if
14 there is a path forward.

15 MEMBER LEMEN: The '60s.

16 MR. KATZ: '67, what we discussed
17 was that DCAS, Mark and company discussed the
18 various - and Monica, the various documents
19 there are which are sort of suggestive of what
20 did or didn't happen in '67. And he also
21 discussed at least one of the cases where it

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1 was contended someone did work and Monica
2 provided I guess the DCAS interpretation that
3 that person's work activities fit into a
4 Department of Army activity that was over -
5 spanned from '67 or '68 to '69. That was the
6 most sense they could make of that, that
7 discussion from that - I guess from a - was
8 that from an OCAS interview? A normal dose
9 reconstruction interview?

10 MR. ROLFES: I think that was
11 actually from an affidavit that was previously
12 provided. SC&A had identified it and we
13 looked at that. I don't recall if we re-
14 interviewed that same person or not.

15 MR. KATZ: Okay, so it wasn't a
16 dose reconstruction interview, it was an SC&A.

17 MR. ROLFES: I believe so.

18 DR. BUCHANAN: Personal interview
19 but there was no date.

20 MR. KATZ: Personal interview,
21 yes.

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1 DR. BUCHANAN: There was no date.

2 The worker did not give an exact date -

3 MR. KATZ: Right.

4 DR. BUCHANAN: - of when it took
5 place.

6 MR. KATZ: Right.

7 DR. BUCHANAN: It was between '67
8 and '69.

9 MR. KATZ: Right. So you have an
10 interpretation based on DCAS documents of what
11 - where that work experience might fit and
12 DCAS's interpretation of what's gone on in
13 that period '67 and after.

14 CHAIRMAN GIBSON: So at this point
15 the information about '67 is of no consequence
16 to us unless there's a future claimant that
17 has an affidavit or such that he did something
18 in '67 that we need to -

19 MR. KATZ: Yes.

20 CHAIRMAN GIBSON: Okay.

21 MR. KATZ: I think that's right.

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1 I think if someone comes forward with concrete
2 recollection or information that there were
3 activities that haven't been captured so far
4 in what people understand, I think that
5 situation just rests as it is until -

6 CHAIRMAN GIBSON: I mean, this
7 currently doesn't apply to any claimants.

8 MR. KATZ: Right.

9 CHAIRMAN GIBSON: If it comes to
10 the point that it does.

11 MR. KATZ: So it's - I think you'd
12 call this closed for the time being. Of
13 course it could be reopened if there were a
14 basis for reopening it.

15 MEMBER LEMEN: Anything else, Ted?

16 MR. KATZ: Well, let me just see.

17 I think there was - oh, the other - well, the
18 other item that we haven't really clearly
19 resolved was the discussion about the skin
20 contamination egress monitoring that was left.

21 At least it was unclear to me whether - if

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1 there is a path forward on that.

2 DR. BUCHANAN: Well, SC&A doesn't
3 have any more to offer. I mean, we just - we
4 brought it up and we looked at the response
5 and it appears to be, you know, similar to the
6 other uranium working plants. But you know,
7 we really don't have any more to add.

8 MEMBER LEMEN: So that can be
9 closed?

10 DR. BUCHANAN: We have no new
11 evidence or anything.

12 MR. ROLFES: Just keep in mind
13 also that is something that we do look at in
14 an individual's telephone interview and in
15 their DOL initial case files. If an
16 individual does mention contamination and it's
17 something that could make a difference in the
18 dose reconstruction outcome then it's
19 certainly considered. There have been cases
20 where we've done skin calculations and such to
21 account for any skin contamination issues.

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1 You know, a lot of it is important as to where
2 you know skin cancer would be. For an
3 external contamination issue it would be a
4 skin cancer organ - excuse me, skin cancer
5 would be for the skin would be the most likely
6 affected organ from surface contamination that
7 remained there for, you know, a long time.
8 We'd have to take a look at the specifics of
9 you know where that skin cancer was located
10 and such. If it was under clothing then it's
11 very unlikely that surface contamination on
12 the clothing would have contributed a
13 significant amount of dose that was not
14 recorded to that particular skin cancer
15 location. You know, if - there's more
16 specific case details that are needed to make
17 an assessment of the dose and that is
18 something that has been done in dose
19 reconstructions in the past.

20 MR. KATZ: And this, this sort of,
21 this is where this seems to - this issue

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1 always seems to end back with this same
2 discussion.

3 MR. FITZGERALD: We've heard it
4 many times.

5 MR. KATZ: Yes.

6 CHAIRMAN GIBSON: We can go ahead
7 and close it then. If it comes up related to
8 a future claim then we can reopen it.

9 MR. KATZ: Okay. So do we want to
10 - do we want to run through the action items
11 here or do people want to just deliver that by
12 paper, Ron and Mark? Okay. I have notes if
13 people, if either Ron or Mark wonders, I've
14 taken notes. I think I've captured it.

15 CHAIRMAN GIBSON: The only thing
16 I'd ask is when they're noted by paper, you
17 know, SC&A will put theirs out and DCAS will.

18 Let's make sure they mesh up so that when we
19 set an agenda for another meeting -

20 MR. KATZ: That should be one
21 document. So who wants to take the - do you

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1 want to take the first stab at putting out an
2 action item list that covers both?

3 DR. BUCHANAN: Okay. Yes, I can
4 do that.

5 MR. KATZ: And then Mark can
6 confirm or amend.

7 MEMBER LEMEN: Would you put that
8 on the OCAS site or how will you give it to
9 us?

10 MR. KATZ: So he'll distribute it
11 to the full Work Group and Mark can -

12 MEMBER LEMEN: Are you going to
13 send it to our particular address and not the
14 CDC address?

15 DR. BUCHANAN: Okay.

16 MR. KATZ: And then Mike, do you
17 want to chat with - about the Work Group
18 update for the Board? Do you need to chat
19 about that? Do you want help from Ron or
20 anyone or DCAS in preparing?

21 CHAIRMAN GIBSON: Yes, let's - I

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1 mean I could use any help because you know,
2 it's - it don't seem we're making progress I'd
3 like for it.

4 MR. KATZ: Well, I think you
5 actually - I mean, you have - you've gotten -
6 I mean, you've put to bed a lot of issues. I
7 mean, you're not finished but -

8 MEMBER LEMEN: If we can get the
9 list and we can get it before the Board
10 meeting that would be the purpose of what you
11 say to the Board.

12 MR. KATZ: Well, after the action
13 item is put - I mean, it'd be nice given that
14 you have - you're in St. Louis, it'd be nice
15 to give them sort of an overview of what the
16 issues were originally and here is where we
17 are. It'd be nice, a summary.

18 CHAIRMAN GIBSON: Yes. If DCAS
19 and SC&A could put out that summary or send it
20 to me just so I know that they both agree on
21 what's out there and what's open, what's

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1 closed so that there won't be no discrepancy.

2 MR. KATZ: So Ron, would you be
3 willing to maybe do this in a PowerPoint
4 fashion to make it easy for Mike? Is that all
5 right with you, Mike, in PowerPoint?

6 CHAIRMAN GIBSON: Sure.

7 MR. KATZ: Just a sort of
8 simplified overview of what the issues have
9 been and where they stand.

10 DR. BUCHANAN: SEC or Site Profile
11 and SEC?

12 MR. KATZ: I think you can focus
13 on the SEC, but you can - in the tail end
14 there it wouldn't be a bad thing to list what
15 any of the more major TBD-type issues and
16 where those stand as well. He has 15 minutes
17 so it's not - it's not going to be interactive
18 with petitioners because it's just a report,
19 it's not an update. But it'll just be - it'll
20 be just before we go to public session and I
21 think it'd be nice for the people there from

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1 Weldon Spring to sort of get - most of them
2 won't have been listening to any of these
3 calls. It would be nice for them to just get
4 a sense of what kind of progress has been made
5 on their petition, in particular on the
6 petition, but on the site in general. So, but
7 I think you can do a very nice job of sort of
8 describing the site itself and what activities
9 went on there and I think that's sort of a
10 nice place to begin for Mike because not
11 everybody there will even understand the site
12 that well even if they've had a surviving
13 member who worked there. It'd be good for
14 them to get a little bit of that overview.

15 DR. BUCHANAN: Okay.

16 MR. KATZ: Thank you. And if you
17 could just - if you could distribute that
18 maybe - I know there's not a lot of time now,
19 but if you could get that to the Work Group
20 just maybe a week in advance of the Board
21 meeting?

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1 MEMBER LEMEN: That's next week.

2 MR. KATZ: Yes. I mean it's not a
3 lot of time, but it's a fairly simple brief
4 presentation. Then everybody can just have a
5 glance at it and if anyone has anything to
6 throw into the.

7 DR. BUCHANAN: I'll try to get it
8 out at the end of this week. That way
9 everybody will have a chance to look at it.

10 MR. KATZ: That's great. If you
11 could do that it would be great.

12 MS. LIN: It needs to be PA
13 reviewed.

14 DR. BUCHANAN: Okay. Yes, I can
15 give it to the Board Members to look at before
16 I finalized anything.

17 MR. KATZ: Yes, and that's easy
18 because they won't have anything except that.
19 And it has to run through.

20 DR. BUCHANAN: And Nancy has to
21 look at it, is that right?

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1 MS. LIN: Nancy Johnson will
2 submit it to the OGC.

3 DR. BUCHANAN: Okay. I'll send it
4 to her. When we finalize it I'll send it to
5 Nancy and then she'll take care of it from
6 there. Okay.

7 MR. FITZGERALD: Don't include any
8 interesting pictures.

9 DR. BUCHANAN: Don't include any?

10 MR. KATZ: Not interesting ones.
11 Not interesting ones, but a picture of the
12 site would be fine.

13 MR. FITZGERALD: Yes, a picture of
14 the site.

15 DR. BUCHANAN: Well, you've got 15
16 minutes, you've got 15 slides. That's the
17 rule of thumb, right?

18 CHAIRMAN GIBSON: That's - I
19 believe so. You do the St. Louis meeting and
20 after that we'll try to set a date for another
21 Work Group meeting.

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1 MR. KATZ: It sounds like it can
2 happen relatively soon from my sense of where
3 everything stands. Everything seems right on
4 the verge of being delivered or if there are
5 follow-up items that don't sound like they'd
6 take very long. It seems like we might be
7 able to meet in June or?

8 CHAIRMAN GIBSON: We can schedule
9 it while we're in St. Louis -

10 MR. KATZ: Sure.

11 CHAIRMAN GIBSON: Okay. Other
12 than that there's nothing else.

13 MR. KATZ: We're adjourned.

14 CHAIRMAN GIBSON: We're adjourned.

15 MR. KATZ: Thank you everybody.
16 Thank you everybody on the line as well.

17 MS. M. JOHNSON: Excuse me?

18 MR. KATZ: Yes?

19 MS. M. JOHNSON: Excuse me?

20 MR. KATZ: Yes? Hello?

21 MS. M. JOHNSON: This is Mary

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1 Johnson. Could I please make a comment?

2 MR. KATZ: Yes. Yes, Mary, what's
3 your last name? Sorry?

4 MS. M. JOHNSON: Johnson.

5 MR. KATZ: Johnson. Yes, go
6 ahead, Mary.

7 MS. M. JOHNSON: First of all, I
8 would like to tell you that I have the utmost
9 respect and admiration for the knowledge and
10 expertise you bring to this program. However,
11 I do have some concerns. I have listened to
12 all the Work Group meetings. I have read all
13 the documents that have been sent out, all the
14 studies, and I was hoping that with this Work
15 Group meeting today I would have some sort of
16 feeling of where we stand at Weldon Spring
17 with our SEC petition. After listening I am
18 more concerned than ever. I saw some
19 questions answered but I thought I heard as
20 many questions asked as answered which means
21 more time.

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1 I am overwhelmed with the
2 knowledge that you all have. I understand
3 probably very limited amount of it, but enough
4 to know or get the gist of where we stand. I
5 would like if you all can to please step back
6 for just one moment and be a claimant. This
7 whole process is overwhelming. The longer it
8 goes on, the more overwhelming it becomes. I
9 don't want to use the word "giddy" loosely but
10 we're almost to the point where we think wait
11 a minute, you know, I'm impressed with all
12 this knowledge and all this study, but we're
13 the claimants. Don't forget us out here.
14 We're waiting, waiting and waiting for an
15 answer and it is beyond frustrating.

16 And I urge you not to come to St.
17 Louis with the idea that we're just going to
18 hear a synopsis of what has gone on so far and
19 more time is needed. We urgently need an
20 answer. Too many of us are dying. We're just
21 - I can't tell you how frustrated we are. And

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1 we need an answer, whether it's yes, no or
2 indefinite, we need an answer. And so I urge
3 all of you to please bring that to St. Louis
4 when you come. There will be a multitude of
5 us there and we want an answer. And that's
6 all I have to say. Thank you for your time
7 and for listening to me.

8 MR. KATZ: Thank you, Mary. Okay,
9 we are adjourned.

10 (Whereupon, the above-entitled
11 matter went off the record at 3:26 p.m.)

12

13

14

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