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PUBLIC HEALTH SERVICE
CENTERS FOR DISEASE CONTROL AND PREVENTION
NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH

convenes the

WORKING GROUP MEETING

ADVISORY BOARD ON
RADIATION AND WORKER HEALTH

VOL. I

ROCKY FLATS

The verbatim transcript of the Working Group Meeting of the Advisory Board on Radiation and Worker Health held at the Marriott Airport, Hebron, Kentucky, on July 26, 2006.

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-- "uh-huh" represents an affirmative response, and "uh-uh" represents a negative response.

-- "*" denotes a spelling based on phonetics, without reference available.

-- (inaudible)/ (unintelligible) signifies speaker failure, usually failure to use a microphone.

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P R O C E E D I N G S

(9:30 a.m.)

WELCOME AND OPENING COMMENTS

DR. LEWIS WADE, DFO

1 DR. WADE: Well, good morning. This is Lew Wade, and
2 I have the pleasure of serving as the
3 Designated Federal Official for the Advisory
4 Board and to welcome you to this meeting of a
5 working group of the Advisory Board. This is a
6 working group that's very ably chaired by Mark
7 Griffon, and has on it Robert Presley, Mike
8 Gibson and Wanda Munn. This working group in
9 its brief history has dealt with many issues.
10 Today the issue in front of it is to look at
11 the Rocky Flats site. As you know, for Rocky
12 Flats there is an SEC petition that's awaiting
13 Board action. This working group really began
14 to look at site profile issues related to Rocky
15 Flats, and now has tried to focus its attention
16 on that subset of site profile issues that the
17 working group feels is relevant to the Board's
18 ability to make a complete decision relative to
19 the pending SEC petition.

1 We'll go through and identify people on --
2 around the table here and then -- then we'll
3 have federal employees on the line identify, as
4 well as SC&A employees, and then anyone else
5 who might want to identify we'll allow that to
6 happen, and then Mark will begin the business
7 of the working group.

8 One of my jobs is to be sure we don't have a
9 quorum of the Board present as this is not a
10 Board meeting. It's a working group meeting,
11 so I would start by asking if there is anyone
12 on the line -- any Board members on the line
13 I'd like you to identify yourself now.

14 **MR. GIBSON:** Well, this is Mike Gibson. I'm on
15 the line.

16 **DR. WADE:** Good morning, Mike, thank you.

17 **MR. GIBSON:** Sorry I couldn't make it to the
18 meeting.

19 **DR. WADE:** That's fine. Thank you for joining
20 us. Mike is a member of the working group.
21 Any other Board members on the line at this
22 point?

23 (No responses)

24 Okay. So we really don't have a quorum of the
25 Board, which is appropriate. We simply have

1 the working group members.

2 After we do the general introductions, I would
3 ask the Board members present and then a
4 representative of NIOSH and a representative of
5 SC&A to go through any disclosures that need to
6 be made relative to the Rocky Flats site, any
7 conflicts that might exist, so let's start by
8 going around the table here and we'll start --
9 start with the able chairman, Mark.

10 **MR. GRIFFON:** Mark Griffon with the Advisory
11 Board, no conflicts.

12 **MR. PRESLEY:** Robert Presley with the Advisory
13 Board, no conflict.

14 **DR. WADE:** And this is Lew Wade with NIOSH and
15 I have no conflicts.

16 **MS. BRACKETT:** Liz Brackett with the ORAU team
17 and I have no conflicts.

18 **MR. ROLFES:** Mark Rolfes, NIOSH. I have no
19 conflict.

20 **DR. MAURO:** John Mauro, Sanford Cohen &
21 Associates. No conflict.

22 **MR. LITTLE:** Craig Little with the ORAU team,
23 no conflicts.

24 **DR. ULSH:** Brant Ulsh with NIOSH, no conflict.

25 **MR. MEYER:** Bob Meyer with the ORAU team, no

1 conflict.

2 **MS. JESSEN:** Karin Jessen with the ORAU team,
3 no conflict.

4 **MS. MUNN:** Wanda Munn, Advisory Board. No
5 conflict.

6 **MR. FITZGERALD:** Joe Fitzgerald with Sanford
7 Cohen & Associates, no conflict.

8 **DR. MAKHIJANI:** Arjun Makhijani, SC&A. No
9 conflict.

10 **MR. CHEW:** Mel Chew with the ORAU team, no
11 conflict.

12 **MS. HOWELL:** Emily Howell with HHS, no
13 conflict.

14 **MR. MCFEE:** Matt McFee with the ORAU team, no
15 conflict.

16 **DR. WADE:** Now I would like other NIOSH or ORAU
17 or federal employees on the line in an official
18 capacity to identify themselves.

19 **MR. FALK:** This is Roger Falk, and I have a
20 conflict.

21 **MR. RICH:** This is Bryce Rich. I have a
22 conflict.

23 **MR. LANGSTED:** This is Jim Langsted. I have a
24 conflict.

25 **MS. ALBERG:** Jeanette Alberg with Senator

1 Allard's office, no conflict.

2 **DR. WADE:** All right.

3 **MR. GIBSON:** Mike Gibson, part of the working
4 group. No conflict.

5 **DR. WADE:** Any other NIOSH, ORAU or federal
6 employees on the line?

7 **MR. POTTER:** Gene Potter, ORAU. I have a
8 conflict.

9 **DR. WADE:** Okay. What about SC&A team members?

10 **MS. DEMERS:** This is Kathy DeMers and I have no
11 conflict.

12 **DR. WADE:** Anyone else of the community that is
13 made up of NIOSH, ORAU, federal employees,
14 SC&A?

15 (No responses)

16 Board members? Anyone else who would like to
17 be identified for the record, please feel free
18 to identify yourself.

19 **DR. MCKEEL:** This is Dan McKeel in St. Louis.

20 **DR. WADE:** Thank you, Dan. It's always a
21 pleasure to have you with us.

22 **MS. BARRIE:** This is Terrie Barrie from ANWAG.

23 **DR. WADE:** Thank you for joining us, Terrie.

24 **MS. BARKER:** This is Kay Barker with ANWAG.

25 **DR. WADE:** Thank you, Kay, for being with us.

1 Again, as is our practice with the working
2 groups, if the petitioners or their
3 representatives have anything they'd like to
4 say through the course of this, they're --
5 they're more than free to speak. The working
6 group also is interested in information, so if
7 there is someone on the call who -- who has
8 information content to share, I'm sure Mark
9 would be more than willing to accept that.
10 My last official duty is to -- is to, from
11 Ray's point of view, mention the fact that
12 around the table please be cognizant of the
13 microphones and speak into the microphones and
14 watch Ray for a head nod or a head shake if
15 you're not speaking to the sufficient volume.
16 Also, those people on the line, if you can
17 would you mute yourself except when you want to
18 speak, obviously, as the heavy breathing
19 distracts some people.

20 So Mark.

21 INTRODUCTION BY MARK GRIFFON

22 **MR. GRIFFON:** Okay. I -- I think before this
23 meeting I did send out a revised matrix. I
24 hope everyone got that, either directly or
25 indirectly. And I think what we -- part of

1 what we're going to have to do, we had -- since
2 the last Advisory Board meeting some work has
3 been done by SC&A and by NIOSH, so I think
4 we'll -- we'll probably go down -- I think I
5 want to go down the primary issues, and then as
6 we're -- as we're doing that we can keep our
7 eye on the matrix and make sure we don't miss
8 any specific items on the matrix, either. But
9 part of it I think is going to be an update on
10 where we stand, where NIOSH stands, where SC&A
11 stands on certain issues. And then what's -- I
12 guess the path forward is the, you know, a
13 critical thing we want to come out of this
14 meeting, as well.

15 CLASS SUPER S PLUTONIUM

16 So the first item I have -- this is the way
17 we've always gone through this list -- super S
18 -- class super S plutonium, and I know at this
19 -- at this juncture -- recently, I guess within
20 the last week or so, we -- you posted some data
21 that we had asked for. One was the Hanford-1
22 case data, and the other -- I think -- was a
23 spread sheet with the identifiers for the
24 design cases.

25 **UNIDENTIFIED:** Right.

1 **MR. GRIFFON:** Right. At this point we
2 obviously -- we've discussed this. We haven't
3 been able to cross-walk the ca-- any of the
4 case data 'cause the database still doesn't
5 have the right identifiers in it, but we --
6 we're making some headway on that.
7 At the last Advisory Board meeting SC&A did
8 present a paper -- interim paper on super S and
9 the analysis of TIB-49 and -- along with TIB-49
10 there's other super S document that kind of --
11 it's not a TIB, but it goes along with the TIB
12 sort of, I think.

13 **DR. ULSH:** Yeah, it's a White Paper sort of
14 thing, yeah.

15 **MR. GRIFFON:** An explanation associated with
16 the TIB. So I mean I -- I'm speaking for --
17 for myself here where -- where I've -- where
18 I'm at with that is I think that we've looked
19 at this, Joyce Lipsztein has looked at this for
20 SC&A pretty in-depth, and Bob Bistline, and I
21 think we're pretty comfortable with the
22 methodology overall. What we wanted to do was
23 to do these final cross-checks with the data
24 and, you know -- so that's still outstanding.
25 The one thing I did notice in the design case

1 spreadsheet that was sent, it was the six --
2 six or so cases, and I had asked for the 25 or
3 so. Several times I think Roger has mentioned
4 that there were 25 individuals that had lung
5 burdens in excess of the maximum permissible
6 lung burden at the time and -- and we thought
7 it'd be useful to have identifiers for all --
8 for those sort of top 25 exposed people and --
9 -- just -- just to assure that the right cases
10 were selected for the desi-- you know, for the
11 TIB-49.

12 **DR. ULSH:** Yeah, I understand. I might have
13 misinterpreted you, Mark. We obviously focused
14 on the six that were design cases. Hey, Roger,
15 are -- you're out there. Right?

16 **MR. FALK:** Yes, I am.

17 **DR. ULSH:** Okay. Would it be possible to
18 provide similar information to what we've
19 already provided for the six and expand that to
20 include the 25 that Mark is talking about?

21 **MR. FALK:** I think there may be some type of a
22 misunderstanding. I -- I'm thinking the 25 was
23 from the initial lung count for the 1965 fire
24 cases, and those -- and those -- I personally
25 do not have the -- the datasets for all of

1 those.

2 **DR. ULSH:** What about the identifiers, could
3 you identify who they are and then maybe we
4 could just go to his 20?

5 **MR. GRIFFON:** Right.

6 **MR. FALK:** It is possible.

7 **DR. ULSH:** Okay, let's -- let's put that on our
8 list.

9 **MR. GRIFFON:** That's what we're looking for,
10 yeah.

11 **DR. ULSH:** Okay. We'll put that on our to-do
12 list and get that.

13 **MR. GRIFFON:** And I don't know if there's
14 anything else on super S from SC&A's standpoint
15 --

16 **MR. FITZGERALD:** No, I think we --

17 **MR. GRIFFON:** -- or if --

18 **MR. FITZGERALD:** We spent a lot of time
19 covering this in the last session. I think
20 we're fine.

21 **MR. GRIFFON:** Okay. Well, we're moving along
22 pretty quickly --

23 **DR. ULSH:** Yeah, that was quick.

24 **MR. GRIFFON:** About as fast as we ever got
25 through one item.

1 **MS. MUNN:** Especially that one.

2 **MR. GRIFFON:** Yeah, I know. Well, we did spend
3 a lot of time with -- with that item already.
4 Okay, Wanda approves -- and that's a first,
5 too.

6 **AMERICIUM**

7 Americium is the next item I have on the list,
8 and my sense -- my sense was this -- along with
9 other radionuclides, this kind of came up in
10 the context of do you actually have gross alpha
11 for the people working with americium -- prior
12 to when they were doing americium monitoring,
13 obviously.

14 **DR. ULSH:** We've actually got -- this one won't
15 go as fast, I'm sorry to say, Mark. We've got
16 a lot to tell you about this one.

17 **MR. GRIFFON:** Okay.

18 **DR. ULSH:** As you know -- I think it might have
19 been the last working group meeting that SC&A
20 prepared -- I think maybe Arjun prepared a
21 document that was titled "Additional Issues
22 from SC&A Focused Review of NIOSH SEC
23 Evaluation for Rocky Flats Regarding Americium,
24 Thorium and Other Radionuclides." In that
25 document SC&A kind of laid out the concerns

1 about the early americium.

2 If it's okay with you -- I made 15 copies -- if
3 -- you know, I'll circulate them, we can talk
4 about this.

5 **MR. GRIFFON:** Is this one of your documents
6 that was on the O-drive --

7 **DR. ULSH:** No, this is something that -- this
8 is Arjun's write-up.

9 **MR. GRIFFON:** Oh, that's --

10 **DR. ULSH:** It's just copies of it.

11 **MR. GRIFFON:** Oh, okay. Yeah, that'd be good
12 to have that.

13 **DR. ULSH:** In addition, we've done actually
14 quite a lot of work on this. Mel Chew is here
15 to talk about some information that we just I
16 guess finalized and it just kind of congealed
17 yesterday, as a matter of fact. Mel and Mark
18 Rolfes and Bryce Rich went out to the Denver
19 Federal Records Center and looked at some
20 classified information. We've also been
21 pursuing non-classified information. And then
22 finally, I'd like to talk a bit about the
23 interpretation that is contained in SC&A's
24 document, interpretation of the TBD regarding
25 what samples were conducted where.

1 Mel, why don't we start with your discussion,
2 what you found out about americium prior to --
3 the concern here is pre-'63. In 1963 Rocky
4 Flats instituted widespread use of americium-
5 specific bioassay. So the years that we're
6 specifically concerned about are the years
7 prior to that and, you know, how was americium
8 monitored prior to that. So with that setup,
9 Mel, why don't you take it away.

10 **MR. CHEW:** Thank you, Brant. I certainly want
11 to acknowledge I think all of you -- many in
12 the health physics community and the DOE
13 community know Bryce Rich. I have to credit
14 Bryce for kind of thinking of this thing
15 through collectively as we all was trying to
16 look at this particular issue here, Joe -- and
17 Arjun.

18 It was very curious of why, you know, we
19 started -- if you look at the bioassays that
20 started in 1963, what happened to the early
21 years, because you know, there was certainly
22 some indication that americium was potentially
23 present there and why were they not sampled.
24 Well, the real -- the real key to that is that
25 -- let me just try to give you a little bit of

1 background and this'll be in terms that I can
2 say, you know, without being sensitive
3 information here.

4 If you think about it, the plutonium that
5 showed up at Rocky Flats in the early years and
6 in the '50's, prior to '63, was fairly fresh
7 plutonium that came in from Hanford. The --
8 the plutonium that didn't come in for the --
9 with the americium content was basically out of
10 the recycled plutonium that was in the weapons
11 that was in the '50s here, and really didn't
12 come back out of the stockpile until '62, '63.
13 All right? And so therefore where we were
14 looking for americium in the early years at
15 Rocky Flats, Wanda said it wasn't there.
16 Right? So you know, I think we were all
17 obviously looking and said -- well, assuming it
18 was there. And matter of fact, we confirmed
19 this with a discussion with Ed Vejvoda, and he
20 was responsible for developing the process to
21 start -- to start to thinking about separating
22 the americium from the weapons returned. He
23 made a comment very clearly in this document
24 from this discussion with him that they even
25 had a tough time with the metallurgist even

1 finding americium to validate the process.
2 Right? And I happen to know some parts per
3 million contents that I think the specs that
4 came in from Hanford, and Wanda would know
5 this, you know, of her early years, they were
6 very, very low. For deliberate purposes.
7 Right? And so clearly the americium, I think I
8 can say with a fair amount of confidence that
9 the -- where we were looking for bioassay, just
10 wasn't there in -- in enough significant
11 quantities or a few -- I'd hate to say a few
12 atoms, to be humorous here -- that was enough
13 to cause any concern, even -- especially they
14 even tried to look for it here. Right?
15 But clearly when the weapons returned -- did
16 come back in the -- in the '63, '64 time period
17 -- which makes sense when you really think
18 about it. Okay? When the time period, when we
19 put into the stockpile. Okay? It stays there
20 for a certain amount of years, I think all of
21 you know that, and then we got the return.
22 That's when the americium content really --
23 really start to come up and the americium was
24 separated out, you know, to refresh the
25 plutonium and make better -- to make weapons-

1 grade plutonium back -- to go back into the
2 system again. And also the americium was now
3 concentrated in a form like the molten salt
4 extraction, both to sell the -- and sent back
5 to Oak Ridge. And as you know, your americium
6 is widely used, you know, throughout the system
7 for many, many other purposes, even more than
8 the weapons complex.

9 So I'd like to just make that comment is that
10 we cannot see the americium prior to '63, Mark,
11 because it just wasn't there. And that makes a
12 lot of sense.

13 **MR. GRIFFON:** I thought -- I thought part of
14 the reason this coming -- came up, and I'm
15 refreshing my memory, too, was that that molten
16 salt process was referenced prior to data -- or
17 the dates for the data that we couldn't find
18 for americium --

19 **DR. ULSH:** Actually no, Mark. The time line in
20 terms of uranium pro-- or, I'm sorry, the
21 americium processing at Rocky Flats, I believe
22 that there was indication perhaps in Ed
23 Putzier's document -- maybe somewhere else; I -
24 - I don't really remember -- that Rocky Flats
25 started to consider separating out americium in

1 the late '50s, I think maybe around '57 --
2 don't hold me to that. And this is what Mel is
3 talking about, they were just developing this
4 process --

5 **MR. GRIFFON:** Experimental work.

6 **DR. ULSH:** Exactly. It was a process that they
7 wanted to develop, but the problem that they
8 had -- Mel told me yesterday when they -- they
9 talked to Ed Vejvoda, his conversation with the
10 process operators that did that was that there
11 just wasn't enough americium to even try to
12 separate, so they had real difficulty with
13 that.

14 Now, later on -- I think it's in 1967 -- is
15 when they started the molten salt extraction
16 process, 1967, so this is after -- after the
17 americium-specific bioassay and this is after
18 they started lung counting.

19 Before that there was a process that they used,
20 and I just can't remember which process it was.
21 It wasn't molten salt extraction. It might
22 have been some kind of a precipitation process,
23 I don't -- I don't have that --

24 **DR. MAKHIJANI:** I think there was an aqueous
25 process.

1 **MR. CHEW:** There was an aqueous process, uh-
2 huh.

3 **DR. ULSH:** Yeah, I think you're right.

4 **MR. CHEW:** '71, I mean.

5 **DR. ULSH:** But they did start experimenting
6 with this in '57, but there just wasn't enough
7 plutonium to even -- oh, I'm sorry, americium,
8 to -- to validate the process is what we
9 finally figured out.

10 **MR. CHEW:** Bryce, if you're on the phone,
11 you're the one that had the direct conversation
12 with Mr. Vejvoda. Do you have anything to add
13 to what we have said -- said here?

14 **MR. RICH:** No, nothing more than that as I
15 recall Ed indicated that -- that they were
16 doing the process development. He just added
17 as an aside that they had difficulty finding
18 enough to actually validate the process. They
19 were in this process and doing americium
20 separation process development. It wasn't that
21 they couldn't find any, it was just couldn't
22 find enough to really validate the process.

23 **MR. CHEW:** In going back through the -- Mark, I
24 mean it's a -- as Brant mentioned, Bryce and I
25 and Mark went back to the classified ledgers

1 and pulled as many as the ledgers (sic) we
2 possibly can and the americium was recorded in
3 there, and so we do have a fairly good history
4 of the amounts of americium that basically came
5 into Rocky Flats. And when they mentioned it
6 prior to 1962, '63, is really less than one
7 gram. I mean that's what they recorded, and
8 then -- and that's about as close as they
9 needed to record it, as you well know. And
10 then subsequently later on the quantity of
11 americium is clearly marked -- defined in -- at
12 Rocky Flats.

13 **DR. MAKHIJANI:** So this -- this sort of
14 material account estimate of less than one gram
15 was -- was made by -- by review of -- of the
16 material records at Rocky Flats?

17 **MR. CHEW:** Yes, sir.

18 **DR. MAKHIJANI:** How did you arrive at that?

19 **MR. CHEW:** Yes, sir, we actually looked at the
20 classified ledgers.

21 **DR. ULSH:** Well, there's another -- there's
22 another piece to this issue, and that is --
23 this is why I've made copies of SC&A's write-
24 up. There's -- there's some things in here I'd
25 like to discuss. The write-up contains some

1 **DR. MAKHIJANI:** It's a call from my doctor.

2 **DR. ULSH:** Okay. That's unfortunate timing,
3 because Roger is the author of the internal TBD
4 and Arjun is the author of the write-up that we
5 want to talk about.

6 **MR. CHEW:** Maybe they're talking on the site on
7 the phone here.

8 **DR. ULSH:** So maybe I would ask maybe John or
9 Joe to take good notes for Arjun while he's out
10 of the room. Roger, can you discuss please the
11 -- Arjun's interpretation of the TBD in his
12 write-up?

13 **MR. FALK:** Yes. One of the issues was when he
14 talked about whether gross alpha could have
15 been used as a measurement method -- a bioassay
16 method in the plutonium buildings, and he
17 looked at my statement that gross alpha was the
18 default for Building 91, which is D Plant, and
19 that was for the routine program. But -- but -
20 - but the point is that -- that -- that the
21 gross alpha method could have been, and was,
22 used for certain workers in -- for certain
23 workers in the plutonium buildings essentially
24 for the R&D staff. But -- but -- but the
25 statement that we say that it was the default

1 for the routine program for a certain building
2 does not preclude its use for special
3 situations in basically any other buildings.
4 So that's the clarification there.
5 For -- for his issue one where he says the
6 americium urine data appeared to be unreliable
7 direct use in areas with pure or concentrated
8 americium and based -- and he bases that on my
9 recommendation in the T&B -- in the Technical
10 Basis Document that the dose reconstructor
11 should use the plutonium urine data instead of
12 the americium urine data to assess intakes of
13 the weapons-grade plutonium. And that is a
14 valid statement and it does not imply that the
15 americium data was not suitable for other
16 situations where they had the higher
17 concentrations of the americium, such as the
18 purified americium. So that is my -- that is
19 my -- that's a clarification there.
20 Also, one of the problems that I pointed out
21 with the americium data was that the chemistry
22 of the bioassay urinalysis sometimes let the
23 thorium and its daughters come through with the
24 americium, which would then be -- be
25 interference because some of the alpha energies

1 of the thorium daughters were -- were very
2 similar to the americium alpha. The point is
3 that when and if this did occur, it would cause
4 the apparent americium urine result to be
5 higher than was -- higher than the actual
6 value, which is actually claimant-favorable for
7 the assessments for the NIOSH project. So it -
8 - so the problem is more of the accuracy, but
9 it is not a question of the reliability because
10 the outcome would be claimant-favorable if --
11 if that -- if that interference actually
12 existed.

13 The issue two basically refers to the lung
14 counting with the sodium i-- with the -- with
15 the sodium iodide simulation detectors,
16 basically pre-1976, and the fact that -- that
17 the resolution of those detectors could not
18 discriminate between the 60 KeV gamma from the
19 americium and the 63 KeV gamma from the
20 thorium-234 daughter of the depleted uranium.
21 But there again, this is a claimant-favorable
22 interference and -- and -- and to the extent
23 that that did occur, it would be claimant
24 favorable for the assessment of the americium
25 lung depositions based on lung counting. So

1 that is my clarification.

2 **MR. GIBSON:** This is Mike Gibson. Can I ask a
3 question?

4 **MR. FALK:** Certainly.

5 **MR. GIBSON:** I listened to what Roger just said
6 -- and again, I'm not health physicist -- but
7 speaking on the issue of just basing things on
8 gross alpha, at times I could see that maybe
9 that would be claimant favorable. But if there
10 were other isotopes there and other situations
11 that were more prevalent or people were exposed
12 to more often that were more -- what do you
13 want to say -- more a heavy-hitter of a dose
14 consequence, I could see where it would be not
15 claimant friendly. Is that correct, or am I --
16 am I not understanding the -- the health
17 physics stuff right?

18 **MR. FALK:** It is my impression that the NIOSH
19 project dose reconstruction would basically --
20 would basically interpret the gross alpha
21 results in the manner that they would assign
22 all of it to the radionuclide that the worker
23 was potentially exposed to that would result in
24 the best outcome for the claimant. Therefore -
25 - therefore, they have that flexibility to --

1 to make that interpretation.

2 **DR. ULSH:** That's correct, Roger. Mike, you
3 raise an interesting issue. The situation that
4 we're talking about here, the americium
5 separations occurred in the plutonium areas of
6 Rocky Flats, and in those areas the default
7 method would be, you know, plutonium-specific
8 bioassay. But if they were working with other
9 radionuclides, such as americium, it's possible
10 that they might have taken a gross alpha. Now
11 if you did a gross alpha and you got the sample
12 back -- you know, you got the results -- well,
13 gross alpha's not a specific technique. If it
14 was possible that they were exposed to both
15 americium and plutonium, and it was claimant-
16 favorable to assume plutonium, that's what we
17 would assume. So that's exactly what Roger was
18 saying and that's -- that's what we would do in
19 dose reconstruction.

20 **MR. GIBSON:** Thank you.

21 **DR. ULSH:** Sure.

22 **DR. MAKHIJANI:** Is there -- is there a protocol
23 that -- that you relied on to come -- that
24 Roger, you relied on to come to the conclusion
25 that -- as to what special situations there

1 were where gross alpha sampling was done in the
2 plutonium areas, or was this kind of just on-
3 the-spot judgment that was made if you found
4 some gross alpha data, or how did you come to
5 this conclusion?

6 **MR. FALK:** I came to the conclusion that gross
7 alpha was used for workers, especially R&D
8 staff, in -- in the plutonium areas based on my
9 research into some of the files for the R&D
10 people and noting that, yes, indeed, they were
11 sampled for gross alpha, essentially into the
12 early '70s. So I -- I -- I made a direct
13 observation that there were gross alpha samples
14 in some of the plutonium R&D people.

15 **DR. MAKHIJANI:** But you didn't find like a
16 procedure or something that said when they were
17 going to do gross alpha sampling.

18 **MR. FALK:** No, and that would have been based
19 on the judgment of the radiological engineers
20 and the health physics staff who were
21 overseeing the health physics aspects of -- of
22 the special -- of the special projects.

23 **DR. ULSH:** And one thing I think it -- it bears
24 discussing is that while there was a
25 distinction in terms of process functions, the

1 uranium area was separate from the plutonium
2 area, I -- Roger, please correct me if I'm
3 wrong, or someone else who worked at the site -
4 - I don't think that same distinction applied
5 to the health physics staff, the dosimetry
6 people. They serviced both areas. Is that
7 true, Roger, or am I not on track there?

8 **MR. FALK:** Yes, that is right.

9 **DR. ULSH:** Okay. So those -- that health
10 physics staff -- I mean it's not like you would
11 have plutonium health physicists that would not
12 use gross alpha. I mean these were the same
13 people that serviced the entire site, so I -- I
14 think that the problem here is the -- you've
15 made too hard a distinction between the areas
16 of the site and what bioassay techniques were
17 available.

18 **MR. GRIFFON:** Is that clear?

19 **DR. MAKHIJANI:** Yeah, I think for americium --
20 I think for americium it looks all right to me.

21 **DR. ULSH:** And you made a good clarification
22 there, too, Arjun. Mark, I don't know how you
23 want to handle this. There were other
24 radionuclides discussed in Arjun's write-up.

25 **MR. GRIFFON:** Why don't we just stick with

1 this and we'll move ahead on --

2 **DR. ULSH:** That's fine.

3 **DR. MAURO:** Brant, this is John -- John Mauro.
4 I was on the phone. In the actual records,
5 when you go back, does DOE report the results -
6 -

7 **MR. GIBSON:** John, could you speak up, please?

8 **DR. MAURO:** Yes, this is...

9 **DR. WADE:** I think it's probably just...

10 **DR. MAURO:** Oh. Yes, this is John Mauro and I
11 -- I just had a question, it's quite a simple
12 question. When you look in the DOE records
13 themselves, do they report intake of specific
14 radionuclides in these original records, and do
15 they -- do they assign -- in other words, when
16 they do their counting, they'll -- they'll have
17 a -- a gross alpha count and then in the
18 records themselves they'll report what intake
19 that is, whether it's so many becquerels intake
20 in that period for a particular radionuclide.
21 So at that time did they make an interpretation
22 of what they believed the implications of the
23 gross alpha readings were along with reporting
24 the gross alpha activity that they observed in
25 the urine, and do -- and do we see a

1 distinction between their approach to
2 originally estimating what the intakes and of
3 course the doses are in compliance issues, and
4 what NIOSH now is doing? Do you find that you
5 are -- you are now interpreting their original
6 data, their gross alpha data, in a way that's
7 different than the way in which they
8 interpreted the data at that time?

9 **DR. ULSH:** Roger, do you want to field that
10 one?

11 **MR. FALK:** Yes, the -- the -- the short answer
12 is no, that the -- the -- the project -- the
13 Rocky Flats program did not report or they did
14 not assess intakes from the urine data until
15 the 1990s. We actually dealt with the
16 depositions and -- and -- and the urine data
17 was not in-- was not interpreted in the form of
18 the intakes.

19 **DR. ULSH:** And that's a distinction I would
20 draw, too, John. When -- when NIOSH goes in
21 to do a dose reconstruction, what we're going
22 to look at is the bioassay results in terms of,
23 you know, the plutonium or uranium or gross
24 alpha. If the site actually went further and
25 estimated an intake based on those, we don't

1 really use that. We do that independently.
2 But in my experience, I don't typically see
3 estimates of intakes directly in the records.
4 What I see is the bioassay results. Don't hold
5 me to that because you might be able to go find
6 an intake estimate --

7 **DR. MAURO:** So at -- so at that time then, the
8 re-- when they took the urine sample gross
9 alpha counts, that was the endpoint of the
10 process for screening for the purpose of
11 assessing compliance with the acceptance
12 criteria. In other words, that's all they
13 needed. They did not need to go ahead and say
14 okay, what are the implications regarding
15 intake and the doses to organs. It was more of
16 a screening process than it was actually trying
17 to report the dose commitment delivered to a
18 particular organ.

19 **MS. BRACKETT:** Prior -- prior to 1989 there
20 were no rules requiring the calculation of dose
21 or intake. It was a comparison to maximum
22 permissible body burden. Yes. And in many
23 cases the sites would come up with the value of
24 the bioassay result that they could compare and
25 say yes, this is above a certain maximum

1 permissible body burden. So it wasn't codified
2 until 1989, like I said, is when dose started
3 being calculated.

4 **DR. MAURO:** Thank you.

5 **MR. GRIFFON:** And a lot of times I think what
6 they did with gross alpha was they -- they set
7 that trigger at the lowest level based on the
8 worst-case radionuclide. Right? So -- so you
9 may still not know what nuclide they were
10 dealing with with the gross alpha. I mean I --
11 I guess from my standpoint I'm still a little
12 unclear on what -- any time we see gross alpha
13 we're almost sure it wasn't used for plutonium.
14 Is that a correct assumption on Rocky?

15 **DR. ULSH:** Here's what I can tell you. In the
16 plutonium -- In the plutonium areas, the
17 default bioassay was plutonium-specific
18 bioassay. I can't envision a scenario where
19 they would use gross alpha to detect plutonium
20 instead of the plutonium-specific bioassay.
21 Roger, do I have that --

22 **MR. FALK:** Yes, that is right.

23 **DR. ULSH:** Does that answer your question,
24 Mark? I'm not sure if it did or not.

25 **MR. GRIFFON:** I think so, yeah.

1 **DR. ULSH:** Okay.

2 **MR. GRIFFON:** And that's for all -- all times
3 periods, all the way back?

4 **DR. ULSH:** I think so, yeah. But the point --
5 I mean we're talking about gross alphas here
6 because this was what we thought before we came
7 up with -- before we really realized the fact
8 that there just wasn't any americium prior to
9 '63, so that kind of trumps. But I did want to
10 talk about this because -- you know.

11 **MR. GRIFFON:** Yeah, and I was actually saying
12 we should continue with other radionuclides
13 'cause we're into this paper. I think we
14 should --

15 **DR. ULSH:** You think we should -- should go on
16 further?

17 **MR. GRIFFON:** Yeah, 'cause we're --

18 **MR. GIBSON:** This is Mike Gibson. Dr. Wade,
19 are you on the line?

20 **DR. WADE:** Yes.

21 **MR. GIBSON:** It's kind of a procedural question
22 and hopefully you can give me an answer to
23 this. To what extent do the people that are
24 answering questions from Rocky Flats that have
25 a conflict of interest, to what extent did they

1 have to do with running the radiological or
2 bioassay program at the site and could I get a
3 clarification on that and is that -- could I
4 get a clarification on that?

5 **DR. WADE:** Sure, you're asking for information
6 as to the specific -- the people who are
7 speaking on this call about the conflict, you
8 would like to know precisely the basis of that
9 conflict?

10 **MR. GIBSON:** Specifically, you know, did they
11 run the program, did they set up the program,
12 did they write the procedures --

13 **MR. GRIFFON:** Yeah, I think that's a good
14 question.

15 **MR. GIBSON:** -- I just -- I think that -- in my
16 opinion, and correct me if I'm wrong, I just
17 think that would be relevant to know since
18 we're discussing, you know, this gross alpha
19 and worse-case scenario and everything else.

20 **DR. WADE:** I think that's quite reasonable.
21 Could you identify the -- I know Roger has
22 spoken. Is there anyone else who we feel that
23 should happen for? Again, I think the spirit
24 that Mike raises is -- is true to the spirit of
25 the working group, so Roger -- and then who

1 else?

2 **DR. ULSH:** I think so far only Roger. Am I
3 mistaken?

4 **MR. GRIFFON:** That's spoken, but I think Jim
5 Langsted --

6 **DR. ULSH:** Yeah --

7 **MR. GRIFFON:** -- probably others on the line.

8 **DR. ULSH:** -- there are others on the line,
9 Mike. I think the people that would fall --
10 oh, yes, okay. How about this? We've got Gene
11 Potter, Roger Falk, Jim Langsted and Bryce Rich
12 on the line, and all of -- I don't know about
13 Bryce, but I do know that Gene and Roger and
14 Jim were involved in the dosimetry program at
15 Rocky Flats. I might ask them to just describe
16 their duties at the site.

17 **DR. WADE:** Yes, that's reasonable -- as a
18 starting point, certainly.

19 **DR. ULSH:** So how about if we start with --
20 with you, Roger.

21 **MR. FALK:** Yes, I -- I started at Rocky Flats
22 in 1966 and I was the technical staff
23 supporting the external dosimetry program to
24 about 1990 -- I'm sorry, to -- to 1970, and
25 then I was transferred over to the body

1 counting facility and I was the technical staff
2 for the body counting facility and also for
3 special studies for the dosimetry program,
4 essentially into 1986. 1986 I became manager
5 of the dosimetry program and was manager until
6 -- was manager into 1989. After that I went
7 back to technical staff for the internal
8 dosimetry program until 1993, then I became the
9 internal dosimetrist in support of the Rocky
10 Flats health effects program, which was medical
11 monitoring for the former workers at Rocky
12 Flats and doing updated internal dose
13 assessments for those workers. That program
14 was out-sourced to -- was out-sourced to the
15 ORAU in 1998 and I continue in that same
16 capacity. I also was technical support for the
17 neutron dose reconstruction project that was
18 also done by the health effects group, and then
19 carried on by the ORAU project. And now I am
20 essentially technical support for the internal
21 dose reconstruction for the NIOSH project as
22 part of ORAU.

23 **DR. ULSH:** So before I move on to Jim, if I
24 could summarize that long work history at the
25 site, I think, Roger, what you said is that

1 prior to 1986 you were not in a management
2 capacity; you were technical staff. Is that
3 correct?

4 **MR. FALK:** Yes, that is correct.

5 **DR. ULSH:** Okay. So Mike, I think the answer
6 to your question is that Roger was on staff in
7 the dosimetry program but didn't become a
8 manager until '86. Is that accurate then,
9 Roger?

10 **MR. FALK:** Yes.

11 **DR. ULSH:** Okay. How about Jim Langsted?

12 **MR. LANGSTED:** Yes, I started at Rocky Flats in
13 1977 in a staff position and I supported the
14 dosimetry records department and the various
15 activities associated with that. I don't have
16 the years in my head quite as well as Roger
17 does, I'm sorry. But I then was involved with
18 transitioning the program from the Harshaw TLD
19 -- the external dosimetry program from the
20 Harshaw TLD system to the Panasonic TLD system,
21 and I was involved with procuring the
22 equipment, setting up the program and
23 initiating the use of the Panasonic TLD.
24 At one point I managed -- internal dosimetry
25 laboratory where we processed at that time the

1 Harshaw TLD chips. I was also involved at one
2 time as the manager of the dose assessment
3 organization responsible for processing the --
4 both external and internal TLD data in terms of
5 the -- determining the dose associated with
6 those exposures.

7 I split my time during my career about equally
8 between the dosimetry programs and the
9 operational health physics organization. That
10 was the organization that fielded the health
11 physicists in the production facilities.
12 And then in 1990 I left Rocky Flats and pursued
13 other employment, some of which was consulting
14 work back to Rocky Flats, and at some point I
15 worked some with the external dosimetry data
16 and the internal dosimetry data at Rocky Flats.
17 That lasted until about 1995. In 1997 I came
18 back to Rocky Flats for a four-year stint with
19 Rocky Mountain Remediation Services. At that
20 point the plant was in D&D and I -- my title
21 was certified health physicist and I supported
22 the health and safety program, including
23 radiological safety program, for Rocky Mountain
24 Remediation Services during that period.
25 And then in 2001 I left Rocky Flats and have

1 not done any work for the contractor since
2 then.

3 **DR. ULSH:** Okay. How about Gene Potter?

4 **MR. POTTER:** Yes, I worked at Rocky Flats off
5 and on for about the last 15 years of the
6 site's existence, started in -- between '90 and
7 '92 I was on contract to the program from a
8 consulting firm that works in external
9 dosimetry, and I came back as a -- an employee
10 in 1994 and, except for an absence between
11 about 2002 to 2003, I worked in the dosimetry
12 program, most of the time in internal
13 dosimetry, although I held the title of
14 dosimetry manager for a period of time until
15 some downsizing occurred in -- in the last --
16 probably from about '98 to 2005, less than one
17 year I was gone, I held the title of internal
18 dosimetry lead.

19 **DR. ULSH:** Okay. How about Bryce Rich?

20 **MR. RICH:** My association with Rocky has been
21 mostly in -- in a -- when I was with Lawrence
22 Livermore Laboratories from '63 to '73, but --
23 but mostly in a fact-finding mode, nothing
24 directly associated with programs. However, in
25 1992 to 1995 I was with EG&G corporate as a --

1 corporate oversight of health and safety
2 programs, including radiological safety, for
3 all five contracts that EG&G had, which
4 included Rocky Flats. So the period from 1992
5 to '95 was in a corporate oversight role.

6 **DR. ULSH:** Okay. Mike, I've tried to
7 anticipate who might be talking today on the
8 call, and I think it will be -- well, Roger
9 already, maybe Jim will chime in, maybe --
10 well, Bryce has, maybe Gene at some point. If
11 I've missed anyone, please feel free to, you
12 know, bring -- bring them up, Mike.

13 **DR. WADE:** Let me talk to this issue --

14 **MR. GIBSON:** -- I think that's -- I think that
15 the -- the main players that have been talking
16 and I just wanted to know the background based
17 on everyone's interest and conflict and
18 everything else, so that's -- that's fine.

19 **DR. WADE:** Well, thank you. Let me take it a
20 step further, though, Mike. This is Lew Wade -
21 - and again, the Designated Federal Official
22 for the Board. The Board and its working
23 groups face a tension, and that tension is
24 between people who have knowledge of the site,
25 and their information is worthwhile to the

1 deliberations of the working group or the
2 Board. But those people, because of that
3 knowledge and the jobs they held to acquire
4 that knowledge, can be viewed or are biased
5 relative to some of these issues. And there's
6 always that tension, the tension between people
7 with knowledge and the fact that -- that the
8 manner in which they acquired that knowledge
9 could cause them to be biased in the eyes of
10 some -- always a tension we face.

11 I'm prepared in almost all cases to follow the
12 guidance of the Board, in this case the working
13 group, as expressed through the Chair if there
14 are situations that would trouble the Chair of
15 the working group, and we will see that those
16 situations are dealt with. Absent that, I'm
17 very comfortable with people with knowledge
18 participating, as long as there's complete
19 disclosure. And I thank you, Mike, for causing
20 that disclosure to be on this record. I think
21 that disclosure has already been made on the
22 ORAU web site, but Mark, if you have any
23 concerns at any point through this, then please
24 let me know and we'll deal with those concerns.
25 If not, then I think we'll let the discussion

1 continue.

2 **MR. GRIFFON:** Yeah --

3 **MR. GIBSON:** If I --

4 **MR. GRIFFON:** -- go ahead, Mike.

5 **MR. GIBSON:** -- can follow up, Lew, I didn't
6 want to offend anyone by asking those
7 questions. It's just the fact that --

8 **MR. GRIFFON:** Mike, can you speak a little
9 louder?

10 **MR. GIBSON:** I didn't want to question
11 anyone's, you know, reputation or anyone else -
12 - anything else, asking those question. I just
13 wanted that general information, and it's just
14 because on the fact that as Advisory Board
15 members, you know, we would have to recuse
16 ourselves (sic) and become a member of the
17 public, also. Say because I have 23 years at
18 Mound, I would have to go out as a member of
19 the public and then speak to the Board as to my
20 experience. So I just -- I just wanted to know
21 the employment and relationship between the
22 people that are discussing this and -- and
23 their own contract and stuff right now.

24 **DR. WADE:** No, well -- and well within your
25 prerogatives, and I also think you -- you've

1 done a service to the process by -- by having
2 us have that discussion. And again, if any
3 Board member, you know, feels a certain
4 discomfort, then please let me know, but --

5 **MR. GIBSON:** And I'm -- I'm sorry for delay of
6 the process, but I just -- I just wanted to get
7 that on the record.

8 **DR. WADE:** You added value to the process, sir,
9 and I thank you.

10 **MR. GRIFFON:** And I think the -- the important
11 point that some of us on the Advisory Board are
12 looking for, if not all of us are looking for,
13 is that -- that there -- I think these folks
14 definitely need to contribute -- it's my
15 opinion, anyway. But we also need to keep an
16 eye on the independence and the fact that --
17 that those involved in development and
18 evaluation of the SEC petition or site profiles
19 have an independence a step back so you have
20 some other folks involved on the team that are
21 also looking at -- you know, hard at the data
22 from folks that have -- that are more
23 conflicted, you know.

24 **DR. ULSH:** Right, I --

25 **MR. GRIFFON:** Very valuable data and we need

1 their information, but we also need to take an
2 independent look at it.

3 **DR. ULSH:** I understand. I understand
4 completely and Mark, I do want to mention then
5 that -- I mean the -- the conflict of interest
6 policies for NIOSH and ORAU are -- I don't
7 know, I'm not plugged into the latest status on
8 that. I know that that's a very active issue.
9 I can tell you that the people that we've
10 mentioned who -- you know, that have
11 participated in this discussion -- you know,
12 Roger Falk, Jim Langsted, Gene Potter, Bryce
13 Rich -- are contributing to both the SEC
14 discussions that we're having, but they are not
15 the leads in this process. Bob Meyer is the
16 owner of the Technical Basis -- of the site
17 profile, and Bob is not conflicted. Karin
18 Jessen is the owner of the evaluation report
19 and she doesn't have a personal conflict at
20 Rocky Flats, either. It is true that these
21 other people who are conflicted have
22 contributed their experiences and knowledge,
23 but they are not in charge of -- they don't
24 have ultimate responsibility for these two
25 documents.

1 **DR. WADE:** Just to -- since the question of
2 NIOSH conflict of interest policy is on the
3 table, let me articulate it very briefly.
4 First of all, it starts with disclosure by
5 everyone involved in the process -- I mean
6 complete disclosure -- and that's what Mike
7 helped us do in real time, and again I thank
8 him for that.

9 Once that disclosure is made -- at the root of
10 the NIOSH policy is that someone who is
11 conflicted should not be the owner, principal
12 author, you define it any way you want, of an
13 intellectual product. They should certainly
14 not be in a position to sign off on that
15 product, to approve that product. There needs
16 to be independence of the owner of the
17 document, and then independence of the reviewer
18 and those that sign off on the document. And
19 that's the essence of the policy, disclosure
20 plus independence at the ownership level, at
21 the review and sign-off level. Now it takes
22 various shades and various words are used, but
23 that's the essence of it.

24 **MR. GRIFFON:** All right. I think -- Mike, I
25 think we're okay to proceed at this point.

1 Thank you for --

2 **MR. GIBSON:** Yeah, yeah, sorry I --

3 **MR. GRIFFON:** Oh, no, no, no, no, that was very
4 useful.

5 **MR. GIBSON:** -- I mean, you know, lay of the
6 background.

7 **MR. GRIFFON:** Okay, that's good. And I -- just
8 -- just to get back into the other radionuclide
9 mode here --

10 **DR. ULSH:** Okay.

11 **MR. GRIFFON:** -- I had a question 'cause I'm --
12 as I'm thinking about that gross alpha for
13 plutonium question, I thought I heard Roger say
14 -- maybe I -- maybe I'm missing this, but for
15 the Plant D -- and as one that's not as
16 familiar with Rocky Flats, I should say -- for
17 the Plant D workers -- Plant D plutonium
18 workers, I thought I heard -- gross alpha was
19 the default. Am I missing something?

20 **DR. ULSH:** Roger, can you -- can you field that
21 one?

22 **MR. FALK:** Yes, it turns out that Plant D,
23 especially in the 1950s, was the shipping and
24 receiving center for all of the radioactive
25 materials that entered and left Rocky Flats,

1 and they're also the site of the final assembly
2 for both the plutonium and the uranium Rocky
3 Flats products. Therefore, workers there could
4 have been exposed either to the plutonium or to
5 the am-- or to -- or to the enriched uranium,
6 or basically to any other radioactive material.
7 That is why they sampled those as a default
8 type of -- of a bioassay because the workers
9 could have been exposed to any of the
10 materials.

11 **MR. GRIFFON:** Thanks. Thank you for the
12 clarification. All right, and maybe we can
13 proceed with the other radionuclide questions -
14 -

15 **DR. ULSH:** Sure.

16 **MR. GRIFFON:** -- outlined in Arjun's document
17 or -- or go beyond that, I don't --

18 **DR. ULSH:** Okay.

19 **MR. GRIFFON:** However you want to go forward,
20 Brant.

21 **DR. ULSH:** Sure.

22 **MR. GRIFFON:** I'll leave that up to you.

23 **OTHER RADIONUCLIDES**

24 **DR. ULSH:** There are some other radionuclides
25 other than americium that are mentioned in

1 Arjun's write-up. Mel Chew -- I'm going to
2 turn it back over to Mel. He -- this was a
3 topic that he investigated, he and Mark and
4 Bryce, last week at the Denver Records Center.

5 **MR. CHEW:** Thank you, Brant. Well, Mark, I'd
6 just like to say the last time we were together
7 at the Y-12 I brought you a lot of exotics and
8 --

9 **MR. GRIFFON:** That's right.

10 **MR. CHEW:** -- and so I -- I think I've been
11 tagged with a --

12 **MR. GRIFFON:** It's your mission in life now.

13 **MR. CHEW:** Yeah, I've been tagged with the
14 exotic -- I don't look like a snake here, I'm
15 sorry. But in all reality, the -- the quantity
16 and the different types of exotics at --
17 certainly at Rocky Flats was not nearly as
18 abundant as the early days at -- at the -- at
19 the Y-12.

20 So with that the note, let's address --
21 probably -- I'm going to separate several of
22 the exotics into groupings and so they can make
23 sense of why they were there. I think that's
24 usually what I try to start with are why they
25 were there, and give you some feeling of what

1 they did with it, and give you some feeling of
2 the quantities that were there and issues
3 there.

4 Let's talk with the exotics neptunium-237,
5 plutonium-238 and curium-244 and a little bit
6 of curium-242 but primarily curium-244. And
7 also the addition of the americium, too, but
8 the americium was there already at Rocky Flats.
9 All these particular exotics were brought into
10 Rocky Flats in -- in relatively small
11 quantities for purposes of -- several reasons,
12 for a -- diagnostic tools to put into the
13 plutonium for the weapons test program. I
14 think all of --

15 **DR. WADE:** I might -- I might ask you just to
16 hold for a minute. The working group chair has
17 left the table for a minute and I think it's
18 important that he be back and I can hear
19 evidence of the fact that he is returning.

20 **MR. GRIFFON:** I could almost hear.

21 **DR. WADE:** Okay.

22 **MR. GRIFFON:** Sorry.

23 **MR. CHEW:** Sure, Mark, no problem. Okay.
24 Mark, as --

25 **MR. GRIFFON:** It's illegal, isn't it, taking

1 your own break without giving one.

2 **MR. CHEW:** Mark, I mentioned that the three or
3 four exotics I'm going to address right away
4 here, the neptunium-237, plutonium-238, curium-
5 244 and a little bit of the americium came --
6 and not americium as part of the exotics but
7 the reason for the particular purposes of
8 (unintelligible) and what they were used for in
9 general. Okay?

10 I think all of us know that in the -- as a
11 diagnostic tool for the weapons test program,
12 it was important to put a small amount of these
13 -- what they call trace materials into -- into
14 the -- into the devices, and as they, they
15 basically looked for it, you know, the
16 aggravation (unintelligible). They're
17 basically no different than -- many of you are
18 familiar with threshold detectors that they
19 would have in a -- in a -- in a criticality
20 dosimetry program. Matter of fact, many of the
21 materials was used later on for that particular
22 purposes.

23 The exotic material was brought in in -- in
24 small quantities and quickly alloyed, and
25 that's why you do see some alloying of material

1 when you come out with some -- how the process
2 did. They basically took a small quantity of
3 the material and immediately alloyed it with
4 plutonium and made a small little button of the
5 material, like a neptunium/plutonium alloy,
6 which has been fairly well documented in some
7 very well-written reports that came out of
8 Rocky Flats.

9 Then the material was then -- this alloy
10 material was now put into the rest of the
11 melting to -- to cast to melt the rest -- rest
12 of the plutonium part. Right? And so -- so
13 that there's a two-step process here.

14 There -- we -- we were able to go back into
15 ledgers to determine when the -- the material
16 came, neptunium, the curium and -- unless you
17 want to mention the americium, too -- in
18 quantities and form. And the neptunium, being
19 -- the Rocky Flats was very well known of
20 making very good metal -- probably as good as
21 you did, Bob, at Y-12, but -- they made the
22 exotics ones and the making of americium metal
23 was also very important as a by-product to go -
24 - send back to Oak Ridge to be -- to be
25 sold/sowed* and also to be put into threshold

1 detectors that I think many of us have -- have
2 -- are familiar with here.

3 And so Mark, on that note, we have the gram
4 quantities. Just in general, they range from,
5 you know, kilo-- small -- hundreds of grams to
6 much as -- in the mid-'60s the maximum amount
7 of inventory for neptunium was there was about
8 three KGs, and then dropped down significantly
9 thereafterwards. The curium was there in
10 really in only in gram quantities only, being
11 very precious. They actually -- actually
12 revered every -- every atom that they had, and
13 I think I've already talked about the
14 americium. So -- and then these are the
15 exotics that -- really that we're able to
16 identify and clearly -- and it was used in
17 support of both the physics experiments, they
18 made some alloys so they can send back to Oak
19 Ridge to look for low energy neutron capture
20 examples --

21 **DR. MAKHIJANI:** Which one are you talking about
22 now?

23 **MR. CHEW:** This is the neptunium one, and I am
24 bouncing around. I apologize, I just -- you
25 know, I just gave a little background what they

1 -- the reason for the quantities and the amount
2 of material that was there. And so I will stop
3 with that with the exotics -- well, I'll just
4 mention one more. There was some californium-
5 252 that showed up at Rocky Flats and -- and
6 these were all in sealed sources, and I think
7 many of us will recognize the value of
8 californium, being a neutron emitter, a neutron
9 source, for the active interrogation. For
10 instance, as they were doing barrel counting,
11 when Los Alamos developed a barrel counter,
12 they used an active interrogator using
13 californium and they basically shot the
14 neutrons into the barrel and then looked at the
15 fragments (unintelligible) at these open end
16 they can -- able to tell the amount of
17 plutonium that was there, and so that was the
18 reason for the californium so we were able to
19 identify that. These were also in the ledgers,
20 too. And I'm not so -- yes, Bob?

21 **MR. PRESLEY:** That was in a -- that was in a
22 later year that that was --

23 **MR. CHEW:** Yes, it was. Yes, sir, the
24 californium didn't show up until the late '80s
25 in the microgram quantities. Thank you very

1 much. I think you had one down there, too, in
2 Y-12 in one of the interrogators, if I remember
3 -- or one of the first ones.

4 I'm -- I'm -- this is part of the -- the rest
5 of the ex-- exotics we can address later on,
6 which is the U-233 and thorium, unless you want
7 to do that now.

8 **MR. GRIFFON:** Yeah, go ahead, we might as well
9 stay --

10 **MR. CHEW:** Okay, I'll address --

11 **MR. GRIFFON:** -- stay with it.

12 **MR. CHEW:** -- it now.

13 **MR. GRIFFON:** Yeah.

14 **MR. CHEW:** Okay, I'll address it now.

15 **MR. GRIFFON:** Okay.

16 **MR. CHEW:** We can start with the U-233. A very
17 clear record of when the U-233 came into Rocky
18 Flats, and for obvious reason, this is
19 accountable material, fissile material that was
20 clearly accountable and so it's accountable
21 down to the gram level and so these were well-
22 recorded in the ledgers here. And you can see
23 that the amount of 233 that came in was clearly
24 for the specialty programs that -- that
25 resulted in the Nevada test program. Okay?

1 You can just identify the part that came in and
2 quickly cast. I think many times -- I think
3 Bob Presley would remember it was a part --
4 potentially it was made at Y-12 and it was
5 shipped to Rocky Flats for the final dressing
6 and trimming before it went to Nevada, and Bob
7 is acknowledging that, too. So we clearly have
8 the records that show when the Uranium-230 came
9 in in quantities -- certainly in kilogram
10 quantities only for a short period of time. It
11 was basically a proce-- proj-- process that
12 required them to bring in the 233 and then
13 remove it.

14 With that, as all of us have been -- discuss
15 and know that in uranium-233 it leads to -- to
16 the thorium situation here, has a small
17 quantity of uranium-232. And the uranium-232
18 in the order of about 50 parts per million
19 which naturally decays to the thorium-228, and
20 that brings up, Arjun, about the thorium strike
21 and I'm going to talk about that right now
22 because that's where the thorium come in.

23 As far as the U-233 going back there, back as -
24 - it's more -- much more of an external hazard
25 from a radiation standpoint, treated very much

1 like uranium-235 at -- at Rocky Flats, with the
2 additional -- of the -- getting rid of the
3 thorium, which leads the uranium to go into a
4 thorium strike process. It's a process where
5 they take the uranium and basically boil it,
6 add a little bit of thorium actually to it as
7 the carrier, and actually filter it out and
8 then remove the thorium as quickly as they can.
9 That particular thorium I want to mention to
10 you, Arjun, was the -- the small quantity of
11 thorium-228 was basically treated as -- as
12 waste and clearly document that it was packaged
13 very quickly because there was radiation issues
14 here and shipped to Idaho, and so they got rid
15 of the thorium-228 as fast as they can here
16 from -- from the 233.

17 So that brings us to the thorium, the amount of
18 thorium here. The thorium does not necessarily
19 have to be accountable in -- in the Rocky Flats
20 ledger, but they were. Okay? Many times that
21 they were mentioned that the thorium came in,
22 so there was -- in the accountability ledger --

23 **DR. MAKHIJANI:** Thorium-232 now?

24 **MR. CHEW:** This is the -- the natural thorium
25 that we're -- been talking about. Our favorite

1 subject here, Arjun.

2 **DR. MAKHIJANI:** Yeah, right.

3 **MR. CHEW:** Well, I think I would start off to
4 say the quantity of thorium showed up at Rocky
5 Flats was not nearly -- nearly as -- not even
6 close to the amounts of material that showed up
7 at Y-12. And with that, let's talk about what
8 they did with the thorium here. All right?
9 Clearly there was a discussion with Mr. Vejvoda
10 again and asked them what did they do with the
11 thorium there and what kind of processes that
12 occurred. There was no metallurgical processes
13 that he could identify, again, and that -- that
14 he said there was no metallurgical processes.
15 Different than what they did at Y-12. Right?
16 And so with that, the material came in in -- in
17 -- in several forms, probably most likely from
18 the Y-12 complex and just can't be sure, Bob
19 may know that, because it only came in in
20 kilogram quantities here, in the -- in the tens
21 of kilogram, and the maximum amount probably in
22 the 1961 area where there has been
23 documentation there was about 250 or
24 thereabouts kilogram. Right? Significantly
25 less than the metric tons that we saw at -- at

1 Rocky Flats, but clear again, no metallurgical
2 processes that we do know of.
3 Material came in probably to do -- well, to do
4 several things here, to -- to form -- as you
5 all know, every one of the weapons there that
6 we made a -- a trainer or a part or -- or a --
7 or a -- what do they call it, an exhibit
8 component -- right? -- and -- and the material
9 came in was, only was either trimmed, it was
10 not machined, but trimmed to make it fit into a
11 part. Right? And so the part is -- was -- I'm
12 saying to you that the -- the thorium pretty
13 much stayed as a part. And again, to re-
14 emphasize, there was no metallurgical processes
15 done with it, and so the thorium was well-
16 documented through -- it came in about the 1956
17 time period and stayed until about the 1970
18 time period. And right now -- the last
19 recorded even after that was less than kilo--
20 well, about a -- less than a kilogram of
21 thorium that was present at -- at Rocky Flats
22 here. And so --

23 **MR. GRIFFON:** Now when you said 250 kilograms -
24 -

25 **MR. CHEW:** Yes, sir.

1 **MR. GRIFFON:** -- I'm reading this excerpt in
2 Arjun's document, thorium quantities varied
3 from as little as none to as much as 238
4 kilograms in a given month, are you talking
5 annual or -- or...

6 **MR. CHEW:** When -- when we see the records
7 here, it -- it either shows us the -- using --
8 or we looked at annual reports, Mark. Or for --
9 -- sometime the report broke it down to -- you
10 know, they could see when that particular
11 month. We recorded the highest values that we
12 could see, and so we just say, you know, during
13 that 1961 period as much as 250 kilogram was --
14 2.9 to be exact, that number came out of the
15 records here -- was recorded on the records
16 here.

17 **MR. GRIFFON:** So it wasn't like at a peak they
18 were getting 250 a month for months and months
19 and months.

20 **MR. CHEW:** No.

21 **MR. GRIFFON:** It doesn't seem like that.

22 **MR. CHEW:** Yeah, it didn't seem like that.

23 **DR. ULSH:** I think it might be worthwhile to
24 note, too, 250 kilograms sounds like a lot --
25 maybe, depending on your point of view.

1 **MR. CHEW:** Well, not by Bob's --

2 **DR. ULSH:** Right, not by Bob's point of view.

3 **MR. CHEW:** Obviously.

4 **DR. ULSH:** But I just did a rough, back-of-the-
5 envelope calculation, just to get my hands
6 around -- is this barrels, is it buttons or
7 something in between. If you look at the
8 density of thorium, you're talking about -- if
9 it was cube, about 27, maybe 30 centimeters on
10 a side. So it's a fairly small -- physically,
11 it's fairly small physically. So the point
12 that I'm getting at here is that they didn't
13 have large machine shops that were dedicated to
14 handling large quantities of thorium. I mean
15 that could very easily have been one single
16 part that was sent in from --

17 **MR. GRIFFON:** Right, it sounds like the
18 potential for airborne wasn't that great from -
19 -

20 **MR. CHEW:** Yes, it is.

21 **MR. GRIFFON:** -- what you're describing.

22 **MR. CHEW:** It was ocmelding* when you're
23 talking Y-12, yeah, was the issue, so it was
24 none of that.

25 **DR. MAURO:** So in what capacity could you

1 generate an aerosol from the type of handling
2 of -- let's -- even though it may be a
3 relatively small physical -- but it sound --
4 I'm not quite sure if -- in the end I ask
5 myself well, is there a potential that there's
6 some group of workers that might have been
7 exposed to airborne -- falling particulates of
8 thorium-232.

9 **MR. CHEW:** That's a very good question, John.
10 Let me try to answer it. I think -- I
11 mentioned the thing about trimming. Okay? And
12 there was a thing about -- called shearing,
13 too. You know, taking this particular thorium
14 and just knock off a chunk just -- literally to
15 shear it, as you well know. The trimming was
16 done like it was handling uranium-235. Okay?
17 And so these particular machines are -- are
18 basically lathes -- has a shroud over it. You
19 know, has a cover over it. I can show you a
20 picture of that. And so I would say, to answer
21 your question, probably the likelihood of, you
22 know, airborne activity of a significant
23 quantity to cause a, you know, inhalation of
24 thorium was going to be very, very slight, if
25 anything, to not at all. At least that's my --

1 my feeling.

2 **MR. GRIFFON:** Do you know what building or
3 buildings this was?

4 **MR. CHEW:** Yes, the buildings have been
5 identified. Matter of fact, we even --

6 **MR. GRIFFON:** Do you have these for all these
7 isotopes then that you've talked about?

8 **MR. CHEW:** Well...

9 **MR. GRIFFON:** I don't know that we have to go
10 down them all right now.

11 **MR. CHEW:** Yeah, fairly much. Okay? You know,
12 there might have been -- the -- most of the
13 analytical labs, you know, and there was about
14 four of them showed up with, you know, a
15 microgram or a milligram worth. But the
16 principal facilities, yes, we do have that
17 information and they will be reflected in the
18 SEC evaluation.

19 **DR. ULSH:** Hold on. Before --

20 **MR. RICH:** Now this is Bryce, could I -- just
21 to know, from a perspective standpoint, if
22 you're taking a piece of metal stock and
23 creating a part from it, you normally -- you
24 know, you start with four or five kilograms
25 and, you know, from experience, you wind up

1 with less than ten percent waste. In other
2 words, you'd wind up with something in the
3 range of 400 grams in waste, which would be
4 collected and treated as such, just -- just to
5 give you an idea. And the trimming and the
6 handling of a -- parts from Y-12 would be much
7 less than that.

8 **DR. MAKHIJANI:** So essentially the material
9 came in as metal?

10 **MR. CHEW:** Yes, I'm -- yes, it -- pretty much
11 so, in -- yes, in form -- it came in from Y-12.
12 Bob is nodding his head. Uh-huh.

13 **MR. PRESLEY:** Yeah, a (unintelligible) would be
14 in a gram quantity.

15 **DR. ULSH:** I just wanted to clarify something
16 you said, though.

17 **MR. CHEW:** Yeah, I didn't mean to say it like
18 that. I didn't mean to commit that, Brant. Go
19 ahead.

20 **DR. ULSH:** The evaluation report has already
21 been written.

22 **MR. CHEW:** Okay.

23 **DR. ULSH:** So you said that that would be
24 reflected in the ER and we've already written
25 the ER.

1 **MR. CHEW:** I apologize. I thought we were
2 still there.

3 **DR. ULSH:** Welcome to the Rocky process, Mel.

4 **MR. FITZGERALD:** Just to clarify, you said that
5 you did have the building locations for most of
6 these, in terms of nuclides, including the
7 thorium?

8 **MR. CHEW:** Yes, we do. And we can -- we can go
9 through that with you. But the -- as I said,
10 other than the analytical lab, the -- the
11 thorium was picked up in about three different
12 locations here. U-233 was handled pretty much
13 in --

14 **MR. FITZGERALD:** Right.

15 **MR. CHEW:** -- the -- you know, the uranium
16 area, you know, the 881 area, 80 to 100 area,
17 and then brought over -- 771 actually started
18 the real process of that thorium strike and
19 then got it back over to the (unintelligible)
20 where they could make the metal out of it here.
21 The maj-- majority of that alloy was done in
22 probably -- was done in the R&D area because
23 they kept it very, very clean. And they made
24 that little button and then now took that
25 button over to the rest of the foundry --

1 **MR. FITZGERALD:** But in terms of the thorium,
2 you're almost talking that -- even though the
3 quantities varied over time, pretty steady
4 state operation where -- over a certain period
5 of time up until the mid-'70s where you had
6 material coming from Y-12 going through, then
7 going to the Test Site, I guess.

8 **MR. CHEW:** Give you some feeling, Joe -- good
9 question there -- probably I'm just going to
10 round off some numbers here because it came out
11 from the ledgers. In the early '56 to about
12 the 1959 time frame they were in ten kilogram
13 range. Okay?

14 **MR. FITZGERALD:** Right.

15 **MR. CHEW:** And reached up to 1960 and '61 to
16 the 250 we talked about, and then dropped back
17 down to like 50 kilograms or thereabouts,
18 increased back up in 1965 to about 165
19 kilograms, stayed there for about two years and
20 dropped down to below 100 kilograms, and then
21 basically dropped to -- almost to nothing after
22 1970.

23 **MR. FITZGERALD:** In your review did you
24 establish any particular consideration from the
25 monitoring standpoint or was it pretty much

1 captured by the gross alpha analysis?

2 **MR. CHEW:** Well, I wouldn't -- don't want to
3 say that, that --

4 **MR. FITZGERALD:** I mean was there any
5 indication that there was any -- any monitoring
6 that was tailored to that operation?

7 **MR. CHEW:** I -- we did not see any clear
8 indication that they went out and deliberately
9 looked for thorium. Like I don't -- we don't
10 see any thorium lung counts, example. We --
11 then -- I did not investigate the air sampling
12 like we did at Y-12, but clearly there was no
13 lung counting. And as you well know, it
14 doesn't show up in the urine very easily.

15 **MR. FITZGERALD:** Right.

16 **MR. CHEW:** Okay? And so from that standpoint -
17 - uh-huh?

18 **DR. ULSH:** I mean there were general air
19 sampling done, just like they would for any
20 uranium or plutonium --

21 **MR. CHEW:** It was in the uranium area.

22 **DR. ULSH:** -- but nothing above and beyond for
23 thorium, that we know of.

24 **MR. PRESLEY:** Do that back then.

25 **MR. GRIFFON:** Did you -- I --

1 **MR. CHEW:** No, go --

2 **MR. GRIFFON:** I was just going to ask, going
3 back to neptunium --

4 **MR. CHEW:** Uh-huh.

5 **MR. GRIFFON:** -- maybe it's just -- just for my
6 --

7 **MR. CHEW:** Sure.

8 **MR. GRIFFON:** -- education here. Why was there
9 -- seemed like there was a lot more neptunium
10 than curium, for instance. Was there --

11 **MR. CHEW:** Oh, yes, there's significantly more,
12 as much as one time --

13 **MR. GRIFFON:** Is there -- is there a technical
14 -- I mean I'm sure there's --

15 **MR. CHEW:** Yes.

16 **MR. GRIFFON:** -- a basis for that.

17 **MR. CHEW:** Uh-huh, well, as much at one time
18 there wa--

19 **MR. GRIFFON:** Can you -- to the extent you can
20 -- explain?

21 **MR. CHEW:** Yeah, as much as I can, like there's
22 --

23 **MR. GRIFFON:** It's classified.

24 **MR. CHEW:** Yeah, well, it's sensitive more than
25 anything else, Mark. I think the highest level

1 there was as much as three KGs of neptunium
2 there.

3 **MR. GRIFFON:** Three KGs on site or --

4 **MR. CHEW:** On site, uh-huh, for that year --

5 **MR. GRIFFON:** Okay --

6 **MR. CHEW:** -- the ledger.

7 **MR. GRIFFON:** -- not receipts per year or for -
8 -

9 **MR. CHEW:** No, that's the highest level of the
10 year --

11 **MR. GRIFFON:** -- off-site or --

12 **MR. CHEW:** -- on site. As I said, though,
13 neptunium became a very valuable material. The
14 weapons program for -- you know, each of the
15 tests, you know, both Los Alamos and
16 Livermore's tests, would use maybe a few tens
17 of grams for the test, and that would account
18 for quite a bit of material be trying to --
19 trying to get to to develop that particular --
20 for that particular test program. Okay? So as
21 you know, in the -- that was kind of the height
22 of the test program, there were many tests per
23 year. And then there was a significant amount
24 of neptunium since they had the ability to make
25 the good metal -- as I said, again, you know,

1 they were still given back -- back to Oak
2 Ridge, so they can now -- when there was a
3 large amount of neutron threshold detectors,
4 you know, for criticality alarms, you know, was
5 set up and everybody -- every -- had one --
6 every one had about a gram of neptunium, if I
7 remember correctly here, in those detectors and
8 that went (unintelligible) the place, and that
9 would pretty much account for that -- the
10 reasonable quantity. They think -- they took
11 advantage of Rocky Flats being the people that
12 can purify it and making a good metal
13 (unintelligible).

14 **DR. ULSH:** And one other thing that bears
15 mentioning, Mel's already told you that the
16 thorium was sheared or trimmed in shrouded
17 hoods. The neptunium, the curium, the other
18 exotics were all hand-- there was very, very
19 great sensitivity of avoiding cross-
20 contamination. Ed Vejvoda told us this. I
21 think Ed Putzier mentioned it in his write-up.
22 This was a great -- very great concern so they
23 took a lot of lengths to make sure that that
24 material did not spread, did not become
25 airborne and spread around. They did it in

1 gloveboxes. The curium it even looked like --
2 it resembled a hot cell. I can't say that it
3 was a hot cell, but it sure looked like it.

4 **MR. CHEW:** Well, it had some shielding because
5 there was some (unintelligible). I'd like to
6 add on that, not only the health physics side
7 of it being part of the test program, the --
8 the physicists and the engineers responsible
9 for those particular tests was even more
10 concerned about keeping it pure. Exactly.

11 **MR. GRIFFON:** The same question along the line
12 of Joe's question, for neptunium was there any
13 -- any isotope-specific for that or you didn't
14 see any urinalysis isotope-specific for
15 neptunium?

16 **MR. CHEW:** No. Maybe Gene --

17 **DR. ULSH:** No, we've looked in the HIS-20
18 database. There are no neptunium bioassay --

19 **MR. RICH:** This is -- this is Bryce, just
20 another note from a perspective standpoint.
21 These were specialty projects. They were not
22 routine process-line type contaminants. And as
23 a specialty process, they attracted a lot of
24 atten-- special attention that they -- you
25 know, they were there and a lot of material was

1 in storage waiting for the right time for the
2 specific experiment or part production.

3 **MR. GRIFFON:** In the building for the
4 neptunium, or where would that have been done -
5 -

6 **MR. CHEW:** 771, 559 -- 779, you know, the --
7 where the R&D for (unintelligible) area was
8 (unintelligible) amount of neptunium.
9 Now once -- once it got into the little alloyed
10 button, it went to the foundry and that was
11 707, but that time it was already in the button
12 area.

13 **DR. ULSH:** Now you mentioned -- sorry, Joe.
14 While we're on that, you just mentioned in the
15 R&D areas. And recall from our earlier
16 conversation about gross alpha, Roger said that
17 in those R&D areas they did use gross alpha, so
18 there were no neptunium-specific bioassays --

19 **MR. GRIFFON:** But may have some possible --

20 **DR. ULSH:** It's possible, yeah.

21 **MR. GRIFFON:** Joe?

22 **MR. FITZGERALD:** Yeah, just in general -- I
23 know you're operating off this nice beautiful
24 matrix -- is that going to be available at some
25 point?

1 **MR. GRIFFON:** Yeah.

2 **MR. FITZGERALD:** Soon or -- or later?

3 **MR. CHEW:** You mean the quantities we have
4 here?

5 **MR. FITZGERALD:** Well, yeah. I know you're
6 referencing the matrix, but is that something
7 that would be available (unintelligible).

8 **MR. CHEW:** I think I need to probably send --
9 run it through classification, yeah. And I
10 think maybe -- like we did at -- at Y-12, we
11 just made them general terms.

12 **MR. GRIFFON:** Yeah, even general, I think that
13 would be useful.

14 **MR. FITZGERALD:** I think that would help us in
15 terms of our final review that we owe the
16 Board, just to be able to close the loop and be
17 -- that's it -- should be more specific. I'm
18 quickly writing things down.

19 **MR. CHEW:** Sure.

20 **MR. FITZGERALD:** I just wanted to make sure we
21 were getting (unintelligible).

22 **DR. ULSH:** Joe, I don't have the advantage of
23 having been involved in the Y-12 process.
24 There are some unclassified documents that
25 speak in general terms about maximum quantity

1 that was available, and we can, you know, get
2 you those documents. But if you're interested
3 in a --

4 **MR. FITZGERALD:** Yeah, I -- we're writing
5 things down as it were. I guess the one
6 question is what you're telling us here
7 presumably --

8 **MR. GRIFFON:** Can't be classified while we're
9 on the record, right.

10 **MR. FITZGERALD:** -- isn't sensitive. Right?
11 Right, on the record, so I'm just saying that
12 beyond that -- beyond that, you're going to
13 make that determination.

14 **MR. GRIFFON:** Right.

15 **MS. ROBERTSON-DEMERS:** This is Kathy DeMers.
16 Mel, when you first listed your grouping you
17 mentioned 238 plutonium?

18 **MR. CHEW:** Uh-huh, we did.

19 **MS. ROBERTSON-DEMERS:** You didn't really say
20 how that was used. Was it used --

21 **MR. CHEW:** Kathy, I'm sorry. That was the same
22 for the -- many of the tracers for the Nevada
23 tests was also using a small quantity of 238.

24 **MS. ROBERTSON-DEMERS:** Okay. And did you find
25 anything out about polonium being handled

1 there?

2 **MR. GRIFFON:** Let's --

3 **MR. RICH:** It never showed up in the records.

4 **MR. CHEW:** Yeah. Kathy, right now I think -- I
5 just want to make -- don't -- don't say
6 anything out -- that is maybe incorrectly. We
7 did -- we did not find anything in the records
8 because it was not kept in the records here.
9 Okay? There may have been in potentially early
10 years of some polonium would have brought in as
11 part -- part of the -- a device or a weapon
12 component, but I -- there was no record of
13 that, Kathy, so I'm not saying that there
14 couldn't be.

15 **MR. GRIFFON:** Could I just -- just one more
16 question and I've had a request for a break for
17 the group so we'll take a break after I get
18 through this section, but on the neptunium,
19 what form did -- did it come -- what form --

20 **MR. CHEW:** An oxide -- it came as an oxide.

21 **MR. GRIFFON:** An oxide?

22 **MR. CHEW:** Yes, it did.

23 **MR. GRIFFON:** And was it ever in any liquid or
24 what I mean powder, but then did they ever --
25 I'm -- I'm getting a reference in a log book of

1 -- of neptunium spills, which could have been
2 just a powder spill or...

3 **MR. CHEW:** Well, they dissolved it, you know,
4 very quickly so they can, you know, make it
5 into a metal fluoride out of it and so there is
6 a very -- actually a very good document on
7 neptunium processing here and so if it was like
8 a neptunium spill, you know --

9 **MR. GRIFFON:** So it was a fluorination process,
10 though, that they --

11 **MR. CHEW:** Sure.

12 **MR. GRIFFON:** Okay. Right.

13 **DR. MAKHIJANI:** Mel, you're -- I had some
14 thorium questions before -- I can wait --

15 **MR. GRIFFON:** Yeah, go ahead.

16 **DR. MAKHIJANI:** Or before?

17 **MR. GRIFFON:** No, go ahead, go ahead.

18 **DR. MAKHIJANI:** I'm a little --

19 **MR. CHEW:** You'll have to speak a little louder
20 so I can --

21 **DR. MAKHIJANI:** Thorium-232 -- I'm a little
22 confused about the numbers as to whether
23 they're per month, whether they're per year or
24 whether there are stocks -- you went through a
25 lot of numbers, 250 kilograms in the early

1 '60s, then 50, then 165, then below 100, and
2 then almost nothing after 1970. But I --

3 **MR. CHEW:** That we have in the -- seen in --

4 **DR. MAKHIJANI:** -- don't know --

5 **MR. CHEW:** -- the records so far. Okay.

6 **DR. MAKHIJANI:** Yeah, right. So I just -- I
7 just wrote down the numbers that you said, but
8 there were no -- no -- since we had a 237 per
9 month, it seemed to me -- this is sort of
10 following on Mark's earlier question. It
11 seemed to me that if there were quantities like
12 250 kilograms per month and 100 kilograms per
13 month, I mean you're -- over the period of the
14 '60s to the -- early '60s to the late '60s, you
15 are talking tons.

16 **DR. ULSH:** Hold on, hold on, that -- what
17 you're seeing, Arjun, is not receipts in and
18 out. What you're seeing is inventory on site.
19 So let's say in January you had 250 and in
20 February you had 240. That doesn't mean that -
21 -

22 **MR. GRIFFON:** Okay, it's not receipts.

23 **DR. ULSH:** Exactly, it's inventory sitting on
24 site.

25 **DR. MAKHIJANI:** So these are inventory numbers?

1 **MR. CHEW:** Okay, let me -- in -- in the ledger
2 it says -- very clearly it says what came in
3 and came out, as many -- as much as they could.
4 Okay? And then that's receipt. We chose the
5 highest amount that there could have been there
6 at any time during that year. And so when they
7 says 250 per month, it's really a -- if you
8 went back and looked at the ledger
9 individually, but it's carried over from the
10 previous month, so yes.

11 **MR. PRESLEY:** All right. You might have had a
12 250-gram amount that came in in X month, but
13 next month it might have been 240 because they
14 used ten grams. The next month it might have
15 been 238 because they only used two grams.

16 **DR. MAKHIJANI:** Okay.

17 **MR. PRESLEY:** That's -- kept your inventory on
18 hand 'cause it was too hard to get.

19 **DR. MAKHIJANI:** Yeah, I just wanted to clarify
20 what the numbers were, flows or inventories or
21 use --

22 **DR. ULSH:** Yeah, Craig just made a good
23 analysis -- or a good analogy. It's your
24 checkbook balance, it's not your cash flow.

25 **DR. MAKHIJANI:** Right, and I understand that

1 exactly. That was the point of my question is
2 I did not -- since it wasn't said, whether that
3 was inventory or flow.

4 **MR. FITZGERALD:** Now I have a question. I
5 think this is actually a very valuable look at
6 the material ledgers that probably hasn't been
7 done in the depth that we've done before. Is
8 there any nuclides of significance other than
9 the ones that, you know, we kind of cherry-
10 picked from the, you know, what we saw, which
11 was the unclassified, that would be of
12 relevance to this discussion 'cause I think
13 early on we got a -- a little heads-up on -- I
14 think it was U-236 coming out of Idaho. You
15 know, there was a couple of inferences there.
16 Is there anything else that you can enlighten
17 us on beyond these four or five?

18 **MR. CHEW:** Okay.

19 **MR. FITZGERALD:** Without getting into
20 classified --

21 **MR. CHEW:** Yeah. Because, as I said, the --
22 the purpose of the material was quite -- still
23 sensitive. Okay?

24 **MR. FITZGERALD:** Uh-huh.

25 **MR. CHEW:** There's -- there's probably a

1 reasonable amount of plutonium-242 that was
2 there, but we (unintelligible) our -- I think I
3 want to just leave it that way. It is still --
4 for some physics experiments, as you can
5 imagine.

6 **MR. PRESLEY:** Yeah, we need to take a break.

7 **MR. CHEW:** Okay, let's just leave it there.

8 **DR. MCKEEL:** Mark Griffon and Lew Wade, would
9 it be appropriate for me to make a -- to add
10 some new information, not -- not a comment,
11 just some information about the thorium at
12 Rocky Flats?

13 **MR. GRIFFON:** Who is this?

14 **DR. WADE:** This is Dr. --

15 **DR. MCKEEL:** This is Dan McKeel in --

16 **MR. GRIFFON:** Oh, Dan, okay. Yes, yes, it's --
17 yeah, go ahead, Dan.

18 **DR. MCKEEL:** Well, I -- I've been working
19 closely with the Dow Chemical site in Madison,
20 Illinois and they -- as you know, Dow was the
21 prime contractor at Rocky Flats from 1952 to
22 1975, and that company was a major thorium
23 supplier. And we -- we have direct testimony
24 from many of the workers at the Dow Madison
25 plant that extruded and rolled and cast thorium

1 metals that there were numerous shipments from
2 the Dow Madison plant to Rocky Flats, as well
3 as exchange of personnel between the two sites,
4 of people who worked at Dow at -- at Rocky
5 Flats who came to Dow Madison for special kind
6 of extrusion and rolling and casting
7 operations. And then the men tell of many
8 shipments from Dow Madison to Rocky Flats, so I
9 -- I believe that although the comment was made
10 that there was no metallurgy operations done at
11 Rocky Flats, that it's highly possible that
12 there was a contract that the prime contractor
13 did some of that machining and milling and
14 rolling at Madison, Illinois and then sent it
15 to Rocky Flats. So I think you should
16 consider, besides Y-12 as a source for thorium
17 at Rocky Flats, the Dow Madison plant. I -- I
18 guess that's my main comment.

19 **DR. WADE:** Thank you.

20 **MR. GRIFFON:** Thank you.

21 **MR. CHEW:** I appreciate that very good, too. I
22 think I remember looking at the ledger, there
23 was a comment that came in from one of your --
24 one of the sister facilities at Dow and I'm
25 glad you recalled that. 'Cause sometimes in

1 the ledger it would -- it sometimes identified
2 where the material was shipped in from, so you
3 -- you're absolutely correct.

4 **DR. MCKEEL:** Okay. Thank you.

5 **MR. CHEW:** Uh-huh.

6 **MR. GRIFFON:** Is there anything else on the
7 other radionuclides at this poin-- at this
8 juncture?

9 **DR. MAKHIJANI:** One -- one -- one more question
10 about this -- so there's a whole aqueous
11 neptunium processing stream there, but we have
12 no air monitoring or -- so are there -- did you
13 identify gross alpha data in these areas? I
14 mean the key -- the key -- the central point of
15 a lot of this was do you have gross alpha data
16 for the radionuclides for which we don't have
17 radionuclide-specific information, so there was
18 some potential for airborne for neptunium and
19 thorium. Say those look like the big ones. Do
20 we know that there was gross alpha data for
21 those workers?

22 **DR. ULSH:** First of all, I would -- there's a
23 couple of things I want to address in your
24 question, Arjun. These operations occurred in
25 the R&D areas, for which we know there were

1 gross alpha measurements. Can I tell you that
2 for a particular neptunium operation there were
3 gross alpha bioassays, I -- I really can't at
4 this point. But we do know that they had that
5 technique available to them and they do have
6 workers in those areas that have gross alpha
7 measurements.

8 **DR. MAKHIJANI:** Uh-huh.

9 **DR. ULSH:** Now the second point, you
10 characterized that there was a potential for
11 airborne of neptunium and thorium. I would not
12 concede that. These were done, first of all,
13 small quantity, small type operations. They
14 were special campaigns and they -- there were
15 great lengths taken to avoid cross-
16 contamination. So I think that the airborne
17 potential is very, very minimal. I can't say
18 zero, but it is very, very minimal.

19 **DR. MAKHIJANI:** Just to clarify my own
20 question, I -- I did -- I did get that they
21 took great care, but I presume that it was
22 comparable to the care that they took for --
23 for weapons plutonium, which was also done --
24 glovebox and there was potential for air
25 contamination with -- with plutonium. So it's

1 -- and the -- the chemical -- the chemistry
2 sounds like it was very similar, same -- same -
3 -

4 **MR. CHEW:** It is the same chemistry as the
5 basically the same chemistry.

6 **DR. ULSH:** But it's a question of scale,
7 though. They dealt with tons and tons of
8 plutonium, so you did have events that led to
9 airborne contamination. We're talking about
10 kilogram quantities here, much, much less
11 potential just based on the scale of the
12 operation itself.

13 **DR. MAKHIJANI:** Right, that's true.

14 **MR. GRIFFON:** Anything else on this topic for
15 now? I think we'll -- this is a good time for
16 a break.

17 **DR. ULSH:** Mark --

18 **MR. GRIFFON:** I've had a request for a break.

19 **DR. ULSH:** Yes, let's do take a break.
20 However, I've got Steve Baker on the line who
21 is going to talk about the Trailer T-690
22 records issue.

23 **MR. GRIFFON:** Okay.

24 **DR. ULSH:** He's only available until -- for
25 another half-hour, so if we could take a

1 reasonable length --

2 **MR. GRIFFON:** Ten-minute -- ten-minutes; keep
3 it short.

4 (Whereupon, a recess was taken from 11:10 a.m.
5 to 11:20 a.m.)

6 **DR. WADE:** Okay, we're getting ready to
7 reconvene. Are our friends still on the line?
8 Is there someone on the line?

9 **UNIDENTIFIED:** Yeah.

10 **DR. WADE:** Okay. Thank you.

11 **MR. GRIFFON:** Okay, did you want to -

12 **T-690 TRAILER RECORDS**

13 **DR. ULSH:** Yeah, Mark, I'd like to ask the
14 Board's discretion to maybe jump out of order
15 from the matrix. Steve Baker is on the line
16 and he -- we've been talking about this issue -
17 - I think it was originally raised by Don
18 Sabec* at the Denver Advisory Board meeting
19 about some records that were in a trailer, T-
20 690. And I'm going to ask the folks around the
21 table who were at that meeting to help me
22 recall this accurately. Mr. Sabec told about
23 some records, that he saw boxes of records that
24 he saw in that trailer and they were there, and
25 then a couple of weeks later they were not

1 there anymore. And he was told by another
2 worker that they had been taken to the
3 landfill. This is -- this is according to Mr.
4 Sabec -- and it was Don Sabec. Right? I mean
5 I think I do have that correct.

6 **MR. LITTLE:** That's correct.

7 **DR. ULSH:** Yeah. So this occurred I think in
8 the early '90s -- maybe late '80s. It's been a
9 while. But this is obviously an issue of
10 concern for us, and for -- SC&A is also
11 interested in this, we all are. And we've
12 asked Steve Baker to talk to some of the older
13 -- you know, some of the people who were on
14 site at that time to see if we could kind of
15 track down what this situation is. So Steve,
16 are you out there?

17 **MR. BAKER:** Yeah, I'm here.

18 **DR. ULSH:** Okay. Steve is only available for
19 about another 15 minutes, I believe. So Steve,
20 I'd like you to just maybe summarize the number
21 of people that we've talked to, who we've
22 talked to and what we have found out.

23 **MR. BAKER:** Okay. So far I've spoken with 21
24 people, all rad protection types, some in rad
25 engineering, some in rad training -- those are

1 the two groups that were in the T-690 trailers
2 in the early '90s. I've talked to some of the
3 RadCon protection management/radiation records
4 people. Most people did not remember hearing
5 anything about the boxes. There were a few
6 that had some vague recollection hearing
7 something about it, but this is
8 (unintelligible) detail. There are a couple of
9 people that also said they remembered the
10 incident, remembered it fairly well -- let me
11 (unintelligible) my computer here. Larry
12 Rands* was -- I can't remember if he was a rad
13 engineer or in radiation training at that time,
14 but he was down in T-690-D at about that time.
15 He said he remembered hearing about or
16 remembered seeing 100 boxes there stored in
17 about half of the trailer. He thought they
18 were collected from several buildings across
19 site, possibly contained contamination records,
20 survey records, dose reports, maybe some other
21 reports. He remembers that they were there on
22 a Friday and gone the following Monday. He'd
23 also heard that trucking had taken them to the
24 landfill, but he didn't know for sure and he
25 didn't know for sure what the records were. He

1 suggested I call Don Sabec, who's one of the
2 contacts he suggested to try to get more
3 information.

4 The other person I contacted, Jeff Jenns*, he
5 was a radiation protection manager at the time.
6 Again, he vaguely remembered hearing something
7 about the boxes, couldn't really remember any
8 details, but thought that they might be fixed
9 air head and airborne activity monitoring
10 records related to a claim made by two former
11 employees in the early '90s. I think they had
12 actually filed a lawsuit and may have been
13 records to support that, but he wasn't --
14 again, wasn't sure, didn't know any other
15 details.

16 Tim Woods was a -- I'm not sure if he was a rad
17 engineer at the time or if he was a rad
18 engineering manager. He also vaguely
19 remembered something about missing records,
20 didn't know any details, but thought they might
21 have been related to some contaminated records
22 that were located in Building 881. I do
23 remember that a little bit. There were some
24 contaminated records found and had to go
25 through and survey the records and made copies

1 of contaminated pages, and I'm not sure where
2 they did that. They thought that might have
3 been 690 where they did that.

4 Bruce Wallen was with DOE. He doesn't really
5 remember any missing records, but talking --
6 after I talked to him a little bit, he thought
7 -- you know, the only thing he could think of
8 was the contaminated records from Building 881.
9 Finally Dick Link, who was in rad engineering -
10 - I believe he was in rad engineering at that
11 time. He remembers a pile of boxes is how he
12 put it that was there one day and gone a day
13 later. He didn't know what was in the boxes or
14 what happened to them, but he did say boxes
15 were routinely brought into 690-D to research
16 information for lawsuits, building restart
17 issues, other issues, and typically those boxes
18 would contain survey records, exposure data,
19 incident reports, things like that. He said he
20 does remember bringing about 100 boxes into
21 that trailer sometime around that same time,
22 and he was looking for a particular survey
23 record from the Building 771 fluorinator when
24 he was doing his search. He thought his 100
25 boxes went back to the Federal Center. He also

1 did mention the contaminated records from
2 Building 881, and also thought those could have
3 been taken to 690-D but he didn't know for
4 sure, and that's -- that's all I've found out
5 so far.

6 **DR. ULSH:** Okay, Steve. Could you also walk us
7 through what you said in an e-mail a few -- oh,
8 I guess a few weeks ago about what the policies
9 in place in terms of records control were at
10 that time, and whether or not there might have
11 been any legitimate reason for records
12 destruction.

13 **MR. BAKER:** Okay. I was radiological health
14 manager from '95 until 2006. Before that I was
15 in internal dosimetry and then spent one year
16 in external dosimetry starting back there in
17 1985, June of '85. The personnel exposure
18 records -- we collected all those, we had files
19 for each person, each contractor had their own
20 file, and those were all stored in Building 123
21 back in the mid-'80s, and then later they were
22 moved to Building 112 across the street when
23 123 came down. Those records were stored --
24 when they were in 123, they were in you know,
25 the rolling -- rolling cabinet things. We also

1 had some file Fire -- Fire King file cabinets
2 out in the hallways.
3 Those records -- we held onto those very
4 tightly. They had a check-out process. We had
5 a log book that -- that we signed to -- to
6 check out who had it, where it was going.
7 Those were individual files at the time that
8 were checked out. And then periodically the
9 radiation records people, if a file was not
10 turned back in in a reasonable amount of time,
11 they would go find the person and make sure
12 they, you know, still had the file and, if they
13 didn't need it anymore, to get it turned back
14 in.
15 It would be very -- in my mind it would be very
16 unlikely that those missing boxes, especially
17 if they're talking a large number of those
18 boxes, could have been personnel exposure
19 history files. I just -- we never let those
20 out of the building. The only -- the only
21 buildings those were allowed to go to even. If
22 a rad engineer wanted it, they had to come up
23 to our building, Building 123. We would also
24 let them go across the street to 122, which was
25 our building, which was where the body counter

1 was. Roger Falk and others were housed over
2 there for periods of time, so those are the
3 only two buildings that -- that we would allow
4 those records to go to.

5 **MR. GRIFFON:** But -- was that a DOE -- what was
6 the DOE policy at that time for -- I mean I
7 think there was some sort of moratorium on
8 destruction of any records related --
9 particularly related to exposures. I -- I know
10 that can be -- that was interpreted by the
11 sites, probably, but what -- what was the DOE
12 policy at that time when this -- this alleged
13 incident occurred?

14 I don't know -- what time frame are we talking
15 again?

16 **MR. BAKER:** I can tell it --

17 **MR. GRIFFON:** Is it in the '90s?

18 **MR. BAKER:** -- probably sometime in the late
19 '90s or early -- early -- late '80s or early
20 '90s.

21 **MR. GRIFFON:** Okay.

22 **MR. BAKER:** It was probably around 1990, 1991
23 time frame.

24 **MR. GRIFFON:** Right.

25 **MR. BAKER:** And I don't remember when the

1 moratorium on destruction of records came into
2 being. Before the moratorium records had a --
3 a --

4 **MR. GRIFFON:** Joe?

5 **MR. FITZGERALD:** There was a moratorium, but it
6 was in the late '90s and -- mid to late '90s.

7 **MR. GRIFFON:** It was late '90s. Okay.

8 **DR. ULSH:** And one thing to keep in mind is
9 that -- I don't know, maybe even then you could
10 destr-- you could dispose of duplicate copies,
11 but you couldn't get rid of the originals.

12 **MR. FITZGERALD:** And it was due process where
13 you had to actually send a notice around and in
14 some cases get permission to do that.

15 **MR. MEYER:** And actually I think that was in
16 effect during the environmental dose
17 reconstruction that started in 1992 at Savannah
18 River and --

19 **MR. FITZGERALD:** Yeah.

20 **MR. MEYER:** Does that sound right?

21 **MR. FITZGERALD:** Yeah.

22 **DR. ULSH:** So I guess at this point we would
23 have to characterize it as we still have a lot
24 of questions out there. We don't have the
25 answer to this, to what happened, if anything,

1 with this incident.

2 What I do want to impress upon you is that
3 we're pursuing this with due diligence. I
4 think Steve -- you said 25 people that we've
5 talked to now?

6 **MR. BAKER:** Twenty-one.

7 **DR. ULSH:** Twenty-one, 21, and there's a few
8 more on the list if we can get contact
9 information.

10 **MR. BAKER:** Yeah, I've got about six more.

11 **DR. ULSH:** Yeah. I mean I hope that we'll be
12 able to run this down. I don't know. We're
13 trying. We've got 21 people that we've talked
14 to.

15 Now one per-- I think the next person or
16 relatively soon we should talk to Don Sabec. I
17 spoke to Mr. Sabec at the Den-- at the Denver
18 Advisory Board meeting. Not about this
19 particular issue but, you know, some other
20 things -- and he gave me his contact
21 information, including a phone number. I tried
22 to call him shortly after the Denver Advisory
23 Board meeting about some other issues --
24 repeatedly, I think four or five times -- never
25 got an answer -- you know, left messages,

1 didn't hear from him. Amy Dean, who is on
2 Bob's team, has also been trying to reach him,
3 left three or four messages, haven't heard back
4 from him. So --

5 **MR. MEYER:** It's been in the last week.

6 **DR. ULSH:** So he could be on vacation, for all
7 we know.

8 **MR. GRIFFON:** Yeah, yeah.

9 **DR. ULSH:** But we are trying to reach him, too,
10 because I mean he's the original source of
11 this.

12 **MR. GRIFFON:** Might be able to work through the
13 petitioners, too, and see if they can contact
14 him, you know.

15 **DR. ULSH:** Yeah. Now I know that SC&A's been
16 interested in this issue. Do you guys know
17 anything more that we don't know? I mean I
18 kind of laid on the table what we do know. You
19 guys found out anything?

20 **MR. FITZGERALD:** Yeah, Brant, Kathy has
21 actually interviewed I guess the workers -- or
22 worker that has raised this, has brought this
23 forward. I don't know, Kathy, is there
24 anything more that we know?

25 **MS. ROBERTSON-DEMERS:** I gave you all the

1 information I had.

2 **MR. LITTLE:** When did you talk to him?

3 **MS. ROBERTSON-DEMERS:** Oh, this was before the
4 last working group meeting.

5 **MR. LITTLE:** Say that again.

6 **MS. ROBERTSON-DEMERS:** It was before the last
7 working group meeting. It's been a while.

8 **MS. MUNN:** More than a month.

9 **MS. ROBERTSON-DEMERS:** Yeah.

10 **MS. MUNN:** My guess is two to three months?

11 **DR. MAKHIJANI:** The last working group meeting
12 --

13 **MS. ROBERTSON-DEMERS:** At least a month.

14 **DR. MAKHIJANI:** -- was the 30th of May.

15 **DR. ULSH:** Okay.

16 **MR. GRIFFON:** Well, I mean I guess the other
17 question on this is -- is to what end? I mean
18 where -- where is this going to take us?

19 **DR. ULSH:** I really can't say. Right now we
20 have more questions than answers. It would be
21 great if one of these next six people that we
22 talk to says oh, yeah, yeah, this is exactly
23 what happened. I can't -- I don't know if
24 that's going to happen or not.

25 **MR. MEYER:** We have put quite a bit of effort

1 into this and it -- I --

2 **DR. ULSH:** Oh, talk about -- talk about the
3 records searches that we've done.

4 **MR. MEYER:** We have -- which ones do you mean,
5 the full set? We've done quite a bit.

6 **DR. ULSH:** Yeah, we've been bogging down --
7 we've been overwhelming the Mountain View
8 folks. We've searched on anything to do with
9 the T-690 incident, any -- any investigation
10 write-ups.

11 **MR. MEYER:** We've spent -- our -- our contact
12 there of course is Andrea (unintelligible) and
13 Scott Raines*, Andrea does the searches for us.
14 They're very cooperative, very helpful, and
15 pretty creative when it comes to searching.
16 They understand the record set and the database
17 very well. And in this particular case, Scott
18 has not been able to come up with any record.
19 One thing we've been looking for in particular
20 is was there an investigation of some sort of
21 this incident. He's not able to find anything
22 indicating that and he -- he would be able to
23 if it's present.

24 **DR. ULSH:** So I guess what we know at this
25 point is we have Don Sabec's recollection that

1 he saw trailer -- boxes of records in this
2 trailer that were not there later. Another
3 employee, according to Mr. Sabec, said that
4 they were taken to the landfill. Mr. Sabec
5 doesn't know that for sure, but I mean that's
6 what he was told.

7 In terms of the contents of those boxes, I
8 don't know.

9 **MR. GRIFFON:** It seems like --

10 **DR. ULSH:** We've got a lot of --

11 **MR. GRIFFON:** -- What Steve just said, it seems
12 like at least one individual he talked to
13 confirmed -- or -- or --

14 **DR. ULSH:** Some people -- some people that
15 Steve talked to do have --

16 **MS. MUNN:** They also had heard.

17 **MR. GRIFFON:** Yeah, also had heard.

18 **MS. MUNN:** Also had heard.

19 **MR. GRIFFON:** Right, right.

20 **DR. ULSH:** They recollect hearing this.

21 **MR. GRIFFON:** But even if -- even if -- my
22 point is, even if they went to the landfill,
23 they could just be duplicate copies of some
24 other records, couldn't they?

25 **DR. ULSH:** Well, they could be, but we don't

1 know that at this point. I -- I really can't
2 say that we can put this issue to bed yet.

3 **MR. GRIFFON:** Yeah.

4 **MR. MEYER:** The requirements for protection of
5 dosimetry records are really clear within the
6 (unintelligible).

7 **MS. MUNN:** They're pretty stringent, so let me
8 see if I can -- can really summarize what we
9 have here.

10 We have an individual alleging that boxes of
11 material that he was told were records --

12 **MS. ROBERTSON-DEMERS:** No, he looked in the
13 boxes.

14 **DR. ULSH:** Yeah, I think, Wanda, he said that
15 he did a cursory look through the boxes.

16 **MS. MUNN:** He looked in the boxes and he
17 believes these records were what, Kathy?

18 **MS. ROBERTSON-DEMERS:** Field records and
19 records related to individuals.

20 **MR. GRIFFON:** So survey records and --

21 **MS. MUNN:** Okay.

22 **MR. GRIFFON:** -- yeah.

23 **MS. MUNN:** He believes that these were original
24 survey records? Does he have any assertion in
25 that regard?

1 **MS. ROBERTSON-DEMERS:** Well, he didn't say
2 anything about that.

3 **MR. GRIFFON:** May have to follow up with him on
4 that.

5 **DR. ULSH:** Yeah. We'll try to track him down.

6 **MS. MUNN:** So he has looked in boxes that he
7 believes were records at one point, and several
8 days later the boxes were not there. Some
9 third person, unidentified, told him that they
10 had been taken to a landfill.

11 **MS. ROBERTSON-DEMERS:** Right.

12 **MS. MUNN:** We have one other individual who
13 indicates that some other third party had also
14 told him that something had been taken to the
15 landfill. He doesn't know whether it's the
16 same batch of boxes or not. But we have a
17 number of people who indicate that there's no
18 evidence that such an event occurred, to their
19 knowledge. Is -- is that a good summary? We
20 have 20 people saying they don't really see how
21 that could have happened --

22 **MR. GRIFFON:** Slightly leading, but yeah.

23 **MS. MUNN:** Well, so was the what was there and
24 -- but that's essentially the summary. Right?

25 **MR. BAKER:** (Unintelligible) people said they

1 didn't remember anything about it.

2 **MS. MUNN:** Yeah.

3 **DR. ULSH:** Didn't say it didn't happen, just
4 said they didn't remember hearing about it.

5 **MS. MUNN:** Right.

6 **DR. ULSH:** Some other people -- I'm looking at
7 one, two, three -- four or five remember
8 hearing something about it, but can't remember
9 any details -- and they don't have personal
10 knowledge. They just remember hearing
11 something.

12 **MR. GRIFFON:** Seemed to say something possibly
13 related to a lawsuit, so -- or -- or --

14 **DR. ULSH:** One person said -- and Steve,
15 correct me if I'm wrong. One person said that
16 records were often taken to this trailer to do
17 research in support of lawsuits or building
18 closures. Is that accurate, Steve?

19 **MR. BAKER:** That's correct.

20 **DR. ULSH:** So that -- that's what we know and
21 that's what we don't know at this point.

22 **MR. GRIFFON:** Yeah. Okay.

23 **DR. ULSH:** So we'll keep looking.

24 **MR. LITTLE:** But one thing we haven't been able
25 to find -- to reiterate, we haven't been able

1 to find in the Records Center any -- any formal
2 action that looks like a lawsuit or an
3 investigation occurred around the time that
4 we're talking about associated with this
5 trailer, the lost records. I mean that's
6 pretty interesting. It seems to me
7 significant.

8 **DR. MAKHIJANI:** What was the time exactly?

9 **DR. ULSH:** You know, that question keeps coming
10 up; I wish I had the answer. I think it was --

11 **MR. LITTLE:** Late '80s, early '90s.

12 **DR. ULSH:** I'm going to have to go back to the
13 transcripts from the Denver Board meeting and
14 see exactly what Mr. Sabec said, but that --

15 **DR. MAKHIJANI:** Wasn't there a worker lawsuit
16 at that time?

17 **MS. ROBERTSON-DEMERS:** There -- there was a
18 worker lawsuit and he had brain cancer, Arjun,
19 but I don't know when it was.

20 **DR. MAKHIJANI:** Yeah, I think there was a
21 worker lawsuit around that time. One
22 suggestion, Brant, is if it was related to a
23 lawsuit and research about lawsuits, it must
24 have been a check-out and check-in procedure at
25 the time and there -- so I believe probably

1 that -- I know that prior to the big lawsuits
2 in the '90s and later, there were -- I think
3 there was an individual lawsuit, or two or
4 three individuals at Rocky Flats. I don't
5 remember the --

6 **DR. ULSH:** That might be an angle that we can
7 pursue, see if we can approach it from that.

8 **DR. MAKHIJANI:** It might be possible to settle
9 it that way, 'cause somebody may have seen it
10 in the trailer and then they may have been
11 taken back and logged back in, so if you could
12 find that log, then --

13 **DR. ULSH:** That would be great, but that...

14 **DR. MAKHIJANI:** -- It may be a long shot, but
15 at least it's a shot.

16 **MR. GRIFFON:** The only other interesting -- the
17 only other point I have on that maybe was it
18 sounds like you interviewed 20 or so health
19 physics related people. Who was -- who was
20 running the trailer? I mean who -- you might
21 have --

22 **DR. ULSH:** I'm looking at Steve's summary here.
23 We've got people from rad health managers,
24 people in rad engineering, there's a rad health
25 secretary, someone from DOE, so they kind of

1 span the spectrum. Steve, can you speak to who
2 was in those trailers or operating those
3 trailers?

4 **MR. BAKER:** Again, it depends on the time frame
5 because I think rad training was in half the
6 trailer and -- Larry Rands told me that rad
7 training had half of T-130-B trailer at one
8 point and the Union Progression Committee was
9 in the other half of that trailer, and I think
10 that was the time frame when these records
11 disappeared because he mentioned Don Sabec
12 would have been in the other half of the
13 trailer at that time.

14 **MR. LITTLE:** And he -- he -- Sabec mentioned
15 that he was on the Progression Committee.

16 **MR. BAKER:** Okay. So that's probably the time
17 frame then that they're talking about. A
18 little bit later I think the union got their
19 own trailer, and then rad engineering moved
20 into that trailer. So the people that would
21 have been -- from the rad protection group, the
22 people that would have been in that trailer at
23 that time were probably Curt Galloway*, Larry
24 Rands -- there were probably a couple of rad
25 engineers that were in there, too, I think --

1 Mark Welley*.

2 **MR. GRIFFON:** And that includes the people you
3 talked to -- I mean these are people you talked
4 to?

5 **MR. BAKER:** Yeah, these are people I talked to,
6 and the people I talked to either -- a couple
7 of them remembered hearing something about that
8 but nothing else, and then Larry Rands was the
9 one who remembered the most, remembered seeing
10 them.

11 **MR. MEYER:** Steve, do you remember when Anna
12 Montoya* was there? Was she there during that
13 period?

14 **MR. BAKER:** She was actually up in Building 123
15 for that period.

16 **MR. MEYER:** She was the rad --

17 **MR. BAKER:** She could not remember anything.

18 **MR. MEYER:** Right, she was the rad health
19 secretary at that time and doesn't recall
20 anything about it, and she's very
21 knowledgeable. She's still at the Mountain
22 View Center.

23 **DR. ULSH:** So that's an update on where we are
24 with it.

25 **MR. GRIFFON:** I think follow up with that

1 individual, but at some point we need --

2 **DR. ULSH:** We're trying.

3 **MR. GRIFFON:** Yeah. It might be a dead end,
4 you know. At some point we have to recognize
5 that, too, so --

6 **DR. ULSH:** It might be. I hope not, but it's a
7 possibility.

8 **MR. GRIFFON:** Yeah. Okay.

9 **DR. ULSH:** Okay. Thanks a lot, Steve.

10 **MR. BAKER:** Okay.

11 **DR. ULSH:** Mark, we left off with --

12 **MR. GRIFFON:** Going back to the agenda.

13 **DR. ULSH:** Yeah. We left off on page two. I
14 think we talked about issue four, and we went
15 into other radionuclides. I think that's --

16 **MR. GRIFFON:** Right.

17 **DR. ULSH:** -- where we left off.

18 **EXTERNAL DOSE, NEUTRON ISSUES**

19 **MR. GRIFFON:** Yeah, and I'm kind of on the
20 next issue, which is the external dose or
21 neutron issues primarily, I guess.

22 **DR. ULSH:** Yes.

23 **MR. GRIFFON:** And maybe just a -- a background
24 -- catch up on where we're at --

25 **DR. ULSH:** Sure.

1 **MR. GRIFFON:** -- on that as -- from both
2 parties, from -- I know that SC&A provided a
3 paper reviewing some of those issues and --

4 **MR. FITZGERALD:** I have extra copies of what we
5 handed out last time in case people don't have
6 it.

7 **MR. GRIFFON:** Just an update on that.

8 **DR. ULSH:** Yeah. I think Ron Buchanan was you
9 guys's point person on these issues. Right?
10 I'm going to rely on you, Joe, to make sure
11 that I'm accurate here, but I think Ron
12 reviewed OTIB-50. He -- we've had some
13 discussions between he and Roger and other
14 members of the team about some of the questions
15 that Ron had about NTA film.

16 Mark, you've got here that some of these
17 questions are still outstanding, such as the
18 justification for using the NTA film
19 calibration factor for glass track dosimeters.
20 I don't know that that is an updated status.
21 Is that still an outstanding question?

22 **MR. FITZGERALD:** No. No, it isn't.

23 **MR. GRIFFON:** Okay.

24 **DR. ULSH:** Okay. 'Cause I mean we did discuss
25 it.

1 **MR. FITZGERALD:** That's what pertinent about
2 the thing we handed out last time and I'm
3 handing out again. Given all the different
4 nooks and crannies to the external issue, just
5 to make it easier, I had Ron put this piece
6 together which basically is a bottom line on
7 the overall external dose assessment, the NDRP
8 neutron, neutron, photon, everything. And
9 distinguishing between what is -- has led us to
10 a site profile conclusion -- in other words,
11 there are issues, but for example, with NTA
12 film, but there -- and aprons use and there's a
13 whole number of issues, but they turn out to be
14 more site profile questions. And distilling
15 this thing down to what we're calling remaining
16 SEC-pertinent questions -- which are -- which
17 are two, essentially, and they're highlighted
18 on page four of this handout and also in the
19 conclusion of the last page of this handout --
20 they get around?

21 **UNIDENTIFIED:** Take this one.

22 **MR. FITZGERALD:** But in sum, one deals with the
23 question of the early years, the question of --
24 of -- you know, the references for the data
25 entries, the max and min values, number of

1 zeroes, et cetera for the early years in
2 Building 771 and the basis for table 7-1 and 7-
3 2 of the site profile. And the only question
4 there is that -- you know, we -- we don't have
5 a problem so much with the methodology. I
6 think that's been pretty well cleared. But we
7 want to really look at the data behind -- the
8 data that would be used in the neutron to
9 photon ratios, and I understand better -- I
10 guess number of the parameters which we list
11 there, which -- number of data entries, for
12 example, so we know what the statistical
13 significance of those values would be. Max/min
14 values, number of zeroes, just know-- wanting
15 to know what the data behind the NDRP
16 information is. And that's laid out I think
17 pretty clearly there in terms of a summary
18 conclusion of that. So it's not the method,
19 just the basic data that will be used in that
20 methodology that I think we want to validate
21 and make sure that we understand and -- and can
22 see the significance of it.

23 The other issue is the one we talked about last
24 time at some length. I guess we'll talk about
25 more today, which is the -- the issue of the

1 '69/'70 data which I think Ron picked up in his
2 review, and I think Kathy also raised in terms
3 of some of the interviews that she had and
4 trying to establish what may be behind what
5 appears to be, at least for that period of
6 time, some anomalous values.

7 So those are the two remaining what I would
8 call SEC-pertinent questions on the external
9 side in terms of Ron analysis, and that -- that
10 really distills quite a bit of territory in
11 terms of neutron inf-- you know, neutron
12 issues, and we've gone through quite a bit, so
13 that's it, from our standpoint. There's a lot
14 of SE-- I'm sorry, a lot of site profile
15 questions, but those have been sort of
16 identified in this review. We understand
17 they're site profile issues. We understand we
18 might have to go further with those at some
19 other point. But those are the two SEC-
20 pertinent issues.

21 **MR. GRIFFON:** Joe, you -- you see this pre-'64
22 -- I saw something in here, pre-'64 cohort
23 badging versus badging the maximally exposed,
24 you see that as sort of a site profile issue.
25 Is that what you're saying?

1 **MR. FITZGERALD:** Yeah, I think at this stage
2 we're seeing that more --

3 **MR. GRIFFON:** It's on page three, I think.

4 **MR. FITZGERALD:** Yeah.

5 **MR. GRIFFON:** So that's a site profile issue,
6 you believe, it --

7 **MR. FITZGERALD:** Right. From our standpoint.

8 **DR. ULSH:** Okay, so in terms of follow-up or
9 action items for us, for NIOSH, on this, you
10 want to see the data behind the NP ratios for
11 the early years --

12 **MR. FITZGERALD:** Behind the -- you know, the
13 two tables, 7-1 and 7-2, the -- the data behind
14 -- you know, the parameters behind --

15 **DR. ULSH:** Okay.

16 **MR. FITZGERALD:** -- those early years.

17 **DR. ULSH:** Okay.

18 **MR. FITZGERALD:** I think it would answer the
19 question, which is, you know, is this
20 statistically significant, can you in fact
21 apply the method without running afoul of that
22 issue.

23 **DR. ULSH:** Okay. The second issue, the -- the
24 pattern that we're seeing in 1969 where some
25 individuals don't appear to have dosimetry.

1 That's not specifically related to neutrons,
2 but it is something that I wanted to talk about
3 today. Is this a good time, Mark? You want to
4 talk about that one?

5 **MR. GRIFFON:** Unless you want to save it for
6 data reliability section. I mean I think --

7 **DR. ULSH:** It's up to you.

8 **MR. GRIFFON:** Well, go ahead on that one 'cause
9 we're going to -- I'd like to break for lunch
10 around 12:30, but --

11 **DR. ULSH:** Oh, okay. That's -- that should be
12 enough time.

13 Okay, just some background on this issue. I
14 believe it was Kathy who originally identified
15 two individuals, and I guess this might be a
16 good time for me also to mention -- just to
17 remind everybody about Privacy Act. I don't
18 want to talk about employees by name, but Kathy
19 identified two individuals who appeared to have
20 gaps in their dosimetry in 1969. And I've
21 asked some of the people on Bob's team to look
22 into this, and Mark Rolfes and I, who -- who is
23 still here, actually -- we noticed -- we poked
24 around in NOCTS and we found a couple of more
25 individuals that appeared to have work history

1 issue where I can't give you an answer today.
2 I can tell you what we've done.
3 There's a couple of hypotheses that we've
4 investigated. First of all, one thing to
5 remember about this year is that was the year
6 of the big fire. And so -- in Building 771,
7 was it -- anybody?

8 **MS. ROBERTSON-DEMERS:** 776.

9 **DR. ULSH:** 776, okay. That was the year of the
10 big fire, and so it occurred to me that that
11 might -- you know, that's a highly disruptive
12 event. That might have disrupted the dosimetry
13 program in terms of their ability to, you know,
14 process the badges, what-not. It doesn't
15 appear to be the case. We tried to look at the
16 people that we've identified to determine
17 whether or not they were directly involved in
18 operations in that building. Some were, some
19 were not. So --

20 **MS. ROBERTSON-DEMERS:** How did you make that
21 determination?

22 **DR. ULSH:** Well, we looked at -- I looked at
23 the information in their rad file, Kathy. On -
24 - on bioassay cards sometimes you'll see where
25 -- what building they were assigned to, and

1 there's some other clues in the rad files about
2 where they worked. I'm not saying I could
3 determine that in every case. What I am saying
4 is that some of them appear to have worked in
5 that building, and some of them don't appear to
6 have worked in that building. So I -- I can't
7 say that it's only limited to people who worked
8 in Building 776. That does not appear to be
9 the case.

10 Also, the NDRP has some information about where
11 people worked, and that supports that this
12 wasn't limited to only, you know, plutonium
13 process operators in that building. So I -- I
14 can't say that it's not related to the fire,
15 but that doesn't support it, anyway.

16 Some of -- another hypothesis that we batted
17 around is well, maybe this was -- you know,
18 this -- after the fire you had a pretty big
19 cleanup effort and people from all over the
20 site were involved in that cleanup effort. It
21 might be a badge contamination issue. People
22 might have worn badges, but they were
23 contaminated and somehow not able to be read.
24 Well, that would make sense for the first
25 couple of badge exchange cycles after the fire.

1 I mean if you started, you know -- but once --
2 once they determined that these things were --
3 that these badges were getting contaminated,
4 you would think that they would take methods to
5 correct that problem, either wrap the badges in
6 plastic or -- or whatever. And another thing
7 to remember is that when people were sent into
8 these areas with the widespread plutonium
9 contamination, typically they were in bubble
10 suits and contamination was, you know,
11 monitored for. I -- my gut feeling is that
12 that's not a likely explanation for this.
13 It's possible that this could be a reporting
14 issue. In other words, these people were in
15 fact monitored, but for some reason they're not
16 contained in the records that we're receiving
17 from DOE. That's just a hypothesis. I have
18 nothing to -- I mean I'm just trying to put out
19 all the logical possibilities on the table that
20 we can -- then talk about, you know, whether it
21 holds up or not. That's a possibility.
22 Bob, have I left anything out in terms of our
23 efforts to clear this up?
24 **MR. MEYER:** Just to -- maybe timing. The fire
25 occurred part-way through the year and some of

1 these individuals, at least a couple that we've
2 looked at so far, we're seeing no data reported
3 prior to the fire so that's kind of
4 reinforcement of one of the things you said.

5 **DR. ULSH:** Yeah, it may not be related to the
6 fire.

7 **MR. MEYER:** Yeah.

8 **DR. ULSH:** So at this point I would love to
9 give you an answer for it. All I can really
10 do, though, is tell you the status of what
11 we've done to try to resolve it, but we're not
12 there yet. We don't have an explanation for
13 the --

14 **UNIDENTIFIED:** Fifth (unintelligible) --

15 **DR. ULSH:** Oh, fifth --

16 **MS. ROBERTSON-DEMERS:** Can you give us the
17 claim numbers for the 138?

18 **DR. ULSH:** I'm sorry, what was the question,
19 Kathy?

20 **MS. ROBERTSON-DEMERS:** Can you give us the
21 claim numbers for the 138?

22 **DR. ULSH:** I think we can. We've got it on a
23 spread sheet, I think we can get that to you
24 pretty easily. I'm asking Bob to write that
25 down as a follow-up action for us.

1 **MS. ROBERTSON-DEMERS:** And I guess the other
2 thing I would like to this is that there is a
3 gap not only in the dosimetry records, but also
4 in the log books, in the reports that were put
5 out by the field, or there is very little said
6 about this huge fire and --

7 **MR. MEYER:** Actually we do have the log book
8 that the shift foreman recorded in the night of
9 the fire, during that period. It begins
10 obviously well prior to that, but -- but I mean
11 we have cop--

12 **MS. ROBERTSON-DEMERS:** In which one?

13 **MR. MEYER:** And we have copied that one and
14 that -- we can make that available.

15 **MR. GRIFFON:** Can you make that available?

16 **MR. MEYER:** But it's -- it -- clearly the log
17 of the fella who was in charge at the time that
18 the fire occurred.

19 **MR. FITZGERALD:** But to clarify, Kathy, what
20 you're talking about is perhaps the
21 documentation that would corroborate some of
22 these issues in the period of time following
23 the fire?

24 **MS. ROBERTSON-DEMERS:** Yeah, there's just a
25 general lack of documentation right around that

1 time period, and it really doesn't matter where
2 I look. I can -- I can look in the bioassay
3 laboratories, monthly reports, and the only
4 thing I see is we processed those -- so many
5 samples and we had to stop routine processing
6 because we had to process for the fire. And
7 then I can look in dosimetry monthly reports
8 and very little is said.

9 **MR. MEYER:** We actually do have the dosimetry
10 monthly reports, the quarterly reports and the
11 annual summary for that period. We've got now
12 -- and we just received these actually
13 yesterday morning on disk and they'll be made
14 available to you -- for -- it looks to be, and
15 Craig -- Craig Little looked through these with
16 me as well yesterday. It looks to be for the
17 entire plant for that period, all of 1969. We
18 have the original handwritten film badge
19 records, including density measurements and
20 dose -- related dose numbers, and we also have
21 the pin-feed printouts that summarize those
22 records. We -- we've been calling them the
23 supervisor's reports but they're actually the -
24 - the quarterly reports that are summarized
25 every year, and we have all of that data for

1 all of 1969 as well. And I believe, I can't
2 say for sure yet but I believe it includes all
3 the workers that were on site at that time.
4 The volume is about right, but we, again, just
5 received them yesterday.

6 **MS. ROBERTSON-DEMERS:** And you mentioned that
7 you saw something in a log book?

8 **MR. MEYER:** We have the log book for that
9 period for the -- the foreman who was on duty
10 at the time of the fire, and it works right
11 through the -- the fire event. And that's
12 available to you now, as well. We just
13 received that also. Took some -- a fair amount
14 of digging to (unintelligible) --

15 **MS. ROBERTSON-DEMERS:** And would that be on the
16 O drive?

17 **MR. MEYER:** Not yet. We just received it
18 yesterday.

19 **MS. ROBERTSON-DEMERS:** Okay.

20 **DR. ULSH:** Mark hasn't actually had time to put
21 it on there yet.

22 **MR. MEYER:** It's not (unintelligible).

23 **DR. ULSH:** One thing that you mentioned, Kathy,
24 about -- you said that you're not seeing much
25 mention in the log books. It's hard for me to

1 comment without knowing, you know, exactly what
2 kind of log books. But one thing to consider -
3 - I'll just put it out on the table to consider
4 -- is that once the fire happened, essentially
5 plutonium production operations stopped 'cause
6 that's the building where it happened. And so
7 the people who were -- would originally have
8 been working in those areas and keeping logs
9 would no longer have been doing -- at least not
10 the job that they did before the fire because
11 it was shut down, the building was inoperable.

12 **MS. ROBERTSON-DEMERS:** The other thing that --
13 that we noted, and we'd asked Bob Bistline
14 about this, was that health physics -- or that
15 we can -- you know, with relation to what we've
16 looked for so far -- did not write up a report
17 after this fire, like they would do with many
18 other big incidents.

19 **DR. ULSH:** I'm not sure what conclusion to draw
20 from that.

21 **MS. ROBERTSON-DEMERS:** Well, I'm just telling
22 you it's -- it's -- it's not just the dosimetry
23 records. It's -- there's -- there's a lot of
24 records that are not being found.

25 **MR. MEYER:** Right, that's -- that's a good

1 point. We didn't specifically look for a
2 report. I mean there are a number of reports
3 related to the '69 fire. There's a --

4 **DR. ULSH:** There's a well-known
5 (unintelligible).

6 **MR. MEYER:** -- for example, a chem risk report
7 '90, '92 has a long discussion about the '69
8 fire. The Radiological Assessments Corporation
9 reports from '92 to 2000 have long discussions
10 about the --

11 **MR. GRIFFON:** I think she's talking about --

12 **MR. MEYER:** -- fire in detail.

13 **MR. GRIFFON:** -- a report right after from --

14 **MS. ROBERTSON-DEMERS:** The part --

15 **MR. GRIFFON:** -- health physics.

16 **MS. ROBERTSON-DEMERS:** -- part that we're
17 missing is --

18 **MR. MEYER:** Right, but those are all linked to
19 records from the site.

20 **MS. ROBERTSON-DEMERS:** If you -- if you read
21 through the log books, if -- if there's a
22 personal -- personnel contamination, somebody
23 will write that down, and there's a lot of
24 examples in the log book of that. Well, there
25 were a lot of personnel contaminations and

1 nobody that I can find so far wrote it down.

2 **MR. GRIFFON:** During the fire, you're talking
3 about.

4 **MS. ROBERTSON-DEMERS:** Yeah, not even after the
5 fact.

6 **MR. GRIFFON:** Well, it might be worthwhile to
7 see if there's an HP report or HP log
8 associated with that time period, but what we -
9 - we also -- let's wait and see what you're
10 going to post on the O drive, this -- this
11 foreman's log, it might be useful.

12 **MR. FITZGERALD:** Now you were talking about I
13 guess numbers of workers that had no records
14 for external. Right?

15 **DR. ULSH:** I was talking about the numbers of
16 workers -- the 138 number that I gave, there
17 appears to be periods during 1969, from as
18 little as one quarter up to the whole year,
19 where there is no dosimetry results in what we
20 have.

21 **MR. FITZGERALD:** Now the other -- I guess the
22 other question were -- and this is what raised
23 in Ron's review is the -- you know, the
24 prevalence of what's -- appears to be a lot of
25 zero entries and what the significance of those

1 are. That's a slightly different issue, you do
2 have a record, but it appears to be -- for
3 those two years -- a lot of zeroes. Which may
4 get into the fact that there was no operation
5 going on.

6 **DR. ULSH:** Exactly, that's the point I was
7 going to make.

8 **MR. FITZGERALD:** But I think that was a
9 question that he wanted to nail down a little
10 better.

11 **DR. ULSH:** You're right, Joe. It would be
12 consistent with what we know about the work
13 duties of the people who were reassigned after
14 the fire. They originally worked in the
15 plutonium building, which is where you had the
16 highest exposures -- among the highest
17 exposures on site. Once those productions
18 ceased, those workers were -- temporarily, at
19 least -- reassigned to the cafeteria in
20 building -- what was it, Roger?

21 **MR. LANGSTED:** 750 building.

22 **DR. ULSH:** Okay, Jim, thank you -- the 750
23 building, and from there they were assigned out
24 to other duties. But keep in mind that the
25 activities at the site which generated the

1 highest doses were not going on after the fire,
2 so that would be perfectly consistent with
3 seeing a higher number of low or zero readings.

4 **MR. GRIFFON:** But did they have a period of
5 cleanup? I mean --

6 **DR. ULSH:** Yes.

7 **MS. ROBERTSON-DEMERS:** Have you looked at the
8 dose rates --

9 **MR. GRIFFON:** -- would these same people have
10 been involved in the cleanup --

11 **MS. ROBERTSON-DEMERS:** -- in the -- I guess --

12 **MR. GRIFFON:** -- or not necessarily?

13 **MS. ROBERTSON-DEMERS:** -- the rubble area?

14 **DR. ULSH:** What was that, Kathy?

15 **MS. ROBERTSON-DEMERS:** Have you -- have you
16 looked at any of the dose rates in the rubble
17 area? You know, after the -- when they went in
18 for the cleanup, have you actually looked at
19 the dose rates?

20 **DR. ULSH:** Okay, I'm going to go out on a limb
21 here -- and others who were actually at the
22 site at that time, please jump in and help me.
23 It's my impression that while there certainly
24 were areas that were heavily contaminated, in
25 general the dose rates were lower than existed

1 -- you know, than workers might have been
2 exposed to during operations of the plutonium
3 processing.

4 Now does -- for other people who were at the
5 site, does that sound right?

6 (No responses)

7 Hello?

8 **MR. CHEW:** I would certainly say so, Mark,
9 because many -- much of plutonium was involved
10 in the fire so it turned into an oxide. Okay?
11 So it doesn't look like a chunk of plutonium
12 metal is staring at you with a -- for an
13 external dose.

14 I'd like to add, to talk about when you said no
15 records, Kathy, you know, I think this is very
16 similar to the thing -- when we're talking
17 about -- Bob, about that Y-12 with the --
18 looking for the incident reports. Remember,
19 you had an incident called a fire. Right?
20 And now you have an area that's significantly
21 contaminated. Going back into the operation of
22 cleaning up, especially -- and recovering after
23 a fire was under -- on -- under -- not an
24 incident condition here, which you would put in
25 logs, but normal operations as doing cleanup in

1 operations. And so it would not surprise me
2 they -- you would not put the onesie-twosies
3 that you were looking at, Kathy, during normal
4 operation where you may have a mishap. Okay?
5 This is already an incident and then -- now
6 you're going back and then going back and in --
7 under certainly what I would say controlled,
8 radiological, suited-up conditions here when
9 you are facing with contamination, you would
10 probably not put those kinds of information in
11 the log book unless you had something to happen
12 during the cleanup that created an incident
13 with a person -- you know, might have torn a
14 suit or something like that. So I'm just
15 trying to say why -- why you would not find
16 that kind.

17 **MS. ROBERTSON-DEMERS:** Well, in -- I don't see
18 any reference to an incident report, and I've
19 seen it -- seen references to incident reports.
20 It's -- you know, there may be something out
21 there and --

22 **MR. GRIFFON:** Hold on, Kathy, on second, Kathy.
23 Hold on one second. Ray has a question.

24 **THE COURT REPORTER:** Hey, Kathy, this is Ray,
25 the court reporter, and everyone who's

1 telephonically patched in, if you're on a
2 speaker phone would you make sure that it's
3 turned up to its maximum volume, because you
4 may not be aware of that but it will really
5 help us out here. Thank you.

6 **MS. ROBERTSON-DEMERS:** Okay.

7 **MR. GRIFFON:** All right. Go ahead, Kathy.

8 **MS. ROBERTSON-DEMERS:** Okay, there was no
9 reference to an incident report, like there is
10 with other incidents, in the log book.

11 **MR. CHEW:** Are you -- are you relating to the
12 fire itself, Kathy?

13 **MS. ROBERTSON-DEMERS:** Right.

14 **MR. CHEW:** As you well know, there's a
15 significant amount of documentation, a major
16 report. It was probably the largest industrial
17 fire, from a cost standpoint, that this country
18 had ever suffered at that particular time. I
19 remember that kind of data. I know Roland
20 Felt* personally. Roland was on the committee.
21 There was obviously a -- many levels of
22 investigation, including the DOE, you know,
23 type A or B report that was done, and so I'm --
24 I'm not so sure -- I'm not following what you
25 say here.

1 **MS. ROBERTSON-DEMERS:** Well, first of all,
2 we're trying to get ahold of that report right
3 now.

4 **MR. CHEW:** Sure. Well, Roland's still alive.
5 He's up in Idaho. He's -- I think he's one --
6 only one --

7 **MR. GRIFFON:** Can -- can you -- it seems to me
8 that -- yeah, it's obvious that there must be
9 some (unintelligible) associated with this.

10 **DR. ULSH:** Well --

11 **MR. GRIFFON:** Can we --

12 **MS. ROBERTSON-DEMERS:** Well --

13 **MR. GRIFFON:** -- try to --

14 **MS. ROBERTSON-DEMERS:** -- and -- and there is
15 at least -- I've got a redacted copy of -- of a
16 fire report, but it doesn't have the detail in
17 it.

18 **MR. CHEW:** What kind of details are you looking
19 for?

20 **MS. ROBERTSON-DEMERS:** That were -- that were --
21 -- you know, how many people were contaminated,
22 how many people were sent for body counts, how
23 many people had contaminated badges, that type
24 of stuff.

25 **DR. ULSH:** Well, I can tell you anecdotally,

1 Kathy, a couple of things. First of all, some
2 of the claims that we've looked through in
3 NOCTS -- this is -- Mark Rolfes just handed me
4 this note -- they do in fact show re-entries
5 into Building 776 following the May '69 fire,
6 and they document that and the individuals were
7 in supplied air and -- and they did have
8 plutonium contamination on the suit. So I
9 mean we do see that kind of information.

10 **MR. CHEW:** I know there's a report on the
11 firemen and I know there's a report on the
12 amount of contamination that was on the roof.
13 I -- I've seen them myself, I just don't happen
14 (unintelligible).

15 **MR. GRIFFON:** Maybe as an action.

16 **MR. MEYER:** Yeah. We were looking for the gap
17 information and actually didn't -- hadn't
18 pursued this, but this'll be easy to find. It
19 should be easy to locate.

20 **MR. GRIFFON:** I'm sure.

21 **MS. ROBERTSON-DEMERS:** Well, obviously if
22 there's a redacted version of a fire report,
23 then there is an unredacted version of the fire
24 report somewhere. And it -- you know, it may
25 be that they just can't find it right now.

1 **MR. RICH:** This is Bryce Rich. I'd like to add
2 to what Mel said, and that is that this -- this
3 fire was way beyond an incident, and Roland
4 Felt I think has got a complete file on that.
5 I could give him a call if you'd like.

6 **MS. ROBERTSON-DEMERS:** That would be great.
7 I'm also working through DOE to get a copy.

8 **MR. RICH:** Let me check with Roland and see
9 what -- what he's got and -- I'd be very
10 surprised if he didn't have a file cabinet
11 full.

12 **MR. CHEW:** Yeah, and he's got pictures, too.
13 He's given a talk many, many times.

14 **DR. ULSH:** And I guess one thing I would ask,
15 Kathy, if there are particular logs that you
16 are looking at that you think should have
17 information but don't, can you forward them to
18 us so that we can take a look?

19 **MR. GRIFFON:** Understand what you're looking
20 for, yeah, yeah.

21 **DR. ULSH:** Specific logs, I mean not --

22 **MR. GRIFFON:** Or what's missing --

23 **DR. ULSH:** -- copies of them.

24 **MR. GRIFFON:** -- (unintelligible) think is
25 missing, yeah.

1 **MR. MEYER:** And actually the most likely place
2 to find this, because it was such a major
3 event, is Roger Anders' Repository in
4 Germantown, the DOE historian. He -- I've been
5 in his archives at the time I had the Q
6 clearance and he has copies of every major
7 event at every site. So if we can't find it
8 anywhere else, Roger will -- will have it.

9 **DR. MAURO:** Could I ask --

10 **MS. ROBERTSON-DEMERS:** Well, I'm working with
11 his sidekick --

12 **DR. MAURO:** Could I ask --

13 **MS. ROBERTSON-DEMERS:** -- in DOE, so...

14 **DR. MAURO:** -- a simple question here? It
15 sounds like that there's a list somewhere of
16 everyone that was involved in the incident and
17 then the follow-up, the fire and the follow-up.
18 Is there a list of names, here are the people
19 that worked -- who were there and participated
20 or affected by this fire? I mean -- and when
21 you -- when all is said and done, what -- what
22 I'm hearing is that we're concerned that
23 there's a large group of people that were
24 involved, directly or indirectly, with this
25 fire in 1969 and we don't have records that

1 will help us reconstruct their doses.

2 **MR. GRIFFON:** I think --

3 **DR. MAURO:** Is that --

4 **MR. GRIFFON:** -- you might want to clarify
5 that.

6 **DR. MAURO:** -- am I -- is that --

7 **MR. GRIFFON:** (Unintelligible) --

8 **DR. MAURO:** -- help me out here, what -- what
9 is -- where -- where -- where --

10 **MR. GRIFFON:** -- (unintelligible) don't know if
11 they were in the fire.

12 **DR. ULSH:** Exactly right. There is a lar--
13 there are --

14 **MS. ROBERTSON-DEMERS:** It just happens to be a
15 coincidence.

16 **DR. ULSH:** There are 138 individuals out of the
17 600 people that we have in NOCTS, they're NIOSH
18 claimants, 600 people have employment in 1969;
19 138 of them have what -- they have periods in
20 1969 with no external dosimetry. Now, we don't
21 know whether or not it's related to the fire.

22 **DR. MAURO:** Okay, we can't make that
23 distinction.

24 **DR. ULSH:** We can't make that distinction.

25 **DR. MAURO:** Okay.

1 **DR. ULSH:** Another thing that you have to
2 remember is that this was the year that the
3 health sciences database was established. It
4 is possible that there was a glitch in
5 transferring the data. I've also talked about
6 this could be a reporting issue. And so there
7 are a number of possibilities out there. And
8 yes, it very well could be a coincidence,
9 Kathy. We don't know. We can't say that it is
10 or is not related to the fire.

11 **MS. ROBERTSON-DEMERS:** And I only provide the
12 information on the other records as additional
13 information.

14 **UNIDENTIFIED:** Do what?

15 **DR. ULSH:** What was that?

16 **MS. ROBERTSON-DEMERS:** That was the purpose. I
17 only told you about the other gaps in the log
18 books and stuff as a piece of additional
19 information.

20 **DR. ULSH:** Okay. Well, I appreciate it and --

21 **MR. GRIFFON:** It's worth following up.

22 **DR. ULSH:** -- and as I asked, if -- if there
23 are logs -- particular logs that you're looking
24 at that you think should have data in them that
25 don't, can you please forward a copy of those

1 logs to us so that we can look at them as well?

2 **MR. FITZGERALD:** And I have a point of
3 clarification, too. Did I understand you right
4 earlier when you said that you just received a
5 lot of the handwritten -- sort of the original
6 primary records for workers --

7 **MR. MEYER:** That's correct.

8 **MR. FITZGERALD:** -- in that time period? So
9 you don't know yet, but that possibly would be
10 out in a way -- you have some original -- you
11 may have some original dose data that may or
12 may not have been transcribed, put in
13 electronic database, but at least there's
14 something there at this point.

15 **MR. MEYER:** Our next step is to go through --

16 **MR. FITZGERALD:** Go through that.

17 **MR. MEYER:** -- all those records. It's two
18 full boxes of handwritten dosimetry records for
19 all of 1969. Looks to be --

20 **MR. FITZGERALD:** To see if you can marry that
21 up to the --

22 **MR. MEYER:** Looks to be all the 138
23 (unintelligible) --

24 **MR. FITZGERALD:** -- the 138 so you can cross-
25 reference them.

1 **MR. MEYER:** -- (unintelligible) 138.

2 **MR. FITZGERALD:** We'll still need to question
3 why not the transcription, but at least you --
4 there is some risk data, primary data.

5 **DR. ULSH:** There is one more possibility that
6 we haven't talked about, and that is what was
7 known as the fifth quarter rollover. Now I'm
8 going to rely on Roger and Jim and maybe some
9 of the other people to help me get the details
10 right because this has been explained to me
11 three or four times and I still don't quite get
12 it.

13 Apparently when you had a badge exchange -- a
14 badge wear period that extended over the break
15 in a year, so let's say the end of 1969 into
16 19--

17 **MR. LANGSTED:** Brant, Jim Langsted.

18 **DR. ULSH:** Yes, Jim.

19 **MR. LANGSTED:** Let me -- let me explain it,
20 'cause I think you're getting a little off-
21 track here.

22 **DR. ULSH:** Oh, thank you. I was hoping -- I
23 was hoping that if I floundered obviously
24 enough, you'd save me.

25 **MR. LANGSTED:** We actually rehearsed this.

1 **MR. MEYER:** Brant actually understands it
2 completely.

3 **DR. ULSH:** Go ahead.

4 **MR. GRIFFON:** Go ahead, Jim.

5 **MR. LANGSTED:** What would happen is at the --
6 remember -- you've got to remember this is back
7 in the days when computers were mainframes,
8 they didn't have a lot of memory, they didn't
9 have a lot of storage, so what would happen is
10 as the -- as the calendar year ended, they
11 would roll the detail off to magnetic tape,
12 summarize the data up and store only the
13 quarterly data. But what would happen is you
14 would be processing badges for approximately
15 three months after the end of the calendar year
16 because January -- or December 31st you would
17 get in all the semi-monthly -- all the
18 monthlies and all the quarterly badges. So
19 what they had to do was they had to get the
20 semi-monthly badges read and the data put in
21 and the reports printed out so they could get
22 them back to the managers 'cause these are the
23 people who were really controlling dose on a
24 two-week by two-week basis. But at the same
25 time they had all these quarterly badges that

1 they had to get read out and it took them
2 almost the three months to get those read out.
3 So the question was, how do you enter data in
4 the subsequent calendar year when you still had
5 to put data in in the previous calendar year.
6 And the way they solved this problem when they
7 programmed it was they created a fifth quarter
8 for every year, and the fifth quarter is where
9 they would put the -- the data for the first
10 quarter of the subsequent calendar year until
11 they could get everything into the previous
12 calendar year. And that -- like I said, that
13 took about three months to do.
14 Follow so far? 'Cause it's complicated, sorry.
15 **DR. ULSH:** Now you know why I had trouble with
16 it.
17 **MR. LANGSTED:** But then what would happen is at
18 the end of the first quarter of the next
19 calendar year, they would -- needed to clean up
20 the records, so what they would do is they
21 would actually cue a program that would get rid
22 of all that -- or archive all of last year's
23 data and then roll the fifth quarter back over
24 into the first quarter of the calendar year;
25 everything was straightened up.

1 **UNIDENTIFIED:** We hope.

2 **MR. LANGSTED:** Now -- yeah, we hope. And
3 obviously that was a tense (unintelligible)
4 records-keeping people because if the -- the
5 programs didn't work right, you could have
6 problems -- you could have problems with the
7 data.

8 Along with this process, this complicated
9 process, was also the process of printing out
10 the calendar year summary report that got filed
11 in the health physics paper copy for each
12 individual, and those are the things we see in
13 the claimant files that DOE provides to us.
14 Now as Brant said, this was one of the first
15 years that the health physics database existed,
16 and one of our suspicions is maybe this process
17 was not completely clean. Obviously if it
18 completely augured in and failed, that would
19 have been noticed, the problem would have been
20 fixed. If, however, the -- something happened
21 and maybe only some of the low people -- some
22 of the people with very low doses came out with
23 blank reports, that wouldn't have been noticed
24 by the records-keeping people, and that appears
25 to be the case 'cause there is no record that

1 the records-keeping people went back and tried
2 to resolve data discrepancies. They probably
3 did not recognize it. Some of these people
4 that did have badges during 1969 ended up with
5 reports that were all blank in 1969, and that's
6 our suspicion with what's going on.

7 I have interviewed several of the people who
8 were involved with records-keeping at that
9 time. Mind you, these are all people that are
10 in their eighties now and have been retired
11 from the plant for 20-plus years. And none of
12 them can recall any specifics associated with
13 fifth quarter rollover problems that they --
14 that existed. So I suspect that this was
15 something that was not recognized at the time.

16 **DR. ULSH:** Thanks, Jim. So you can see that
17 we've got a few hypotheses on the table that
18 we're in the process of testing. I can't tell
19 you why that there's a gap. I've given you a
20 feel for, you know, the size of the issue and -
21 -

22 **MR. GRIFFON:** And you've got a large hunk of
23 raw data which --

24 **DR. ULSH:** Which we don't know.

25 **MR. GRIFFON:** -- may answer some of those

1 questions, too --

2 **DR. ULSH:** It may.

3 **MR. GRIFFON:** -- hopefully.

4 **DR. ULSH:** We're hoping.

5 **MR. RICH:** Pardon me, this is Bryce Rich again.
6 I took the liberty of calling Roland Felt as we
7 were -- as the meeting was going on, and -- and
8 I could give you just a brief update there. He
9 indicated that -- well, first of all, he
10 indicated that he spent more time in the 776
11 recovery area so his personal exposure should
12 be bounding.

13 He indicated that there's an extensive report,
14 but it's classified. And Idaho has a -- Idaho
15 Operations Office has a copy of that. Bill
16 Jensen* had it but he retired -- and Roland
17 Felt, by the way, is retiring next Monday and -
18 - but he said of his personal files, much of
19 that has been disposed, but he has a wealth of
20 information, knowledge and personal -- personal
21 recollection, so -- and I asked him if he'd be
22 willing to talk to individuals interested in a
23 little bit more background, and he said he
24 would. I can give you his telephone number if
25 that's of interest.

1 **DR. ULSH:** It is of interest.

2 **MR. GRIFFON:** (Unintelligible) off-line.

3 **DR. WADE:** But I think --

4 **DR. ULSH:** Yeah, let's --

5 **MR. GRIFFON:** Let's do it off-line.

6 **DR. MAKHIJANI:** One question I had about the
7 gaps in the data, did you look at 19-- first of
8 all, was it a fiscal year or calendar year --

9 **DR. ULSH:** Calendar year.

10 **DR. MAKHIJANI:** -- (unintelligible). Did you
11 look at 1970 to see if there were any gaps in
12 1970 (unintelligible) originally I remember we
13 talked about '69 and '70.

14 **MR. GRIFFON:** Yeah.

15 **MR. FITZGERALD:** Yeah.

16 **DR. ULSH:** I think that '69/'70 was the zeroes,
17 wasn't it?

18 **MR. FITZGERALD:** It was the zeroes, but Kathy,
19 was that strictly '69?

20 **MS. ROBERTSON-DEMERS:** No, there was a
21 noticeable low dose, exposure-type, received
22 with several people who -- in the year after,
23 like 1971 -- had a lot more dose, and then --

24 **DR. ULSH:** Now wait a minute, low exposures is
25 a different issue. We're looking for more

1 gaps.

2 **MR. FITZGERALD:** These are the gaps.

3 **DR. MAKHIJANI:** Yeah.

4 **MS. ROBERTSON-DEMERS:** Well, and -- okay.

5 **MR. GRIFFON:** Speak up a little, too, Kathy.
6 I'm sorry.

7 **MS. ROBERTSON-DEMERS:** '70 is not a gap. '70
8 is either a lot of zero exposures or very low
9 exposures compared to what that individual had
10 in 1968 and 1971.

11 **MR. GRIFFON:** We'll get to that later.

12 **DR. MAKHIJANI:** Yeah, that's a different --
13 that's a different (unintelligible) because I
14 was kind of confused in my mind 'cause I'd
15 always heard these two years together and it's
16 --

17 **MR. GRIFFON:** Me, too.

18 **DR. MAKHIJANI:** Okay.

19 **DR. WADE:** Maybe we can think about lunch?

20 **MR. GRIFFON:** Yeah, in a few minutes or
21 (unintelligible).

22 **MS. MUNN:** (Unintelligible)

23 **MR. GRIFFON:** Wanda's thinking about lunch.

24 **UNIDENTIFIED:** You're the man, Lew.

25 **MR. GRIFFON:** The only other thing I wanted to

1 do while we're still on this external section
2 was that, and I think we're going to move this
3 to data reliability. In Ron's paper you have a
4 -- on page three you have a paragraph on the
5 "no data available" question, but I think that
6 really falls under data reliability.

7 **MR. FITZGERALD:** Yeah, I think that's one
8 reason because --

9 **MR. GRIFFON:** We can discuss that later.

10 **MR. FITZGERALD:** Yeah.

11 **MR. GRIFFON:** So I think we've covered
12 everything in these. The only other part, and
13 maybe I'm confusing it, but I had a note down
14 here of neutrons versus HIS-20. Is that
15 related to the source of the NDRP, are they
16 (unintelligible) discussing that
17 (unintelligible) --

18 **MR. FITZGERALD:** Yeah, that was the question of
19 having identified the HIS-20 data so that you
20 could, you know, cross-reference --

21 **MR. GRIFFON:** Cross-walk, right.

22 **MR. FITZGERALD:** -- cross-walk it.

23 **MR. GRIFFON:** And that's been (unintelligible)
24 for a while. Okay. Is there anything else on
25 this topic?

1 **MR. FITZGERALD:** No, no, I -- like I say, I
2 think we -- we've kind of settled this now for
3 a couple of months where -- I think we have
4 those two issues, one of which we just talked
5 about. I think if we can get the early neutron
6 data behind the NDRP, I think that'll take care
7 of it.

8 **DR. MAKHIJANI:** Well, did we cover the neutron-
9 to-photon ratios going back from the '80s to
10 the '50s?

11 **MR. GRIFFON:** Did we?

12 **MR. FITZGERALD:** Well, that's -- yeah, that's
13 been addressed. It's reviewed in here, but
14 we've covered it in the past -- or do you want
15 to talk about it more?

16 **DR. MAKHIJANI:** Well -- yeah, the only -- the
17 only question I had about that -- I think the
18 only question I had about that was have we
19 established -- and I don't -- you may have, I
20 just don't have a recollection of it --
21 regarding -- like the amounts of materials that
22 were stored in the '80s -- you know, the source
23 -- the source term for neutrons, was it -- was
24 it equivalent in the '80s to -- to the source
25 term in the '50s?

1 **MR. GRIFFON:** I guess -- I guess what we're
2 getting at is the representativeness. Is -- is
3 that neutron-to-photon ratio in the later years
4 representative of the operations and therefore
5 the neutron-to-photon ratio in the earlier
6 period.

7 **DR. ULSH:** Okay, there's two things you would
8 want to look at when you consider that
9 question. One is was the amount of the source
10 term the same. The answer is no. I mean
11 certainly not. They started small and they
12 ramped up.

13 **DR. MAKHIJANI:** Right.

14 **DR. ULSH:** But the quantity of the material is
15 not going to affect the N/P ratio. It's the
16 composition of the source term.

17 **DR. MAKHIJANI:** I agree.

18 **DR. ULSH:** And with that, I've just exhausted
19 my expertise. Was the plutonium -- was the
20 source term in the '80s at Rocky Flats of a
21 similar composition to what you would see in
22 the early years. I'm putting this out there to
23 any team members who are on the line.

24 **MR. FALK:** Brant --

25 **DR. ULSH:** Yes.

1 **MR. FALK:** -- the source term, as far as the
2 composition, would not be significantly
3 different. What is the crucial thing is the
4 shielding configuration. That's going to
5 affect the -- the neutron-to-gamma ratio.

6 **MR. GRIFFON:** And -- and theoretically the
7 shielding would have been a lot better in the
8 later years.

9 **DR. ULSH:** Roger, can you pursue that a little
10 more? Would -- can you speak to the
11 representativeness?

12 **MR. FALK:** There -- there was a big push in the
13 late '60s and the early '70s to basically -- to
14 basically upgrade the -- upgrade the -- the --
15 upgrade the shielding. I -- I do not know much
16 of the details of that, though.

17 **MR. CHEW:** Hey, Roger, this is Mel. I can
18 share a little bit here. I think after the
19 Rocky Flats fire -- I think many remember there
20 was a -- called a general design criteria
21 manual. Okay? 6430.1a and .1b -- I think I
22 was working with Joe at that time at the -- in
23 the office putting some of that criteria
24 together. Right after the fire -- obviously
25 the fire had a significant (unintelligible)

1 about design and -- and especially the issues
2 about fire and fire redundancy and things like
3 that. But along -- came along with that was
4 clear criteria what the design parameters were.
5 And I think the Building 371, which was a
6 building under that design at the same time,
7 along with TA55 and the small plutonium
8 facility at Livermore, we all met together to
9 discuss those kind of criterias. At that time
10 it was the first time we actually had to design
11 the gloveboxes and the glovebox shielding to
12 have exposures to no more than one rem on an
13 annual basis on a design basis. Okay? And I
14 think that clearly reflects some of that change
15 that you're talking about here, Roger. And so
16 you're right, the -- the neutron-to-photon
17 ratio probably did change because at that time
18 things were talking about having even
19 gloveboxes with two to three to four-inch
20 windows there to protect the neutrons, so --
21 **MR. GRIFFON:** So as far as your justification
22 for the back extrapolation -- I guess that's
23 what we want to get back to -- is --
24 **DR. ULSH:** I think --
25 **MR. GRIFFON:** -- and I can't recall -- I know

1 you --

2 **DR. ULSH:** Yeah, I know, it's easy for me to --

3 **MR. GRIFFON:** -- responded in the document to
4 this.

5 **DR. ULSH:** I know, and I'm trying to recreate
6 this as we go.

7 **MR. GRIFFON:** Yeah, I mean -- I mean I'm
8 willing to --

9 **DR. WADE:** So why don't you take -- take some
10 lunch to --

11 **MR. GRIFFON:** Yeah.

12 **DR. WADE:** -- let's do -- how long --

13 **MR. GRIFFON:** We can come back to that
14 question.

15 **MR. FITZGERALD:** Mark, (unintelligible)
16 reference.

17 **DR. MAKHIJANI:** I think it's (unintelligible)
18 of that.

19 **MR. GRIFFON:** Hold on a second.

20 **MR. FITZGERALD:** It's on page -- it's on page
21 five. I mean I think in Ron's piece we try to
22 summarize where we came out. I knew there was
23 a touch-point there, but we do raise some
24 questions about the use of the single N/P --
25 you know, N/P value and using it to go

1 backwards, as -- as proposed, and whether
2 that's in fact claimant-favorable. But I think
3 in the end the judgment was that's going to be
4 more of a question of conservatism and a site
5 profile issue as opposed to whether or not it
6 would be --

7 **MR. GRIFFON:** Yeah, I -- I do remember that
8 sort of discussion was --

9 **MR. FITZGERALD:** That's -- that's kind of, you
10 know --

11 **MR. GRIFFON:** But even if -- even if we --
12 there's a disagreement on the ratio --

13 **MR. FITZGERALD:** Right.

14 **MR. GRIFFON:** -- we can probably get a ratio --

15 **MR. FITZGERALD:** And right here we even say
16 that, the .42 --

17 **MR. GRIFFON:** So it's probably a site profile
18 issue more than an SEC issue.

19 **MR. FITZGERALD:** It needs -- it needs to be
20 pursued because there isn't a very complete
21 technical justification for why that one value
22 could be (unintelligible) backwards from the
23 reasons that Arjun's raising, but it's -- it's
24 going to be a question of conservatism more
25 than anything else.

1 **DR. WADE:** Mark, how long do you want to take -

2 -

3 **MR. GRIFFON:** I still think we might want to
4 hear an answer on the justification for using
5 that ratio back.

6 **MR. FITZGERALD:** Yeah.

7 **MR. GRIFFON:** But I think at the end of the
8 day it might go back to (unintelligible), I
9 agree.

10 **MR. FITZGERALD:** It might be a little more
11 conservative, right.

12 **MR. GRIFFON:** All right.

13 **DR. WADE:** How long for lunch?

14 **MR. GRIFFON:** For lunch.

15 **DR. WADE:** How long?

16 **MR. GRIFFON:** Yeah, let's take an hour for
17 lunch --

18 **DR. WADE:** Okay, we're going to break the line
19 and we'll be back on line in one hour.

20 **MR. GRIFFON:** 12:30 to 1:30.

21 **DR. WADE:** Thank you.

22 (Whereupon, a recess was taken from 12:30 p.m.
23 to 1:55 p.m.)

24 **NEUTRON/PHOTON ISSUE**

25 **MR. GRIFFON:** Sorry about the delay. This is

1 the workgroup back and I think we wanted to
2 pick up on the neutron/photon issue, a little
3 follow-up on that. I just wanted a little
4 clarification of the rationale for the back
5 extrapolation and -- and, you know, whether the
6 process is similar enough, including
7 differences in source term or differences in
8 shielding or whatever --

9 **DR. ULSH:** Okay.

10 **MR. GRIFFON:** -- to justify the use.

11 **DR. ULSH:** This was an issue that I think was
12 considered in the NDRP. Roger Falk, are you on
13 the line?

14 **MR. FALK:** Yes, I am.

15 **DR. ULSH:** Okay. Can you kind of walk us
16 through the rationale for the N/P ratio?

17 **MR. FALK:** Well, first of all, the -- the N/P
18 ratio for the NDRP was based on the -- was
19 based on the film dosimetry program and was
20 based on data from the plutonium buildings,
21 primarily weighted by Buildings 771, 776 and
22 777.

23 Now -- now in 1970 there were a couple major
24 transitions. First of all, we went from the
25 film era to the TLD era for the dosimetry

1 program. And then, since we had the fire in --
2 in buildings 76 and 77 in 1969 that we
3 discussed earlier, the -- the plutonium metal-
4 working operations were transferred to Building
5 707 and that became operational in 1970, 1971
6 time period. And that was a new building that
7 -- that -- that had the processes essentially
8 modularized and had engineered and designed
9 shielding built into it. And for these reasons
10 it is really not appropriate to forward
11 extrapolate the NDRP ratios into the 1970s.
12 Now the problem with the 1970s is that 1970
13 through 1976 the record that is in the claimant
14 files has a roll-up of the neutron and gamma
15 data into one quarterly value, and therefore
16 there was a -- the project needed a method to
17 estimate what the neutron component was. And
18 basically the recommendation was look at the
19 neutron-to-photon ratios for the TLD dosimetry
20 results when we have the detailed neutron and
21 gamma data broken out for each badge exchange
22 and is available in the claimant's record. And
23 therefore 1977 and on would be the data
24 appropriate to back-extrapolate into that
25 period for the purposes of breaking out the

1 roll-up total dose into neutron and gamma
2 components.

3 Also during that time I am not aware of
4 basically any significant shielding changes in
5 -- in either building 71 or in the Building
6 707, which were the two primary -- which were
7 the two primary plutonium buildings at that
8 time.

9 So that is the rationale for the recommendation
10 to the project to -- to -- to use the back-
11 extrapolated data rather than the forward --
12 the forward-extrapolated data from the NDRP.

13 **DR. MAKHIJANI:** The -- I guess the question I
14 was raising, Roger, was -- it was my impression
15 that there are no neutron dose data for
16 Building 771 in the 1950s, so it was a slightly
17 different one than you explained in that the
18 neutron-to-photon ratio from the 1980s is being
19 used with the photon doses from the 1950s to
20 estimate the 1950s neutron dose. Am I right
21 about that, or did I misunderstand something?

22 **MR. FALK:** That is -- that is not my
23 perception.

24 **DR. MAKHIJANI:** Oh, okay.

25 **MR. FALK:** That -- that basically the --

1 basically the neutron-to-gamma ratios for the
2 '50s be based on the NDRP back-extrapolations
3 from -- from -- from the year 1959.

4 **DR. MAKHIJANI:** Okay. Is it true that there
5 were no -- no neutron data for Building 771
6 till -- till 1957?

7 **MR. FALK:** No, that is -- that is not true.
8 They were -- we started to have the -- the film
9 badge monitoring in Building 71 on a fairly
10 small scale in 1957, and then in the summer of
11 1958 it was a fairly larger scale of the people
12 who were monitored. About 60 to 70 of the
13 process operators were started to be monitored
14 in 1958. The project -- the neutron dose
15 reconstruction project did not find the neutron
16 films archived until actually December of 1958,
17 but we do have the worksheet records that do
18 indicate that the film monitoring started in
19 1957.

20 **DR. MAKHIJANI:** So -- so I was right, that up
21 to '57 you don't have neutron data for Building
22 771, so that's not wrong.

23 **MR. FALK:** That is right through 1956.

24 **DR. MAKHIJANI:** Yes. Okay. And -- and so
25 you're not going back from -- from the 1980s

1 into 1950s, you're going back from '59 to '57,
2 okay. So that's more reasonable.

3 **MR. GRIFFON:** Okay. I think we just needed to
4 -- I -- I think that's been explained before.
5 I think we -- at least I needed a refresher on
6 that.

7 **DR. MAKHIJANI:** Yeah, me, too. Sorry I did not
8 remember the details.

9 **DR. MAURO:** Help me out a bit. It's clear now,
10 but during our conversation -- and the dates
11 may be missing -- there were two issues at play
12 here. One was that there was some shielding
13 changes that might have affected neutron-to-
14 photon ratios, and also -- as I understood --
15 during the earlier days the -- the plutonium
16 did not have any americium so we're -- you're
17 not going to have the photon. So I just want
18 to make sure I have this right. So the neutron
19 -- the neutron-to-photon ratios that we have
20 developed do take into consideration the fact
21 that the shield-- the shielding -- at some
22 point there was this change in the amount of
23 shielding, which would affect the neutron-to-
24 photon ratio. And also there's a point in time
25 where the actual material being handled was

1 material that did or did not contain americium-
2 241. I just want to make sure that we're not
3 operating on a premise that might be false. So
4 does the '57 data take into consideration -- is
5 that pre special shielding and pre -- it is.

6 **MS. MUNN:** Based on what Mel said this
7 morning.

8 **DR. MAURO:** Okay. That's why I wanted to get
9 the dates right.

10 **MS. MUNN:** The special -- the special
11 shielding occurred following the fire.

12 **DR. MAURO:** Okay, which is --

13 **MS. MUNN:** They were in the process of
14 designing it when the fire occurred.

15 **DR. MAURO:** And what is the date when they went
16 from the plutonium that had the americium and
17 when it didn't? That would -- that's another
18 break point that might be important.

19 **MS. MUNN:** There was not an adequate amount of
20 americium in the product --

21 **DR. MAURO:** Right.

22 **MS. MUNN:** -- until the mid-'60s --

23 **DR. MAURO:** Oh --

24 **MS. MUNN:** -- to be able to adequately
25 calculate --

1 **DR. MAURO:** -- okay, so '57 works then. That's
2 what I mean --

3 **MS. MUNN:** '57 works.

4 **DR. MAURO:** Okay, got it. Good.

5 **MR. FALK:** Now also I would like to emphasize
6 that the back-extrapolation was based on the
7 1959 data.

8 **MS. MUNN:** Yes, we -- we got that, Roger.
9 Thank you.

10 **DR. MAURO:** Thank you.

11 **MR. GRIFFON:** I think we've got enough on
12 that.

13 **DR. ULSH:** All right.

14 **MR. GRIFFON:** Any follow-up on that question?

15 **DR. MAKHIJANI:** No, I think we've --

16 **MR. GRIFFON:** I think we've got a better
17 understanding now of what -- yeah.

18 **DATA RELIABILITY**

19 I think we're on to the data reliability
20 question, if there's nothing else on neutrons.
21 Now I'm not going right down the matrix.

22 **DR. ULSH:** Oh, okay.

23 **MR. GRIFFON:** What's the next thing on the
24 matrix, though?

25 **DR. ULSH:** Well, we just covered -- I think --

1 **MR. PRESLEY:** Neutron-to-photon ratios.

2 **DR. ULSH:** Was that --

3 **MR. GRIFFON:** That should cover number 7, too,
4 right?

5 **MR. PRESLEY:** Right, that is 7.

6 **DR. ULSH:** Right.

7 **MR. GRIFFON:** Yeah.

8 **DR. ULSH:** So we just covered that. The next
9 thing --

10 **MR. GRIFFON:** Nine does get into some of those
11 questions already on data reliability.
12 Correct?

13 **DR. ULSH:** Yes, there are some issues like
14 that.

15 **MR. GRIFFON:** I mean we can -- we can go
16 through 9 on the matrix, too, just to make sure
17 that I didn't -- I might need to update actions
18 that I didn't properly update, so if you want
19 to --

20 **DR. ULSH:** Okay.

21 **MR. GRIFFON:** -- bring those up while we're
22 doing that, that's fine.

23 **DR. ULSH:** Okay, I guess matrix item number 9,
24 and then I'm looking over at the action column.
25 One is a no further action, probably don't need

1 to revisit that one.

2 **MR. GRIFFON:** Right.

3 **DR. ULSH:** Two is the job exposure matrix by
4 Ruttenber*.

5 **MR. GRIFFON:** Right.

6 **DR. ULSH:** You okay with that one? All right.

7 **MR. GRIFFON:** I think we're okay with that
8 one.

9 **DR. ULSH:** Right.

10 **MR. GRIFFON:** Not an SEC issue.

11 **DR. ULSH:** Number three, the action item listed
12 is an SC&A action item. I don't know what the
13 status --

14 **MR. FITZGERALD:** Well, I think the status is
15 we've come pretty far and the analysis we just
16 talked about from Ron is a first installment on
17 that overall external dose assessment.

18 **DR. ULSH:** Okay.

19 **MR. GRIFFON:** Okay.

20 **DR. ULSH:** Item number four, NIOSH will provide
21 description of coworker model. We've given two
22 draft TIBs and --

23 **MR. FITZGERALD:** We've evaluated both of them
24 and we included our analysis on the external in
25 this piece we just talked about.

1 **DR. ULSH:** Okay.

2 **MS. MUNN:** (Unintelligible)

3 **MR. FITZGERALD:** Yeah, we haven't talked about
4 the internal component, but we did talk about
5 the external -- which is in here, yes.

6 **DR. ULSH:** Okay. Number five gets back to
7 recording zeroes on -- when badges were not
8 turned in. Let's see, I'm trying to read --
9 this is a rather long one, I'm reading through
10 it right now.

11 Oh --

12 **MR. FITZGERALD:** This kind of transitions into
13 the data reliability.

14 **DR. ULSH:** Right. Now Mark, you've got listed
15 here that -- that these items have been listed
16 separately as number 12 through 28. Do you
17 want to go through them there?

18 **MR. GRIFFON:** Yeah, that's what I'd think,
19 'cause they were -- yeah, they were getting all
20 lumped into that section so we decided to break
21 them out individually.

22 **DR. ULSH:** Okay.

23 **MR. GRIFFON:** That's when the matrix got long.

24 **DR. ULSH:** Yeah.

25 **MS. MUNN:** Instead of making it shorter we

1 (unintelligible) longer.

2 **DR. ULSH:** Item number six --

3 **MR. GRIFFON:** And Karin probably has something
4 to add onto that, I think. Right? 'Cause
5 there's other -- that you found in the
6 petition. Is that not correct?

7 **MS. JESSEN:** I have a document here that's not
8 quite done yet.

9 **MR. GRIFFON:** Right. So -- you mentioned that
10 last workgroup that you (unintelligible) the
11 petition and had (unintelligible) some follow-
12 ups from meetings that you --

13 **DR. ULSH:** Yeah, what we've --

14 **MR. GRIFFON:** -- some other allegations that
15 you were going to follow up on, so I think they
16 fall into the same category, you know.

17 **DR. ULSH:** What I've asked Karin to do is go
18 through the -- the SEC petition, number one,
19 the items that were brought up by the
20 petitioner and by the public in the workgroup
21 meetings that we've had. And number three, the
22 public testimony given at the Denver Board
23 meeting and to capture all of those items into
24 one document so that we can then go through and
25 address each one on a point-by-point basis. We

1 now have those collected, and Karin and I are
2 actually meeting tomorrow to firm up some of
3 the evaluations of each of those issues. And
4 yes, some of those are -- you know, there's --

5 **MR. GRIFFON:** Similar, right?

6 **DR. ULSH:** Yeah.

7 **MR. GRIFFON:** Yeah.

8 **DR. ULSH:** I mean this -- this issue is
9 included in that set.

10 **MR. GRIFFON:** Can I -- just for one second can
11 I go back to number four, this question -- in
12 the middle there's a statement, NIOSH indicated
13 that few cases will rely on use of coworker
14 data.

15 **DR. ULSH:** Yes.

16 **MR. GRIFFON:** And we -- I -- I raised some
17 questions about that issue with the neutron
18 data. I don't know if you --

19 **DR. ULSH:** Yeah, I think it was a question of
20 definition, if I think back now.

21 **MR. GRIFFON:** Yeah, yeah.

22 **DR. ULSH:** When I talk about coworker data,
23 what I'm talking about is -- well, for
24 instance, a gap in dosimetry, when -- when you
25 have every reason to believe that a person was

1 exposed, but they weren't monitored for some
2 reason. At that point we might rely on
3 coworker data. But I think you were
4 considering N/P ratios as coworker data, is
5 that it?

6 **MR. GRIFFON:** One whole -- whole period of
7 time when you rely on N/P ratios to --

8 **DR. ULSH:** Yes.

9 **MR. GRIFFON:** -- take people's data and --

10 **DR. ULSH:** Yes, you're right.

11 **MR. GRIFFON:** -- you're using it -- a
12 distribution of N/P ratios -- I've got to look
13 back on my notes on this one, I --

14 **DR. ULSH:** I think you're right, Mark. I think
15 that is -- that is true.

16 **MR. GRIFFON:** You're using a distribution,
17 which is sort of like a --

18 **DR. ULSH:** Yeah, there are cases --

19 **MR. GRIFFON:** -- sort of like your coworker
20 model, that's why I thought it was
21 (unintelligible).

22 **DR. ULSH:** So let me -- let me be more clear
23 when I --

24 **MR. GRIFFON:** Yeah.

25 **DR. ULSH:** -- talk about this. There are

1 certainly cases where we're going to be using
2 N/P ratios based on the site population, and
3 we'll be using that to calculate neutron doses
4 in some situations. But in terms of addressing
5 gaps in dosimetry where we assign, you know,
6 the 95th percentile or the 50th percentile from
7 the worker population, those instances are
8 going to be very, very minimal. But the N/P
9 ratio, you're right. They're -- that'll be a
10 bit more common.

11 Okay. Item number six --

12 **MR. GRIFFON:** We -- that's all I need on that.

13 **DR. ULSH:** Okay. Item number six is the low
14 energy photon detector correction factor that
15 was brought up in a DNFSB report. We did
16 provide a response on that that indicated that
17 this would not be affected -- I mean this would
18 not affect the -- by the change in the DOELAP
19 testing procedure. That I think is the last
20 action on this item. I don't know what comes
21 next.

22 **MR. FITZGERALD:** Oh, well, I think we've
23 accepted that response.

24 **DR. ULSH:** So I guess maybe that could be a no
25 further action required.

1 Action item number seven deals -- okay, this
2 was the -- I guess it can be characterized as
3 criminal investigation -- alleged criminal
4 investigations that were brought up by the
5 petitioner in previous workgroup meetings. I
6 think what it was is Tony DeMaiori described
7 numerous criminal investigations, security
8 investigations -- it wasn't real clear exactly
9 what kind of incidents or investigations we
10 were talking about. We had a couple of
11 exchanges on this. I sent a letter to Tony and
12 he responded that -- okay, let me get this --
13 okay. What it was is Tony said -- I thought
14 that he said that he had, you know, file
15 cabinets full of them and then -- so we asked
16 him to provide any, you know, specific examples
17 so that we could run them down. He responded
18 that he didn't in fact have access to those
19 criminal investigations. He referred us to
20 Kaiser-Hill -- Lisa Bressler* I think was her
21 name. We talked to her. We worked up the
22 chain in Kaiser-Hill. Bottom line is, nobody
23 seems to be aware of any criminal security
24 investigations, as such.
25 Now it could be just a matter of inexact

1 descriptions. I mean there were certainly --
2 we'll get into this a little bit later. There
3 were certainly safety concerns filed by the
4 union and by, you know, members -- by workers.
5 And those just about always involve some kind
6 of an investigation, and those are documented.
7 So that could have been what Tony was talking
8 about. I mean it just might be a matter of
9 terminology. I don't really know. But we
10 didn't see any instance or any examples of
11 criminal or security-type investigations. Now
12 that I think is the status on that.

13 **MR. GRIFFON:** So -- so is there any follow-up
14 with Tony possibly on that to clarify?

15 **DR. ULSH:** Well, I mean we've already had --

16 **MR. GRIFFON:** Yeah.

17 **DR. ULSH:** -- you know, an interaction with
18 Tony and he says, you know, I don't have
19 anything -- I don't have access to the files.
20 And you know, part of that, too, might be --
21 when we were in Denver, Tony and Jennifer
22 Thompson mentioned that the -- you know, now
23 that the site is closed, steelworkers don't
24 have -- what do you call it, right of
25 representation or -- they'd indicated that they

1 didn't have access to those kinds of records
2 anymore, if they, you know, did before. But
3 no, we've -- we've not seen any indication of
4 criminal or security-type investigations.
5 Item number eight, unless there's more to
6 discuss on that one --

7 **MR. GIBSON:** This is Mike Gibson --

8 **DR. ULSH:** Yes, Mike.

9 **MR. GIBSON:** -- who would have done those
10 investi-- what department would have done those
11 investigations, if they in fact did occur?

12 **DR. ULSH:** Well, it's not real clear, Mark --
13 Mike, because it was never real clear what kind
14 of an investigation we were talking about. I
15 mean if it was within the sa-- you know, like a
16 worker filing a safety concern, that would have
17 been handled by an entity called the JCUSC,
18 Joint Company Union Safety Committee, and it
19 involved members of the union and members of
20 management together on a committee that
21 investigated, you know, those kind of concerns.
22 I suppose it would depend on the scale --

23 **MR. GIBSON:** I mean -- I'm sorry, I thought you
24 said alleged criminal investigation.

25 **DR. ULSH:** Yeah, that's what's in the matrix,

1 and I think that those are the words that --
2 that Tony used when he talked about it.

3 **MS. MUNN:** That's what -- yeah, that's what
4 Tony used when he first talked about it, Mike.
5 And you're asking the very same question that I
6 asked the first time Tony broached that
7 subject. I asked him precisely what kind of
8 charges and who made them, and what the
9 organization was that was involved. And he
10 said he had bundles of information about such
11 files, and indicated that he would have to look
12 them up. But when we -- when he spoke with us
13 later at a following meeting, he did not have
14 that information and referred us to the company
15 investigators, who have no information either.

16 **MR. GIBSON:** Well -- and I'm not trying to be
17 sarcastic, Wanda, but you know, I'm sure the
18 company wouldn't be very -- may not be
19 forthcoming if -- if that was indeed true, but
20 it would seem to me -- has NIOSH checked with
21 the Department of Energy or Department of
22 Justice?

23 **MS. MUNN:** I believe they've checked with
24 everybody. No one that I am aware of was able
25 to -- I -- I responded so quickly to Tony's

1 allegation because he used the word "criminal,"
2 and to me that immediately means that there are
3 going to be prosecutors and defense attorneys
4 involved. And that's why I was asking
5 questions.

6 **DR. ULSH:** I think, Mike -- we think Lisa
7 Bressler is actually with DOE, but we also then
8 talked to Kaiser-Hill, their legal department,
9 so we talked to both the company and to DOE,
10 but we didn't talk to anyone from any other --
11 you know, not -- not -- we didn't approach the
12 FBI, for instance, or -- I don't even know if
13 they would be involved, but those are the
14 people that we talked to.

15 **MR. GRIFFON:** Department of Justice, I guess.

16 **DR. ULSH:** Justice, yeah.

17 **MR. GIBSON:** Would perhaps the -- the Defense
18 board be -- be aware of -- if this is in fact
19 legitimate, would the Defense board be in --
20 have knowledge of this or who might be involved
21 in this?

22 **DR. ULSH:** Well, I don't know the answer to
23 that. I can tell you that certainly SC&A has
24 cited a Defense board report, and we have
25 access to those Defense board reports, and I'm

1 not aware of any findings of, you know, fraud
2 in the dosimetry program or that kind of thing.
3 Have you guys come across anything -- no, SC&A
4 is indicating they haven't seen that kind of
5 thing.

6 **MR. GIBSON:** Okay. All right. Thank you.

7 **DR. ULSH:** Sure. Okay, that was number seven.

8 **MR. GRIFFON:** Yeah.

9 **DR. ULSH:** Number eight, relia-- NIOSH to
10 demonstrate the reliability of bioassay and
11 external database data for the comparison --
12 compensation program. We did -- oh, go ahead,
13 Mark.

14 **MR. GRIFFON:** I was just going to ask, I
15 actually see in the -- in the matrix that --

16 **DR. ULSH:** Yeah.

17 **MR. GRIFFON:** -- you provided a document.

18 Right? Status of Rocky Flats NIOSH
19 (unintelligible) --

20 **DR. ULSH:** Yes, we did.

21 **MR. GRIFFON:** -- April 20th, '06.

22 **DR. ULSH:** Yeah, Craig performed an analysis
23 and -- and we provided that at a --

24 **MR. GRIFFON:** 'Cause I was going to ask for an
25 -- an update on that, but we can

1 (unintelligible) back to that I think
2 (unintelligible) part of the -- and -- and have
3 you done anything beyond that analysis? That
4 was for the external, for internal or both?

5 **DR. ULSH:** Craig, can you speak to that?

6 **MR. LITTLE:** We've looked at both external and
7 internal for film badges. We have TLD data
8 from '78 that I haven't finished the analysis
9 on yet, but we do have the -- we do have the --
10 the --

11 **MR. GRIFFON:** And you compared raw records to
12 the database records basically?

13 **MR. LITTLE:** Yep.

14 **MR. GRIFFON:** Sampling of it?

15 **MR. LITTLE:** Yep.

16 **MR. GRIFFON:** And that's presented in that
17 document.

18 **MR. LITTLE:** Uh-huh, except for the '78, which
19 we haven't -- we haven't finished yet.

20 **MR. GRIFFON:** And for the internal side? The
21 reason I bring up internal --

22 **MR. LITTLE:** We did -- we did both, external
23 and -- and internal.

24 **MR. GRIFFON:** Okay.

25 **MR. LITTLE:** We have -- we pulled some of the -

1 - some of the bioassay worksheets --

2 **MR. GRIFFON:** Okay.

3 **MR. LITTLE:** -- and compared those to the -- to
4 the data that's in HIS-20.

5 **MR. GRIFFON:** And bi-- bioassay worksheets
6 were not just printouts and database printouts,
7 they're --

8 **MR. LITTLE:** They're handwritten.

9 **MR. GRIFFON:** They're handwritten?

10 **MR. LITTLE:** Uh-huh.

11 **MR. GRIFFON:** 'Cause we -- I mean I asked at
12 the last meeting -- I forget if it was a Board
13 meeting or workgroup, but it's referenced that
14 there's these urinalysis logs available.

15 **DR. ULSH:** Yes, there are.

16 **MR. GRIFFON:** That might be a step back from
17 these worksheets, I don't know.

18 **DR. ULSH:** Let me see if I can --

19 **MR. GRIFFON:** Prob-- probably similar, yeah.

20 **DR. ULSH:** We do have -- okay, yes, there are
21 urinalysis log books available. The data that
22 we have on those -- they were used by the
23 bioassay laboratory at Rocky Flats through the
24 1980s, and maybe later. The information in
25 attachment A of the internal TBD was based on

1 the data -- a review of the data in those early
2 logs, from '52 to '55 and '60 to '71. And in
3 those particular logs, the workers' names and
4 employee numbers were linked to lab sample data
5 and -- and included in the result that was
6 calculated, so we know that that's in there.
7 The data logs were not archived until 1960, and
8 we -- we found the logs in 2003 for the '52 to
9 '55 years. And let's see now, we have the --
10 the data logs starting in 1960 were archived at
11 the Federal Records Center, we know that and
12 we've got the box numbers, and right now those
13 are being retrieved by Scott Raines and Andrea
14 Wilson. That's what we know about those.
15 Now it -- it should be possible to compare
16 results in those log books with the results in
17 the rad files. You can imagine, though, that
18 there are -- I don't know, on the order of
19 100,000 urinalysis data collected over the
20 course of Rocky Flats. I think we need to
21 discuss --

22 **MR. CHEW:** Around 190-- or 270,000.

23 **DR. ULSH:** Okay. So let's dis-- it might be
24 worth discussing, Mark, what kind of an
25 analysis you would like to see. I mean should

1 we pick --

2 **MR. GRIFFON:** Well, I -- I think -- I mean I
3 think we would be -- I would be open to, you
4 know, just proposing methodology if we have
5 this many raw records.

6 **DR. ULSH:** Yeah.

7 **MR. GRIFFON:** Here's -- here's where we --
8 here's how we want to sample from it, you know.

9 **DR. ULSH:** Okay.

10 **MR. GRIFFON:** Whether it's random, whether
11 it's stratified by year, you know, stratified
12 by areas possibly -- I don't know.

13 **DR. ULSH:** We should know more once we get
14 ahold of the actual log books.

15 **MR. GRIFFON:** What it looks like, right.

16 **DR. ULSH:** And this -- this might --

17 **MR. GRIFFON:** (Unintelligible) a very small
18 percentage, you know, but -- but
19 (unintelligible).

20 **DR. ULSH:** I do want to talk about the issue of
21 log books in general. I don't know that this
22 is the place to talk about that, because that
23 is an action --

24 **MR. GRIFFON:** Yeah.

25 **DR. ULSH:** -- that is an item that we've

1 considered in previous workgroup meetings.

2 **MR. GRIFFON:** Right.

3 **DR. ULSH:** But the urinalysis log is a little
4 bit separate from the other logs, so we might
5 want to discuss that at a different time.

6 **MR. GRIFFON:** So let me -- let me just say as
7 an action maybe -- I mean you're -- you're --
8 got the -- you're in the process of retrieving
9 urinalysis logs. You'll come back with a
10 method and approach.

11 **DR. ULSH:** Sure.

12 **MR. GRIFFON:** Is that agreeable?

13 **DR. ULSH:** I think so. We can do that. Make a
14 note of that, please. Okay.

15 **MR. GRIFFON:** I'm not sure how to -- I'm
16 thinking of timing, too, as I was -- but I'm
17 just not sure how -- you know, I'd hate to have
18 you wait on, you know, sort of a joint appro--
19 approval of an approach before you actually get
20 into doing this work, so --

21 **MR. MEYER:** We could go ahead and -- we could
22 move ahead with a proposed approach, and then
23 if it turns out you need some -- you'd -- you'd
24 like to see some additional --

25 **MR. GRIFFON:** Yeah, I mean --

1 **MR. MEYER:** -- work done --

2 **MR. GRIFFON:** -- even if you -- if you provide
3 the approach on -- on the O drive or something,
4 and if anybody has any --

5 **DR. ULSH:** Well, yeah, let me --

6 **MR. GRIFFON:** -- reaction to it, we can --

7 **DR. ULSH:** Let me put an idea out on the table
8 and we can talk about it. Once we get the
9 urinalysis logs, we'll come up with a proposed
10 approach that we will then e-mail to the
11 working group members and, you know, SC&A and
12 maybe we could just, you know, correspond that
13 way. We don't have to wait for the next
14 working group meeting.

15 **MR. GRIFFON:** Right.

16 **DR. MAURO:** Yeah, yeah, don't -- move -- move --
17 - move on -- in other words, you use your best
18 judgment and move on it --

19 **MR. GRIFFON:** That's fine, yeah.

20 **DR. MAURO:** -- and just keep everyone appraised
21 (sic).

22 **DR. ULSH:** Yeah, okay.

23 **MR. GRIFFON:** And if we see any -- if there
24 are any strong reaction against the approach --

25 **DR. ULSH:** Exactly.

1 **MR. GRIFFON:** -- we can e-mail you back and
2 (unintelligible) --

3 **DR. ULSH:** Exactly.

4 **MR. GRIFFON:** -- but otherwise you can proceed,
5 yeah. We don't want to hold things up.

6 **DR. ULSH:** Okay.

7 **MR. GRIFFON:** So we're on to the next thing?

8 **DR. ULSH:** Yes, we're on page six of the matrix
9 now, I believe, and that is numbered number ten
10 -- oh, that's a no further action required.

11 **MR. FITZGERALD:** Same thing with number 11.

12 **DR. ULSH:** Ten and 11, no further action
13 required. Thank you, Joe.

14 Okay, that takes us to number 12 and the "no
15 data available" cases. Now this is an issue
16 that keeps coming up. It was mentioned in the
17 petition. Workers are very concerned that they
18 worked in jobs that required dosimetry and they
19 certainly believe that they were getting dose.
20 And the concern that they expressed was that,
21 in spite of that, they were getting badge
22 results that said no current data available.
23 Now in prior meetings Jim Langsted has
24 explained that those "no current data
25 available" entries that the workers were

1 talking about actually appeared on what we were
2 calling the supervisor reports. I've seen them
3 called other names, they're called high/lo
4 reports, they're called -- what --

5 **MR. MEYER:** (Unintelligible) reports?

6 **DR. ULSH:** Okay. And what those are are the
7 reports that were generated by dosimetry
8 department and sent to the supervisors because
9 the supervisors were responsible for making
10 sure that the workers didn't approach or exceed
11 exposure limits. And so what -- what they
12 would do sometimes -- I don't know that this
13 wads across the board, I think it kind of
14 varied by supervisor, but they would post these
15 results for the workers to see. And we do have
16 examples of those reports with "no current data
17 available" entries on them. We have seen
18 those. We've got -- we've got them or they're
19 coming?

20 **MR. MEYER:** Actually they're on the disk that
21 came yesterday.

22 **DR. ULSH:** Okay. We've got those. The idea
23 that I think this action item leads to or -- or
24 implies is that we should take instances from
25 those supervisor reports of "no data

1 available," go back and look at the worker's
2 rad file and see what's in there.

3 **MR. GRIFFON:** Right.

4 **DR. ULSH:** Now we can do that. But let me tell
5 you what I think we might find when we do that.
6 Jim told us that -- the situations that would
7 lead to a "no current data available." There
8 were a couple. Number one, the mo-- by far the
9 most common was the badge wasn't exchanged on
10 time. Could have been that the employee was
11 off during the exchange date. Maybe it was
12 stored in a -- you know, not in the right area,
13 who knows what --

14 **MR. GRIFFON:** For whatever reason.

15 **DR. ULSH:** -- for whatever reason, it was not
16 exchanged. In that case, the worker would
17 continue to wear the badge for another exchange
18 cycle, another badge wear cycle --

19 **MR. GRIFFON:** (Unintelligible)

20 **DR. ULSH:** Yes, and what you would see in the
21 worker's file then would be -- all that dose
22 would be recorded in one of the other -- one or
23 the other quarters. And in the other quarter
24 you would see a zero, or maybe a blank,
25 depending on the time frame.

1 The other situation that could lead to a "no
2 current data available" is -- well, if, for
3 instance, there was, you know, a manpower issue
4 in the dosimetry department and they just
5 couldn't get the badges read in time when those
6 reports had to go out to the supervisors. That
7 would be a "no current data available," they
8 just hadn't gotten to read the badges yet.
9 And a last possibility, which was the least
10 common, was that there was some problem with
11 the badge, that it was unreadable or
12 contaminated, whatever -- something that
13 required an investigation.

14 Any of those situations could have led to a "no
15 current data available," so --

16 **MR. GRIFFON:** (Unintelligible) that last
17 circumstance, though, have some sort of flag in
18 the record?

19 **DR. ULSH:** It really depends on the era. Yes,
20 exactly. And this description was given by Jim
21 Langsted, and I now have corroboration of that
22 from another site expert, Steve Baker. So if -
23 - you know, we've talked to two site experts
24 now and the story is -- it's pretty much --
25 it's exactly the same. This is where you would

1 see the "no current data available."

2 And I can tell you that I've gone through

3 hundreds of Rocky Flats rad files, and I never

4 see "no current data available" in the

5 individual's rad files. The only place you see

6 them is on these supervisor reports or

7 quarterly summaries. And tho-- and it makes

8 sense. I mean this is consistent with what we

9 know. This is what the workers would have seen

10 on a -- on a periodic basis is these supervisor

11 reports. They would go chase -- look at their

12 badge number and see, you know, "no current

13 data available."

14 It really seems to me, after having looked into

15 this, that this might have been a good

16 opportunity to communicate better with the

17 workers what this means, because I think the

18 workers are very concerned that this might --

19 you know, that this indicates some kind of a --

20 a problem in the dosimetry department, or maybe

21 even misconduct. You know, I know I worked in

22 a radiation area, I know that there should be

23 dose recorded on my badge, and I've got "no

24 current data available."

25 **MR. GRIFFON:** I think the allega-- one of the

1 specific ones was when the person thought they
2 were -- or at least reportedly was in a high --
3 higher area, at least where -- you know, where
4 he thought -- he or she, I forget, thought that
5 they had a higher exposure potential than their
6 usual job and they were there for three cycles
7 or something and there was no data available
8 for all three or something like that, I seem to
9 recall.

10 **DR. ULSH:** And that is --

11 **MR. GRIFFON:** (Unintelligible) you
12 investigated that one.

13 **DR. ULSH:** If it was in the petition. It rings
14 a bell.

15 **MR. GRIFFON:** Yeah, yeah.

16 **DR. ULSH:** We -- we -- in previous Board
17 meetings --

18 **MR. GRIFFON:** (Unintelligible) sketchy on the
19 details, but -- but (unintelligible).

20 **DR. ULSH:** In a previous Board -- working group
21 meeting we have talked about that --

22 **MS. MUNN:** It's a legitimate concern from the
23 worker's point of view.

24 **DR. ULSH:** Oh, absolutely, and it's --

25 **MR. GRIFFON:** So that's the kind of one that I

1 think if you cross-walked and said the data was
2 th-- you know, I -- I know what you're saying
3 is that -- is it even worthwhile to --

4 **DR. ULSH:** Well, I don't want to --

5 **MR. GRIFFON:** -- cross-walk these "no data
6 availables," but there's --

7 **DR. ULSH:** I don't quite want to go that far,
8 but I do want to kind of look down the road and
9 see what is this going to tell us if we do it.
10 You might very well see a blank, if it was a
11 badge exchange problem and -- you know, missed
12 badge exchange -- and all the dose may be
13 recorded in another quarter. We might see
14 that.

15 **DR. MAURO:** But how do you know that? I mean
16 see, I -- I'm putting myself in the position of
17 the -- of the --

18 **DR. ULSH:** Exactly.

19 **DR. MAURO:** -- claimant that says show me
20 something in the record that -- where there's a
21 notation that indicate what you just described
22 happened, and this is how it was dealt with. I
23 mean that would be --

24 **DR. ULSH:** Yes.

25 **DR. MAURO:** -- putting the period at the end of

1 the sentence. But right now it sounds like
2 that -- the answers certainly are plausible,
3 but is there anything in the records that say
4 not only is it plausible, here's the evidence
5 that it -- that this is in fact what occurred
6 in your case. Do we have anything like that?

7 **DR. ULSH:** Well --

8 **MR. GIBSON:** John, could you speak up just a
9 little bit, please?

10 **DR. MAURO:** Yes. Yeah, Mike, all I was saying
11 is that I think that what was just described
12 are plausible explanations for what in fact
13 might have transpired. But is there anything
14 in the records themselves which would
15 demonstrate that for a given worker or for a
16 claimant who is concerned that this is -- has
17 occurred, that there's some -- some material,
18 language, notation in one of these different
19 types of record that that is in fact what
20 occurred and how it was dealt with. I think if
21 we can show them this, it would I guess give
22 them a little bit more peace of mind that in
23 fact they are being treated properly.

24 **DR. ULSH:** I think it kind of depends on the
25 time frame. Jim Langsted, are you on line?

1 **MR. GIBSON:** And what time -- and what time
2 frames are we discussing here? Could you give
3 me the...

4 **DR. ULSH:** Yeah, that's -- Jim, are you out
5 there, Jim Langsted?

6 **MR. LANGSTED:** Yes.

7 **DR. ULSH:** Okay. Can you talk about the
8 procedures for doing dose reconstructions? And
9 what I'm thinking of is when -- what time
10 period would you expect to see a -- if a dose
11 reconstruction was conducted and -- oh, let me
12 clarify here. I'm talking about dose
13 reconstructions conducted by Rocky Flats
14 external people, not NIOSH dose
15 reconstructions. So in other words, if there
16 was a problem with a badge, it couldn't be
17 read, and a dose reconstruction was conducted -
18 - I know certainly in the '90s you would see a
19 dose reconstruction report in the file. You
20 would expect to. But how far back in time can
21 we expect that, Jim? Do you have a feel for
22 that?

23 **MR. LANGSTED:** You're right, Brant, in the '90s
24 Rocky Flats formalized that process into a --
25 procedures and forms and documents that went

1 into the files, and it was a full-time health
2 physicist that worked for Steve Baker that did
3 these things.

4 Prior to the early '90s, the process was less
5 proceduralized. And if a dose reconstruction
6 occurred it was likely that those records were
7 stored in the health physicist's desk files and
8 never got formally transmitted -- formalized,
9 let alone formally transmitted -- to the
10 worker's record.

11 **MR. GIBSON:** This is Mike Gibson. Let me ask -
12 - I guess just based on my experience at Mound,
13 and I'm just trying to figure out time frames
14 here, there was a time when the dosimeter was -
15 - the security badge, the Q clearance badge or
16 whatever you had was slid into a little holder
17 that had the dosimeter behind it and you wore
18 it out as you left the gate, took it home with
19 you. And then there came a time in the -- I
20 want to say in the early to mid-'90s where the
21 security badge and dosimeter were completely
22 separated.

23 **MR. LANGSTED:** Yeah, that was in 1992, Mike.

24 **MR. GIBSON:** Okay. And then you were not
25 permitted to take the dosimeter off site, so

1 I'm just trying to get a feel on the time frame
2 for -- you know, I can un-- if -- if someone
3 took one home and they were on vacation, if it
4 was the era where they had it in their badge,
5 that may be one thing. But if there was a
6 time where they had to leave the dosimeter on
7 site, by security and safety regulations, then
8 you know, I would question -- how could there
9 be no data.

10 **DR. ULSH:** Mike, I think it's worthwhile going
11 through the chronology here of badging at Rocky
12 Flats. I know that -- okay, we know that the
13 end date when the badges were separated was
14 '92. Prior to that, the security badge and the
15 dosimetry badge were combined, so -- as you
16 described. Jim, how far back in time does that
17 go? When did they combine the badges, do you
18 know?

19 **MR. LANGSTED:** 1962, I believe.

20 **DR. ULSH:** Okay. So early '60s. Now here's
21 another question. I don't know that you guys
22 are going to -- my team is going to have the
23 answer to this, but these supervisor reports
24 that were generated, how far back in time do
25 those go? Do you have a feel for that, Bob?

1 **MR. MEYER:** I don't, I'm sorry. No.

2 **MR. LANGSTED:** I believe 1969 is when we would
3 start to see those.

4 **DR. ULSH:** Okay. So it's certainly in the
5 period, Mike, when the badges were combined.
6 At least -- you know, they were combined in '69
7 and -- and all the way up through '92. Does
8 that answer your question, Mike?

9 **MR. GIBSON:** Yes. Yes.

10 **DR. ULSH:** Okay.

11 **MR. PRESLEY:** Hey, Mike, this is Bob Presley.
12 Y-12 we still take our TLDs home every night
13 with us, have ever since day one.

14 **MR. GIBSON:** Hmm. Well, certainly wasn't the
15 case at Mound, but I -- I don't know that that
16 was Mound-specific or DOE-wide. I'm just
17 trying to, you know -- I'm not trying to argue
18 with anyone, but the Board's supposed to be
19 balanced and I'm just supposed -- I'm just
20 bringing the labor perspective to the table.

21 **DR. WADE:** It's appreciated.

22 **MR. GRIFFON:** Brant, what -- so where -- where
23 do you want to go with that?

24 **DR. ULSH:** Okay. Well, that's what I wanted to
25 kind of discuss. This is similar to the

1 previous issue about the urinalysis log books,
2 and we now have these "no current data
3 available" entries on the log --

4 **MR. GRIFFON:** You have them for -- for all that
5 scope of time or do you know?

6 **MR. MEYER:** We -- the reason we have them is
7 because we're looking for the 1969 data gaps,
8 so that's what we have so far.

9 **MR. GRIFFON:** '69 period?

10 **MR. MEYER:** My guess is they were -- they were
11 easy for -- this particular set was easy for
12 Mountain View to retrieve, and there's no
13 reason to think we wouldn't be able to find
14 them for any time period, with -- with a little
15 effort.

16 **MR. GRIFFON:** But '69 may be a hard time
17 period to compare since (unintelligible)
18 database is in question. Right?

19 **MR. MEYER:** That's true.

20 **MR. GRIFFON:** Yeah.

21 **MR. MEYER:** That's true.

22 **MR. LANGSTED:** This is Jim Langsted. We are
23 doing -- in the process of doing an analysis on
24 a segment of the dosimetry reports for 1973.
25 We randomly selected a set of -- because we

1 could find them in the archives -- and we have
2 found the worksheets that go along with it, and
3 are in the process of looking at those and
4 resolving the "no current data available" on
5 those. That's still in -- in the works.

6 **DR. ULSH:** Well, that's what happens when I go
7 on vacation. I fall behind.

8 **MR. GRIFFON:** They've moved ahead on that.

9 **DR. ULSH:** Oh, yeah.

10 **MR. GRIFFON:** So that's an ongoing action, I
11 guess.

12 **DR. ULSH:** Yes, it is. Yes, it is. And I just
13 want to prepare you that we might see instances
14 where there were blanks in the record. I mean
15 we might very well see that.

16 Okay --

17 **MR. GRIFFON:** And '73 forward -- that's an
18 effort, '73 forward. Is there any effort to
19 look at prior to '73 or is it more difficult
20 because of records availability? He just said
21 '73 forward.

22 **DR. ULSH:** Yeah, I think he said '60 -- Jim,
23 when did you say, '67 or '69 when the -- the
24 supervisor --

25 **MR. MEYER:** '69.

1 was a period of use of loose-chipped dosimeters
2 from '69 to '83, so that's the time period that
3 we're talking about.

4 Okay. This one says that SC&A has provided the
5 badge numbers to NIOSH for follow-up comparison
6 against HIS-20 database. Let me clarify where
7 we're on it. I'm looking at, Joe, the late--
8 the write-up that you sent last week.

9 **MR. FITZGERALD:** Right.

10 **DR. ULSH:** Is that Table 2? Is that what
11 that's referring to? It's the --

12 **MS. ROBERTSON-DEMERS:** No.

13 **DR. ULSH:** No, it's not? Okay.

14 **MS. ROBERTSON-DEMERS:** No, this is several
15 write-ups back with the 20 names.

16 **DR. ULSH:** I'm sorry, Kathy, I couldn't quite
17 make that out. Can you --

18 **MS. ROBERTSON-DEMERS:** It was several write-ups
19 back, probably in the April time frame.

20 **MR. GRIFFON:** It's an older version, I guess -
21 - yeah.

22 **MS. ROBERTSON-DEMERS:** And it had a list of
23 names from the log book.

24 **UNIDENTIFIED:** April 17th.

25 **DR. ULSH:** Do you have -- do we have a status

1 on that? That one doesn't ring a bell for me.
2 Okay, we're going to dig out those names and
3 I'm going to get you a status --

4 **MR. GRIFFON:** Yeah, we'll hold on that.

5 **DR. ULSH:** The next issue, number 14, deals
6 with contamination that might have gotten onto
7 TLD chips. And by that I don't mean
8 radioactive contamination, necessarily. We're
9 talking about like hair and body oil, things
10 that could have given a false signal when the
11 chips were read. And we have provided some
12 procedures for time periods that we could
13 locate, and those were -- Jim Langsted -- oh,
14 it's 1993 -- 1983, sorry, was the date of the
15 procedure that we have provided. And I think
16 in that procedure -- is it Link and Pennock?

17 **MR. LANGSTED:** That is correct.

18 **DR. ULSH:** Okay, Link and Pennock, good -- that
19 talks about procedures that were used to clean
20 the chips using alcohol that -- that would not
21 affect the signal that was given off by the
22 chip. It was just -- it was just simply used
23 to remove contamination. I mean that was
24 certainly an issue that was known, and it was -
25 - you know, that's why these procedures were

1 implemented by the external dosimetry
2 department.

3 **MR. GRIFFON:** Now the -- this formal
4 investigation procedure was later. Right? The
5 one they reference on the top of that
6 paragraph.

7 **MR. LANGSTED:** Yeah, that's correct. That's
8 early '90s.

9 **DR. ULSH:** Okay. I appreciate you --

10 **MR. GRIFFON:** So the '83 procedure was on the
11 appropriate handling but wasn't a formal
12 investigation process.

13 **DR. ULSH:** It wasn't an investigation process.
14 It -- it dealt with chip handling procedures.
15 So I mean that was -- the allegation -- or the
16 concern here was that hair and body oils on the
17 TLD chips could cause inaccurate readings. And
18 while that's certainly a possibility if this
19 kind of contamination was present on the chips
20 and -- what I'm saying is there were procedures
21 in place to prevent that kind of contamination.
22 And if that kind of contamination was on the
23 chip when it was read, it would lead you to a
24 false positive signal. It would be probably
25 not a credible result.

1 **MR. GRIFFON:** I think there was a method to
2 how I wrote those last two sentences, too,
3 though, in the matrix. NIOSH indicated that
4 the badge which required handling of chips was
5 used from '69 to '83.

6 **DR. ULSH:** Right.

7 **MR. GRIFFON:** NIOSH provided an '83 procedure
8 which discussed the appropriate handling
9 practices. So it seems like that's at the tail
10 end of the period that those --

11 **DR. ULSH:** Yeah.

12 **MR. GRIFFON:** -- those badges were even used,
13 so I'm wondering if it's even applicable to the
14 -- the badges in question.

15 **DR. ULSH:** Well, I'm thinking --

16 **MR. GRIFFON:** I'm assuming that Jim has looked
17 into that, but --

18 **DR. ULSH:** Yeah, Jim, I'm going to turn this
19 over to you in just a second, but what I'm
20 thinking is that Link and Pennock, the '83
21 procedure, that might -- I think that was the
22 earliest instance of a -- that it was
23 proceduralized, that we can find. But we've
24 talked to Joe Aldrich*, who was in charge -- I
25 believe -- of the external dosimetry laboratory

1 in the earlier period, and what we're getting
2 is that these procedures were followed, but
3 they were only proceduralized --

4 **MR. GRIFFON:** That was the practice even --

5 **DR. ULSH:** Yes, exactly.

6 **MR. GRIFFON:** -- before the procedure was
7 formalized.

8 **DR. ULSH:** Exactly. Jim, does that sound about
9 right?

10 **MR. LANGSTED:** Yeah, that's my recollection,
11 that that in 1983 was a proceduralization of
12 the process that had been used for the time --
13 the time frame before that.

14 **DR. ULSH:** So we're certainly keeping our eye -
15 - I mean we're looking at a lot of Rocky
16 documents. We're certainly keeping our eyes
17 open for earlier procedures, but we're not
18 aware of any right now. That might be as early
19 as we can get.

20 **MR. GRIFFON:** Okay.

21 **DR. ULSH:** Okay. And that leads us to number
22 15.

23 **MS. MUNN:** So are we okay?

24 **MR. GRIFFON:** Yeah, I'm almost ready to say --
25 I mean I don't know that you're -- we need any

1 -- is there a further action there is the
2 question.

3 **MS. MUNN:** Anything else we can do.

4 **MR. GRIFFON:** I don't think there's -- I don't
5 think it's worth any further action, really.
6 If something show-- with the understanding that
7 if he finds something, --

8 **DR. ULSH:** Sure, of course.

9 **MR. GRIFFON:** -- but no further action.

10 **DR. ULSH:** Okay. Number 15, this is from -- I
11 bel-- yeah, it's from the SEC petition, and it
12 was also brought up by the petitioners in
13 earlier working group meetings. And the
14 concern here -- the allegation is that
15 deliberately false entries were made into dose
16 records. And the status of this is that we --
17 we're not currently aware of any findings of
18 systematic falsification of data, and that --
19 you've got to keep in mind that Rocky Flats,
20 throughout its history, was audited -- I mean
21 there were QA -- there was a QA program in
22 place. We mentioned the Defense Nuclear Safety
23 Board earlier. There were various organizations
24 that audited the Rocky Flats dosimetry program
25 over the course of its operation. We have not

1 come across any findings in this regard, and
2 this gets back to our discussion earlier about
3 the criminal investigations, security
4 investigations -- that's what these
5 investigations allegedly dealt with. I mean
6 this was -- this was the topic of those. And
7 so that earlier conversation would apply here.
8 I mean we've --

9 **MR. GRIFFON:** But the -- I guess the question
10 in my mind would be is there any -- again, I'm
11 thinking flags, if somebody -- if this happens
12 in the lab when you're reading the TLDs or film
13 badges, it would probably be flagged in the
14 log.

15 **DR. ULSH:** Well, in fact -- you're right, Mark
16 --

17 **MR. GRIFFON:** (Unintelligible) abnormally high
18 reading and you're going to pursue this or this
19 data -- this doesn't seem valid and this is the
20 reason, it'd be flagged.

21 **DR. ULSH:** Well, I think I may be able to
22 provide an example -- well, actually SC&A has
23 provided -- Kathy provided it. It's in their
24 latest write-up, Table 2. If you look at some
25 of the justifi-- the column called

1 "Justification for Change," and what you see is
2 (reading) Pen one crystal much, much greater
3 than skin, can't happen.

4 **MR. GRIFFON:** Right.

5 **DR. ULSH:** That might be an example of what you
6 would --

7 **MR. GRIFFON:** Right.

8 **DR. ULSH:** These -- this log book that Kathy
9 pulled this from, I -- Kathy, was that called a
10 dosimetry problem log book or something like
11 that?

12 **MS. ROBERTSON-DEMERS:** Yes.

13 **DR. ULSH:** Okay. That might be a place where
14 you would expect to see a recording of some --

15 **MR. GRIFFON:** What time frame was that from?
16 The -- the dosimetry log book or whatever.

17 **DR. ULSH:** This says March, 1985 through '86.
18 I don't know that this is the only one out
19 there. This is just the one that -- that Kathy
20 put in the write-up. So --

21 **MR. GIBSON:** Excuse me --

22 **DR. ULSH:** Yes, Mike.

23 **MR. GIBSON:** -- this is Mike. Did you say it
24 was prior to '85?

25 **MS. MUNN:** No, these are '85s/'86s --

1 **MR. GRIFFON:** I mean I guess in the later years
2 -- my experience is in the later years in the
3 dosimetry databases you have -- you know,
4 instead of seven or eight columns of data, you
5 have about 1,000 columns --

6 **DR. ULSH:** With codes.

7 **MR. GRIFFON:** -- flags and codes and
8 everything, right. But in the earlier years
9 you usually have to go back to these kind of
10 log books to find those kind of flags.

11 **DR. ULSH:** I suspect that that might be the
12 case.

13 **MR. GRIFFON:** Might be worthwhile to at least
14 find maybe one from the '70s, one from the '60s
15 or something.

16 **DR. ULSH:** Well, let's pull that string, Mark.

17 **MR. GRIFFON:** A little bit --

18 **DR. ULSH:** What kind of a follow-up action
19 would you like to see?

20 **MR. GRIFFON:** -- not all the log books, but I
21 think --

22 **DR. ULSH:** Okay, can we -- how about this?
23 We've got this table that Kathy provided. This
24 covers, you know, the mid-'80s.

25 **MR. GRIFFON:** Yeah.

1 **DR. ULSH:** We could -- and she's provided an --
2 ID numbers. That's a badge number, I presume,
3 and we've got a date. We could run these down
4 and tell you what we see in the rad files for
5 these particular entries. That's the '80s.

6 **MR. GRIFFON:** Yeah.

7 **DR. ULSH:** And what you're suggesting is maybe
8 get ahold of another log -- similar log book
9 from the '70s --

10 **MR. GRIFFON:** And '60s if they're avai-- you
11 know, if you can find them.

12 **DR. ULSH:** Okay.

13 **MR. GRIFFON:** Do it.

14 **DR. ULSH:** Okay, we can do that -- similar
15 number of cases, I'm presuming?

16 **MR. GRIFFON:** Yeah.

17 **DR. ULSH:** Okay. Yeah, we can -- should be a
18 fairly --

19 **MR. GRIFFON:** I mean this log book and the
20 others, I think it's a good practice just to --
21 if you're scanning them anyway, just post them
22 on the O drive.

23 **DR. ULSH:** Yeah. Yeah, we can do that. I've
24 put a folder on the O drive right now with log
25 books. It's hard for me to keep track of all

1 the documents that are flowing back and forth.
2 I'm not sure how we originally got that set of
3 log books. It might have even been one set of
4 log books that Kathy requested, I'm not sure,
5 that we got a copy of the disk.

6 **MS. ROBERTSON-DEMERS:** It is.

7 **DR. ULSH:** It is? Good.

8 **MS. ROBERTSON-DEMERS:** That's exactly what it
9 is.

10 **DR. ULSH:** Okay. So -- and those have been
11 posted up there in a folder. But yeah, if we
12 locate any other ones, we'll put those up, too.
13 Okay, so that's --

14 **MR. GRIFFON:** That was item 15. Right?

15 **DR. ULSH:** -- 15.

16 **MS. ROBERTSON-DEMERS:** I ran across a statement
17 in a memorandum about the -- the neutron
18 dosimeters, and I'm not quite sure where this
19 is going to fall into the matrix, but
20 essentially -- I'll just -- I'll just read part
21 of this to you. It says (reading) During the
22 month of January there were 21 neutron films
23 reported as too dense to read. This included
24 19 from buildings 76, 77, 77A and two from
25 building 71. The current procedure is to

1 report these films with a code indicating too
2 much gamma to read, resulting in an assignment
3 -- assigned neutron dose of zero.

4 And I realize that we (unintelligible) NDRP,
5 but I guess the point is --

6 **MR. GRIFFON:** Kathy, I'm sorry to say this
7 again, but a little louder. Ray's having a
8 little trouble hearing you for the transcript.

9 **MS. ROBERTSON-DEMERS:** Could you guys hear
10 that?

11 **MS. MUNN:** Barely.

12 **MR. GRIFFON:** That's a little better.

13 **UNIDENTIFIED:** (Unintelligible) could hear
14 that.

15 **MS. ROBERTSON-DEMERS:** Would you like me to
16 read it back?

17 **UNIDENTIFIED:** Yes.

18 **MS. MUNN:** Yes, please.

19 **MR. GRIFFON:** Please, yes.

20 **MS. ROBERTSON-DEMERS:** Okay. It says (reading)
21 During the month of January there were 21
22 neutron films reported as too dense to read.
23 This included 19 from buildings 76, 77, 77A and
24 two from building 71. The current procedure is
25 to report these films with a code indicating

1 too much gamma to read, resulting in an
2 assigned neutron dose of zero.

3 **DR. ULSH:** Kathy, you said --

4 **MS. ROBERTSON-DEMERS:** And what I was saying is
5 I realize that this -- this -- they went back
6 and re-evaluated the neutron doses, but I guess
7 what I'm wondering is if the neutron films
8 couldn't be read because they were over-
9 exposed, is it possible that the beta-gamma
10 films couldn't be read and they followed the
11 same procedure.

12 **DR. ULSH:** I think -- Kathy, I think -- it
13 sounds like you're in a wind tunnel.

14 **DR. WADE:** Somebody needs to mute their phone.
15 I can't tell who, obviously, but there's real
16 loud interference.

17 **MS. ROBERTSON-DEMERS:** I can barely hear you
18 guys.

19 **DR. ULSH:** Well, it just got better. The
20 interference is gone.

21 Kathy, I think the answer is no, that that
22 would not be an issue on the beta-gamma films
23 because we're -- we are certainly aware of a
24 phenomenon of gamma fogging, is what it was
25 known -- known as, and that occurred -- oh, I'm

1 trying to think of the gamma doses where --
2 where you would start to see fogging on a
3 neutron film. I think it was around 500
4 millirem. Roger, does that sound right? Roger
5 Falk?

6 **MR. FALK:** Yes. It would depend upon --

7 **DR. ULSH:** Hey, Roger, it might be you. The
8 interference is back. I don't know who...

9 **MR. FALK:** No, we were on mute before.

10 **DR. ULSH:** Oh, okay. It's better.

11 **MR. FALK:** If it were -- if it were the
12 americium exposure, it would tend to saturate
13 around 500 millirem. If it were the higher
14 energy photons it would be around one or two
15 rem.

16 **DR. ULSH:** But that was a -- that was an --
17 gamma fogging was an issue on the NTA films,
18 but it was not an issue on beta-gamma. Right?

19 **MR. FALK:** Right.

20 **DR. MAKHIJANI:** Kathy, what year was this? You
21 said January, but you didn't say the year.

22 **MS. ROBERTSON-DEMERS:** Oh, sorry, it's -- it's
23 dated March 16th, 1965.

24 **DR. ULSH:** Could you also, Kathy -- that memo,
25 could you send us a copy, please?

1 **MS. ROBERTSON-DEMERS:** Okay.

2 **DR. ULSH:** Thanks.

3 **DR. MAKHIJANI:** If you'll e-mail it, I can just
4 get it. I think a number of us could get it
5 here.

6 **DR. ULSH:** Sure.

7 **MS. ROBERTSON-DEMERS:** I'm going to have to go
8 back and find it, too.

9 **DR. ULSH:** Okay --

10 **MR. GRIFFON:** Should we go on?

11 **DR. ULSH:** What's -- what's?

12 **MS. ROBERTSON-DEMERS:** I'm -- I'm trying to
13 figure out why the workers feel that, when
14 they're working these high dose rate jobs and
15 they're getting zero, that they should have
16 received more dose.

17 **DR. ULSH:** Well, we've also talked about this
18 issue on a number of occasions before, and I'm
19 thinking of the last workgroup meeting here in
20 particular. It is certainly consistent that
21 individuals who worked on the same job could
22 have received very, very different doses. I
23 don't know, maybe the worker -- this may or may
24 not be known by the workers, but it depends on
25 the time, the distance, the shielding. And

1 we've been talking about neutrons. Certainly
2 that is an issue for neutrons. You could have
3 two people working side by side and, as you
4 probably know, a very -- what you're looking
5 for in a neutron shield is a hydrogenous
6 material, something that's got a lot of
7 hydrogen in it -- like, for instance, a
8 coworker. So I mean if -- if you had a
9 coworker standing between you and the neutron
10 source, he might have a very high neutron dose
11 and you wouldn't have much of anything. That's
12 just one example.

13 There are certainly situations where -- I mean
14 I -- I would expect that on any given job you
15 would expect to see a variety of dose rates for
16 the individuals that worked on the job,
17 depending on the particulars. But the workers
18 -- you know, I mean -- the workers, you know,
19 may not be trained health physicists and so,
20 you know, this -- it might seem very logical to
21 them that if, you know, five of their buddies
22 who worked on the job had a high dose, why --
23 why in the world didn't they? Well, I know
24 that workers express that concern, but they're
25 -- it is certainly possible that there's a very

1 logical explanation for that.

2 **MS. ROBERTSON-DEMERS:** I guess their concern is
3 that they take a survey there and they're
4 working in a one R per hour field, and then
5 they get no detectable.

6 **DR. ULSH:** Well, again, we've also talked about
7 this. When you're talking about rad techs or
8 people who are using survey meters, it was very
9 common -- a LARA* practice for the rad techs to
10 approach a source, take a reading as necessary
11 at different points in a job, and then retreat
12 to an area with lower dose rate. It's also
13 true that when they posted dose rates, you
14 know, for rad jobs, they would post the highest
15 dose rate experienced in that area. And
16 usually that was on contact or very close to
17 the -- to the source. So on the sign, on the -
18 - you know, the -- the posting that was around
19 those jobs, that's what would be listed. That
20 does not mean that that dose rate is
21 representative of what the workers were
22 actually experiencing. So that could be
23 another thing that might lead a worker to a --
24 a conclusion that he should have had a higher
25 dose.

1 **MS. ROBERTSON-DEMERS:** Are you going to make
2 adjustments to the dosimetry systems since
3 they're so variable?

4 **DR. ULSH:** I'm not sure what you mean, Kathy.

5 **MS. ROBERTSON-DEMERS:** Well, if you're saying
6 that one guy standing right here and he gets a
7 high dose, and the next -- and another guy is
8 standing right adjacent to him and he gets
9 virtually nothing -- you know, they don't stay
10 in that place all the time, and I'm just
11 wondering if you're going to apply a special
12 adjustment factor to that dosimetry if the
13 variation is that extreme.

14 **DR. ULSH:** I'm trying to think how to respond
15 to that. The differences that you might expect
16 between two -- between individuals on a job
17 would of course depend on the specifics of the
18 job. I'm not saying that the dosimeters
19 malfunctioned or that they were functioning
20 differently. I don't think we have evidence
21 that they were inaccurate. There is certainly
22 a sensitivity issue, particularly with neutron
23 films, and we do take into account
24 uncertainties associated with the different
25 dosimeters that are used at Rocky Flats, as

1 described in the TBD. I guess I don't know
2 what kind of an adjustment you're --

3 **MS. ROBERTSON-DEMERS:** I guess my issue is not
4 with whether the dosimeter can see the
5 radiation in the laboratory setting. It's --
6 it's with the conditions that occur in the
7 field, like -- like the person moving around or
8 --

9 **MR. GIBSON:** This is -- Kathy, if I could step
10 in for a minute, if you don't mind, this is
11 Mike Gibson. What Kathy is saying, and -- and
12 being from maintenance at a DOE site, what
13 she's saying -- I understand what you're
14 saying, Brant, is that I may be standing behind
15 -- I'm an electrician. I may be standing
16 behind a mechanic while he does something in a
17 particular area. But that's not going to be
18 the whole case for the whole day or for the
19 whole job. He's going to go in and do his
20 part, and then he's going to turn around and
21 I'm going to go in and hook up the wires and
22 then I'm going to turn around and a pipe
23 fitter's going to come in and do the plumbing,
24 the pipe fitting or whatever else. So I -- I
25 think, Kathy -- and correct me if I'm wrong --

1 is what you're saying is we are not stagnant
2 and -- and I don't think --

3 **MS. ROBERTSON-DEMERS:** Right.

4 **MR. GIBSON:** -- that NIOSH can -- can say that,
5 you know, just because one guy -- one guy may
6 be shielded from the other, we're going to be
7 constantly moving about during the day doing
8 our particular jobs for the -- the task at
9 hand.

10 **MR. GRIFFON:** But in -- but in theory,
11 everyone's still being monitored, Mike. I
12 guess that's the -- the other one still has a
13 badge on. That's...

14 **MS. ROBERTSON-DEMERS:** But I guess the issue
15 is, and this is the question that has to be
16 answered: I worked on the americium line. I
17 know I got high levels of exposure. I saw it
18 on my secondary dosimetry and on my portable
19 survey instruments. Why did I get zero? And
20 that's --

21 **MR. GRIFFON:** Well, and I think that's -- I
22 think the only way -- I mean I think part of
23 the -- what we're trying to do to get at this
24 answer is to look at some of the secondary
25 dosimetry data, if we have them in log books,

1 and to the extent we can, you know, compare
2 them with --

3 **MS. ROBERTSON-DEMERS:** I think this was brought
4 up by one individual in the petition who worked
5 on the stacker retriever.

6 **DR. ULSH:** Yeah, I'm looking at it right now,
7 Kathy.

8 **MS. ROBERTSON-DEMERS:** Okay.

9 **DR. ULSH:** Again, I don't want to say a name,
10 for Privacy Act reasons. We've got -- and this
11 is one that we've addressed in a previous
12 meeting. This particular individual -- oh,
13 actually I made copies. How about if I hand
14 them around? We didn't set this up, I promise.
15 Kathy and I didn't coordinate on this. I'll
16 give it just a minute for these to come around
17 -- and you've seen this before. It's a copy of
18 an affidavit from the petition and the
19 dosimetry that goes with this individual.
20 The allegation in the affidavit says that in
21 1982/'83 loading nuclear material into the
22 stacker --

23 **UNIDENTIFIED:** (Unintelligible)

24 **DR. ULSH:** Sorry, did someone have something?

25 (No responses)

1 Okay.

2 **MR. GRIFFON:** Did we have this before?

3 **DR. ULSH:** Yes, you -- it should look very
4 familiar to you. In 1982/'83 loading nuclear
5 material into the stacker retriever in building
6 371, six quarters out of eight there is no data
7 available for my dose. This work had very high
8 dose, up to eight -- I assume that means rad --
9 per hour. Operators assigned were routinely
10 rotated due to the high dose, but as a
11 radiological control technician I was not.
12 So what he says here is that in '82/'83 time
13 frame, of those eight quarters he says that six
14 quarters out of those eight there is no data
15 available for him.

16 Looking at the next page of the handout for the
17 people around the table, I have the dosimetry
18 results for this individual for the time period
19 in question, 1982 and '83. And what you see is
20 that in 1982, three out of the four quarters he
21 has quarterly results, and in the one quarter
22 where there is no quarterly result there is a
23 monthly. And then in the next year there is a
24 monthly, and then four quarterly results. The
25 -- so what we have to conclude here is that the

1 dosimetry evidence does not support the
2 allegation in the allegation.

3 **MR. GRIFFON:** Well, he has zeroes. I mean
4 (unintelligible) clear. He said dosimetry
5 results. I don't know that if they had no data
6 available they wouldn't have transferred that
7 to a zero in the database.

8 **DR. ULSH:** It is very possible that -- no, wait
9 a minute, '82/'83. It is very possible in
10 '82/'83 --

11 **MR. GRIFFON:** I'm looking at --

12 **DR. ULSH:** -- this is the right time frame for
13 the supervisor's reports to be out. It is
14 certainly possible, Mark, that he could have
15 seen on the supervisor's reports "no current
16 data available" if -- you know, for all the
17 reasons that we talked about earlier. That is
18 certainly a possibility. And that would
19 actually be, you know, consistent with what
20 we're seeing here. However, that's exactly my
21 point, is that "no current data available" does
22 not necessarily mean that he was not monitored
23 or that the results of the monitoring were not
24 transferred into his file.

25 Now Mark, you're absolutely right. When you

1 look at those results there are entries there,
2 for sure, but they are low doses, for sure.
3 And that gets back to, you know, what I talked
4 about earlier about why you might expect to see
5 different dose rates. And I would also point
6 out that this individual was a radiological
7 control technician that I talked about before,
8 where they would approach, take their reading,
9 and then retreat. So that would certainly be
10 consistent with what you might expect.
11 Now I -- I want to make it clear, especially in
12 light of --

13 **MR. GRIFFON:** It depends on the job, too,
14 yeah.

15 **DR. ULSH:** Absolutely. And -- and that plays
16 to Mike's concern that he expressed earlier. I
17 can't say that -- that two workers on a job
18 would have different dose rates, unless I know
19 the specifics of the job. But what I'm -- the
20 point that I'm trying to make is that you don't
21 have to resort to deliberate falsification of
22 data to explain these kind of results. There
23 are certainly logical explanations available
24 other than that. Without knowing the
25 specifics, I can't say whether you would expect

1 to see different results, but it is certainly
2 within the realm of possibility.

3 **MR. GIBSON:** Well, but -- Brant, the only thing
4 I'm saying -- and again, I'm not trying to
5 question anyone's credibility, you know. I do
6 know for a fact in my experience at Mound, I
7 know -- I know we're talking about Rocky right
8 now, but I do know that there has been
9 falsification of data. I'm not questioning
10 anyone's integrity or their reliability about
11 that. But the -- you know, and this is just
12 the balance portion of this Board, me being on
13 the labor side, I keep hearing when a worker
14 says something, it's an allegation. And when
15 someone else says something, that's the data
16 and it's accepted. And you know, I just -- I
17 have a little bit of trouble with that. So you
18 know, I just want that on the record.

19 **DR. ULSH:** All right. I appreciate that, Mike.
20 A couple of --

21 **MS. ROBERTSON-DEMERS:** I guess what I'm trying
22 to -- to get at is it deserves some
23 consideration, even if you only take a couple
24 of examples and --

25 **MR. GRIFFON:** I think that's what we're doing

1 here.

2 **MS. ROBERTSON-DEMERS:** -- and demonstrate.

3 **DR. ULSH:** Well, what would you suggest beyond
4 what we've already done, Kathy? I mean we've
5 pulled the dosimetry results and compared it
6 for the time period in question.

7 **MS. ROBERTSON-DEMERS:** Well, a lot of them are
8 complaining about the survey --

9 **DR. ULSH:** Surveys?

10 **MS. ROBERTSON-DEMERS:** -- data and how it
11 doesn't match the survey data.

12 **DR. ULSH:** Well, I think I've already addressed
13 why you might see that kind of a thing.

14 **MS. ROBERTSON-DEMERS:** Well, and I guess
15 another reason why it's probably worth our time
16 is that we have the same operations down at
17 LANL and I'm hearing exactly the same thing.

18 **MR. GRIFFON:** You know, I -- I -- just looking
19 at this, Brant, almost like -- I mean I grant
20 you that this certain rad control tech could
21 have been going in and out and taking spot
22 measurements, but even if he's in there for
23 seconds, I mean you're looking at about 133
24 millirem per minute -- if you -- if we say that
25 his eight R per hour is accurate here in his

1 allegation -- his or her allegation --

2 **DR. ULSH:** At the -- at a certain point in that
3 work area.

4 **MR. GRIFFON:** Right, so if he's in there for
5 seconds, he's probably getting more than ten
6 millirem and you don't even see ten millirem on
7 his --

8 **DR. ULSH:** Keep in mind -- Keep in mind the
9 limit of detection on these dosimeters. If
10 you're talking about a radiation environment
11 that high, he's going to be on a pretty
12 frequent badge exchange cycle, so he's going to
13 be exchanging his badge very frequently, and
14 especially for NTA films, the limit of -- lower
15 limit of detection is 50 -- I'll go with Hans's
16 number of 50, somewhere in that neighborhood.
17 It's --

18 **DR. BEHLING:** That's -- that's being very good.

19 **DR. ULSH:** And you also have to keep in mind
20 that --

21 **MR. GRIFFON:** Oh, that's right, these are
22 quarterly roll-ups.

23 **DR. ULSH:** These are quarterly roll-ups, right.

24 **MR. GRIFFON:** Thinking about that.

25 **DR. BEHLING:** Were these people being monitored

1 by -- by self-reading pocket dosimeters, which
2 could have served as a surrogate --

3 **MR. GRIFFON:** Well, that's what -- that's what
4 Kathy's talking about --

5 **DR. BEHLING:** -- when you have a film badge
6 that fails or a TLD that fails at the end of a
7 readout? I mean that's what's usually done is
8 you default to pocket dosimeters, realizing
9 that's the best surrogate you have.

10 **DR. ULSH:** Yes. Well, I don't want to speak
11 out of school here, Hans, 'cause I can't swear
12 to you that in '82 or '83 they were using
13 pocket dosimeters. Certainly at some time
14 periods at Rocky Flats they were using pocket
15 dosimeters, that's true.

16 **DR. BEHLING:** Well, they were using them
17 probably still today. That's always been part
18 of the process is to assess people on a daily
19 basis, especially high rad areas, as opposed to
20 changing out --

21 **MR. GIBSON:** Could you speak up a little bit,
22 please?

23 **DR. BEHLING:** As opposed to changing film
24 badges or TLDs on a daily basis, which is the
25 only other way of tracking the -- the exposure

1 during a wear cycle, you usually track it by
2 use of pocket dosimeters. And that's still
3 being done today. It was certainly done
4 throughout the '50s and '60s when film badges
5 were used. And whenever you have a film badge
6 that -- or a TLD chip that malfunctions, such
7 as the case with the issue of the oil or the
8 hair, you then default to a pocket dosimeter
9 cumulative readout for that wear period and
10 then use that as your surrogate method. On the
11 same issue when you just ment-- talked about
12 the issue of NTA film being fogged at as little
13 as 500 millirem exposure from low energy
14 photons, again I would assume that NTA film was
15 used for measuring neutrons, but concurrently
16 they were also monitored by means of a beta-
17 gamma dosimeter, which means that you should at
18 least be able to support the issue that the
19 fogging was truly due to photon, which in the
20 absence of a measurement on the beta-gamma
21 dosimeter would not necessarily then serve as
22 your justification for saying must be due to
23 photon exposure therefore you get zero neutron.
24 I think these are all catch-22 situations that
25 you can look at and verify whether the

1 assumptions and default assumptions that were
2 being used are in fact supported.

3 **DR. ULSH:** Well, certainly, Hans, what you said
4 about, you know, cross-checking NTA films that
5 might have been gamma-fogged with the beta-
6 gamma dosimeters themselves to see if it's
7 logically consistent, yeah, that makes good
8 sense and they probably did it. I can't -- I
9 haven't specifically looked to see, on this
10 particular instance, whether they did that.
11 I'm not even sure that you would see that in
12 the file.

13 **DR. BEHLING:** But for instance, what Kathy was
14 reading did not allude to that as the solution
15 of -- of assigning a value. In other words,
16 what she read to me did not smack of a guidance
17 that says hey, check the -- the -- the beta-
18 gamma dosimeter and if it's more than 500 from
19 americium, then there's justification for
20 coming to that conclusion. But in the absence
21 of that, I see no justification for saying just
22 assign a zero dose now.

23 **DR. ULSH:** I haven't -- I can't really comment
24 at length on a memorandum I haven't seen.

25 **MR. GRIFFON:** Right.

1 **DR. ULSH:** I don't know. I'd have to look at
2 it.

3 **MR. GRIFFON:** To get back to this case, I -- I
4 think if -- I don't know that we have secondary
5 dosimetry data that goes --

6 **DR. ULSH:** I can't say one way or the other. I
7 would say to you, though, that if you had a
8 dosimeter for which you were able -- you know,
9 that there's no problem with, that you got a
10 reading from, and you had a pocket ionization
11 chamber and the two disagreed -- you know the
12 limitations of pocket ionization chambers; if
13 you bang them, they go high -- I would trust
14 the TLD, absent any reason to suspect it.

15 **MR. GRIFFON:** It seems to me -- here you're in
16 the '80s, too. I'm not sure we're dealing with
17 50 millirem --

18 **DR. BEHLING:** Well, TLDs in the '80s should
19 have had a sensitivity level of 10, 15.

20 **DR. ULSH:** Right, right. The numbers may
21 change over time, but that --

22 **MR. GRIFFON:** I'm not sure that -- you know,
23 what this person -- I think I'd have to go back
24 sort of to what Mike's saying. This person is
25 a rad control tech, you know.

1 **DR. ULSH:** Yes.

2 **MR. GRIFFON:** If you -- if you believe that he
3 was even spot-measuring eight R per hour, you
4 think he'd have higher than zeroes during that
5 job. I mean even if you were exchanging your
6 badges weekly.

7 **MS. MUNN:** If you had a consistent field of
8 eight R, but it says --

9 **MR. GRIFFON:** No, even spot measurements. I
10 mean it takes more than a few seconds. You're
11 going to take -- you have to go in and make a
12 measurement, you're there for 15 seconds, 20
13 seconds, you're getting a little dose.

14 **MS. MUNN:** If he's the one who's making the
15 eight R measurement, yeah.

16 **MR. GRIFFON:** That's right.

17 **DR. ULSH:** Okay. This was an issue in the
18 affidavit. We're prepared a response, but it
19 sounds like there's still some reservations.
20 What further would you like us to do on this?

21 **MR. GRIFFON:** That's the hard part. Right?

22 **DR. ULSH:** I mean I'm open to suggestion. If
23 there's something else you'd like to see, let
24 me know what it is and I'll try to get it, but
25 --

1 **MR. GRIFFON:** I think part of what I've been
2 trying to grapple with all along is -- is to
3 look at some of these in aggregate, you know,
4 that -- that if we start to see a number of
5 these that -- that --

6 **DR. ULSH:** Some of -- we might be going down
7 that road a little bit on the safety concerns
8 issue.

9 **MR. GRIFFON:** Right.

10 **DR. ULSH:** Is that somewhere else on the
11 matrix? I don't recall.

12 **MR. GRIFFON:** I think --

13 **MR. FITZGERALD:** It is.

14 **DR. ULSH:** Okay. I'll hold details till later,
15 but there were -- I looked through personally a
16 spreadsheet of about 5,000 safety concern
17 document, looked -- I think this is probably
18 similar to what SC&A did to identify the
19 original seven of interest. I read the short
20 description and went with it. And out of that
21 -- those 5,000, I identified a few tens, maybe
22 up to 30, I don't remember exactly how many,
23 that the title suggested we should look at
24 further. And so I think you're right, Mark, if
25 we see a consistent pattern in these safety

1 concerns, that might be something that we would
2 -- certainly something --

3 **MR. GRIFFON:** And the other thing --

4 **DR. ULSH:** -- (unintelligible).

5 **MR. GRIFFON:** -- for this individual I'd be
6 interested in seeing is before and after this
7 was he getting measurements and here he's --
8 he's putting testimony out or -- or an
9 affidavit, that says this was a high job I
10 remember particularly where I think I should
11 have -- you know, I should have higher readings
12 in my records. If he had higher readings
13 before and after, then all these sort of near-
14 zero readings in the middle, I'd be saying --

15 **DR. ULSH:** Well, keep in mind what the affi--
16 keep in mind --

17 **MR. GRIFFON:** If he had zeroes all along, then
18 you could say well, --

19 **DR. ULSH:** Keep in mind what the affidavit
20 said, though, Mark. In 1982 and '83 loading
21 nuclear material into the stacker retriever.
22 We don't know whether he was doing that job --
23 that same job before and after.

24 **MR. GRIFFON:** Right, we don't.

25 **DR. ULSH:** If he was, then you're right, if you

1 saw --

2 **MR. GRIFFON:** But -- but he's citing this as
3 one -- it seems to me he's citing this as one
4 of his higher --

5 **DR. ULSH:** Yes, he is.

6 **MR. GRIFFON:** -- potential exposure jobs.

7 **DR. ULSH:** So you might --

8 **MR. GRIFFON:** So if he, prior to this, had
9 higher readings, and after this had higher
10 readings --

11 **DR. ULSH:** Okay, would you like to see the
12 dosimeter results for this person?

13 **MR. GRIFFON:** I think it might be -- you --
14 you asked --

15 **DR. ULSH:** In the bounding years?

16 **MR. GRIFFON:** Is there a path forward to go on
17 this.

18 **DR. ULSH:** We can do that.

19 **DR. BEHLING:** How about RWPs? I mean I'm sure
20 that there must be RWPs in place that identify
21 the times that -- that -- a coworker that might
22 have been part of that job coverage that he was
23 doing and -- and you simply cross-reference --

24 **MR. GRIFFON:** The coworker is an interesting
25 question. It could be tricky, like you said,

1 because the people doing the work could get
2 different exposures than the -- than the rad
3 worker tech.

4 **DR. ULSH:** The -- okay, first of all, I think
5 it's very possible -- I can probably get this
6 very quickly, the dosimetry results for this
7 individual in the years -- well, this -- this
8 affidavit's '82/'83. I can get you '81 and
9 '84.

10 **MR. GRIFFON:** It should be all in HIS-20.
11 Right? So we should only --

12 **DR. ULSH:** I've got his rad file in the
13 computer back in my office. I can pull it
14 pretty easily, I think. So yeah, I can -- I
15 can -- sure, I can do that. I'll get that --
16 mark that as an action item, please.

17 **DR. MAKHIJANI:** Mark, there's also an internal
18 dosimetry component to the affidavit, so maybe
19 if we could just look at the whole -- look at
20 it in perspective as to, you know, whether the
21 -- the internal --

22 **MR. GRIFFON:** (Unintelligible) case or --

23 **DR. MAKHIJANI:** Well, yeah, he says -- well,
24 Mel, could I -- I don't know what happened to
25 my copy, if I could borrow yours?

1 **MR. CHEW:** Of course.

2 **DR. MAKHIJANI:** He said that he was
3 contaminated from head to toe in 1987 or '88.

4 **MS. MUNN:** That's a different --

5 **DR. MAKHIJANI:** Yeah, different -- that's why
6 I'm saying if we can look at the whole --

7 **DR. ULSH:** Same affidavit, different concern.

8 **DR. MAKHIJANI:** Same affidavit, but if we could
9 look at the whole dose record in some
10 perspective and settle the second issue, also,
11 or address it in some way.

12 **DR. ULSH:** I think that should be easy to do,
13 too, Arjun. I could check in his rad file for
14 an incident report during -- during those
15 years. I would ask you to perhaps wait and --
16 and hear the discussion on the Kittinger log,
17 because there were several incidents like this
18 in the Kittinger log that we've looked, and I
19 would like to discuss -- after we discuss that
20 -- a path forward on that. But yeah, if -- if
21 the Board -- if the working group decides that
22 you want me to look for an incident report
23 there, I would be happy to do it. Not a
24 problem.

25 **DR. MAKHIJANI:** Kathy, has somebody -- have we

1 interviewed this person?

2 **MR. GRIFFON:** The only reason I think this is
3 worthwhile taking a look --

4 **MS. ROBERTSON-DEMERS:** Well, not having it --
5 not having it in front of me, I'm not quite
6 sure.

7 **DR. ULSH:** And we can't really say the name
8 over the air.

9 **MR. GRIFFON:** You can ask her during the break
10 'cause we're going to take one in a few
11 minutes.

12 **DR. MAKHIJANI:** Yeah -- yeah, I'll call you --
13 I'll call you during the break and have --
14 yeah.

15 **MS. ROBERTSON-DEMERS:** Okay.

16 **MR. GRIFFON:** The only reason I think it might
17 be useful to pull the string a little further
18 on this case 'cause I --

19 **DR. ULSH:** Sure.

20 **MR. GRIFFON:** -- I can see, you know, we can't
21 do this with all these cases, you know, but
22 this -- this person has a fair amount of
23 specificity in -- in the allegation, so --

24 **DR. ULSH:** And this really gets to, Mark, what
25 I've been thinking all along here. I mean our

1 first obligation, and certainly NIOSH wants to
2 do that. Our first obligation is to give the
3 allegations a full and accurate consideration.
4 Second to that is the timeliness issue. And I
5 know that we're working towards supporting a
6 Board vote in September, so to the extent that
7 we can be specific -- for instance, when you
8 ask -- get me the dosimeter results on either
9 side, that's something specific, I can do that.
10 Big drift net type operations I think we might
11 need to talk more about, but --

12 **DR. MAURO:** Can I say -- we're -- an
13 interesting --

14 **MR. GIBSON:** Brant, this is Mike Gibson again.

15 **DR. ULSH:** Yes, Mike.

16 **MR. GIBSON:** Again, I just want to stress that
17 when Secretary Richards-- then-Secretary
18 Richardson announced this plan, she said that
19 these workers have not always been protected
20 and the data is sometimes not reliable. So you
21 know, I just have -- I'm just bringing forth
22 the concern that we don't give the same weight
23 to an affidavit from a worker as we do to the
24 data that was unrelia-- sometimes unreliable
25 that caused this whole program to be brought

1 into effect. I just -- I mean I hope that's
2 just a fair statement. And I know you guys are
3 doing the best you can with the raw data that
4 you have, but you know, there's just -- I
5 believe -- missed dose and sometimes -- and now
6 I'll put this mildly, sometimes falsification
7 of records. I can give you a specific example
8 of a Mound where a rad tech was fired for fals-
9 - falsifying records because it was getting
10 late in the day and let a person go home
11 contaminated. So I just -- you know, I just
12 hope you guys take that into perspective to --
13 to these affidavits to what people are saying
14 that really happened in the field.

15 **MR. GRIFFON:** No, you --

16 **DR. ULSH:** Well, I think you're right, Mike --

17 **MR. GRIFFON:** -- you're right, Mark (sic), and
18 I -- Mike, and I think -- I don't even know my
19 own name anymore. No, I -- I think I -- I mean
20 I do agree with Brant on this, that we have to
21 strike a balance here between -- we -- we
22 certainly have to -- these specific allegations
23 by petitioners or public commenters --

24 **MR. GIBSON:** Absolutely.

25 **MR. GRIFFON:** -- but we owe it to take those to

1 ground as best we can. We're also -- we also
2 owe it to all the petitioners to do this as
3 timely -- you know, as efficiently as we can
4 here, so you're right, Mike. I agree.

5 **DR. ULSH:** And I do hope -- not just you, Mike,
6 but all members of the working group, if you
7 think that there is something that -- that we,
8 that NIOSH should do -- I mean I think that
9 we're taking these allegations pretty
10 seriously. I mean we're -- we're doing our
11 best to look into them. But if -- certainly
12 we're open to any suggestions from the working
13 group and we're certainly willing to discuss if
14 you think that there are other things that we
15 should do to address these issues. And that's
16 the whole purpose of this SEC process. I mean
17 it -- as you mentioned, Mike, it was recognized
18 early -- you know, early on Admiral Richardson
19 -- that there -- that the DOE records are not
20 perfect, and that certainly applies to Rocky
21 Flats. It applies to any site. When you've
22 got tens of thousands of workers with up to --
23 upwards of, you know, hundreds of bioassay, I
24 guarantee you you can find isolated -- sorry,
25 that you can find instances where the worker

1 was not monitored when he probably should have
2 been, or there was a problem with his records,
3 something like that. What I think we need to
4 focus on in terms of an SEC context, though,
5 how frequent is this. Does this represent a
6 pattern that would make you date the
7 reliability of the dataset as a whole. And
8 that's kind of the approach that I'm taking
9 here. And I'm -- you know, I understand, too -
10 -

11 **MR. GRIFFON:** That's our -- that's our over-
12 arching concern.

13 **DR. ULSH:** Exactly.

14 **MR. GRIFFON:** Exactly.

15 **MR. GIBSON:** No, and I don't want to give the
16 false impression that I'm this left-wing
17 liberal that wants everyone just blanket
18 covered. I don't -- I don't want anyone neces-
19 - I don't want anyone compensated that doesn't
20 deserve it. But I certainly don't want anyone
21 -- or a group of people -- left out that do
22 deserve it. And so I just want -- I want the
23 fair and balanced treatment between the
24 workers' perspective of what they've witnessed
25 in the field, and I want that weighed against

1 the reliability or the -- whatever word we're
2 using about the validity of the data.

3 **DR. WADE:** And I think that -- this is Lew
4 Wade. I think that's what we all want and --
5 and you know, what we're trying to do is to
6 allow for a process to -- to go on that has
7 point and counterpoint and let -- and lets
8 every allegation or every question be discussed
9 to the satisfaction of all. And you know,
10 hopefully that process is fair and balanced.
11 And you know, if you see instances where you
12 feel it's not, then you need to raise them.
13 And again, that's the perspective of the Board.
14 You know, and we'll pursue this for as long as
15 it needs to be pursued to bring to -- bring
16 these issues to -- to a level of understanding
17 that meets the Board's satisfaction so that
18 it's willing to vote this out. Again, we'll
19 take the time necessary to do that --

20 **MR. GIBSON:** Okay.

21 **DR. WADE:** -- but please raise your --

22 **MR. GIBSON:** Thank you.

23 **DR. WADE:** -- voice if you think that it's not
24 being dealt with in a fair and balanced way.

25 **DR. MAKHIJANI:** Dr. Wade, I don't know if I'm

1 saying this out of turn, but I -- I think, at
2 least from the perspective that -- that I've
3 taken, I know, on -- on -- in looking at this
4 data is that, because of what workers have
5 said, I am -- at least I am not taking it at
6 face value, and I -- and I regard this process
7 that we're going through as not taking the data
8 at face value. But in the end, if the data are
9 valid, then they can be used and then if -- so
10 I don't think we're taking anything at face
11 value here, and that's why I guess it is taking
12 so long, because it has been quite difficult --
13 at least -- that's -- that's the perspective
14 that I've brought to -- to it when I looked at
15 it.

16 **DR. WADE:** And at the end of the day, a hundred
17 individuals will look at it a hundred different
18 ways. Our purpose is to have a process that
19 lays it out as completely as possible, and then
20 let each individual decide what they think in
21 the case of the people involved in this debate,
22 and eventually the Board in its vote, then
23 eventually the Secretary and the Secretary's
24 decision.

25 **MR. GRIFFON:** Okay. I'm going to use the

1 Chair's prerogative and ask for a comfort break
2 for -- I mean we can keep it short, five --
3 keep it five to ten. If I'm going to say that
4 I might as well say ten, right?

5 (Whereupon, a recess was taken from 3:25 p.m.
6 to 3:40 p.m.)

7 **MR. GRIFFON:** Brant, which item are we on,
8 before we --

9 **DR. ULSH:** Pardon me?

10 **MR. GRIFFON:** Are we on 16?

11 **DR. ULSH:** Oh, hang on, let me look.

12 **MR. PRESLEY:** I think we are, yeah.

13 **MS. MUNN:** Yes, we are on 16.

14 **DR. ULSH:** Only 18 more to go, Mark.

15 **DR. WADE:** Okay, we're back in business.

16 **MR. GRIFFON:** A few "no further action
17 required."

18 Okay, I think everyone is still on the line.
19 We're back -- we're -- we're on the matrix --
20 for those of you who have the updated matrix,
21 we're on number 16 at this point and we're
22 going to continue to work through those.

23 **DR. ULSH:** Actually we're on 18 because 16 and
24 17 are no further action. All right.

25 **MR. GRIFFON:** So number 18 --

1 **DR. ULSH:** Okay, the issue here on the matrix
2 is workers frequently did not wear badges in
3 production areas and did not report non-use of
4 badge. This raises the question of how missed
5 dose is to be interpreted. This is an issue
6 that was raised by the petitioners, certainly
7 in the working group meetings and I think also
8 in the SEC petition itself. Right, Karin?
9 Yeah.

10 **MS. JESSEN:** Yes.

11 **DR. ULSH:** Okay. Oh, yeah, it says right
12 there. I addressed this -- we've talked about
13 this issue on a couple of occasions before in
14 the working group, and I also talked about it
15 at some length at the Denver Advisory Board
16 meeting, about the chain of events that would
17 be required for this to be a problem in terms
18 of the NIOSH dose reconstruction program.
19 Now the action item here, Mark, that you have
20 is -- is NIOSH is further evaluating the issue.
21 This is a status from a while ago. I guess I
22 want to discuss what the current status is. I
23 mean is there something else that you would
24 like to see us do on this particular issue?

25 **MR. GRIFFON:** Did -- did -- I don't recall if

1 -- if SC&A looked at this statistical analysis.

2 Did we --

3 **MR. FITZGERALD:** I can't --

4 **MR. GRIFFON:** -- I'm trying to remember, Brant,
5 I --

6 **DR. ULSH:** I know, so am I, Mark.

7 **MR. FITZGERALD:** I can't remember.

8 **DR. MAKHIJANI:** The background?

9 **MR. FITZGERALD:** Looking at background count,
10 do you remember?

11 **DR. MAKHIJANI:** I -- I did not look at it.

12 **MR. GRIFFON:** Can we -- at this point I think
13 -- let's -- let's put the ball in SC&A's court
14 and the workgroup's. We'll look at the
15 analysis again, 'cause I think if we did look
16 at it, I don't think we remember it. But --

17 **DR. ULSH:** I'm not sure -- Jim Langsted, I know
18 you were -- you were handling this issue. Did
19 we prepare a document that we have given to the
20 working group or -- remember, this was your --

21 **MR. GRIFFON:** This says NIOSH provided. Now
22 maybe that was a verbal --

23 **DR. ULSH:** Oh --

24 **MR. GRIFFON:** -- I don't know.

25 **DR. ULSH:** -- okay.

1 **MR. GRIFFON:** Right? NIOSH provided
2 statistical analysis.

3 **DR. ULSH:** Okay.

4 **MR. GRIFFON:** Was that written, though? I
5 don't know. Usually if it's written I put a
6 document name in there and I don't have it
7 here.

8 **MS. MUNN:** I thought they gave us a sheet. I
9 can't remember where I put it, but --

10 **DR. ULSH:** I'm thinking this is the tailing-off
11 issue, Jim, where we prepared the graphs or
12 something like that, and I just can't remember
13 what the status of that is.

14 **MR. LANGSTED:** And what did we do, Brant? We
15 showed some of those graphs at -- I think it
16 was the September meeting -- I'm sorry, the
17 Denver meeting, but I don't think we ever came
18 up with any statistical conclusion on it.

19 **MR. GRIFFON:** So you didn't have a conclusion
20 on it, or...

21 **DR. ULSH:** Well, I think what we concluded was
22 --

23 **MR. GRIFFON:** That you can't conclude
24 anything?

25 **DR. ULSH:** Yeah, I think so, that that --

1 **MR. GRIFFON:** Right.

2 **DR. ULSH:** Yeah, yeah, yeah, okay. Thank you,
3 Karin. Do these graphs look familiar?

4 **MS. MUNN:** Those, yes, they do.

5 **MR. FITZGERALD:** These?

6 **DR. ULSH:** Yes.

7 **MR. FITZGERALD:** This was an April 20th
8 package.

9 **DR. ULSH:** Thank you. Thank you. Rescued by
10 Joe and Karin, thank you.

11 Okay, so it looks like we've at least provided
12 something, if -- if SC&A and the working group
13 can review --

14 **MR. GRIFFON:** Yeah, let's put it that way
15 'cause I don't -- Joe, you're not in a position
16 to respond --

17 **MR. FITZGERALD:** Yeah, we were just at the
18 session and then we, you know, looked at the
19 graphs. I don't think we actually pursued any,
20 no.

21 **MR. GRIFFON:** Let's close it out that way,
22 though. Let's put an action for SC&A to -- to
23 review those and report back.

24 **DR. ULSH:** Okay, number 19 then, this deals
25 with a con-- some concerns that were expressed

1 in the SEC petition about badges did not
2 properly record organ dose due to organ being
3 closer to the source than the badge, or due to
4 workers wearing badge under their lead aprons.
5 So you've got two issues here imbedded in one
6 concern.

7 One is geometry correction factors. In other
8 words, a badge worn at the lapel, how does that
9 -- how do you have to handle that, how do you
10 have to adjust that reading to account for
11 doses in abdominal organs, primarily -- like,
12 you know, prostate or bladder. And we have
13 written, and I think I've seen these pretty
14 well -- pretty familiar with the glovebox TIB
15 for glovebox workers. That describes the
16 methodology for handling that kind of a
17 situation.

18 Lead aprons, again, this is another issue that
19 Jim Langsted was dealing with, but I think that
20 where we left it was that there were field
21 studies done at Rocky Flats to evaluate the
22 response of the dosimeters when they were worn
23 both -- or, sorry, when they were worn either
24 under or on top of lead aprons. And so the
25 TBD, as I recall, Jim, is being -- some

1 language about how to handle lead apron use is
2 being added to the TBD. Is that correct, Jim?

3 **MR. LANGSTED:** That's exactly right, Brant. A
4 section has been added to the TBD that's in
5 ORAU review right now, and it includes a
6 correction factor for the cases where -- where
7 dosimeters were worn either above or below the
8 leaded apron.

9 **DR. ULSH:** So I -- I don't know, I don't want
10 to go out on a limb too far here, but it seems
11 to me that this is certainly an important dose
12 reconstruction or TBD type issue, but I don't
13 think that it rises to an SEC issue. Would you
14 agree?

15 **DR. MAURO:** Yeah, Brant, I'd agree. Both of
16 these are very tractable problems.

17 **DR. ULSH:** I like that phrase. Thanks, John.

18 **MR. FITZGERALD:** In the -- Ron's external
19 analysis, which we handed around this morning,
20 we also treat the lead apron issue and also
21 treat it as a site profile issue.

22 **DR. ULSH:** Okay.

23 **DR. BEHLING:** How does it affect the issue of
24 skin cancer when you wear it under the apron?

25 **DR. ULSH:** Jim, did you hear that?

1 **MR. LANGSTED:** No, I'm sorry, I couldn't hear
2 that.

3 **DR. BEHLING:** When a -- when a dosimeter's worn
4 under the apron, what do you do to account for
5 a skin exposure?

6 **MR. LANGSTED:** We've got a factor that -- and I
7 believe it's for penetrating dose only -- I'll
8 have to take a look at that. I don't know
9 right off.

10 **DR. ULSH:** So it's a correction factor that
11 adjusts --

12 **DR. BEHLING:** Well, I know the -- certainly
13 account for a penetrating dose -- adjustment
14 factor to account for the attenuation by the
15 lead, but how do you account for a beta
16 component that you wouldn't be able to -- to
17 see if it's worn under the apron, meaning that
18 this is a blank spot in your dosimetry system.

19 **DR. ULSH:** Well, I think, though, Hans, that --
20 Jim, correct me if I'm wrong, but weren't lead
21 aprons used primarily in the plutonium areas?

22 **MR. LANGSTED:** Yes, under -- for the
23 penetrating dose reduction.

24 **DR. ULSH:** And you would be mainly concerned
25 about -- I mean the places at Rocky Flats where

1 you would have a beta problem would be
2 primarily in the uranium areas, which -- I
3 don't think lead aprons were -- I don't want to
4 state this too strongly. I think there -- that
5 lead aprons were primarily used in the
6 plutonium areas, so it may not --

7 **MR. CHEW:** 776 especially.

8 **DR. ULSH:** Does that sort of answer your
9 question?

10 **DR. BEHLING:** Yeah, if -- if that's a focus
11 area for -- for using the apron data, that
12 would probably be okay.

13 **DR. MAURO:** And I would imagine, if you know
14 your source --

15 **DR. BEHLING:** And there's no beta component --

16 **DR. MAURO:** -- and of course you're not going
17 to see your beta contribution, but you know
18 your source, you know your gamma, you -- and
19 you can say okay, what would you anticipate
20 being a plausible upper bound of the skin dose
21 from beta given the source -- I mean I think --
22 again, I think this is very tractable.

23 **DR. ULSH:** The ratio, yeah.

24 **MR. GRIFFON:** I think it might be a good point
25 -- as a reminder, and a reminder to the whole

1 workgroup, that we're going for SEC issues. It
2 doesn't mean we're not going to cover these in
3 our overview of the site profile, so we'll have
4 a chance to look back at that section. I know,
5 I know, it's painful to think about sometimes,
6 but --

7 **DR. ULSH:** You're absolutely right.

8 **MR. GRIFFON:** -- discussing this at lunch, that
9 we got through Y-12, but we actually --

10 **DR. ULSH:** Now the fun starts.

11 **MR. GRIFFON:** -- the site profile that we kind
12 of skipped over the matrix, and Wanda insisted
13 that we go back and get all those things.

14 **UNIDENTIFIED:** Now, Wanda --

15 **MS. MUNN:** Well, (unintelligible) --

16 **MR. GRIFFON:** And she wants to do it tonight -
17 - no.

18 **DR. ULSH:** Well, I think that brings us to
19 issue 20. We can get through this pretty quick
20 because we've already talked about it prior to
21 the break. This is the affidavit from the
22 petition about the guy who worked in the
23 stacker retriever area, so we've already talked
24 about that. And the follow-up items, I
25 believe, there are we will get you the

1 dosimetry on either side of that time period.

2 **MR. MEYER:** And incident (unintelligible) --

3 **DR. ULSH:** Oh, right, right, and I'll take a
4 look through the rad file, see if I can find an
5 incident.

6 Okay, that leads us to 21. The concern
7 expressed is bioassays redone when they
8 indicated high exposure. There are two
9 examples cited that claim that bioassays were
10 redone on -- on individuals -- I'm sorry -- or
11 individuals were recounted when the readings
12 were high, and subsequent results were declared
13 as having no exposure or false positives.
14 Our response -- or I'm looking at the status
15 column now, and if a worker was enrolled in a
16 bioassay program, we would assign missed dose
17 for bioassay results below the detection limit.
18 We -- we don't think that we have a peculiar
19 situation at Rocky Flats that would make what
20 we're doing at other sites not apply here.
21 An additional point to note here is that in
22 situations like this where you had a bioassay
23 that was considered by the dosimetry department
24 at the site to be suspect, and then there were
25 subsequent confirmatory bioassays taken, NIOSH

1 -- when we receive data from DOE, we get all of
2 the -- well, we're at least supposed to get all
3 of the bioassay results, whether or not they
4 were -- the site concluded that they were false
5 positives. And NIOSH is not in the practice of
6 excluding any bioassay points, even if they
7 were concluded to be false positives. So I
8 think that that is our response on that issue.

9 **DR. MAURO:** Brant, I --

10 **DR. ULSH:** Yes, sir.

11 **DR. MAURO:** -- I had a thought about several of
12 these affidavits and the way we're dealing with
13 them. It's sort of like we have an individual
14 that has a concern, and then we're saying okay,
15 that concern is going to be investigated as
16 part of our data reliability that -- whether or
17 not it has some implications regarding the
18 integrity of the data and -- and I think
19 everything that we've designed and implemented
20 to date has gone toward that end.

21 But then I -- and as we spoke about this, it
22 dawned on me that there's another side that
23 might -- we may want to think about, and that
24 is the person himself that made that claim.
25 He's looking for some satisfaction out of this,

1 also. So when we give a -- let's say a general
2 answer -- oh, a plausible scenario why that
3 happened and I think that satisfies -- with
4 some degree of evidence by looking at these
5 other records. At the same time -- and this is
6 something that I just put -- I'd like to put
7 before the working group. At the same time, as
8 a form of bedside manner, wouldn't it be very
9 satisfying to the claimant himself who brought
10 this issue up for us to talk about him or her
11 and -- and the work that was done to fully
12 appreciate -- in the sort of a way the way we
13 do the individual audits of dose
14 reconstructions for individual people, year by
15 year and check out every number to understand
16 exactly what was this person doing and do his
17 records make sense, do the input to the IREP
18 make sense given the records and -- and his job
19 history. What I'm getting at is I'm sort of
20 like looking at the other side of the coin now.
21 To what degree do you think it will benefit the
22 program to not only answer the questions that
23 these folks raise from more of a generic data
24 reliability issue, but in the -- at the same
25 time try to satisfy the -- the petitioner that

1 we looked at him and -- or her case as an
2 individual with his -- his -- his own concerns
3 so that he can walk away feeling as if he was
4 not short-changed.

5 Now I realize we ne-- we haven't talked about
6 this before and -- but I think it's something
7 wor-- I'm thinking in terms of credibility and
8 bedside manner. We haven't done very much of
9 that. And I think that if there -- if a -- if
10 that person could be -- if we could talk to
11 that person that we looked at that -- closely,
12 specifically -- and right now we're talking
13 about looking at either side of this time
14 period as being part of it, but the more I
15 think about it, to tell his story back to him
16 the way we understand it and why we believe
17 what we believe about him, I think might buy a
18 lot of credibility, which is half of what we're
19 trying to do here.

20 **DR. ULSH:** Okay, I'll take a shot at it, John,
21 but I might -- I'm looking over at Lew, and
22 hopefully he'll have something to say about
23 this, too.

24 I think it's a noble goal. I do. And in an --
25 given unlimited resources and unlimited time, I

1 would like to go back to every individual who
2 made a public com-- every one that's going to
3 be included in Karin's write-up and call them
4 up or interview them and -- and tell them how
5 we resolved their concern. That would be a
6 great thing to do.

7 We have to weigh that, though, against
8 timeliness -- you know, how -- how much
9 resources we have to dedicate to that. And
10 keep in mind, you compared it to auditing the
11 dose reconstructions.

12 **DR. MAURO:** Uh-huh.

13 **DR. ULSH:** For those -- we -- we audit a sample
14 of the dose reconstructions. We don't audit
15 the -- all 17--

16 **DR. MAURO:** Absolutely.

17 **DR. ULSH:** -- all 13,000. There's not time to
18 do that. I --

19 **DR. MAURO:** So this might open a door that says
20 -- a flood of how many are you going to look at
21 now. Right?

22 **DR. ULSH:** Well, it might, but -- I don't know
23 --

24 **DR. WADE:** It's a good idea.

25 **DR. ULSH:** I do, I mean --

1 **DR. WADE:** Clearly it's a good idea. I mean
2 NIOSH has recently taken actions to add to
3 staff people who could sort of serve as
4 ombudsmans for -- for -- ombudsmen for SEC
5 petitions. And you know, a lot of thought has
6 gone into sort of the front end sort of
7 assistance, but I think you raise a very valid
8 point. It would be good to have someone who
9 could sit in these discussions, take in the
10 full extent of what has been discussed, and
11 then contact these individuals and tell a
12 story. I mean no one would argue that that's a
13 good thing to do, and we'll take that
14 suggestion back and try and implement it to the
15 degree we can. But it also raises the -- the
16 always pragmatic issue of resources, and that
17 has to be taken into account. But there's no
18 one who would argue that we couldn't do a
19 better job of dealing with the -- the people we
20 affect, and a more sensitive job, and -- and
21 we'll take your suggestion as a very positive
22 one.

23 **MS. MINKS:** This is Erin Minks calling from
24 Senator Salazar's office here in Colorado, and
25 I just wanted to jump into this discussion real

1 quick and just say that we would -- our offices
2 would -- would be happy and pleased to -- to --
3 to find a way to effectively communicate to the
4 individuals that are petitioners for you and
5 constituents of ours, who contact us after
6 these calls, who are probably listening right
7 now, who understand -- to the degree that
8 they've been listening to your discussions --
9 that there's an intricacy that has to go on
10 that they may not fully understand. But you
11 know, if there's a way that we can help to lend
12 credibility to the process, please let us know
13 as well. If it means there needs to be -- when
14 the Board reaches a decision, that there needs
15 to be a -- you know, it's almost a PR dimension
16 to how you're going to do it, but something
17 that our offices would probably want to be a
18 part of or be willing to help you with.

19 **DR. WADE:** Thank you very much and -- but I
20 will carry this back to Laurie Ishak who's been
21 named as the --

22 **MS. MINKS:** Yeah, Laurie. Yeah, definitely.

23 **DR. WADE:** Right. And you know, we'll talk to
24 her about this and -- and we'll certainly use
25 examples that we discussed here today as sort

1 of pilots for this, John, so we appreciate your
2 suggestion.

3 **THE COURT REPORTER:** Dr. Wade, excuse me, this
4 is Ray. Could I get that -- the lady who just
5 spoke, her last name --

6 **MS. MINKS:** Sure, my name -- this is Erin Minks
7 with Ken Salazar's office out here in Colorado.

8 **THE COURT REPORTER:** Okay, thank you.

9 **MS. MINKS:** Yeah, and we can -- off-line we can
10 talk about my contact information. I think
11 that Lew Wade has it there, so --

12 **DR. WADE:** Yes, I do.

13 **MR. GIBSON:** This is Mike Gibson. Could I ask
14 a question also?

15 My concern is if there's a -- a positive
16 bioassay result that's seemingly unusually
17 high, then they -- the DOE rule of thumb seems
18 to be you take two more bioassay samples and
19 the two out of three rule wins. If the next
20 two come back negative, it's a false positive.
21 But you know, if -- if you take a bioassay
22 sample and it comes back below the MDA, below
23 the minimum detectable amount, there's no two
24 or three samples to make sure that one was
25 right. How far has NIOSH went to verify the

1 qualifications and the certifications and the
2 quality at the lab?

3 **DR. ULSH:** Well, Mike, let me take a shot at
4 some of that. I think you're -- you're right
5 about the -- certainly at Rocky Flats, and I'm
6 thinking of at least in the '90s, and probably
7 well before that, it was policy to, when you
8 had a positive bioassay, to then follow up with
9 confirmatory bioassay results. And the
10 thinking here is that there are -- there are
11 circumstances that could lead to a false
12 positive. For instance --

13 **MR. GIBSON:** Correct.

14 **DR. ULSH:** -- you know, contamination of the
15 sample or -- or the reader or -- or whatever.
16 It's -- it's more difficult to envision a
17 situation where a sample would have radioactive
18 material in it that -- a false negative, what
19 I'm saying. I think a false negative is a less
20 likely -- far less likely outcome. And also
21 keep in mind that these people were -- the
22 workers were on routine bioassay, so even if
23 you had a -- one particular bioassay, you have
24 to consider that in the overall context that
25 they were sampled on a periodic basis. So you,

1 you know, would have an opportunity to pick up,
2 you know, an uptake in subsequent bioassays.
3 Now in terms of what NIOSH has done to -- I'm
4 trying to think of the words that you used,
5 Mike, to -- to verify the -- help me out.

6 **MR. GIBSON:** The -- the quality assurance of
7 the lab.

8 **DR. ULSH:** That is --

9 **MR. GIBSON:** Itself.

10 **DR. ULSH:** That is certainly an issue that --
11 you know, I mentioned earlier in our
12 conversation that there were QA programs in
13 place at DOE sites, including Rocky Flats, and
14 you're probably familiar with the DOELAP
15 accreditation program --

16 **MR. GIBSON:** Yes, I am.

17 **DR. ULSH:** -- which was implemented in the
18 '90s, I think. Before that -- you know, there
19 were predecessors to that. We do have the
20 QA/QC manuals -- I'm looking at Bob, he's
21 nodding his head yes, we do have them -- that
22 were used at Rocky Flats, so that is an issue
23 that we've looked at. Does that answer your
24 question, sort of?

25 **MR. GIBSON:** Well, I -- you know, and again, I

1 have no history at Rocky Flats and I -- I don't
2 know what went on there, but I do have a
3 extensive knowledge of the history at Mound
4 and, for instance, you know, getting to
5 occurrence reporting and Price Anderson, I know
6 that was later, you know, later in the years,
7 but they were DOELAP accredited. They put a
8 new system in. They had the program -- they
9 had the equipment programmed to subtract the
10 background out of the bioassay sample, and then
11 the manager of the bioassay program
12 subsequently backed out that background again,
13 which in essence doubled -- doubled less the
14 minimum detectable amount of what would be seen
15 in a bioassay -- or actually doubled up-wise
16 what would be seen in a bioassay sample. So
17 you know, my question again is how far have you
18 guys looked at the quality assurance, you know,
19 of the labs --

20 **MR. GRIFFON:** Mike, I guess --

21 **MR. GIBSON:** -- whether it was internal or
22 external? Some of our samples were sent, for
23 example, for actinium they were sent off-site
24 to another lab at one point. It was raided by
25 the FBI and busted for falsifying records. So

1 which is the Environmental Measurements Lab up
2 in New York that was a DOE facility. But I
3 don't -- I don't -- I don't have access to the
4 specific reports.

5 **MR. GIBSON:** Okay, what I'm --

6 **MR. GRIFFON:** I don't -- I don't think they
7 took --

8 **MR. GIBSON:** -- saying is -- and I know that --
9 at least at Mound anyway, I mean they even did
10 a blank and a spiked check with each batch,
11 which I believe was 12 or 24 samples that went
12 through, but this still fell through the
13 cracks.

14 **MR. MEYER:** Yeah, the -- the round robin is
15 what will catch that, and that's why they --
16 that's why they did it, if -- if another lab
17 analyzes the same or -- or a duplicate, you
18 know, working on (unintelligible) --

19 **MR. GIBSON:** I'm sorry, I didn't hear you.
20 Sir?

21 **MR. MEYER:** I'm sorry. Yeah, I'm sorry. A
22 round robin check with another lab will catch
23 that and I'm -- something's tickling at me. I
24 think I have seen some of that, but -- but I
25 can't -- I can't put my finger on it virtually

1 here, so --

2 **DR. ULSH:** I think that's pretty much what
3 you're describing, Mike. You know, with blanks
4 and spikes, it's pretty much standard procedure
5 and I'm -- I would be extremely surprised if
6 Rocky Flats didn't do exactly that.

7 **MR. MEYER:** They were doing that, but that'll -
8 - that'll miss the background, the double
9 background issue and -- but the round robin
10 will catch that and --

11 **MR. GIBSON:** A round robin is what, sir?

12 **MR. MEYER:** I'm sorry, sending the same sample
13 or --

14 **MR. GIBSON:** Who am I talking to?

15 **MR. MEYER:** This is Bob Meyer, I'm sorry, the -
16 - with -- with ORAU team --

17 **MR. GIBSON:** Okay.

18 **MR. MEYER:** -- the document owner for the Rocky
19 Flats site profile. What I -- and I'm sorry,
20 what I meant by round robin is -- or -- or an
21 exchange, sending the same or an exact
22 duplicate sample off to another laboratory, the
23 reas-- one of the reasons for doing that is to
24 catch that sort of an error. The other lab
25 then will come back with a -- a result that's

1 quite different and that leads to trying to
2 figure out why -- why that happened, whereas
3 the in -- in-house will miss that type of an
4 error. That's -- that's an interesting
5 (unintelligible).

6 **MR. GIBSON:** And how often did Rocky Flats do
7 that? Was that on every perceived false
8 positive or was that on just a routine or --
9 basis or --

10 **MR. MEYER:** Roger actually has the answer to
11 that. Typically that's done on a routine basis
12 to catch this sort of problem, and then when
13 it's caught -- if -- if an error is discovered,
14 a person -- the lab has to go back and recount
15 the samples or correct -- in this case you'd
16 simply un-subtract it, if that makes sense, to
17 correct the background subtraction error. But
18 it's typically done routinely, and the reason
19 is to catch that sort of an error.

20 **MR. GIBSON:** And routinely is how often?

21 **DR. ULSH:** Roger?

22 **MR. FALK:** I don't know how often they did the
23 round robin type of the exchange of samples
24 with the other labs, but that would probably
25 have been done some -- something like annually.

1 Also, starting in -- in the early '80s, the lab
2 had its own quality assurance officer who
3 basically oversaw the -- the quality of the
4 data and did routine checks, but -- but that
5 was a lab function. But I'm sure there are
6 probably -- be log books that would actually
7 document that. I've not seen them, however.

8 **MR. GRIFFON:** Do they -- I would imagine they
9 must have generated reports over the time
10 period.

11 **MR. MEYER:** I'm just trying to think what they
12 would --

13 **MR. GRIFFON:** It might have been part of a rad
14 program report or something -- no?

15 **DR. ULSH:** That seems -- that seems logical,
16 but I can't say what's in it.

17 **MR. GRIFFON:** (Unintelligible) that have
18 quality assurance, you know, (unintelligible).

19 **MR. GIBSON:** I think I would be interested in
20 seeing, 'cause -- and again, I'm not -- I'm
21 just basing my experience at Mound and asking -
22 - generating these questions based on Rocky,
23 but I think it'd be interesting for the working
24 group or -- or full Advisory Board to see how
25 that happened or how often that happened and

1 what kind of quality assurance plan they had.

2 **DR. ULSH:** Okay, let's -- I'm looking around
3 the table to working group members. I'd like
4 to just maybe firm up what the action item is
5 here if -- okay, so we're interested in looking
6 at QA/QC type reports on the bioassay program.

7 **MR. GRIFFON:** Yeah, or determining if they --
8 if they're readily available, I guess --

9 **DR. ULSH:** Okay. Yeah, that's going to be the
10 first step.

11 **MR. GIBSON:** And how often this round robin
12 test happened --

13 **MR. GRIFFON:** Sampling was done, right.

14 **MR. MEYER:** Yeah, and I --

15 **MR. GIBSON:** -- to verify --

16 **MR. MEYER:** -- let -- let's use a different
17 name for that, I'm sorry, just an exchange with
18 another laboratory that's certified in some
19 way. Round robin, what I mean there was
20 oftentimes labs will pass samples from one lab
21 to the next, and that may well have happened
22 within the complex, too. They all check the
23 same sample and they -- and they inter-compare
24 results, and actually studies are -- there were
25 studies done, now that I'm thinking about this,

1 'cause I saw them at Oak Ridge so I'll be
2 surprised if we don't see that here.

3 **DR. ULSH:** So I guess what we'll commit to --
4 right now, anyway -- is that we'll take a look
5 and see if we can find those readily and --
6 this is another one -- I mean if we get them,
7 we'll just post them on the O drive and let all
8 the working group members and SC&A know that
9 they're there.

10 **MR. GRIFFON:** (Unintelligible)

11 **DR. ULSH:** Okay. And if we have problems for
12 some reason, we'll also let you know that.
13 Okay.

14 **MR. GIBSON:** Yeah, I'd like to see those
15 results, please.

16 **DR. ULSH:** Okay.

17 **MR. GRIFFON:** The other -- back to the
18 specific in 21, I was wondering if you -- to
19 sort of go back to John's point, did -- did you
20 look at these I guess two ca-- I'm trying to
21 remember which case this is, but it had two
22 specific -- it says there are two examples
23 cited in the claim.

24 **DR. ULSH:** Which one are we on?

25 **MR. GRIFFON:** Where bioassays were redone on

1 individuals -- 21.

2 **DR. ULSH:** Twenty-one --

3 **MR. GRIFFON:** (Unintelligible) was talking
4 about false positives and we kind of got off
5 with the false positive question, but in the
6 original allegation it says there are two
7 examples cited that claim that bioassays were
8 redone on -- on individuals --

9 **MS. JESSEN:** I don't have that section done
10 yet.

11 **MR. GRIFFON:** I wonder if we track that back
12 to those -- those two cases, it may be worth
13 doing that, too.

14 **DR. ULSH:** Okay, we can get back to you on
15 that. That -- depending on who it is, I may or
16 may not have the rad file on hand. We might
17 have to request it.

18 **MR. GRIFFON:** If it's not possible, it's not
19 possible.

20 **DR. ULSH:** Well, I'm not saying it's not
21 possible, it's just that it -- if I -- if I
22 have it in my office, it'll be quick. If I
23 have to request it from Scott, it'll take a
24 little bit.

25 **MR. GRIFFON:** You can tell us, Karin.

1 **MS. JESSEN:** (Unintelligible)

2 **DR. ULSH:** I've got it. I think I've got it.
3 Okay. Did you get that as an action item, too,
4 this specific one?

5 **MR. MEYER:** Yeah.

6 **DR. ULSH:** All right. Are we ready for 22,
7 Mark, or --

8 **MR. GRIFFON:** Yeah.

9 **DR. ULSH:** Okay. This is the "no data
10 available" issue, and I think we've already
11 talked about -- okay, we've talked about this
12 issue in general. This one is a specific
13 example from an affidavit that was provided in
14 the petition. The individual stated that --
15 let me see -- okay. This individual stated
16 that there was -- the film was blackened with
17 exposure and he was -- he got this "no data
18 available" when the film was blackened with
19 exposure, and the work was in a high exposure
20 area, americium-241 processing, which we do
21 know that was a high dose area, americium
22 processing. By contrast, accor-- the -- the
23 affidavit -- the affidavit states that by
24 contrast, there were issues for positive dose
25 at a time when this worker was serving in the

1 military in Korea.

2 Unfortunately I didn't go back and copy this
3 out of an earlier comment set, but I -- I
4 remember the specifics on this. We went back
5 and checked the worker's radiation file and in
6 fact there were -- we had the -- the work
7 history for this individual and it did reflect
8 military service, that he left the site for
9 military service and then it showed his return.
10 And in fact there was -- there were no
11 dosimetry results for that period, and we
12 presented that in previous comment set, so
13 that's -- that --

14 **MS. ROBERTSON-DEMERS:** I have a question about
15 that.

16 **DR. ULSH:** Okay.

17 **MS. ROBERTSON-DEMERS:** Did you check the NDRP
18 to see if it had readings for those two years?

19 **DR. ULSH:** Kathy, I don't recall off the top of
20 my head whether we checked the NDRP. I'd have
21 to go back and look.

22 **MR. FALK:** Brant, this is Roger.

23 **DR. ULSH:** Yes, sir.

24 **MR. FALK:** It turns out -- yes, we (inaudible)
25 asked and there were no entries during the time

1 when he was in military service.

2 **DR. ULSH:** Okay. Thank you. But this does
3 give --

4 **MR. GRIFFON:** I'm trying to remember, I
5 thought -- I thought there was an entry on --
6 he went in the middle of a quarter or
7 something, so there was some --

8 **DR. ULSH:** Yes, that's right, Mark. That is
9 right.

10 **MR. GRIFFON:** -- that was (unintelligible) --

11 **DR. ULSH:** You're refreshing my memory.

12 **MR. GRIFFON:** The person's confusion was that
13 he had --

14 **DR. ULSH:** Could very well be.

15 **MR. GRIFFON:** Right, right.

16 **DR. ULSH:** Could very well be.

17 **MS. JESSEN:** I think that's right.

18 **MR. GRIFFON:** I do, but I can't find it right
19 now.

20 **MS. MUNN:** I know, that's what I'm looking for.

21 **DR. ULSH:** You're absolutely right, Mark. I --
22 he did leave in the middle of a -- of a
23 dosimetry cycle.

24 **MR. GRIFFON:** Monitoring cycle.

25 **DR. ULSH:** Yeah, yeah, yeah. Okay.

1 **MR. GRIFFON:** But at any rate, your explanation
2 was certainly plausible.

3 **DR. ULSH:** Plausible, yeah. Is there any
4 follow-up action on this item?

5 **MR. GRIFFON:** Yeah, I don't think so.

6 **DR. ULSH:** Okay. Number 23 is -- the concern
7 expressed was most exposed workers were not
8 monitored for neutrons -- I don't -- and it
9 says -- the petition cites Roger Falk as saying
10 that until July, 1958 the most exposed workers
11 were not monitored for neutrons, raising a
12 question about how the neutron data in the NDRP
13 study are to be used, even if the re-reading of
14 the badges is accepted as sound. And it is
15 true that until -- until about 1958 most
16 workers were not monitored for neutrons. That
17 was the reason for -- one of the reasons for
18 the NDRP was to go back and deal with that kind
19 of a situation. And this goes back to our
20 disc--

21 **MR. GRIFFON:** I think one follow-up was -- what
22 Joe asked for earlier was --

23 **DR. ULSH:** Yeah, N/P ratios.

24 **MR. FITZGERALD:** Some of the -- some of the
25 parameters as back-up for the early years, that

1 was the -- one caveat.

2 **DR. ULSH:** Yeah, the way that we would handle a
3 situation like that where a worker was
4 plausibly exposed to neutrons and didn't have
5 them directly measured is an N/P ratio and we
6 talked about -- and we talked about that this
7 morning, so --

8 **MR. FITZGERALD:** Yeah, with that one caveat, I
9 think we're okay on that analysis.

10 **DR. ULSH:** Okay, let me see, that brings us to
11 24, neutron -- the concern expressed is that
12 the neutron badge reading was defective --

13 **DR. WADE:** There's no further action required
14 then on 24.

15 **DR. ULSH:** Well, I --

16 **MR. GRIFFON:** (Unintelligible)

17 **DR. ULSH:** Oh, I'm sorry. Thank you. I don't
18 have to spend time on that one then.

19 **DR. WADE:** And 25 is the same.

20 **DR. ULSH:** Twenty-- okay, we're flying -- 26.
21 This deals with incidents that -- that the
22 petitioner was concerned that the -- there were
23 incidents that occurred that were not reported
24 or recorded, and the -- the concern here was
25 that that situation could lead to missed

1 internal dose. And let's see, the -- in the
2 status column, Mark, we have NIOSH contends
3 that exposures from incidents would be covered
4 by coworker approach. I don't -- I don't know
5 that that was our response. I'd have to go
6 back and look. I think what we would say there
7 is that when we -- when we have incident
8 reports, it is helpful -- it can be helpful for
9 identifying the exact -- or the probable date
10 of an intake. But in situations where we don't
11 have that, as long as we have bioassay, we can
12 do dose reconstructions in a claimant-favorable
13 manner by making assumptions -- I'm looking
14 over here at Liz, she can jump in and give you
15 much more details than I can. The -- the fact
16 -- and we do agree, by the way, that incidents
17 were handled on a -- on the floor, unless they
18 required whole body -- you know, sent to the
19 whole body counter or they couldn't be
20 decontaminated. I think that's right. Jim and
21 whoever else is out there, correct me.

22 **DR. MAKHIJANI:** Brant --

23 **DR. ULSH:** Yes, sir.

24 **DR. MAKHIJANI:** -- handled on the floor without
25 a report?

1 **DR. ULSH:** I think that -- let me -- let me
2 page through -- I think that is true -- could
3 be true, Arjun, that an incident, unless it
4 rose to a certain level of significance and
5 people were required to go to medical or con--
6 there was contamination that couldn't be
7 removed, those incidents might have -- might
8 very well have been handled on the floor.

9 **MR. CHEW:** Posi-- positive nose swipes and
10 things like this -- positive nose swipes, for
11 example.

12 **DR. ULSH:** You're saying that that would have
13 been handled on the floor and not --

14 **MR. CHEW:** No, it would have gone up to
15 (unintelligible).

16 **DR. ULSH:** Okay. Thank you. You were scaring
17 me there, Mel. So yeah --

18 **MR. CHEW:** It's one thing you do very quickly,
19 you take a Q-tip and put it in the nose and
20 take a -- monitor and -- and we had counters
21 right nearby and they brought them up to the
22 next level.

23 **DR. ULSH:** Right. So that -- the situation
24 described in the concern is certainly something
25 that sounds very plausible. What -- what --

1 our response, though, is that as long as a
2 person had bioassay, we could handle that
3 situation. Liz, do you want to add to that?

4 **MS. BRACKETT:** Yes, for example, with plutonium
5 and uranium, the excretion would last for quite
6 some time. There would be --

7 **MR. GIBSON:** Could you speak up, please?

8 **MS. BRACKETT:** I've got the microphone in my
9 hand. With plutonium and uranium, they're
10 retained in the body for a long time and
11 therefore excreted for a long time, so even if
12 at a later date there was nothing detectable,
13 we would still perform a missed dose on -- on
14 that results so that if -- if the intake had
15 resulted in something that would yield a result
16 less than the MDA at -- at a later sample we
17 would basically be overestimating the intake.
18 We can put -- you know, we can estimate what
19 the intake and subsequent dose would have been
20 based on later bioassay data. And if the
21 person were not monitored at all, we do have a
22 coworker study that's being done for -- for
23 Rocky Flats. I thi-- I believe it was just
24 approved within the last week, and that's based
25 on all of the available bioassay data at the

1 Rocky -- Rocky Flats site.

2 **DR. ULSH:** So TIB-38 or 50 --

3 **MS. BRACKETT:** 38, I believe -- yes.

4 **DR. ULSH:** -- 38, yeah.

5 **MR. GRIFFON:** That was kind of a blanket answer
6 for unmonitored workers --

7 **DR. ULSH:** For unmonitored, right.

8 **MR. GRIFFON:** -- that coworker approach, but
9 the allegation's a little different so I think
10 I've got to reword that response.

11 **DR. ULSH:** Okay. Thank you, Liz. Is there
12 anything else you want to discuss on that
13 issue?

14 **MR. GRIFFON:** I don't think there is.

15 **DR. ULSH:** Okay. Number 27 is a no further
16 action required, same with number 28. Number
17 29 I think we handled this morning when we
18 discussed Arjun's write-up on other
19 radionuclides. I see nods so I guess we're
20 okay there.

21 **SAFETY CONCERNS**

22 Okay, that brings us to number 30 and these are
23 the safety concerns. Let me walk you through
24 the history of this issue. SC&A expressed some
25 concern about -- I believe it was seven safety

1 concerns -- not concern, but they identified
2 them as being of interest. And I went back and
3 pulled those seven safety concerns and
4 presented an evaluation of them. I know that
5 in the write-up that Joe sent over this past
6 week there was some discussion on I think two
7 of them.

8 **MR. FITZGERALD:** Two of them, with one in
9 particular. But Kathy can certainly go through
10 that.

11 **DR. ULSH:** Do you want to go into those, Mark,
12 those two in particular, or -- because -- well,
13 let me just give you the rest of the picture
14 and then we can decide whether we want to go
15 into these.

16 At the last working group meeting -- I can't
17 remember who said it, it may have been Tony
18 DeMaiori, made us aware that there was a
19 database or, you know, a collection of these
20 safety concern documents, and so the working
21 group asked us to identify that -- determine
22 whether that database was around and we could
23 access it. We did find a spreadsheet that
24 presents about 5,000 of the safety concerns.
25 The earliest one in that spreadsheet is in

1 1970. Now you might have seen an earlier e-
2 mail, Mark, that I sent to Kathy. I don't know
3 if that's a function of the database -- in
4 other words, the database only captures them
5 starting in 1970, or if this mechanism of
6 dealing with issues through the safety concern
7 system only started in 1970. I don't know
8 exactly, you know, why we started in '70. But
9 it goes from '70 all the way up into the 2000s.
10 And I went -- and there are 5,000,
11 approximately, safety concerns listed and that
12 has been posted on the O drive.

13 I went through and examined -- I suspect this
14 is similar to what SC&A did to identify the
15 original seven -- looked for anything that
16 looked interesting in terms of a data integrity
17 -- you know, the title or the short description
18 suggested might have some relevance to data
19 integrity. A lot of these are going to be --
20 once we get them, turn out not to be, just like
21 the original seven, I suspect.

22 **MR. GRIFFON:** Right, right.

23 **DR. ULSH:** Yeah. But I've requested those from
24 the folks at Mountain View. They have sent me
25 all of them but maybe three over the course of

1 very late last week and early this week.

2 **MR. MEYER:** We've -- actually I think we got
3 the last ones in yesterday (unintelligible)
4 quite a stack (unintelligible).

5 **DR. ULSH:** Yes. I have not obviously had time
6 to review those, but I will do an analysis on
7 the second set similar to the first seven and,
8 you know, sub--

9 **MR. GRIFFON:** Did SC&A give you input on
10 selections --

11 **DR. ULSH:** No, this -- no, this is one thing
12 that perhaps we should talk about. I went
13 through the list myself when I got it. It's
14 posted on the O drive. You know, if there are
15 additional ones that you're interested in, let
16 me know and we'll, you know --

17 **MR. GRIFFON:** I was just -- it might be
18 worthwhile for SC&A to -- to do the same with
19 that list, look it over and...

20 **DR. ULSH:** Have fun, there's 5,000 of them.

21 **MR. GRIFFON:** Also -- also, you know, search
22 it or whatever, look it over, sort it, but also
23 look at what Brant's already requested and --

24 **MR. FITZGERALD:** Right, that -- we --

25 **MR. GRIFFON:** -- make a determination if it's

1 representative of what you're seeing. I mean -
2 -

3 **MR. FITZGERALD:** Yeah.

4 **MR. GRIFFON:** -- I don't think we have to get
5 every one, you know.

6 **DR. ULSH:** And I did -- I did include -- this
7 is an Excel spreadsheet. I did include the
8 master list, which includes all 5,000, and then
9 two separate work sheets, one that identifies
10 the one that I thought were interesting and in
11 a separate work sheet the ones that I thought
12 were probably not -- I want to be careful how I
13 say that -- might be relevant to data
14 integrity. I don't mean that they're not
15 important, but...

16 Okay. Now -- but let's go back to this issue
17 with the original seven. When I analyzed --
18 when I evaluated the original seven, I -- my
19 conclusion was that none of them really
20 presented a data integrity issue. I think that
21 SC&A may not agree completely with -- with that
22 for two of them that they've listed here.

23 **MR. GRIFFON:** One of them --

24 **DR. ULSH:** Is it just one --

25 **MR. FITZGERALD:** One of them in particular.

1 **DR. ULSH:** Oh, I'm sorry.

2 **MR. FITZGERALD:** The other one's sort of
3 (unintelligible).

4 **DR. ULSH:** Okay. One of them -- was it 71-4,
5 is that --

6 **MS. ROBERTSON-DEMERS:** That's the one.

7 **DR. ULSH:** Okay, I'm trying to -- I'm looking
8 through your write-up here -- ah, here it is.

9 **MS. ROBERTSON-DEMERS:** Basically it comes down
10 to the -- the same type of issue where the
11 employee says that he got his badge results for
12 December of '70 and they did not reflect the
13 high neutron exposure which was out in the
14 field. And this is kind of being addressed in
15 some of the other items already.

16 **DR. ULSH:** Okay. I see where you're -- what
17 you're saying, Kathy. This is an issue that
18 we've already discussed at this meeting. There
19 was one part that kind of puzzled me, though,
20 and that's -- well, I guess there's no page
21 number. It's right before Section 2, the two
22 paragraphs right above that, and it says that -
23 - well, first of all, let me give you some
24 background on this.

25 Like Kathy said, this -- this -- the concern

1 expressed in this safety concern was that the
2 film badge results didn't reflect the
3 conditions in the field. And my response --
4 oh, okay. The -- in the SC&A write-up it says
5 that this is closely related to the concerns
6 over "no current data available" results on
7 badge reports. And I didn't see a connection
8 there. Maybe you can elaborate on that.

9 **MS. ROBERTSON-DEMERS:** Well, all of this really
10 gets down to they don't believe what dose they
11 were given, and maybe that's not the right --
12 the right -- maybe I need to be broader in that
13 statement.

14 **DR. ULSH:** Okay.

15 **MS. ROBERTSON-DEMERS:** But --

16 **DR. ULSH:** I mean it seems to me that --

17 **MS. ROBERTSON-DEMERS:** -- a lot of the -- a lot
18 of the examples that are given in the petitions
19 are very, very, very similar to -- to this
20 safety concern.

21 **DR. ULSH:** I agree, and -- and I think -- I
22 mean we have frequently heard this, both in the
23 petition and in the public comments. The "no
24 current data available" I think is an important
25 issue, but I don't think it's the one that

1 we're dealing with on this particular safety
2 concern. It's more with I don't believe my
3 badge results.

4 **MR. FITZGERALD:** Right, I think that's what
5 she's saying, too. That was -- that was her
6 intent on that one.

7 **DR. ULSH:** Okay, good. Good. I guess that was
8 the only thing I wanted to --

9 **MR. FITZGERALD:** Which is the same issue we
10 discussed earlier, so I'm not sure, you know,
11 beyond continuing what we're continuing. The
12 action, as I understand it, is to validate the
13 representativeness of these seven by looking at
14 the --

15 **MR. GRIFFON:** Yeah, if you can review the list
16 also --

17 **DR. ULSH:** Well, it's not the seven, it's the
18 additional --

19 **MR. FITZGERALD:** No, the -- yeah.

20 **MR. GRIFFON:** The additional ones that's in
21 his requested --

22 **DR. ULSH:** -- ones yet.

23 **MR. FITZGERALD:** Yeah, the 5,000. I thought I
24 heard that right.

25 **DR. ULSH:** If there are other individual ones

1 that you want me to get, I'll get them.

2 **MR. GRIFFON:** How many did you -- I -- I'm
3 refreshing my...

4 **DR. ULSH:** On the order of 30 or so, 20 or 30.

5 **MR. GRIFFON:** It wasn't hundreds.

6 **DR. ULSH:** No, no.

7 **MR. FITZGERALD:** Where do these sit now,
8 they're on the --

9 **DR. ULSH:** They're on the O drive --

10 **MR. FITZGERALD:** -- the O drive now, right.

11 **DR. ULSH:** -- in the normal place. If there
12 are additional -- you know, a couple of ones
13 you want me to get, I'll do that. If -- if you
14 want several hundred, let's talk.

15 **MR. GRIFFON:** No, I mean -- I mean I would say
16 you should look at it in the light of there's a
17 few others that look interesting, but you think
18 that Brant's list is representative. I don't
19 think we need to go there, you know.

20 **MR. FITZGERALD:** Right, right.

21 **MR. GIBSON:** This is Mike Gibson. I guess --
22 you know, my only comment would be, too, if --
23 if there's that many complaints -- and again, I
24 know we need to pare them down somewhat, but if
25 there's that many complaints, let's -- let's

1 put it on the scale here and let's see are the
2 workers right or is the program right, you
3 know. I'm not saying look into every one of
4 the -- the cases, but -- but there again, if
5 there's that many, you know, there's not that
6 many workers that are going to make complaints
7 if -- if there's something they see that's not
8 -- I mean these are Q-cleared, well-trained --
9 God knows, DOE put us through enough training,
10 you know, the -- it seems to me there would be
11 enough weight there that you almost have to put
12 it on a scale and weigh the balance.

13 **MR. GRIFFON:** Well, I -- I was wondering -- it
14 might be useful -- I don't know if -- did this
15 in any way when you looked through these. It
16 might be useful to characterize them where --

17 **DR. ULSH:** I was just going to do that, Mark --

18 **MR. GRIFFON:** -- you know, where there's
19 different -- I mean there's safety concerns,
20 then there's ones that are sort of specific to
21 dosimetry issues -- right? -- and that's where
22 you tried to (unintelligible) but can you sort
23 of give us (unintelligible) out of the 5,000
24 what categories do they fall into, maybe.

25 **DR. ULSH:** Mike, I would encourage you to take

1 a look at the -- at the spreadsheet because a
2 very great number of these are obviously not --
3 they're related to safety issues only in a very
4 indirect way. For instance --

5 **MR. GRIFFON:** I mean here's -- here's one like
6 lack of proper equipment to complete safe drum
7 movement. There's a -- there's a lot of safety
8 stuff in here --

9 **DR. ULSH:** That's an important issue. There
10 are some that -- the locker rooms are filthy.
11 Well, that's certainly an important issue, but
12 it doesn't really, you know, rise to a data
13 integrity -- I think what -- what I was really
14 keeping an eye out for was anything that
15 indicated a pattern. You know, a concern that
16 kept coming up over and over and over again,
17 and I'll be prepared to discuss whether there
18 is that kind of a pattern or is not that kind
19 of a pattern once I finish the analysis on
20 these. So I would encourage you, Mike, it's --
21 it's on the O drive there. Take a look and get
22 a feel for the kind of concerns that are
23 expressed here. Some of them are certainly
24 safety related. Some of them are perhaps not.

25 **MR. GRIFFON:** Or -- or -- or some are rad

1 safety related --

2 **DR. ULSH:** Or industrial hygiene.

3 **MR. GRIFFON:** -- some are -- some are
4 industrial hygiene or industrial safety --

5 **DR. ULSH:** Or just general hygiene if the
6 locker rooms are filthy.

7 **MR. GIBSON:** Right, and believe me, being a
8 past union president, you know, I know people
9 have told me that they didn't like the color of
10 the clothes that the company issued them. I
11 understand all that --

12 **DR. ULSH:** Well, there are some of those in
13 there.

14 **MR. GIBSON:** -- so I understand there's
15 ridiculous claims, you know, this and that, but
16 -- yeah, I'll look over that.

17 **DR. ULSH:** Yeah, and please --

18 **MR. GRIFFON:** I'm not even saying ridiculous,
19 I'm just saying maybe not rad -- rad-
20 applicable, you know, radiation-applicable.

21 **DR. ULSH:** And please don't misunderstand me.
22 I'm not saying that they're all that way.
23 There are certainly some very important safety
24 issues raised in some of these concerns, but --
25 but there's also a set in there that really

1 aren't, I don't think.

2 **DR. MAKHIJANI:** Brant, where is this -- where
3 is this --

4 **MR. GIBSON:** Right, I'm just -- well, I'm just
5 saying I've been down that road, but -- you
6 know, let's --

7 **DR. ULSH:** You want to know the location,
8 Arjun?

9 **MR. GIBSON:** -- let's not discount -- let's not
10 discount them all, let's --

11 **DR. ULSH:** Oh, no -- no, no.

12 **MR. GIBSON:** -- you know, and certainly not
13 inspect them all, but you know, at least let's
14 look at it fair and balanced.

15 **DR. ULSH:** I agree.

16 **DR. MAKHIJANI:** Where is this 5,000 safety
17 concern spreadsheet? I'm not finding it.

18 **DR. ULSH:** It's -- okay, I can get you at least
19 part of the way there. It's on the O drive at
20 document review --

21 **MR. GRIFFON:** AB document review.

22 **DR. ULSH:** -- AB document review Rocky Flats.
23 Now there are two folders, it could be --

24 **MR. GRIFFON:** July 26th meeting.

25 **DR. ULSH:** Thank you, Mark.

1 **DR. MAKHIJANI:** I only see the 30 there, but
2 not the big one.

3 **DR. ULSH:** They're -- they're a separate
4 spread-- work sheets.

5 **DR. MAKHIJANI:** Oh, maybe -- oh, yeah, there's
6 a -- you have work sheets in it? Sorry.

7 **DR. ULSH:** There you go.

8 **DR. MAKHIJANI:** Yeah, I got it.

9 **DR. ULSH:** Okay. All right, so that is the --
10 issue number 30. I think follow-up action
11 there, Mark, is that I will analyze these -- I
12 don't know how many, 30, maybe -- that I've
13 identified as being interesting and get an
14 analysis.

15 **MR. GRIFFON:** And SC&A's going to review the
16 list.

17 **DR. ULSH:** And if there are additional ones,
18 we'll --

19 **MR. GRIFFON:** Right.

20 **DR. ULSH:** With-- within reason.

21 **MR. GRIFFON:** And you'll post when you recover
22 them. Right?

23 **DR. ULSH:** Yes. Yes, I will. The seven SC&A
24 was originally interested in are already there,
25 and I'll put the rest of them there as soon as

1 I can.

2 **MR. CHEW:** Brant, I -- I don't think I'm
3 speaking out of turn, I'm going to draw on
4 Karin's experience, too, because both of us
5 have done extensive actual monitoring. It was
6 one of the comments that the -- the survey
7 datas didn't reflect those on the badge; is
8 that what I'm hearing?

9 **DR. ULSH:** Well, that is certainly a concern
10 that has been expressed. I don't know that it
11 was expressed in a safety concern, but it's
12 been expressed -- well, we've had a discussion
13 here again.

14 **MR. CHEW:** I'm just making a general comment
15 here. It does not surprise me that at all,
16 especially in plutonium areas where you're
17 actually walking up to a glovebox. Okay? And
18 I mean -- just say the general monitor is
19 supposed to be useful to post areas, and they
20 normally post areas to the highest level of
21 reading they get. And then when they walk up
22 to a glovebox, especially in the molten salt
23 extraction area where we all know -- I happen
24 to know the facility fairly well, there is a
25 streaming of -- of photons and 60 kilovolts

1 (unintelligible) coming out of the
2 (unintelligible), you know. You try to shield
3 that as much as you can. But clearly I -- I
4 would see a higher survey. But the person that
5 is doing that monitoring is walking up to the
6 glovebox with a -- with a hand-held instrument
7 at pretty fair reasonably medium arm's length --
8 -- I wouldn't say it's fully arm's length -- and
9 that's the measurement he takes -- he or she
10 takes. As they back away to where the person
11 is actually standing most of the time, they'll
12 probably drop off -- and I think you folks know
13 that -- and maybe it's a factor of three to
14 five or ten. Okay? From -- you know, for
15 hands-on, especially (unintelligible) sources
16 like glovebox (unintelligible). So I just want
17 to give -- Karin may want to add to that
18 because you've done that. I've asked you to do
19 that. Right, Karin?

20 **MS. JESSEN:** Yes, you have.

21 **MR. CHEW:** Karin worked with me in the
22 plutonium building many years ago. Okay. I
23 just wanted to share that.

24 **DR. ULSH:** Thank you.

25 **MS. ROBERTSON-DEMERS:** The one thing that was

1 made clear to me when I went through the Los
2 Alamos log books from a similar area is that
3 the glove changes did not happen once a year.
4 They happened several times a week.

5 **MR. CHEW:** Sure.

6 **MS. ROBERTSON-DEMERS:** And the bag-out
7 processes didn't happen once a week, they
8 happened daily.

9 **MR. CHEW:** That's correct, Kathy. You're
10 absolutely right. At all plutonium facilities,
11 more than you think. Go ahead. What is your
12 point?

13 **MS. ROBERTSON-DEMERS:** Well, I just wanted to
14 bring that up because a lot of times workers
15 tell me the bag-out process is where they
16 believe they got most of their dose.

17 **MR. CHEW:** You mean a bag-out from the bag-out
18 process and not cutting the bag correctly and a
19 little bit of contamination, or is it directly
20 external dose?

21 **MS. ROBERTSON-DEMERS:** No, no, I mean removing
22 things from the glovebox.

23 **MR. CHEW:** Uh-huh. Uh-huh. That's probably
24 true. When you bag out a part and move it to
25 the next box, you are holding it right next to

1 you.

2 **MR. GRIFFON:** Higher potential.

3 **MR. CHEW:** Absolutely. There's no question,
4 you probably hold it right next to your badge.

5 **MR. GRIFFON:** But they're still monitored --
6 but they're still monitored, theoretically.

7 **MS. ROBERTSON-DEMERS:** And all I was saying is
8 I did not realize how often those things
9 happened until I read that log book.

10 **MR. CHEW:** Yeah, that's general practice,
11 Kathy. There's no question of that. That
12 happened all the time.

13 **DR. ULSH:** Yeah, and I -- I'm cert-- Kathy, I'm
14 thinking back to some of the rad files that
15 I've looked at recently in support of the
16 Kittinger log analysis, and -- oh, a fair
17 number of the incidents that are reported are
18 bag-- you know, something went wrong during a
19 bag-out process. So yeah, I mean you're right,
20 it is --

21 **MR. GRIFFON:** Are you transitioning to the
22 Kittinger log now?

23 **DR. ULSH:** I don't know, am I? Let me see
24 what's next.

25 **MR. GRIFFON:** You were transitioning.

1 **DR. ULSH:** No, I'm just --

2 **MR. CHEW:** Our biggest concern back in the --

3 **MR. GRIFFON:** No, I think we're ready to -- you
4 know, I think we're ready --

5 **MR. CHEW:** Kathy, I'm sure you read this --

6 **DR. ULSH:** Oh, we are there.

7 **MR. CHEW:** -- in the logs, too. The biggest
8 concern of doing the bag-out was actually
9 taking that knife and cutting the bag -- and
10 cutting your finger. That was it.

11 **MS. ROBERTSON-DEMERS:** And they did that.

12 **MR. CHEW:** They did that, no question. That
13 happened.

14 **DR. ULSH:** Okay.

15 **MR. CHEW:** We did it the same way at Hanford,
16 we did it the same way at Livermore, the same
17 way at Rocky Flats -- time-proven.

18 **DR. ULSH:** I guess that takes us to issue 31,
19 Mark?

20 **MR. GRIFFON:** Yeah.

21 **DR. ULSH:** Okay. Now the Kittinger log
22 discussion is going to be -- it's not going to
23 be fairly -- it's not going to be that quick.
24 It's going to take a little time.

25 **MR. GRIFFON:** Well, can you summarize it? No,

1 I mean it's out there and I mean I think the --
2 the upshot of it is that it matched up pretty
3 well. Right?

4 **DR. ULSH:** Let's take a few minutes and talk
5 about it. Let's take a few minutes.

6 **MR. GRIFFON:** Okay. Okay, let's go through it.

7 **DR. ULSH:** Okay. The one piece of this that I
8 really can't recall is how we originally got
9 turned on to the Kittinger log. I'm pretty
10 sure Kathy identified it as one that was
11 interesting. Is that right, Kathy?

12 **MS. ROBERTSON-DEMERS:** Yeah.

13 **DR. ULSH:** Okay, good. That explains why I
14 looked at it. And as you recall, at the last
15 meeting we talked about the way that we were
16 going to approach these logs. We were going to
17 look specifically for anything like
18 overexposures, contamination incidents, body
19 counts, something that we could bounce against
20 information in the worker rad files to see
21 whether we had agreement between the log books
22 that were taken in the field and the rad files.
23 And this directly -- it's directly relevant to
24 this broad issue that the workers are
25 expressing that, you know, they think that the

1 conditions in the field were not -- are not
2 reflected in their dosimetry. So that was kind
3 of why we were approaching these log books.
4 And -- and in fact, the Kittinger -- Kittinger
5 log book that I reviewed was -- it had numerous
6 instances of -- numerous entries that were
7 specific enough. In other words, Mr. Kittinger
8 was very good at going sequentially,
9 chronologically, so we have a particular day
10 and -- and we have entries that are attributed
11 to a particular date. And he also mentioned
12 names of people involved, so I could actually
13 go back to these individuals' files and -- and
14 check this information.
15 So I just want to walk you through what process
16 I followed when I did this. The first thing I
17 did of course was to read through the log and
18 flag anything that I thought was specific
19 enough that I could go back to a rad file and -
20 - and check it, and you'll see ten pages of my
21 notes here. I copied these verbatim, so -- out
22 of the log.
23 And the next step then that I went to was to go
24 to the NOCTS database, just in case the
25 individuals involved were claimants. So for

1 instan-- now one thing I also want to mention
2 here is that I'm not going to refer to people
3 by name for Privacy Act considerations, but
4 I'll point you in the right direction so we can
5 all look at this. So when we had a name --
6 let's say Smith -- I would go into the NOCTS
7 database and pull up all of our claimants for
8 Smith and try to find someone -- a Smith that
9 worked at Rocky Flats during the time period in
10 question. I would go through the rad files
11 that were a match.
12 Now let me characterize the rad files for you.
13 They range anywhere from -- oh, on the order of
14 ten pages, that was a -- those were nice ones -
15 - up to I think the biggest one I saw was about
16 600 pages. So -- and that's not typical. I
17 would say on average somewhere between 100 and
18 200 pages is about typical of the rad files,
19 depending on the length of employment and other
20 factors.
21 So that got to be a problem when you're talking
22 about -- I mean in several of these entries he
23 would just -- Mr. Kittinger would just identify
24 people by last name, so if you had a Smith or a
25 Jones, a very common name, I have to go through

1 all of the rad files that match until I find
2 the right person. And I did that in NOCTS. If
3 I didn't get a hit there, I went back to Scott
4 Raines* at the DOE and said give me all the rad
5 files for anyone with this name, and I went
6 through, got those rad files and checked them.
7 So let me characterize -- I'd like to bin
8 these.

9 **MR. GRIFFON:** What happened to HIS-20?

10 **DR. ULSH:** Well --

11 **MR. GRIFFON:** I mean I would have done this a
12 little quicker.

13 **DR. ULSH:** No, no, not -- not really, because
14 what we're talking about are --

15 **MR. GRIFFON:** Name, date, I'm there, you know.

16 **DR. ULSH:** But the concern is that the worker's
17 record doesn't reflect --

18 **MR. GRIFFON:** Well, if --

19 **DR. ULSH:** Well, I understand, Mark, but I
20 wanted to --

21 **MR. GRIFFON:** (Unintelligible)

22 **DR. ULSH:** Yeah, but some of these -- when you
23 look through here, some of these are going to
24 be -- well, like I said, in order to get to
25 HIS-20 I'm going to have to have, you know, the

1 worker's identifiers and, you know, I was just
2 dealing with last names here, so --

3 **MR. GRIFFON:** Not necessarily, but go -- go
4 ahead -- go -- go ahead.

5 **DR. ULSH:** Right, in some ca-- in most cases
6 there were just last names. Sometimes he gave
7 the badge number.

8 **MR. GRIFFON:** I mean I found -- I found almost
9 all the design cases in HIS-20 and I still
10 don't have an identified database.

11 **DR. ULSH:** Right, but some of these -- some of
12 these --

13 **MR. GRIFFON:** As I've said before.

14 **DR. ULSH:** -- some of these, too, are incident
15 reports.

16 **MR. GRIFFON:** Yeah, yeah.

17 **DR. ULSH:** So I -- I just thought it was
18 prudent to go to the -- to the rad file for
19 them.

20 Now I'd like to characterize -- bin these into
21 what I found. One category could have been
22 there was a disagreement between the rad file
23 and the log book. That would obviously be a
24 very great concern. I didn't find any of
25 those, so far.

1 And now let me tell you where I am in this
2 analysis. I found approximately I think 80
3 specific things I could check -- on the order
4 of 80. Let's see, 31 and nine is 40 -- yeah,
5 about 80; 39 of them I'm still investigating.
6 I haven't found a match, but there are other
7 rad files out there that are candidates.
8 Thirty-one of these agree completely. There's
9 an exact agreement between the log book and the
10 worker's rad file. In other words -- let me
11 give you an example.
12 Well, for instance, on page 3 of my write-up,
13 Mr. Kittinger -- Kittinger listed some
14 dosimetry results for particular individuals,
15 and there are several here that -- where I
16 categorized them as "agree with Kittinger log,"
17 and in that case I had a very -- I had an exact
18 dosimetry result. Say for instance, the first
19 entry, 3160 millirem for that particular
20 quarter, I found that number at -- in the -- in
21 the rad file, agreed completely. There were 31
22 of those.
23 There were a second set -- second category of
24 entries that I found where I don't want to
25 categorize it as an exact match because the

1 information either in the log book or in the
2 rad file was not specific enough for me to say
3 the numbers match exactly. But in general,
4 they appeared to be in agreement. An example
5 here that I've presented on the first page, on
6 page 82 of the log book, for instance, an
7 employee's hand exposure is given as 19,265
8 millirem for the 4th quarter through December
9 8th of '67. Well, when I went to the rad file
10 for this particular employee, I've got the
11 quarterly dose, the entire 4th quarter dose of
12 22,125 millirem. So the -- the log gave you a
13 partial result for the quarter. I pulled out
14 the quarterly result from the rad file, and it
15 looks to be on the same order of magnitude.
16 The numbers are a little different because the
17 rad file has the whole quarter.
18 Those I categorized as being consistent. I
19 didn't characterize it as agreement because he
20 didn't have exactly the same number, but
21 they're consistent.
22 And then, as I said, the other category, there
23 are 39 of them that I'm still investigating.
24 And finally, instances where there was definite
25 disagreement, I've found zero so far.

1 Now I think at this point I want to open up for
2 discussion with the working group and SC&A the
3 path forward on these log books. Let me first
4 of all give you a feel for the magnitude of the
5 number of rad files that we looked through.
6 Now this list that I'm handing around is only
7 the ones that I could not find in NOCTS, the
8 ones that I retrieved from Scott Raines, so
9 there are probably 20 or 30 percent higher than
10 this actual number. And you'll see it takes up
11 three single-spaced pages. I've gone through
12 all of these rad files, and I told you that
13 they range up to 600 pages -- 200 is typical.
14 I was fortunate in that the Kittinger log --
15 this seems like a trivial consideration, but it
16 really isn't. Mr. Kittinger kept very legible
17 logs, very organized. His writing is good. I
18 can read them fairly quickly. I'm sending
19 around some example pages from Mr. Kittinger's
20 log and some example pages from another log.
21 So the bottom line is that this -- the review
22 of this log represents a significant investment
23 in resources. So far I've spent approximately
24 40 hours reviewing this and I've resolved about
25 half the cases -- half of the data points from

1 the Kittinger log. You can anticipate that by
2 the time it's done, it might approach 80 hours
3 -- 80 man hours.

4 The Kittinger log, as I mentioned, is a very
5 legible one. If you look in the handout I just
6 provided, I've also provided some example pages
7 from another log just to give you an example of
8 probably both ends of the spectrum. And what
9 I'm -- what I'd like you to do is -- is think
10 to yourself, how long would it take to review a
11 log with this kind of entry compared to the
12 Kittinger log. It would take a long time. The
13 writing is pretty bad, the copy quality is not
14 great. So what I'm saying is that the
15 Kittinger log probably represents the best case
16 and this one represents more towards the worst
17 case.

18 Now with regard to how we should proceed on
19 these log books -- and I'm not including the
20 urinalysis log. We've already discussed that
21 separately. But in terms of, you know, like
22 the daily decon logs or the foreman's logs or
23 the RCT logs, what I'd like to open up for
24 discussion -- what I'd like to suggest to you
25 is that these large-scale drift net type

1 operations -- we put out a net and see what we
2 can dredge up -- may not -- may not be the best
3 return on our investment. What I'm thinking is
4 if there are specific examples, specific
5 concerns -- a worker has expressed a concern
6 about a particular time frame -- we should
7 focus on those. That's where we're most likely
8 to see the problems anyway.

9 But what we're finding with the Kittinger log
10 so far is agreement. I mean it's not done, the
11 analysis is not complete --

12 **MR. GRIFFON:** But where you find --
13 (unintelligible) I think so. I knew that that
14 was the upshot of this anyway, but I mean 39
15 that you don't know yet. Right?

16 **DR. ULSH:** Yeah, you're right, I'm half done,
17 so --

18 **MR. GRIFFON:** So what does that mean? You say
19 you have zero that disagree, but 39 you're
20 still investigating --

21 **DR. ULSH:** Let me give you an example, Mark.

22 **MR. GRIFFON:** -- It's not clear.

23 **DR. ULSH:** Take the -- take the first -- this
24 handout. When I say I'm still investigating,
25 the first name on the list here, there are one,

1 two, three, four -- five of them. I've maybe
2 reviewed two of them and haven't found a match.
3 I'm still waiting on the other three to come
4 in. Those would fall into the other -- they
5 would fall into the category of under
6 investigation.

7 **MR. LITTLE:** Because you have -- there are five
8 of the same name and only the last name.

9 **DR. ULSH:** Yes, exactly. I mean these are the
10 candidates right here, and you can see that for
11 some of the more common names there are --
12 there are significant numbers of them.

13 Now I would propose that I finish this analysis
14 on the Kittinger log. I mean we started it, we
15 might as well -- I might as well finish it.

16 But in terms of looking forward to the other
17 log books and how we approach them, I think we
18 need to discuss what makes sense, keeping in
19 mind that -- so far, anyway; I'm only half done
20 with the Kittinger log --

21 **MR. GRIFFON:** I think (unintelligible).

22 **DR. ULSH:** -- so far I'm not finding the kind
23 of issues that we were looking for.

24 **MR. GRIFFON:** All right. You want to hear my -
25 - my simplistic approach? I mean I -- I think

1 you're -- you're -- you've made the argument
2 again and again to us that HIS-20 is
3 representative so I think we've got two prongs
4 that I'm interested in. One, I'm asking for
5 you to validate and verify, or at least check
6 reliability of is our sort of phrase, HIS-20.
7 On the other hand, you know, you're -- you sort
8 of -- you have these logs that have
9 individuals' datas in -- individual data, in
10 some cases, in -- not all --

11 **DR. ULSH:** In some cases.

12 **MR. GRIFFON:** -- not -- not all of it's that.

13 **DR. ULSH:** Right.

14 **MR. GRIFFON:** I've looked at a few of the
15 others just last night, and you can pick out
16 some points, so you have a data point and a
17 name, and I'd say go to HIS-20 and if you don't
18 get a match --

19 **DR. ULSH:** That's certainly --

20 **MR. GRIFFON:** -- then you note that.

21 **DR. ULSH:** That's certainly a possibility where
22 we have a specific number for an external
23 dosimetry result. I didn't --

24 **MR. GRIFFON:** To pull the full rad file, I
25 agree, is just -- I think --

1 **DR. ULSH:** But that's the only place we're
2 going to see some of this stuff in the log.

3 **MR. GRIFFON:** Right, right, right.

4 **DR. ULSH:** So maybe what you're suggesting is
5 that we --

6 **MR. GRIFFON:** Triage this maybe and say let's
7 look at this --

8 **DR. ULSH:** That's what I'm getting at. Let's
9 talk about --

10 **MR. GRIFFON:** -- database first and if there --
11 I mean if there's large discrepancies there,
12 then we -- we have to consider other
13 alternatives. But if you have very good
14 agreement there, then I think I'm with you.

15 **DR. ULSH:** Okay, but that --

16 **MR. GRIFFON:** -- this confirms that.

17 **DR. ULSH:** Keep in mind that's going to limit -
18 - okay, if I'm -- if I'm talking about the
19 Kittinger log and to the extent that it's
20 representative, that's going to limit the
21 number of entries that we can check to only
22 those that have information contained in HIS-
23 20. Like a particular dosimetry result for a
24 particular badge exchange cycle, we can -- we
25 can check those.

1 **MR. GRIFFON:** Right, and give us a sense --
2 'cause we just got this stuff, but give us a
3 sense of how that -- out of your list of about
4 100 or so -- was it about 100, or more?

5 **DR. ULSH:** Eighty.

6 **MR. GRIFFON:** Eighty. Out of your list of 80,
7 how are -- how many of that would -- would have
8 names and the specific data?

9 **DR. ULSH:** Specific external dosimetry results?

10 **MR. GRIFFON:** Or -- or internal. I mean I
11 found some internal. I don't know if this one
12 has internal, but --

13 **DR. ULSH:** The Kittinger log I think does not
14 have internal results, because that's really
15 not something that Kittinger would have had
16 access to.

17 **MR. GRIFFON:** I don't know who -- who he is.

18 **DR. ULSH:** I think --

19 **MS. ROBERTSON-DEMERS:** He does have reference
20 to sending people to the whole body counter.

21 **DR. ULSH:** Yes. Yes, he does have reference to
22 that, and that is usually tied to a specific --
23 specific incident that occurred, and so I went
24 in and checked the rad file for an incident
25 report and a whole body count on that date. An

1 incident report is not something you're going
2 to be able to check with HIS-20.

3 **MR. GRIFFON:** But -- but if you look for a --

4 **DR. ULSH:** Whole body count, you probably
5 could.

6 **MR. GRIFFON:** -- on that given date --

7 **DR. ULSH:** Yes, you probably could do that.

8 **MR. GRIFFON:** -- HIS-20. Right?

9 **DR. ULSH:** Yeah, so there are certainly a sub-
10 set of these that can be checked, and maybe
11 that's the answer.

12 **MR. GRIFFON:** No, I mean is it -- out of 80 is
13 it five or 50 --

14 **DR. ULSH:** Oh, out of 80 -- I'm just guessing
15 here, Mark, maybe 20 or 30. This is my gut
16 feel.

17 **MR. GRIFFON:** And what's the nature of the rest
18 of them? I'm just scanning through, but an
19 incident occurred or something like that or --

20 **DR. ULSH:** Yes, or a person was placed on
21 restriction. I don't know, I'm just looking
22 here -- yeah, someone was overexposed, but he
23 doesn't really give quantitatively what that
24 means exactly.

25 **MR. GRIFFON:** But he gives a name.

1 **DR. ULSH:** Yes, it does give a name, yes. That
2 kind of thing. I mean other things that you
3 couldn't -- you know, I'll let you look through
4 this at leisure. I just wanted to give the
5 working group a feel for the magnitude of what
6 we're talking about when we're talking about
7 reviewing these logs, and get a feel for what
8 exactly it is you want us to do -- how to
9 approach these logs. So Mark, what I'm hearing
10 --

11 **MR. GRIFFON:** (Unintelligible) sense -- my
12 main -- my sense would be to -- to sample some
13 more of these logs, but do it against HIS-20
14 only and -- and then if -- you might -- I mean
15 you might have a couple of different answers
16 still. You might have agrees, disagrees or
17 inconclusive, because of -- a number of
18 reasons. You might have only Smith and you
19 can't -- you know, you just can't discern which
20 Smith it was in the database.

21 **DR. ULSH:** Right.

22 **MR. GRIFFON:** You know, so you will -- may
23 still have that issue, but I would think that -
24 - and -- and if you were getting, you know,
25 over a certain percentage that matches, I think

1 that adds to the check on the reliability of
2 the database, so --

3 **DR. ULSH:** Okay. If I can --

4 **MR. GRIFFON:** -- that's the way I would
5 approach it. I don't know if SC&A --

6 **MR. FITZGERALD:** Well, yeah, I -- I think -- my
7 sense was -- I think triage is a good word. I
8 think you're scanning these and looking for
9 instances where you might have a high anomalous
10 reading of some sort, then you would run that
11 against the database and see if it shows up. I
12 mean if it doesn't, this is -- sort of
13 corroborates some of the concerns the workers
14 have expressed that maybe these fields have
15 existed but for some reason or another they
16 didn't get a -- a reading. And if you check
17 maybe a dozen instances over these logs of that
18 -- in that case and you found all of them
19 matched, I think that would go a ways to settle
20 that issue, to some -- you know, to that
21 extent.

22 **DR. ULSH:** Is that the kind of thing you're
23 thinking about, Mark, maybe a dozen instances
24 pulled from various logs? Is that what you're
25 thinking?

1 **MR. FITZGERALD:** Well, the number I think is
2 not the point I'm trying to make. I'm just
3 saying that instead of taking one log book, and
4 I think -- certainly the Kittinger example is
5 an example of doing something that's very, very
6 rigorous; you know, chasing down every single
7 reference in there. But taking a look at --
8 across the different log books, identify
9 instances -- you know, I think we've talked
10 about this case. I think Kathy's raised these
11 cases and the workers have raised these cases
12 where these fields have existed over time, it's
13 sort of anecdotal and if you actually found a
14 reference in a log book you could actually run
15 to ground by comparing it with the HIS
16 database, then you could, you know, establish
17 okay, it -- you know, whether it's a dozen or
18 20, whatever you find, I mean across these
19 different log books, that would tend to
20 validate that -- it seems like you could
21 actually track these down and establish the
22 reading that goes along with the -- the
23 reference by the -- the log.

24 **DR. ULSH:** Okay, keep in mind that -- I mean
25 regardless of what kind of analysis we do, we

1 have to -- when we pick a log book to look
2 through, we're going to have to, you know, read
3 through the whole log book, so that's an
4 investment that's not going to be -- not going
5 to get around -- we're not going to get around,
6 but -- so I guess I'd like to --

7 **MR. GRIFFON:** But that's not insurmountable if
8 you -- if you're --

9 **DR. ULSH:** No, it's -- well --

10 **MR. GRIFFON:** -- scanning for names and numbers
11 -- I don't know, I was doing in last night.
12 Like I said, you can get --

13 **DR. ULSH:** Okay, I guess I want --

14 **MR. GRIFFON:** -- like me, it's a little longer.

15 **DR. ULSH:** Or me. Okay, I'm not --

16 **MS. MUNN:** Well, good, Mark's already done it
17 for you.

18 **DR. ULSH:** Mark, why don't you report to us
19 what you found?

20 **MR. GRIFFON:** What I find.

21 **DR. ULSH:** Well, I guess --

22 **MR. GRIFFON:** I mean there's some -- and
23 there's some -- some obvious ones, but there's
24 also some a little more subtle that are not
25 completely quantitative, but the one you -- the

1 example you just gave, that they were whole
2 body counted, there's no number there but you
3 can check that they were whole -- you know,
4 that there is something there -- some data from
5 --

6 **DR. ULSH:** Right.

7 **MR. GRIFFON:** -- the one that I -- and I
8 haven't found many, just scanning last night,
9 but one that I recall is the individual was
10 involved in a neptunium -- and that stood out
11 to me -- neptunium spill and a highly pure
12 plutonium spill and, you know, the thought went
13 through my mind they had a badge number and
14 name, follow up to see if -- if it -- now that
15 might be an inconclusive one --

16 **DR. ULSH:** Yeah, you won't find it --

17 **MR. GRIFFON:** -- 'cause you don't know
18 necessarily that they were -- it didn't -- the
19 log didn't say -- it said so-and-so was
20 involved in this -- in this spill with this and
21 this. Now were they followed up with gross
22 alpha or were they followed up at all, but it
23 interested me 'cause I was curious whether they
24 were doing neptunium-specific urinalysis, and
25 probably not --

1 **DR. ULSH:** They're not, they're absolut--
2 they're definitely not.

3 **MR. GRIFFON:** -- but they would have -- right,
4 but they might have had gross alpha there,
5 so...

6 **DR. ULSH:** Might have. Okay, so I guess in the
7 interest of making sure that we're all on the
8 same page, I just want to pull the string a
9 little bit further about what your expectations
10 are and what you would like us to do. So we've
11 got some different kinds of logs. We've got
12 foremen's logs, which I think everyone was in
13 agreement about at the last working group
14 meeting that those may not be the most helpful
15 type of logs to look at. But then we also have
16 the Kittinger logs, which I think Kittinger was
17 a health physics supervisor. We've got
18 radiation con-- RCT logs, and we've got daily
19 decon logs, I think.

20 **MR. MEYER:** Yeah, right.

21 **DR. ULSH:** So what kind of log books are we
22 interested in looking at? Probably not
23 foremen, but now we've got RCT, daily decon or
24 -- and -- did I forget one?

25 **MR. FITZGERALD:** Decon. Tony raised the --

1 **DR. ULSH:** The daily decon.

2 **MR. FITZGERALD:** -- the daily decon's a good
3 place to look in terms of those kind of things.

4 **DR. ULSH:** So maybe pick a representative from
5 each of those categories and look?

6 **MR. FITZGERALD:** Kathy, do you have any
7 perspective? You spent some time on these.

8 **MS. ROBERTSON-DEMERS:** Well, I think there --
9 they should cover different areas. Kittinger
10 was the 700 area, 771 in particular.

11 **MR. GRIFFON:** So we want -- we're --

12 **MS. ROBERTSON-DEMERS:** So --

13 **MR. GRIFFON:** -- sample across different
14 buildings and also by different types of --
15 those three different types of logs maybe?

16 **MS. ROBERTSON-DEMERS:** Right.

17 **DR. ULSH:** Okay. Now you keep in mind that
18 every variable you add here is a multiplier.

19 **MR. GRIFFON:** Right.

20 **MR. FITZGERALD:** Why don't we establish how
21 many variables we're talking about before --
22 and maybe that's the piece of information that
23 no one has at this point.

24 **DR. ULSH:** So we've got the different kids of
25 log books.

1 **MR. FITZGERALD:** Three kinds, right.

2 **DR. ULSH:** Three kinds. Now we've got
3 buildings.

4 **MS. MUNN:** How many buildings?

5 **DR. ULSH:** I don't know.

6 **MS. ROBERTSON-DEMERS:** I would do it by area,
7 A, B, C and D.

8 **MS. MUNN:** Okay, three times three, that's
9 nine.

10 **MR. GRIFFON:** Four -- four times three.

11 **MS. MUNN:** Four times three -- oh --

12 **MR. GRIFFON:** It's a little late for Wanda.

13 **DR. ULSH:** You see where I'm going with this?
14 We're already at 12 logs and I've --

15 **MR. GRIFFON:** Right, right.

16 **MR. FITZGERALD:** Yeah.

17 **DR. ULSH:** And now you've got to multiply by
18 the number of things that we check out of each
19 log. That's the big one. Give me a feel for
20 what you want I guess is --

21 **MS. MUNN:** Is this the kind of number that has
22 an exclamation point after it?

23 **DR. ULSH:** Uh-huh.

24 **MR. GRIFFON:** You know, you -- you -- part --
25 part of the problem is -- I mean I think we're

1 not expecting Kittinger (unintelligible) this
2 time, so you go through one of these logs and
3 compare it against HIS-20, what do you -- what
4 do you expect that would take --

5 **MS. ROBERTSON-DEMERS:** Actually --

6 **MR. GRIFFON:** -- ten -- ten work -- ten or 20
7 work hours?

8 **DR. MAURO:** Could we step back a little bit?
9 I'm too -- I'm lost in the woods.

10 **DR. ULSH:** Okay.

11 **DR. MAURO:** Okay. It sounds to me that there
12 is a record of worker exposures that is the
13 record -- a record that DOE provides to NIOSH
14 that says when you do your dose reconstructions
15 for this worker, here's the numbers you use,
16 here's -- here's all the -- here's the records.
17 That becomes the thing that we are supposed to
18 trust as being -- we're going to do a dose
19 reconstruction. Here's the records that DOE
20 has provided.

21 Now, during this process the perturbation comes
22 in. A large number of people don't believe
23 that those records can be trusted -- or some --
24 not a lot -- some people, some people
25 (unintelligible) -- you have to bear with me,

1 I'm stepping back. Now -- so then a judgment
2 is made collectively by the working group and
3 SC&A that well, you know, there are other
4 documents out there that contain information,
5 and I'm presuming that they contain information
6 that somehow are decoupled from the information
7 that DOE is providing to NIOSH. In other
8 words, if there is a conspiracy to falsify
9 records, what's going to happen -- I mean I use
10 -- be very blunt -- to try to systematically
11 cover up the true doses a group of people may
12 have experienced. What I'm hearing is, by
13 going to these other places -- no one's that
14 good at covering their trail. Okay? That's
15 what we're getting at. Is anyone that good at
16 covering their trail, because there are --
17 there are six, seven different types of
18 documents -- Kittinger log is just one of
19 several -- where my God, you've got to really
20 be good if you're going to try to falsify
21 records across such a range of different places
22 where information's contained. Okay?
23 Now, so -- so what we're trying to do right
24 here is say well, what are we going to look at
25 that's going to give us a degree of confidence

1 that, for all intents and purposes, the records
2 that DOE provides NIOSH can be -- are a
3 faithful representation and were prepared in
4 good faith as best they can, and one of the
5 things we can do is look at some of these other
6 things because we believe they're decoupled.
7 Okay? I guess first and foremost, is everyone
8 comfortable with the fact that they're
9 decoupled? That is, there's no linkage between
10 the work that was done to create the data fi--
11 the original records that a work-- you're using
12 for doing dose reconstruction and what
13 Kittinger did? They're not -- sort of like --
14 this is separate. Kittinger did his own thing,
15 so that -- I mean this is what we're buying in
16 on right now. Am I making sense?

17 **MS. MUNN:** Yes, this is separate from the DOE
18 or AEC -- separate.

19 **DR. MAURO:** It's separate, yeah. Okay. Now --
20 all right. Now what I just heard you say is
21 that okay, let's see -- they're separate.

22 (Unintelligible) in and grab, as best you can
23 out of these -- there's a list of names of
24 people -- I'm not sure how many work log -- how
25 many -- how many people -- and not -- not --

1 did you end up being able to capture and look
2 at and then compare back to see if
3 (unintelligible)?

4 **MR. LITTLE:** Over 80 instances and he's done
5 about half of them.

6 **DR. MAURO:** And out of the half that you've
7 done, everything matched.

8 **DR. ULSH:** Everything has been either in
9 complete agreement or consistent.

10 **DR. MAURO:** Close enough. Close enough.

11 **DR. ULSH:** Yes.

12 **DR. MAURO:** Okay. So what we're saying is --
13 so for the ones you could look at, you got 40
14 out of -- 40 that you said -- and now what
15 we're saying now is -- we're asking ourselves a
16 question. What's the likelihood that there is
17 some kind of systematic error or deliberate
18 falsification in the records that were provided
19 to you by DOE for dose reconstruction, and you
20 did not catch one of them when you looked at
21 this thing? Okay? It's a -- and my -- my
22 intuition tells me, and I don't know the time
23 period covered in those buildings so it sounds
24 like there's these time and building issue, but
25 at least with the buildings and the time period

1 covered by the ones you looked at, what you
2 just told me is there sure as hell wasn't any
3 cover-up or falsification here.

4 **DR. ULSH:** No evidence of it yet.

5 **DR. MAURO:** And that -- no evi-- and -- at 40
6 out of 40 --

7 **DR. ULSH:** Yes.

8 **DR. MAURO:** -- the probability that you missed
9 one -- I mean -- so I mean -- what I'm getting
10 at is that -- all right, now, so there's -- now
11 we're saying that -- wait a minute, there are
12 other -- there -- there are other time periods
13 that Kittinger covers, at least -- there are
14 other documents that are separate from
15 Kittinger that can be looked at. And what
16 we're trying to say is when are we going to get
17 to the point -- have we -- have we hit -- after
18 everything that you've done, have we hit
19 anything that says you know what, this one
20 stinks? Other words, I don't like what I'm
21 looking at here. I can't explain to myself.
22 Is there anything that -- I mean that -- you
23 sort of like take -- you take your hat off and
24 say listen, is there anything that you've seen
25 so far that says you know, this is bothering

1 me. I can't figure out what -- why this
2 happened. Or -- and did you have any of those
3 right now?

4 **DR. ULSH:** Not yet. Now I will caution you to
5 keep in mind the degree of completeness in my
6 analysis. I've analyzed about half of this one
7 Kittinger log. I haven't found anything yet.

8 **DR. MAURO:** But -- and at the same time now --
9 so while that's going on, there's also these
10 individuals that have -- or these named
11 individuals in the affidavits --

12 **DR. ULSH:** Yes.

13 **DR. MAURO:** -- who've raised issues.

14 **DR. ULSH:** Yes.

15 **DR. MAURO:** And to the best of your ability --
16 so this is almost an independent line of
17 inquiry now. Now we're going to look at
18 complaints who -- who believe that something's
19 wrong, which is almost like different than what
20 you're doing here, and you're saying okay, can
21 I find anything there that says I don't like
22 it? For example, I know Hans has mentioned to
23 me there's one case about a lady who had 80
24 millirem in her record and then it was zeroed
25 out and -- and I know that -- my conversations

1 with our SC&A people, that seems to be an
2 unusual thing to happen. Now there may be some
3 reasons for it, there may not be. So bear --
4 I'm sorry, I'm just sort of get-- trying to get
5 my arms around this thing.

6 **DR. ULSH:** Remind me and I'll give you an
7 update on that one, but go ahead.

8 **DR. MAURO:** Oh, okay. So -- and I -- I'm
9 getting to the point where I'm -- what I'm
10 hearing is -- I don't see too much stink coming
11 out of the records. I'm hearing --

12 **MR. GRIFFON:** You want to hear the glass is
13 half empty view of this?

14 **DR. MAURO:** Well, yeah. I mean I'll take --

15 **MR. GRIFFON:** I'm hearing the glass is --

16 **DR. MAURO:** I'm waiting to --

17 **MR. GRIFFON:** -- half full.

18 **DR. MAURO:** No, no, I'm waiting --

19 **MR. GRIFFON:** The glass is half empty is -- is
20 you've got 40 out of 80 that seem to be in
21 agreement, and -- and John, maybe you're a
22 quicker study than I am of this data, but I
23 haven't looked through these so --

24 **DR. MAURO:** No, I'm --

25 **MR. GRIFFON:** -- so assuming there's 40 out of

1 80, I'm also assuming that the other 40 --
2 Brant's probably not going to rush in and say
3 well, I -- you know, I've got this workgroup
4 meeting coming up and I can't really track
5 these yet but I'm going to say right now that
6 they're not consistent with the Kittinger, so
7 they're under investigation.

8 **DR. ULSH:** I'm not making any judgment about it
9 at all.

10 **MR. GRIFFON:** Right, right, they're still under
11 investigation. So I mean I think the --

12 **DR. BEHLING:** The problem wouldn't show up --
13 would certainly show up in the 40 --

14 **DR. MAURO:** Would show up in the first 40 --
15 So -- I mean to go to the next 40, the
16 probability on there -- I mean I get -- I -- I
17 -- my reaction -- right now my reaction is,
18 listening to the probings this ocean that
19 you're sampling from, you know -- this -- the
20 Kittinger really did it for me, actually got --
21 got to me, got to me. When I heard you looked
22 at 40 and you couldn't find any -- and you --
23 you, for all intents and purposes, matched them
24 all, they -- at least for that time period, for
25 that facility, that was captured in this

1 particular look-see, I'm convinced there's
2 nothing -- no shenanigans going on there.

3 **DR. ULSH:** Well, now keep in mind that this is
4 not -- the Kittinger log was not selected at
5 random. Kathy, maybe you can speak to why the
6 Kittinger log in particular was of interest,
7 because I don't really know that.

8 **MS. ROBERTSON-DEMERS:** Oh, I just -- I just
9 threw that out because it was one that I knew
10 had a lot of dose rates and names in it.

11 **DR. MAURO:** Had a what? Sorry, Kathy.

12 **MR. FITZGERALD:** Had dose rates and names.

13 **DR. MAURO:** Oh, yes. So you selected one to
14 see if there was anything that stinks.

15 **MS. MUNN:** And from -- not only that, the time
16 period that it covers is a very interesting
17 time period. We've heard so much about --

18 **DR. MAURO:** It was a nasty time period.

19 **MS. MUNN:** -- '68, '69, all of the things that
20 went on, this is the time this log covers, so
21 that's doubly interesting. It does not,
22 however, address the time frame that we have
23 listed on our matrix, which appears to me to be
24 a logical next look, which is '85/'86. So if -
25 - if we're going to -- if we're going to -- and

1 -- and I agree with you, John, from any
2 statistical point of view, I -- it looks to me
3 as though the Kittinger log is complete. You
4 know, this -- this time period, this building -
5 -

6 **DR. MAURO:** This house is clean.

7 **MS. MUNN:** -- is okay, yeah. There are the
8 other houses. How much you want to look at is
9 the issue that I think must be looked at now.

10 **MR. FITZGERALD:** This is the 100 percent
11 sampling, which I think is reassuring for the
12 time period in question. Now we're saying
13 let's go to a less rigorous sampling to cover
14 other time periods, other locations, not go to
15 this -- this 100 percent sampling, but get
16 enough of a sampling that gives us that
17 assurance to go -- walk away from this. I
18 don't think you need to keep doing 100 percent
19 samplings. I think this one's reassuring from
20 that standpoint.

21 **DR. MAKHIJANI:** Yeah. Could I say a couple of
22 things? I think you -- you picked the 40 --
23 how did you pick the 40 that you looked at
24 versus people you haven't looked at yet?

25 **DR. ULSH:** I didn't pick 40, Arjun. What I did

1 was I started with NOCTS and identified any
2 matches, and then I requested the rest from
3 Scott Raines, and as they came in I analyzed
4 them. So I didn't --

5 **DR. MAKHIJANI:** Okay, so it was sort of, in a
6 way, a -- a fairly random --

7 **DR. ULSH:** Yes, yes.

8 **MR. MEYER:** Yes, Scott -- Scott had no agenda
9 at all.

10 **DR. MAKHIJANI:** My -- my feeling, Mark, is it's
11 not a glass half full/half empty. I think I'm
12 more in John's corner, that if you have done --
13 if you have done a random check of 50 percent
14 of the file and found nothing, it's very
15 unlikely -- if you're -- it's possible you'll
16 find some problems in the other 40, but they're
17 not going to fall into a pattern of data
18 fabrication. I think -- I think that -- in --
19 I -- I -- there are some hunches I have about
20 what kinds of data fabrication problems that I
21 would hesitate to say them on the record, but --
22 -- because I -- because they're just hunches.
23 But what I will say is I think -- I think we
24 need to have a more selective -- if we're going
25 to do this cut across facilities and time

1 periods, we -- we do need to observe some rules
2 of random -- random sampling and -- and sample
3 a few names. And then -- out of the different
4 periods. And my -- my feeling is that we've
5 had a lot of complaints out of the later
6 periods -- obviously because we're hearing
7 people who are -- who worked in the later
8 periods. And if only for that reason, we ought
9 to be looking at these later periods to make
10 sure -- Ms. Munn has just said '85/'86, but I
11 think -- but I -- I think that from the '70s
12 through the '90s would -- would be an
13 interesting period to look at. But here we
14 didn't have '69, so we didn't cover the --
15 **DR. ULSH:** You're right, this -- the --
16 **DR. MAKHIJANI:** -- we didn't cover the --
17 **DR. ULSH:** -- Kittinger log --
18 **DR. MAKHIJANI:** And that's the year that I
19 would look at.
20 **DR. ULSH:** '69?
21 **DR. MAKHIJANI:** Yeah.
22 **DR. ULSH:** So Arjun's put a couple of --
23 **DR. MAKHIJANI:** (Unintelligible)
24 **DR. ULSH:** Arjun's put a couple of ideas on the
25 table. One I like -- well, sorry, that's not -

1 - that -- that didn't sound right. One I
2 especially liked -- one I especially liked, and
3 that is to look at a log book in particular in
4 '69. That is the year of interest. We might
5 want to make a non-random selection there.
6 That I think is a good -- is a really good
7 idea.

8 Now Wanda, where on the matrix were you looking
9 when you said 1985 and 6?

10 **MS. MUNN:** The end of item number 31.

11 **DR. ULSH:** Oh, okay.

12 **MS. MUNN:** It says NIOSH will review -- that --
13 that's the time frame given in --

14 **DR. ULSH:** Oh, this is the one, though, that
15 was in the -- Table 2 of that write-up, I
16 think, Kathy identified from the log, the
17 dosimetry problem log book.

18 **MS. MUNN:** Then it's done.

19 **DR. ULSH:** It's not done. It's not done. But
20 what I'm saying is that -- well, there's
21 another non-random selection that we might want
22 to make. We might definitely want to make, we
23 want to track those down.

24 And now you're talking -- Arjun, you also
25 mentioned the time periods '70 to '90?

1 at those. I -- I'm hearing that it may not be
2 worthwhile to continue to pursue the Kittinger
3 log, that we might be satisfied with the
4 analysis there, or we're not?

5 **MR. GRIFFON:** Oh, yeah, for Kittinger.

6 **DR. ULSH:** Okay, so we're done with --

7 **DR. MAKHIJANI:** I think it's not worthwhile to
8 do the rest.

9 **DR. ULSH:** Okay, we're done with this
10 particular Kittinger log. From the remaining
11 years, '69 especially but extending up to maybe
12 1990, we'll take a sample of the RCT, the daily
13 decon log books, and we'll try to identify
14 maybe five or ten external dosimetry or whole
15 body counts, something that we can bounce out
16 of HIS-- once -- bounce against HIS-20.

17 **DR. MAKHIJANI:** Now are you omitting the '90s
18 because it's decommissioning, or --

19 **DR. ULSH:** No, only because you said up to the
20 '90s.

21 **DR. MAKHIJANI:** No, I said '70s through '90s --
22 no, no.

23 **DR. ULSH:** Okay, so up to 2000.

24 **DR. MAKHIJANI:** Yeah.

25 **DR. ULSH:** All right. Does that sound like a

1 reasonable plan forward? I just want to make
2 this as specific as possible so that I give you
3 what you -- what you want.

4 **MR. MEYER:** Do you want to randomize the
5 selection, maybe, within the -- the notebook,
6 every ten pages?

7 **DR. ULSH:** Well, I'll just -- I'll just start
8 skipping through.

9 **DR. MAKHIJANI:** If you take every fifth name or
10 every tenth name, it's --

11 **DR. ULSH:** I'll just start skipping through
12 pages till I find --

13 **DR. MAKHIJANI:** -- automatically random.

14 **DR. ULSH:** -- you know, five or so or
15 something.

16 **DR. MAKHIJANI:** It doesn't have -- the
17 randomization of selection of names doesn't
18 have to be complicated because it -- it wasn't
19 made to be checked in this way, so if you just
20 pick every tenth name you're going to be all
21 right -- or however many you want to do.

22 **DR. ULSH:** Okay, I think that's an approach
23 forward that I can -- we can accomplish.

24 **MR. GIBSON:** Could I -- this is Mike. Could I
25 (unintelligible) this -- now what -- what kind

1 of selections are you talking about and how --
2 how late in time?

3 **DR. ULSH:** Well, we were going to go up to
4 2000, Mike -- that was Arjun's suggestion --
5 focusing on '69 because that was a year of
6 particular interest. But --

7 **MR. GIBSON:** Right.

8 **DR. ULSH:** -- up through 2000, you know,
9 through the '90s. What was your other
10 question, selection?

11 **MR. GIBSON:** I would just like to suggest that
12 there be a specific look at -- probably when
13 these sites -- well, Rocky, when Rocky went
14 from production to decommission, and
15 specifically when these common contractors who
16 -- they're through a revolving door -- some of
17 their top officials ended up in DOE offices in
18 Washington. I think some of these common
19 contractors -- you know, from that time frame
20 forward, be it the probably -- into the '90s, I
21 think it needs to look into the D&D phase as
22 far as the production phase.

23 **DR. ULSH:** That's a good point, Mike. I think
24 that transition occurred at Rocky Flats in the
25 -- in the early '90s.

1 **MR. FITZGERALD:** '92/'93.

2 **DR. ULSH:** So the time period that we've talked
3 about will include that D&D phase.

4 **MR. FITZGERALD:** The variables you're talking
5 about are the three log book types. The time
6 period -- time frame certainly is established.
7 And now this question about --

8 **MR. GRIFFON:** Areas.

9 **MR. FITZGERALD:** Areas? What are you going to
10 --

11 **DR. ULSH:** I don't know, let's talk about that.

12 **MR. GIBSON:** And are there -- are there log
13 books also available -- how many have you
14 retrieved from the '90 time frame -- or from
15 the '69 time frame up to the -- the current
16 time frame and are they available on the O
17 drive?

18 **DR. ULSH:** I can tell you what's available on
19 the O drive, Mike, and that is -- I don't know,
20 Kathy, how many were on that disk that you
21 requested, maybe -- maybe 10, 15-ish?

22 **MS. ROBERTSON-DEMERS:** Something like that.

23 **DR. ULSH:** Something like that, so that's an
24 order of magnitude, Mike, of what's posted
25 currently on the O drive, plus this Kittinger

1 log that we've been talking about.

2 **MR. GIBSON:** Right.

3 **DR. ULSH:** Now Bob is going to tell you maybe
4 how many log books have been retrieved.

5 **MR. MEYER:** Well, we -- you know, there are
6 thousands of log books available. It's that
7 size problem. We were just trying to remember
8 the number, and it's huge, so -- of all
9 different types --

10 **DR. ULSH:** Maybe what we can do is take a look
11 at the log books that are available. We'll
12 come up with some kind of a crite-- you know, a
13 list, and put it out to the working group and -
14 -

15 **MR. GRIFFON:** We should be able to narrow the
16 areas by the areas of most concern.

17 **MR. FITZGERALD:** Yeah, I think once -- once you
18 come up with the matrix and just say here --
19 here's the best sampling we could come up with.

20 **DR. ULSH:** I'm thinking the primary divisions
21 are plutonium and uranium.

22 **MR. GRIFFON:** Right, right.

23 **DR. ULSH:** Let's make it two areas.

24 **MR. FITZGERALD:** And as -- as Mike's pointing
25 out, D&D would be the 1990s. That would be a -

1 - a good place to look.

2 **DR. ULSH:** Okay.

3 **MR. GIBSON:** Right, after Bush announced the
4 end -- Bush One announced the end of the Cold
5 War.

6 **DR. ULSH:** We'll put together a plan and we'll
7 put it out to the working group and to SC&A,
8 and solicit your comments.

9 **MR. GRIFFON:** Yeah, that's fine.

10 **DR. ULSH:** Okay. Make a note of that.

11 **MR. MEYER:** It's a long note.

12 **DR. ULSH:** Yeah, I know. Okay, I -- it's
13 getting late. I think -- that was issue 31 --
14 31?

15 Thirty-two, concern that secondary dosimetry
16 logs, contamination control logs or foreman
17 logs include exposure information which is
18 inconsistent -- that's the same issue, I think.
19 Right?

20 **MR. FITZGERALD:** Same issue.

21 **DR. ULSH:** All right. Thirty-three -- oh, this
22 is the D&D workers, the D&D era. This was an
23 issue that -- Joe and I kind of looked at each
24 other after the Denver Advisory Board meeting,
25 after that -- that movie that showed and we --

1 like holy cow, what about the D&D era?

2 **MR. FITZGERALD:** Yeah, ten years worth of
3 (unintelligible).

4 **DR. ULSH:** Since then -- since then we
5 committed to extending the internal coworker
6 TIB through the D&D era. Dave Allen at NIOSH
7 has been working on that. He's actually
8 extended the table, but we haven't officially
9 incorporated that into the TIB. He just got
10 that finished last week. We'll be getting that
11 out to you. The external already goes through
12 that era.

13 We've talked about -- initially there was some
14 concern about BZ sampling and DAC-hour
15 tracking. I'm -- I'm going to look at Joe or
16 the rest of SC&A for confirmation here. I
17 think we discussed that at the last working
18 group meeting. What -- what concerns remain,
19 if any, about that topic?

20 **MR. FITZGERALD:** Well, yeah, I think the -- the
21 comments that were made by Roger and others
22 about the practice, and I think the sense that
23 rad worker 2-trained people -- who were the
24 only ones allowed to do active D&D -- in fact
25 were routinely bioassayed, I think that was

1 certainly the explanation. But I think the
2 comment was made -- maybe it was Mark -- and
3 the workgroup was saying that sounds fine. Can
4 we validate that by actually coming up with the
5 bioassay data that you can marry up with these
6 rad worker 2-trained people. That would
7 confirm that in fact the data exists and it --
8 it substantiates the fact that people who were
9 in fact involved with D&D, rad worker 2-
10 trained, were bioassayed routinely and not on a
11 special bioassay basis.

12 **DR. ULSH:** Okay, I understand what you're
13 saying.

14 **MR. FITZGERALD:** That was the -- that was the
15 remaining action out of that whole thing, I
16 think.

17 **DR. ULSH:** Okay.

18 **MR. GIBSON:** If -- to add to that -- and again,
19 at least getting back to the commonality of
20 DOE's favorite contractors, there was a routine
21 bioassay program -- at least at Mound -- that
22 was quarterly or monthly, depending on where
23 you were at. It was not RWP-driven or anything
24 else. That was specials. And then when they
25 went into the D&D phase, they went to DAC-hour

1 tracking -- at least at Mound, and I would like
2 to find out if they did this at Rocky, as well
3 -- to assign dose. And then they called --
4 they -- they kept what they called a routine
5 bioassay sampling program, but it was an annual
6 bioassay to substantiate the DAC-hour tracking
7 that they assigned dose with. So it's -- it's
8 a play on terms, it's semantics or whatever,
9 but I would just like to find out if that's
10 true at Rocky, just like it was at Mound
11 because that would have, to me, a very
12 important -- that would weigh heavily on my
13 deliberations.

14 **MS. MUNN:** Mike, it's Wanda. What -- what was
15 the termination you were using about -- before
16 tracking, what -- what name?

17 **DR. ULSH:** DAC-hour.

18 **MR. CHEW:** Device (unintelligible) air
19 concentration. They used that --

20 **MS. MUNN:** Oh, oh --

21 **MR. CHEW:** I'm sorry.

22 **MS. MUNN:** -- excuse me.

23 **MR. GIBSON:** I'm sorry, Wanda, I didn't hear
24 you.

25 **DR. MAURO:** Used (unintelligible), right?

1 **MS. MUNN:** That -- that's all right, yeah.
2 That's all right.

3 **DR. ULSH:** Mike --

4 **MR. GIBSON:** Hey -- I mean it was -- it was
5 commonly -- commonly -- I don't know how to
6 describe it. They would -- they would commonly
7 describe it as -- they would use that to
8 determine if you were expected to receive 100
9 millirem a year.

10 **MS. MUNN:** Yeah, I understand.

11 **MR. GIBSON:** And then they would put you in a
12 bioassay program. But what they actually used
13 was they would use the DAC-hour tracking to
14 assign the dose, and then that fell back to
15 what I brought up at a previous meeting that
16 they would sample one -- they didn't want to
17 buy a breathing air zone detector for every
18 worker, so they would put one on every four
19 workers who entered an area. And typically it
20 would be the RCT, the rad control tech. And as
21 I -- we discussed earlier, they may run in and
22 take a reading, you know, for 15 -- 15 seconds
23 every -- every hour, and then stand in the
24 corner while the workers did the work. So I'm
25 very concerned that there was missed or un--

1 under-reported exposure based on applying dose
2 from DAC-hour tracking they still went down the
3 road with all their paperwork saying we still
4 do routine bioassay. But they changed it from
5 monthly to annually. And I would just like to
6 know if these common contractors did the same
7 thing.

8 **DR. ULSH:** Mike, let me -- let me speak a
9 little bit about the experience at Rocky Flats
10 -- at least what I've heard of it. AT the last
11 meeting Gene Potter and Steve Baker -- Steve is
12 not on the line. Gene, are you still there?

13 **MR. POTTER:** Yes, sir.

14 **DR. ULSH:** Oh, you're in for the haul. I -- I
15 think Gene and Steve are the ones who commented
16 on the monitoring program during the D&D era at
17 Rocky, and Gene, please jump in here, but as I
18 understand it, DAC-hour tracking at Rocky was
19 used to trigger a special bioassay -- or to
20 trigger -- not a special bioassay, but to
21 trigger a bioassay. But that was on top of --
22 layered on top of the routine bioassay program
23 that all the rad worker 2 people were on. Is
24 that correct, Gene?

25 **MR. POTTER:** Yes, sir, you're correct. There

1 was always a routine bioassay program. In our
2 case it was annually for urine samples for the
3 rad workers who were in the program, and lung
4 counting as frequently as workload and
5 equipment and availability would allow, which
6 is -- ran something like 18 months on the
7 average, I would say. And DAC-hour tracking
8 was done in the buildings for their own work-
9 control purposes up until the last few years.
10 It always was a means of triggering special
11 bioassay if you received 40 DAC-hours because
12 that would be an indication that you could have
13 received 100 millirem. That was also confirmed
14 by fecal bioassay, which is the only thing we
15 had that was sensitive enough to detect down
16 into that range.
17 So in the later years, though, we went to a
18 program where we did assign some doses off of
19 DAC-hour tracking, and that would be cases
20 where the 40 DAC-hours, or whatever it was, was
21 accumulated over a fairly long period of time.
22 And then, for those of you who are familiar
23 with it, the -- that makes the -- if you do a
24 fecal sample over -- after a, you know, fairly
25 long period of time, that -- the results become

1 very ambiguous because it could have been a
2 chronic exposure, it could have been an acute
3 at the beginning of the period, it could have
4 been an acute the day before you collected the
5 sample; it was very sensitive to that. So in
6 those cases we would assign some doses off of
7 DAC-hour tracking, even though we did not do a
8 bioassay. But that was just (unintelligible).

9 **DR. ULSH:** Okay. Now let me clarify --

10 **MR. GIBSON:** Okay, and --

11 **DR. ULSH:** Let me jump in here and clarify that
12 that's -- what Gene has just told you is what
13 the site did. They assigned internal doses in
14 some cases based on DAC-hour tracking. But you
15 have to distinguish that from the way that
16 NIOSH does dose reconstructions. We would not
17 calculate internal doses based on DAC-hour
18 tracking. We would use the bioassay results.

19 **MR. GIBSON:** Okay. Well, let me -- this is
20 Mike again, and if I can, Brant, let me ask a
21 couple of questions. And one -- who was the
22 gentleman I was just talking to?

23 **DR. ULSH:** That was Gene Potter on the line.
24 Is that who you mean, Mike?

25 **MR. GIBSON:** Yes, okay. I'm -- Gene, did Rocky

1 have a monthly or quarterly bioassay sampling
2 program at any time, and when did it change and
3 go to the annual?

4 **MR. POTTER:** In the time frame I'm familiar
5 with, which is mid-'90s on till the end, the
6 routine program was as I just described. I
7 don't think there's any need to repeat it. And
8 the old means of detecting intakes that we were
9 concerned about, which was at a regulatory
10 level -- 100 millirem in a year -- you could
11 not do that with a routine bioassay. However,
12 you certainly could detect intakes that were of
13 a health concern by routine bioassay, so that's
14 why we used fecal sampling extensively for our
15 specials.

16 For the larger -- we had two tiers of potential
17 intakes. For larger ones, urine samples and
18 lung counting was collected, also.

19 **MR. GIBSON:** So you don't know if Rocky went
20 from a monthly or quarterly to this DAC-hour --

21 **MR. POTTER:** No, not -- no.

22 **MR. GIBSON:** Not to your knowledge.

23 **MR. POTTER:** Well, the -- no, not during -- not
24 for D&D or anything like you've described from
25 Mound. Very early on, from the records I've

1 that's one of the reasons why that change was
2 made. Because it drops off relatively rapidly,
3 unless you have a known intake that you collect
4 the sample within a few days of the intake,
5 then whether you collect a sample a month, a
6 quarter or a year later, you would calculate
7 the same dose, pretty much. And the DAC-hour
8 tracking went into effect in fact to try to
9 compensate for that, because it's what DOE
10 termed a technology shortfall in that the --
11 the bioassay method that was in use, which was
12 urine sampling, was not capable of detecting
13 the requirements in the order or in the rule.
14 And so DAC-hour tracking was put into place to
15 try and catch the smaller intakes, at which
16 time then -- you know, when you reached a
17 certain level, then you could take a bioassay
18 sample. So -- so like I said, going from
19 quarterly to an annual sample is not going to
20 cause you to miss any more dose, unless you
21 happen to collect the quarterly sample within a
22 few days of having an intake.

23 **MR. GIBSON:** Okay. Then, again, let me throw
24 this question out a different way and -- and I
25 don't know that it happened at Rocky, but given

1 the fact that I've seen the health physics
2 people jet back and forth between Rocky and
3 Mound, between the common contractors in the
4 D&D days, number one, did they put a breathing
5 air sampler on every worker or did they do it
6 on say one out of every four, is one question -
7 - or two questions.

8 And number two -- number three -- and a lot of
9 times, you know, it was the hourly workers
10 being in a full-face mask or a bubble suit or
11 whatever else or whatever they were in, they
12 didn't want the extra weight of carrying this
13 device so the RCT wore it and stood in the
14 corner while the people had their face in the
15 work, and the RCT would walk up ever once in a
16 while. Now you know, that, to me, would not
17 show an accurate dose of record. And number
18 two, you have to question accuracy of the BAZs.
19 The reason they didn't want to buy them,
20 obviously, is the cost and the batteries. And
21 once you're in there for a while and the
22 batteries wear down, are they going to take an
23 accurate reading?

24 And I'm sorry it's a five or six-stage question
25 and I -- I don't mean to belabor things but...

1 **DR. ULSH:** Well, Mike, it seems like you're --
2 you're pretty concerned about some aspects of --
3 -- of BZ sampling. But the point I want to come
4 back to is that's not what we rely on for dose
5 reconstruction -- for NIOSH dose
6 reconstruction. We rely on the bioassay
7 results, so --

8 **MR. GRIFFON:** Well, and that -- that gets to
9 the heart of my question, which is much
10 (unintelligible) than where we've gone so far,
11 which is do all these people have annuals even?
12 You know, if they have annuals, then you've got
13 a data point and you can reconstruct dose, in
14 my opinion.

15 **MR. GIBSON:** What'd you say, Mark -- Mark --

16 **MR. GRIFFON:** The question is -- the question
17 is did --

18 **MR. GIBSON:** -- could you repeat that?

19 **MR. GRIFFON:** I'm saying, you know, they --
20 they did go to an annual program, Mike, and --
21 and, you know, they -- the question of
22 sensitivity -- you know, we can debate that a
23 little, but -- but at the end of the day, for
24 NIOSH's DR purposes, if they have data, you
25 know, annually to the end of their career, then

1 they can reconstruct internal doses because
2 they'll -- they'll -- they'll just assign the -
3 - even if it's less than the MDA value, they'll
4 assume MDA and back-calculate from there an
5 intake.

6 My question more was did some of the
7 subcontractors and others -- I guess two prongs
8 on this, since we're getting into multiple
9 level questions -- were -- were all the subs
10 included, but secondly, my experience tells me
11 that rad worker training depended on how rad
12 areas were defined, and that is very -- at some
13 sites that could be a very big issue. Rad work
14 issues were defined, and then the areas started
15 to be ripped out and they realized -- oh, God,
16 all of a sudden we've got a rad area. We
17 should have had these people on -- you know --
18 so there are those issues, too. But I mean sub
19 -- subs were the big issue. And then the rad
20 worker -- if the rad worker 2 training was the
21 criteria to get in the monitoring program,
22 which it seems to be stated, can we cross-check
23 that and see. Did those people have da-- is
24 there data there for these people and can you
25 use your regular method to reconstruct dose.

1 That's the question. Or do you have to go over
2 to this air sampling data, which we're -- would
3 be a little more concerned about, you know.

4 **MR. GIBSON:** And tasks, this -- and you know, I
5 -- you know, I trust your judgment, Mark, but I
6 -- and I'm not a health physicist, but if I
7 have an annual bioassay and at the end of the
8 year it turns up that -- so many picocuries or
9 nanocuries or whatever else, does that mean I
10 got the dose the day before or does that mean
11 that I got the dose a year ago and I have -- I
12 have been excreting this and -- and -- wouldn't
13 that change the amount of dose a person got?

14 **MS. BRACKETT:** What we do for this project,
15 given unknown intake dates, which is the case
16 for most of the -- well, for pretty much all
17 the claims that we get --

18 **MR. GIBSON:** I'm sorry, I still can't hear you.

19 **DR. MAURO:** We got to get more microphones in
20 here.

21 **MS. BRACKETT:** Yeah, I have two microphones in
22 front of me. What we assume on this project,
23 because we generally don't know when an intake
24 occurred, is a constant chronic intake for
25 people. So we assume that person started

1 intakes on the day -- their first day of
2 employment and continue all the way through the
3 end of their employment, and that pretty much
4 approximates a series of acute intakes, given -
5 - given the lack of any other data. Certainly
6 if we knew of a particular incident date that
7 the person had, we would use that. But in
8 general we just assume chronic exposure for all
9 the working history.

10 **MR. GRIFFON:** And we -- we've cross-checked
11 this with Jim Neton and -- I'm missing his name
12 right now, but --

13 **DR. ULSH:** Dave Allen.

14 **MR. GRIFFON:** -- Dave Allen, and we've gone
15 down this path before. And it does -- you
16 know, we -- we've --

17 **DR. MAURO:** It works.

18 **MR. GRIFFON:** -- looked at acutes right after
19 the -- you know, bioassay sample an acute the
20 day after and then a year later and still
21 chronic pretty much approaches the same values,
22 so I -- I think that does work, Mike. I think
23 there is a question, though, if all that data's
24 there for all those people or --

25 **DR. ULSH:** Okay, that's a -- that's a good

1 question.

2 **MR. GIBSON:** Again, I just wanted to -- I mean

3 --

4 **MR. GRIFFON:** Yeah.

5 **MR. GIBSON:** -- Mark, you know -- if you
6 remember when we were going through the
7 actinium thing at Mound, they said, you know,
8 we haven't tested these bioassay samples and if
9 we test them now and they come under the MDA,
10 all we can tell you is you haven't had 100 rem
11 of exposure.

12 **MR. GRIFFON:** Right, right.

13 **MR. GIBSON:** So that's -- that's why I'm --

14 **MR. GRIFFON:** That would be -- Mike, that --

15 **MR. GIBSON:** That's what got my -- and again,
16 I'm not a health physicist --

17 **MR. GRIFFON:** But that -- Mike, that's not --
18 that's the exact same thing as here, because in
19 that case you were talking about those samples
20 sitting around for several -- what was it, two
21 years or -- I forget the time frame, but those
22 samples were not analyzed for years --

23 **MR. GIBSON:** Right.

24 **MR. GRIFFON:** -- and they were saying, worst
25 case, if they had an acute intake two years

1 prior to these being analyzed, then the worst
2 case dose could have been X, and that same sort
3 of thing would be applied here, according to
4 Liz and -- and Brant. That's what they're
5 saying is that --

6 **MR. GIBSON:** Okay.

7 **MR. GRIFFON:** -- if they don't know any
8 different, they're going to assume that
9 conservative model to extrapolate in between
10 data points.

11 **MR. GIBSON:** Okay, I'm just not understanding
12 this health physics stuff, so...

13 **MR. GRIFFON:** Good questions, though.

14 **DR. ULSH:** Mark, I would like to go to your
15 questions about --

16 **MR. GRIFFON:** Yeah.

17 **DR. ULSH:** -- who was -- who was included in
18 the monitoring program. Gene, I -- I could
19 almost swear that at the last meeting either
20 you or Steve said that the subs' dosimetry
21 records were collected. Is that the issue that
22 you're concerned about, Mark, that -- that we
23 wouldn't maybe have all their dosimetry
24 records?

25 **MR. GRIFFON:** Well, we -- we heard the policy

1 approach, and I guess all I was asking is that
2 let's verify that the policy was practiced.

3 **DR. ULSH:** Okay. So given that concern, do you
4 have any ideas on how we could address your
5 concern? I --

6 **MR. GRIFFON:** Yeah.

7 **DR. ULSH:** -- mean it's going to be tough to
8 identify subcontractors from others, I think.
9 Do we have an easy way to do that?

10 **MR. GRIFFON:** Well, you need ro-- you need
11 rosters from DOE, probably, and I'm not sure --

12 **MR. CHEW:** Gene, this is Mel. Can you speak to
13 that, what Brant just asked?

14 **MR. POTTER:** Yes, it's possible to identify
15 subcontractors by company name in the site
16 database.

17 **DR. ULSH:** The site database, okay. Is that --
18 Gene, is that something that we can access
19 easily and in a timely --

20 **MR. POTTER:** HIS-20.

21 **DR. ULSH:** Oh, HIS-20, okay.

22 **MR. POTTER:** Yeah, there's a -- there's a
23 company name field in HIS-20.

24 **DR. ULSH:** Okay. So --

25 **MR. GRIFFON:** Maybe you can add that onto our

1 identified database when you get it posted.

2 **DR. ULSH:** I know, I know.

3 **MR. CHEW:** We were doing that for the
4 construction --

5 **MR. GRIFFON:** I got beat up on the log books,
6 so...

7 **DR. ULSH:** Mark, so -- given that we can do
8 that, we can identify subcontractors, what
9 would you like to see us do in terms of -- like
10 pick a sample of them and show that there are
11 dosimet-- bioassay results for them?

12 **MR. GRIFFON:** I think -- there's a certain
13 time period -- I mean I'm asking as much as --
14 I'm not telling, I'm asking, is there a time
15 period after which it was only D&D operations
16 at the site?

17 **MS. MUNN:** '92.

18 **DR. ULSH:** '92, I think.

19 **MR. GRIFFON:** '92, right? So I mean I would
20 say post-'92 you can truncate the database that
21 way, and then --

22 **DR. ULSH:** So pick a sample of people who are
23 identified in HIS-20 as being subcontractors --

24 **MR. GRIFFON:** Subcontractors and -- and are --
25 I mean is there any field that says they were

1 RW2-trained?

2 **DR. ULSH:** How about that, Gene?

3 **MR. GRIFFON:** HIS-20.

4 **DR. ULSH:** Is there a way to easily identify
5 who was RW2-trained?

6 **MR. POTTER:** Now what I'm talking about in HIS-
7 20 would be people who were in the dosimetry
8 program, so we can't compare it to people who
9 were not in the dosimetry program.

10 **MR. GRIFFON:** Right, right, right, so you've
11 got HIS-20, yeah. Then you really need
12 rosters. Right? You need site rosters more
13 than dosimetry rosters -- and they exist. I
14 mean we get it in our medical surveillance
15 program, so they do have site rosters --
16 subcontractors have rosters. They're usually a
17 little more difficult --

18 **MR. POTTER:** Now I think I've talked about this
19 before, but just to maybe mention it again, how
20 people got into the internal dosimetry program
21 was when they were issued an external dosimetry
22 badge, which most areas that anyone would be
23 concerned about on site required an external
24 dosimeter right up till the very end. And
25 people, when they would come to get a badge, if

1 they were rad worker 2, they were sent to
2 internal dosimetry and put into the program.

3 **DR. BEHLING:** How about rad worker 2 training
4 rosters? You just mentioned earlier that that
5 was a requirement for decon work. Can you look
6 at the rad worker 2 training records and then
7 determine who was incorporated into the
8 bioassay program?

9 **MS. MUNN:** (Unintelligible)

10 **DR. BEHLING:** That would be an independent
11 method.

12 **DR. ULSH:** Okay, so I guess what we would be
13 looking for is anyone -- anyone who was rad
14 worker 2-trained that didn't have bioa--
15 bioassay results. That would give us a special
16 interest. Is that right? Is that kind of what
17 you're getting at?

18 Gene, what about the availability of rosters of
19 people who received RW2 training. Is that
20 readily available?

21 **DR. BEHLING:** Should be available.

22 **MR. POTTER:** All of that -- all of that type of
23 information I would assume is archived. We
24 used to have that -- access on-line when we had
25 a site. No longer available, you know,

1 electronically, but I would think that yes,
2 that's archived someplace.

3 **DR. ULSH:** Okay, so how about I commit to do
4 this, Mark. We will work with Scott Raines and
5 Andrea Wilson to try to find rad worker 2
6 training rosters for the time period in
7 question here, the -- after '92. We will also
8 work with them to try to identify site rosters
9 for which we could I guess pick out who was the
10 subcontractor. And then we'll report back to
11 you on our success in getting those.

12 **MR. GRIFFON:** Okay.

13 **DR. ULSH:** Assuming that we get them, then the
14 next step --

15 **DR. MAURO:** Then there's the bioassay, where
16 does that fit into that, those two lists, so --

17 **DR. ULSH:** Yes, assuming that we get those,
18 then the next step is to go after their
19 bioassay data.

20 **DR. BEHLING:** One -- one last question. In
21 addition to annual bioassay, was it a policy to
22 give everyone an exit bioassay on termination?

23 **MR. CHEW:** Gene, did you hear the question?

24 **MR. POTTER:** No, I didn't hear it.

25 **MR. CHEW:** Hans -- Hans --

1 **DR. ULSH:** Did everyone get a termination
2 bioassay, Gene?

3 **DR. BEHLING:** Yes, in addition to annual, was
4 it a policy to give everyone a termination or
5 exit bioassay?

6 **MR. POTTER:** Yes, that was the policy. Well,
7 we kind of -- we kind of talked about this
8 before, too, and basically when someone walks
9 out the door, they were given the opportunity
10 to have a bioassay. They could refuse the
11 bioassay, because all you could do was issue
12 them a kit. You couldn't hold a gun to their
13 head and have them actually fill it.

14 **DR. BEHLING:** Yeah, I remember reading --

15 **MR. GIBSON:** Yes, I know, that's what you said
16 before, but--

17 **DR. BEHLING:** -- that this was a problem, that
18 some people simply didn't respond.

19 **MR. GIBSON:** -- this is Mike and I would just
20 like to say that, you know, a roster is almost
21 what you're going to have to have rather than
22 RW2 training, because I know for the
23 accelerated clean-up sites -- the Rocky, the
24 Mound, Fernald -- that, you know, DOE put in
25 their plan, and I know I'm getting deeper into

1 politics and this and that, but as it came down
2 toward the end they started trying to rush in
3 more contractors to help do this work and, you
4 know, reduce the cost, supposedly. And Mound
5 is still not officially closed. It's like \$434
6 million over-budget from what it was supposed
7 to have been done and -- last year. Rocky did
8 I guess meet its date, according to Tony,
9 working 24/7 with contractors. So they
10 deposited a lot of areas and just acted like it
11 was a demolition rather than a radiological
12 clean-up. So they're -- you know, I -- I can't
13 speak specifically for Rocky, but I know for
14 Mound there was a lot of people that just --
15 contractors that came in and just thought they
16 were doing a demolition job when they may in
17 fact have been doing a radiological demolition
18 job.

19 **MR. GRIFFON:** I mean I just think we need to
20 check this. The subs are a possible place that
21 they might have fallen through the cracks, and
22 if it's a few, that's one thing. But if it's
23 many -- or hundreds, you know, that's another
24 thing I think. If they all -- if a large
25 majority of them had a termination survey -- I

1 don't disagree with you that a large majority
2 of them had a termination bioassays, then I
3 think you're pretty much -- you at least have a
4 data point to work with, you know, so --

5 **DR. ULSH:** So does that sound like a reasonable
6 course of action, that we'll get back to you
7 with the availability of these rosters?

8 **MR. GRIFFON:** Right. And I would say you
9 might even look at HIS-20 -- ahead of time look
10 at post-'92 HIS-20 and do a query on names
11 versus number of bioassay samples for -- for
12 the years they were there. And you might come
13 to some conclusions before we get too far down
14 the path, too. You might -- of course that's
15 the people that were in the program, I
16 understand, but as a first step, maybe that
17 might be of use.

18 **DR. ULSH:** So you want --

19 **MR. GRIFFON:** Or if you find that you have,
20 you know -- I don't know how many people were
21 there, but if you have 2,000 people and you
22 only have 1,000 bioassay samples, well, right
23 away you see -- you can see some problems, you
24 know, 'cause you've got specials in there and
25 everything, so everybody -- you know, if they

1 were there -- you know, '92 to 2000.

2 **DR. ULSH:** So what you're asking then is that
3 we look, from the '92 to 2005-ish period that -
4 - the D&D era, you would like us to look at --
5 give you some kind of a feeling for how many
6 bioassay points the people who worked --

7 **MR. GRIFFON:** Yeah, maybe query that database.

8 **DR. ULSH:** -- in those years had.

9 **MR. GRIFFON:** That's a -- that's a easier
10 thing than trying to find this data that you're
11 asking for the rosters and RW2 training logs.

12 **DR. ULSH:** I think that's something we could
13 easily do.

14 **MR. GIBSON:** This is Mike again, and I would
15 also request not only -- 1992 the D&D started,
16 that -- it wasn't until I don't believe 1997,
17 '98, '99, somewhere in that time frame that
18 this accelerated clean-up program started by
19 Jesse Roberson* and Bob Card*, and I think
20 probably from that time frame forward you
21 should see the dif-- look at a roster and see
22 the difference. If Rocky had, you know, 500
23 contractors since 1992 and in 1999 they had
24 1,000 contractors, I think you me -- may need
25 to compare that to the database, too.

1 **DR. ULSH:** Well, I think we would include those
2 years, Mike, starting in '92 and then going all
3 the way forward to the end of D&D.

4 **MR. GIBSON:** To today -- today's date, yes.

5 **DR. ULSH:** Well, the end of D&D. I mean that
6 was 2003.

7 **MR. PRESLEY:** 2003.

8 **MR. GRIFFON:** That's a good point, though,
9 Mike. There might have been different --

10 **DR. ULSH:** Sure.

11 **MR. GRIFFON:** -- change in the program there,
12 yeah.

13 **DR. ULSH:** We'll include those years.

14 **MR. GRIFFON:** So we have our action for that
15 one?

16 **DR. ULSH:** Yes, I think so.

17 **MR. GRIFFON:** I got a note -- Joe had to leave,
18 but I have a note for one -- one last thing, I
19 think -- or -- or we also want to hear from
20 your listing -- right? -- of these other -- or
21 is that ongoing?

22 **DR. ULSH:** That's ongoing.

23 **MS. JESSEN:** That's ongoing.

24 **MR. GRIFFON:** An ongoing investigation, right?
25 One other thing that Joe left me a note on

1 which we -- we talked about earlier and we
2 deferred it to later discussions and never got
3 to was the '69/'70 -- the disposition and
4 validation of zeroes resulting from sideline
5 workers, it says on his note. And this was the
6 -- Ron, I think he -- yeah, he asked you to
7 maybe speak to this a little bit, the zeroes.
8 This is not the other '69 question. Remember,
9 we said the zeroes is a different thing, we'll
10 talk about it later?

11 **DR. ULSH:** Yeah, we had the blanks. That's a
12 separate thing. Now we're talking about
13 zeroes.

14 **MR. GRIFFON:** Zeroes.

15 **MS. JESSEN:** Zeroes were in 1972.

16 **MR. GRIFFON:** Maybe it was '70s, but Ron,
17 yeah, go ahead.

18 **MR. BUCHANAN:** Yeah, that -- '69 and '70s, as
19 this chart I think most of you have shows, that
20 -- I had no explanation for it, but it did
21 raise kind of a red flag why we went along with
22 about ten percent zeroes, and then suddenly for
23 '69 and '70 we ran about 35 percent zeroes, 36
24 percent zeroes. And then the next five years
25 dropped back down to about ten percent zeroes

1 in the external badge dosimetry program. And
2 we -- we wanted to see why -- you know, was
3 there some -- were these zeroes blanks or were
4 they zeroes, were they -- were they monitored
5 at less than detectable limits or were they not
6 monitored and zeroes were entered. It just
7 seemed like an abnormality that we wanted to --
8 to address.

9 **DR. ULSH:** I think what -- what we discussed
10 the last time -- there's an event that happened
11 right around then that would be very consistent
12 with what you're seeing and that is the
13 cessation, temporarily, of plutonium duties due
14 to the fire -- the big fire in, I can never
15 remember -- Mother's --

16 **MS. MUNN:** May of 1969.

17 **DR. ULSH:** Yes, that was the area on the site
18 that contained the higher exposure jobs. Of
19 course after the Mother's Day fire, those
20 operations shut down until they could clean up
21 and -- and repair.

22 **MR. LITTLE:** Also had a strike in '70, I
23 think.

24 **DR. ULSH:** And there was a strike in '70 -- in
25 1970.

1 **DR. ULSH:** But going back to the '69 fire,
2 those workers who ordinarily worked in those
3 fairly high dose rate jobs, relatively
4 speaking, were then reassigned into other jobs
5 where the dose rates were much lower. So that
6 would be consistent with a --

7 **MR. GRIFFON:** And you've -- you've
8 investigated that? I mean I -- I would have
9 assumed that mo-- a lot of those workers would
10 have also been involved in the cleanup of the
11 fire.

12 **DR. ULSH:** Well, they might have been involved
13 in the cleanup, Mark, but even there you
14 wouldn't expect the dose rates to be as high as
15 during plutonium production activities.

16 **MR. GRIFFON:** Right, but they wouldn't have
17 been zeroes probably.

18 **MR. LITTLE:** No, but certainly not all of those
19 (unintelligible) just a percentage we're --

20 **DR. ULSH:** Just the percentage went up.

21 **MR. LITTLE:** Some of them -- some of them were
22 not involved.

23 **MR. GRIFFON:** One possible -- one possible
24 explanation.

25 **DR. ULSH:** It's a possible explanation that's

1 consistent. I can't say that that's --

2 **DR. MAKHIJANI:** Brant, how long was the strike?

3 **DR. ULSH:** It occurred in the summer of 1970, I
4 think. Roger, do you know?

5 (No response)

6 Wake up, Roger.

7 **MR. CHEW:** He's coming on.

8 **MR. FALK:** I'm -- I'm thinking it lasted about
9 three months.

10 **DR. ULSH:** In 1970, summer?

11 **MR. FALK:** Or -- or possibly two and a half
12 months, in the summer of 1970.

13 **DR. MAKHIJANI:** So it was quite long.

14 **MR. BUCHANAN:** How long did the fire displace
15 the plutonium production -- how long a period?

16 **DR. ULSH:** Do you know when the plutonium
17 production operations resumed, Roger -- or
18 anybody?

19 **MR. MEYER:** About a year and a half.

20 **MR. CHEW:** It was about a year and a half.
21 I think they were cleaning up even after two
22 years, but they started production in the other
23 areas, so you're talking about
24 (unintelligible).

25 **MR. FALK:** Let me -- let me add one thing to

1 that. It was transferred to Building 707,
2 which had the engineered -- which had the --
3 which had the engineered shielding and also had
4 the modularization, so it was a much better-
5 controlled external dose type of situation,
6 also.

7 **DR. MAKHIJANI:** But then the -- but then the
8 percentage of zeroes should not have gone down
9 after 1972. That would be a reason for a high
10 percentage of zeroes to continue, so that --
11 that can't possibly be an explanation.

12 **MR. FALK:** Well, I'm not -- I've not -- I'm not
13 answering that question. I was answering the
14 question when did the plutonium metal
15 production resume, and it basically resumed
16 when they got Building 707 on line, and just
17 pointing out that it would be a lower dose rate
18 than what they had experienced in buildings 77
19 -- 76 and 77. I don't have the other answer
20 about the number of zeroes.

21 **DR. ULSH:** The do-- it could be consistent --
22 everything you're saying could be consistent.
23 The dose rates could have been lower starting
24 in 707 and later years, but not zero, so --

25 **MR. GRIFFON:** I think the other possibility

1 here is -- is you've got a couple of files of
2 data from '69. Right?

3 **DR. ULSH:** Yes.

4 **MR. GRIFFON:** Raw records?

5 **DR. ULSH:** Yes.

6 **MR. GRIFFON:** So maybe -- I hate to put -- put
7 stock into records I haven't seen, but maybe
8 these'll answer some of these questions. I
9 mean if we have raw data to compare to the
10 database --

11 **DR. ULSH:** It could -- yeah.

12 **MR. GRIFFON:** -- they can at least tell us that
13 it wasn't -- you know, zero it out in the
14 database accidentally or inadvertently or
15 whatever.

16 **DR. ULSH:** That's a possibility.

17 **MR. BUCHANAN:** Well, can you tell the
18 difference between zero entry and -- and not --
19 not monitoring blanks in '69 and '70?

20 **MR. MEYER:** Yes, that dataset shows a code, a
21 01 code where a badge was not returned, and it
22 shows zeroes where the badge was read as
23 zeroes. It actually has blanks and a 01 code
24 where the badge was not returned -- at least
25 the 100 or so I've looked at so far that are --

1 are coded 01.

2 **MR. GRIFFON:** So you can make a distinction.

3 **MR. CHEW:** That's good, yeah.

4 **MR. MEYER:** And also there are codes that were
5 -- were --

6 **MR. GRIFFON:** That's in the raw records where
7 you can make that distinction?

8 **MR. MEYER:** Handwritten raw records.

9 **MR. GRIFFON:** Not in the database.

10 **MR. MEYER:** No, it's in the raw records.

11 **MR. GRIFFON:** So that's another way we can
12 check that. I guess that's a follow-up on that
13 item -- right? -- is to check the raw records.

14 **DR. ULSH:** Oh, yeah, yeah, for sure.

15 **MR. GRIFFON:** But I don't know that there's
16 any other follow-up, is there?

17 **DR. ULSH:** Help me out, what do you mean,
18 follow-up on...

19 **MR. GRIFFON:** Follow-up on the '69/'70 ze--
20 you know, this higher percentage of zeroes.

21 **DR. ULSH:** Well, I don't -- I don't know.

22 **MR. GRIFFON:** I mean you've given your
23 possibil-- possible explanations.

24 **MR. BUCHANAN:** I did -- what about internal
25 dose? It might just be helpful to shed some

1 light on it. Did the internal dose follow the
2 same scenario, and I haven't seen any results
3 and I don't know how to get ahold of that. But
4 if we could compare it with internal and see if
5 it's -- verifies it or contradicts it.

6 **DR. ULSH:** I don't know the answer to that,
7 Ron.

8 **MR. BUCHANAN:** That would be one suggestion
9 that might help shed light on it.

10 **MR. MEYER:** I don't have an answer for that.

11 **MR. GRIFFON:** And you would look at a sort of
12 percentage of less than detectables for
13 plutonium for that time period or...

14 **MR. BUCHANAN:** Yeah, for whatever they were
15 doing for bioassay and see if it came along
16 with a large percent of zeroes. That would
17 enforce the fact that the workers weren't in a
18 radiation area. If the bioassays remained
19 fairly constant during those 12 years,
20 including '69 and '70, well, then that would
21 kind of not reinforce.

22 **MR. CHEW:** You mean positive bioassays?

23 **MR. BUCHANAN:** Right.

24 **DR. ULSH:** But it's -- it's possible that if
25 they weren't working in plutonium areas, then

1 they wouldn't have been getting plutonium
2 bioassay during that period. What do you
3 think, Roger, is that...

4 **MR. GRIFFON:** They wouldn't have stayed on
5 some -- some program --

6 **DR. ULSH:** I don't know. I really don't know,
7 I'm just saying that --

8 **MR. BUCHANAN:** Well, we can look at see if the
9 number of positive bioassays -- the percent of
10 positive bioassays --

11 **MR. CHEW:** These are -- these are not the
12 (unintelligible) --

13 **DR. MAKHIJANI:** We can see a number of bio--
14 these are -- (unintelligible) some with number,
15 but we can see whether the number went up or
16 down. In '68, '69 and '70 the number of -- the
17 number of bioassays didn't go down in '69 and
18 '70 compared to '68. They went up -- they --
19 they went up in '71.

20 **MR. CHEW:** But these are just the number of
21 bioassays, not the (unintelligible).

22 **DR. MAKHIJANI:** Just the number.

23 **DR. ULSH:** Well, that might argue against what
24 I was saying, that they might not have been --
25 they might have just kept on --

1 **MR. GRIFFON:** Maybe we could look at that --
2 Those two things, look at the raw data for the
3 external and the internal (unintelligible) time
4 period.

5 **DR. WADE:** Okay.

6 **MR. GRIFFON:** And let's see if there was
7 anything else. I think -- I think we're
8 wrapped up. Right? We're all ready to wrap
9 up, anyway.

10 **FUTURE PLANS**

11 **DR. WADE:** He needs to talk briefly about a
12 path forward. You know, when does the working
13 group want to come back together, what would it
14 like to see at that point. You know, we have
15 the call coming up on August the 8th, and then
16 we have the mid-September meeting in Nevada,
17 where it's the hope that Rocky Flats could be
18 voted out -- could possibly be voted out, the
19 SEC petition, so it's up to you, Mark, to think
20 about --

21 **MR. GRIFFON:** Yeah, I mean I -- I think we
22 need another meeting at the end of August or
23 so, and maybe -- and then I would -- I would
24 like to shoot for the end of August, and then
25 if we need something between the end of August

1 and September 15th, whenever the meeting is,
2 maybe we can do a call or whatever, you know,
3 something -- a final phone call meeting.

4 **DR. ULSH:** And given where we're at in the
5 process, we'll be pumping things out as we
6 finish them. We aren't going to hold them
7 until the workgroup meeting, so --

8 **DR. WADE:** Do you want to tentatively pick a
9 date?

10 **MR. GRIFFON:** Yeah, let's --

11 **DR. MAKHIJANI:** Are we talking physical --
12 present -- meeting like this?

13 **MS. MUNN:** I'm assuming, yeah. We have one
14 meeting here on the 22nd. Right? And we have
15 a --

16 **DR. MAKHIJANI:** In August?

17 **DR. WADE:** Savannah River Site is in --

18 **MS. MUNN:** Savannah River Site.

19 **DR. MAKHIJANI:** 27th is a Sunday.

20 **MS. MUNN:** 22nd.

21 **DR. MAKHIJANI:** Oh, 22nd. I'm sorry.

22 **MS. MUNN:** And then we've got a phone call on
23 the 23rd, which could be overridden, I suppose,
24 move it.

25 **DR. WADE:** Nevada Test Site is 1:00 p.m. on

1 the...

2 **MR. PRESLEY:** That's going to be kind of hard
3 to get -- have to meet here and then get home
4 for this. You know, it may be that we have the
5 Nevada Test Site meeting here.

6 **UNIDENTIFIED:** Three-day meeting.

7 **MS. MUNN:** Might be simpler, if we're going to
8 do this on the 24th.

9 **MR. PRESLEY:** I can't be here on the 24th.

10 **MS. MUNN:** Oh, you can't.

11 **DR. WADE:** What about -- I mean I also assume
12 another week for you to get things together
13 will make it a more productive meeting.

14 **MR. GRIFFON:** I think so, too. I was looking
15 at the very end --

16 **DR. WADE:** 29th, 30th?

17 **MR. PRESLEY:** Yeah.

18 **DR. WADE:** Pick one, Mark. What day of the
19 week -- what day of the week is easiest for
20 you?

21 **MR. GRIFFON:** How about the 31st?

22 **DR. WADE:** Okay, August the 31st, tentatively a
23 meeting here in Cincinnati -- the 31st, anybody
24 have any issue with that? So tentatively
25 August the 31st here in Cincinnati, working

1 group meeting on Rocky Flats. That squeezes
2 every bloody day out of August.

3 **DR. ULSH:** I have one final note. I handed out
4 a lot of material here that contains Privacy
5 Act information. You're welcome to take that
6 home, but if you don't, please return it to me
7 and I'll make sure it's shredded.

8 **MS. MUNN:** I'd rather (unintelligible).

9 **DR. ULSH:** I won't take it personally, Wanda.

10 **MR. GRIFFON:** The meeting is official
11 adjourned.

12 **DR. WADE:** What about -- what time tomorrow
13 morning?

14 **MR. GRIFFON:** The time for tomorrow morning --
15 is anybody tra-- I mean does anybody need --
16 traveling in to the meeting, Lew, do you know?
17 'Cause we said 9:30, but if everyone's here
18 already --

19 **DR. WADE:** I told Stu just a moment ago to come
20 at 8:00, and you know -- but that doesn't mean
21 we have to start at 8:00, but -- so Stu'll be
22 here at 8:00 representing NIOSH. I think the
23 rest of the principals are here.

24 **MR. GRIFFON:** Well, let's start at 8:00, is
25 that --

1 **MR. PRESLEY:** 8:00?

2 **DR. MAKHIJANI:** I'll be a little late. I have

3 --

4 **DR. BEHLING:** You're supposed to be on first to
5 discuss the...

6 **MR. GRIFFON:** Let's say 8:30 then.

7 **MS. MUNN:** 8:30.

8 **DR. WADE:** 8:30.

9 **MS. BRACKETT:** The web site says 8:30. That's
10 what it said on the OCAS web site.

11 **DR. WADE:** 8:30 tomorrow morning.

12 (Whereupon, the working group concluded its
13 business at 6:10 p.m.)

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CERTIFICATE OF COURT REPORTER**STATE OF GEORGIA****COUNTY OF FULTON**

I, Steven Ray Green, Certified Merit Court Reporter, do hereby certify that I reported the above and foregoing on the day of July 26, 2006; and it is a true and accurate transcript of the testimony captioned herein.

I further certify that I am neither kin nor counsel to any of the parties herein, nor have any interest in the cause named herein.

WITNESS my hand and official seal this the 9th day of August, 2006.

STEVEN RAY GREEN, CCR**CERTIFIED MERIT COURT REPORTER****CERTIFICATE NUMBER: A-2102**