

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

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ADVISORY BOARD ON RADIATION AND
 WORKER HEALTH

+ + + + +

WORK GROUP ON BROOKHAVEN NATIONAL LABORATORY

+ + + + +

FRIDAY
 JANUARY 21, 2011

+ + + + +

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

PRESENT:

JOSIE BEACH, Chair
 HENRY ANDERSON, Member*
 BRADLEY P. CLAWSON, Member
 WANDA I. MUNN, Member
 GENEVIEVE S. ROESSLER, Member*

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ALSO PRESENT:

TED KATZ, Designated Federal Official

TIMOTHY ADLER, ORAU Team*

RON BUCHANAN, SC&A*

GRADY CALHOUN, DCAS

LEO FAUST, ORAU Team

JOE FITZGERALD, SC&A

JENNY LIN, HHS

JIM NETON, DCAS

KATHY ROBERTSON-DEMERS, SC&A*

*Participating via telephone

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C-O-N-T-E-N-T-S

	<u>Page</u>
Welcome	4
Neutron Discussion - NIOSH/SC&A	8
Internal Data Discussion - NIOSH/SC&A	56
Path Forward	160
Adjournment	176

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

2 9:09 a.m.

3 MR. KATZ: Good morning, everyone
4 in the room and on the line, this is the
5 Advisory Board on Radiation and Worker Health,
6 BNL Work Group and we're, we have both Jim and
7 Grady and we're going to get started here.

8 Let's begin with roll call with
9 Board Members in the room.

10 CHAIR BEACH: Josie Beach,
11 Brookhaven Chair, no conflict.

12 MEMBER CLAWSON: Brad Clawson,
13 Work Group Member, no conflict.

14 MEMBER MUNN: Wanda Munn, Work
15 Group Member, no conflict.

16 MR. KATZ: And Board Members on
17 the line?

18 MEMBER ROESSLER: Gen Roessler, no
19 conflict.

20 MR. KATZ: Welcome, Gen. And do
21 we have Dr. Anderson, too, Henry -- Andy?

22 (No response.)

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1 MR. KATZ: Zaida, are you on the
2 line? Or Nancy Adams?

3 (No response.)

4 MR. KATZ: Okay, we'll try to get
5 ahold of Andy because he did intend to attend.

6 That's it for Board Members, let's move on.
7 NIOSH-ORAU Team in the room?

8 DR. NETON: Jim Neton, NIOSH, no
9 conflict.

10 MR. CALHOUN: Grady Calhoun,
11 NIOSH, no conflict.

12 MR. KATZ: And any NIOSH ORAU Team
13 on the line?

14 MR. ADLER: Tim Adler, ORAU, no
15 conflict.

16 MR. KATZ: Thank you and welcome.
17 SC&A in the room?

18 MR. FITZGERALD: Yes, Joe
19 Fitzgerald, no conflict.

20 MR. KATZ: And SC&A on the line?

21 DR. BUCHANAN: Ron Buchanan, no
22 conflict.

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1 MR. KATZ: Welcome, Ron. Joe, are
2 you expecting anyone else?

3 MR. FITZGERALD: Yes, Kathy
4 Robertson-DeMers will probably join us in the
5 next hour or so.

6 MR. KATZ: Okay, that's right, you
7 mentioned that.

8 MS. ROBERTSON-DEMERS: Hi there, I
9 just -- I had my phone on mute.

10 MR. KATZ: Welcome, Kathy.

11 MS. ROBERTSON-DEMERS: Kathy
12 Robertson-DeMers, no conflict.

13 MR. KATZ: Thank you. Federal
14 officials, whether NIOSH, HHS, other agencies
15 and contractors to the Feds in the room?

16 MS. LIN: Jenny, HHS, Jenny Lin.

17 MR. KATZ: And on the line?

18 MR. FAUST: Leo Faust, ORAU, no
19 conflict.

20 MR. KATZ: Will Faust, ORAU, thank
21 you.

22 MR. CALHOUN: Leo.

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1 MR. KATZ: Oh, Leo Faust, sorry.
2 Okay, any other government officials or
3 contractors on the line?

4 (No response.)

5 MR. KATZ: Okay, and last but not
6 least, members of the public. There are none
7 in the room; are there any on the line?

8 (No response.)

9 MR. KATZ: Okay, so let me just
10 remind everyone on the line to please mute
11 your phones except when you're addressing the
12 group.

13 If you don't have a mute button,
14 use *6, that will mute your phone. When you
15 use *6, again, it will take you off mute. And
16 please don't put your call on hold.

17 Just hang up and dial back in if
18 you need to leave for a while. And it's your
19 agenda, Josie.

20 CHAIR BEACH: Okay, there is an
21 agenda posted on the web. We're going to
22 start our discussions with neutrons this

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1 morning and then we're going to go into
2 internal data discussions.

3 If you remember, this is our
4 second Work Group Meeting. Our first Work
5 Group Meeting was held in July on the 28th of
6 2010.

7 We are looking at the years from
8 1980 to 2007. We do have an Issues Matrix
9 that we're working from. That was put out in
10 July of 2010, and that's all I have for an
11 update.

12 Grady, I'm assuming that you're
13 going to want to start this morning with our
14 neutron discussion.

15 MR. CALHOUN: Well, I think that -
16 - can I assume that everybody received the
17 response we got?

18 CHAIR BEACH: Yes.

19 MR. CALHOUN: And that was kind of
20 our go do, our list of items that we needed to
21 address after the first meeting. And it seems
22 to me that it would be easiest just to go

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1 through the actual questions and answers.

2 I'll rely a lot on Leo on the
3 phone there, but I don't know if -- it seems
4 silly just to read them, but I guess we could
5 read the responses, if that's what you want to
6 do.

7 Or if there's any particular
8 issues that we had. I know that during --
9 gosh, it seems so long ago, the interviews
10 that we had. We had group interviews and SC&A
11 Team and Working Group Members and I was on
12 the phone for most of them. And I think Ron
13 Buchanan asked some questions of the folks
14 there that were knowledgeable about neutron
15 monitoring issues.

16 So do we know, are there any of
17 the, let's see, there's -- are there any
18 specific issues that we have with the
19 responses?

20 That seems like a better way to me
21 to address these rather than reading the
22 responses.

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1 MR. FITZGERALD: Yes, this is Joe,
2 let me pose this because this particular issue
3 I would characterize as one of more clarity.
4 Because I think when we went through the
5 Evaluation Report originally, last year, we
6 didn't find anything wrong.

7 But we didn't find a whole lot of
8 treatment of the neutron issue,
9 particularly given the fact that Brookhaven did
10 use NTA film.

11 And at all the other sites we have
12 gone through a number of issues, such as
13 fading and, you know, what not, with NTA film,
14 and we wanted to understand better exactly how
15 that was going to be handled with dose
16 reconstruction.

17 So a number of the issues we
18 raised were in that context. And what my
19 suggestion is, and I don't disagree
20 with Grady, it might be kind of laborious to
21 go through the question and answers per se, we
22 all have the response.

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1 But I've talked to Ron and I
2 think, sort of similar to what you're saying,
3 we can go through this and highlight where we
4 still may have questions or an opportunity to
5 engage Leo in some, you know, clarification of
6 what was said in the response. That might be
7 more useful. Does that sound good?

8 CHAIR BEACH: And that would be
9 helpful to me. I know there were six
10 questions on neutrons. Maybe when Ron is
11 going through it, if he'd kind of pinpoint
12 which ones he's focusing on.

13 MR. FITZGERALD: Yes, even more so
14 that, I think, you know, given the passage of
15 time, I've also asked him to kind of provide a
16 little bit of a back story.

17 Okay, you know, why did we raise
18 this question and just sort of bring us back
19 to where we were discussing this in the last
20 Work Group Meeting, so a little context.
21 Ron?

22 DR. BUCHANAN: Yes, I'm here, this

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1 is Ron Buchanan, SC&A. Yes, I realize we've
2 all slept in since we went through this in
3 July, and so I think what would be beneficial
4 for the group is to go through what has taken
5 place and I will go through the main issues
6 and where SC&A stands as far as seeing them as
7 Site Profile or SEC issues at this point.

8 And then we can, perhaps, discuss
9 the path forward for the items that need to be
10 addressed, if that's okay with everyone.

11 So let's start back at the
12 beginning and kind of look at what's been
13 done. The TBD-6 for Brookhaven was issued
14 originally in August of '06.

15 SC&A did a Site Profile review on
16 that, and turned that in September of '09.
17 And, of course, this applies both to the
18 neutron issues and the bioassay data.

19 NIOSH did an ER Report in the same
20 month, September of '09. And then NIOSH did a
21 revised TBD-6 in April of 2010. So a little
22 less than a year ago.

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1 SC&A replied to the ER in the
2 first of July 2010, and I don't know if you
3 all have that in front of you, but I want to
4 kind of use that as a guide today, because
5 that leads us into NIOSH's response, which was
6 issued in the 17th of December of 2010, about
7 a month ago.

8 In between the meeting and NIOSH's
9 issue of their reply, we did have an Action
10 Item List that went out in August of 2010.
11 And then we did group interviews with some of
12 the older workers at Brookhaven in September
13 of 2010.

14 And this was a NIOSH and an SC&A
15 group discussion with them on the phone that
16 lasted from, oh, 20 minutes to an hour each.
17 And so what we was trying to get them to do
18 was recall what happened 25, 30 years ago, in
19 some detail for both the bioassay and for the
20 neutron issue.

21 And, of course, we're having this
22 group meeting today to discuss where we stand

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1 and what we need to do. And so, what I'd like
2 to do is to bring everybody up a little bit to
3 date of why there are neutron issues.

4 In our Evaluation Report of last
5 summer, that we discussed somewhat at the July
6 meeting, we see that Brookhaven was a research
7 lab so it has many different neutron
8 possibilities. They have the reactor, they
9 had the old reactor, they had the recent
10 reactors, that were shut down in the '90s.

11 They had, one of the pioneers in
12 accelerators and so they did quite a bit of
13 neutron measurements in the early years, and
14 around '65, when they were bringing the
15 accelerators up, did a lot of experimental and
16 exploratory-type shielding and dosimetry work.

17 They did increase, the
18 accelerator, they did increase both the
19 intensity and the energy as time went on.

20 And so this increases some of the
21 neutron dose and makes the spectrum different.

22 And so they did then go into a more of a

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1 heavy ion and collider-type scenario in the
2 '90s, the way I understand it.

3 And so what we're looking at,
4 perhaps, is a period between '65, when they
5 really started looking at the neutron fields
6 in '95, 2000 era, when they went into the
7 heavy ion collider, which decreases your
8 neutron field.

9 Now, mixed in with that is the
10 fact that dosimetry changed during that
11 period, the technology changed and also the
12 fields changed at their facility, so they were
13 looking for a different type of detector.

14 So I don't know how many of you
15 have our response to the ER. We list in there
16 that the NTA film, of course, as we have
17 discussed at other sites, it was used from the
18 '50s to 1995, and of course the main issue
19 there is low and higher-energy neutrons,
20 because it sees them good from about half,
21 about 20 MeV.

22 The TLDS, thermoluminescent

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1 dosimeters for neutrons, was used from 1996 to
2 present. The CR-39 was used '85 to present.
3 And the Lexan, it was used from '85 to June of
4 '97.

5 So, now, generally speaking,
6 Brookhaven was conservative in that they did
7 use the radiological affecting as a quality
8 factor which converts the dose to rem
9 equivalent at a factor of ten.

10 Now, there are four main areas
11 that we want to look at was, does the
12 dosimeter respond, what do we do about the
13 dosimeter's lack of response below a half, .7
14 MeV?

15 What about its lack of response to
16 greater than 20 MeV? So that was an issue
17 that we have to look at. That's one, the
18 lower and higher energy.

19 The neutron, the NTA fading, what
20 would we do about that? And the angular
21 dependency of the dosimeter, and then what
22 about the switch over and how problems develop

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1 there from about '85 to '95.

2 So those are the four areas we
3 want to look at, and determine how we want to
4 address them. And so these were brought out
5 in somewhat detail in our July report.

6 And then NIOSH responded to those
7 in December, in the second part of their
8 paper. And it says there's neutron monitoring
9 issues and that's numbered one through six.

10 And so what I did, what had not
11 been done was to actually go back and do some
12 kind of like semi-quantitative analysis of how
13 the dosimeters were calibrated and so, were
14 they compensated for the lower and higher
15 energies and fading and angular response?

16 And so what I did is I went back
17 and I got the references that I dug up, the
18 references NIOSH had provided and looked at
19 those and tried to do a semi-quantitative look
20 at the calibration of the system and how it
21 would respond and whether it was missing any
22 dose.

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1 And so what I have concluded, of
2 those four issues, is that the lower energies
3 and the higher energy neutrons, they were
4 present.

5 But the calibration method that
6 they used at Brookhaven would, was meant to
7 compensate for those. If there is an issue
8 there, it would be a Site Profile issue as
9 opposed to an SEC issue, because they did use
10 ion chambers, Bonner spheres, and carbon-12
11 plastic scintillator activation to look at the
12 neutron energy spectrums.

13 And so those points, I think that
14 we can agree would be Site Profile issues.
15 Now the two issues which I do not feel
16 comfortable with, and I don't think have been
17 addressed fully, are the NTA Fading and the
18 angular response.

19 Now, and also the Landauer
20 problem, '85 to '95. Now I think that the
21 fading and the angular response can be
22 addressed and could be a Site Profile issue if

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1 it was properly addressed.

2 Now TBD-6 was revised in April of
3 2010, and on Page 86, it does give a sentence
4 in there. It says a fading correction for NTA
5 film is nine percent per week, taken from
6 Myers 1994, which was a Mound document.

7 And the angular dependency
8 correction factor of 1.3, which is Kathren
9 1965. Okay, so, now SC&A's problem with this
10 is that the fading factor of nine percent is
11 the low value from Mound, and we have the same
12 discussion with Mound and with Pantex.

13 You know, actually Mound, they had
14 a health physicist there said use the 33 per
15 week and the 56 percent fading per week for
16 their dosimetry.

17 So SC&A feel that nine percent is
18 low for this fading and we're not sure if BNL
19 did any corrections. Now they did some
20 publications on fading, they have several
21 documents on fading, but we don't know if they
22 cycled their dosimeters, if they sealed them.

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1 Fading is caused by lower energy
2 neutrons fade faster, the interactions from
3 them on NTA film. But in addition, the heat
4 and humidity has a big factor and some of the
5 experiments done at Brookhaven and Mound, show
6 that it's very sensitive to humidity and the
7 temperature. So we cannot determine whether
8 the actual dose of record reflects any fading
9 corrections or not.

10 I mean, would they use a cycle
11 that they corrected for? Did they apply
12 anything to it before they recorded it? So
13 we're not satisfied with the fading factor.

14 The angular factor of 1.33:
15 generally, NTA film, it depends on energy
16 spectrum, but as a rule of thumb, decreases in
17 sensitivity as you increase the angle of
18 incidence.

19 So we feel that's probably a
20 reasonable number. However, I went through 16
21 claims that had possible neutron exposure,
22 found neutron exposures at BNL, and none of

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1 them had any correction for fading or angular
2 dependency.

3 And this was after, six of those
4 were before the new TBD was issued and ten
5 were after. And so we don't feel that angular
6 dependency and fading is being actually
7 incorporated into the DR Reports. So that's,
8 that brings us to the last issue, and that's
9 the Landauer problem.

10 And there, as the energy
11 intensities are increasing, they were looking
12 for dosimeters to replace the NTA. And we
13 went over this last time, so I won't go into
14 detail.

15 But essentially, they were using
16 NTA film plus a combination of CR-39 and
17 Lexan. Supposedly the Lexan was used in
18 combination with NTA for people that worked in
19 accelerators and CR in combination with NTA
20 for people that worked around reactors or
21 sealed sources of the neutrons.

22 And so I went to the -- again, I

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1 looked at those 16 claims and I could not seem
2 to find any. Now this is a small sampling, of
3 course. I could not find any that had any CR
4 results on it.

5 In the claims file, if you pull
6 out individual claims, they'll have --

7 MEMBER ANDERSON: This is Andy, I
8 got disconnected and I dialed back in.

9 DR. BUCHANAN: Okay. If you go to
10 the claims file, they say NTA film and they
11 have a flag that shows whether it's TLD or
12 Lexan. And so you can go in and find out
13 where the person worked and go in and see what
14 their dosimetry record read.

15 And it is showing whether it's
16 NTA, Lexan or CR-39, but I could not find any
17 CR-39 listed in the ones I looked at. And so,
18 it does not look like they added the NTA and
19 the Lexan together when they did use it.

20 And so we are still concerned
21 about the problem that existed in '85 to '95
22 concerning the dosimetry and Landauer's

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1 response.

2 And so that is the three areas
3 that we feel still need addressed, is the
4 fading, the angular response and the '85 to
5 '95 dosimetry record issue. Now, is there any
6 questions that anybody has that we need to go
7 over before we start discussing this?

8 MEMBER ANDERSON: This is Andy, I
9 just wanted to let -- I didn't want to
10 interrupt while you were presenting -- I
11 wanted to let you know I'm on the line.

12 MR. KATZ: Yes, thanks, glad to
13 have you, Andy.

14 MR. CALHOUN: I don't know if Leo
15 has anything or Tim. It seems like we
16 discussed this with one of the guys about,
17 that we interviewed.

18 And there were some questions
19 brought up about what they did and how they
20 compensated for any differences during the
21 switch from Landauer.

22 It seemed like those questions

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1 were at least answered to most people's
2 satisfaction on the phone at the time. I
3 think, Ron, you were on the phone?

4 DR. BUCHANAN: Yes, I was.

5 MR. CALHOUN: And I don't know if
6 we need to ask some follow-up questions to
7 that, but it's my recollection that he thought
8 that the responses that they were getting were
9 conservatively high.

10 But I may be wrong, I haven't
11 looked at that interview for a while.

12 DR. BUCHANAN: Well, this is Ron
13 again and SC&A again. No, I didn't feel that
14 the interview answered the question. It was a
15 general response, I felt, a person that wasn't
16 really directly involved with this perhaps.

17 I don't recall exactly who or what
18 but I remember the interview sessions. And I
19 know that it did not answer the question as
20 far as SC&A is concerned.

21 And then, when you look back in
22 the files, you know, the data does not list

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1 enough information. For example, if it lists
2 just Lexan, what did we do, what happened to
3 the NTA film?

4 If it lists just NTA, what
5 happened to the Lexan and the CR-39? And so,
6 you know, that issue is in the data and then,
7 again, the emails went back and forth. I
8 don't feel that that's been resolved because
9 these, some of these emails came out, one that
10 you pointed out in your response.

11 It came out in like '95 or
12 something. It says, okay, don't use Lexan,
13 use something else, or vice versa. In fact,
14 within a couple of months they switched from
15 using Lexan, not using Lexan and such.

16 But that was about eight years
17 after the first memo that told them to use
18 Lexan. So I don't feel that that has been
19 satisfactorily addressed.

20 MR. FITZGERALD: Yes, this is Joe.
21 That was my recollection as well, that we
22 were trying to find somebody in the follow-up

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1 interviews we did that could shed some light
2 on the outcome more than the memos. We had the
3 memos, but the outcome of all that debate.

4 I want to read an interview which
5 actually was, perhaps, a little more
6 illuminating, that we did as part of the Site
7 Profile Review which we made available some
8 time ago to NIOSH as well, which touches on
9 this issue.

10 And it also touches on the
11 question of what they end up doing as a
12 resolution. We were interviewing some health
13 physicists from that era, and this is one,
14 this is the question that we were asking:

15 Is there any additional
16 information concerning the problems with NTA,
17 CR-39 and Lexan neutron dosimetry that would
18 be helpful?

19 And this is the response:

20 The discrepancies were the most
21 critical at the low-level doses. There was a
22 wide discrepancy between the NTA, CR-39 and

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1 Lexan system.

2 We could see a disparity up to at
3 least 150 millirem. As the dose increased,
4 the disparity narrowed. In general, the CR-
5 39 read lower for low dose.

6 The stated LLD, lower limit of
7 detectability, was frequently missed. There
8 were numerous times these issues were brought
9 to the attention of Landauer, but there wasn't
10 ever a consistent improvement.

11 Our follow-up question was: given
12 the discrepancies in the different methods,
13 how was the dose of record assigned?

14 The response: the process was to
15 assign the highest dose to the dose of record.

16 The CR-39 has a threshold of 500 keV, the
17 TLD-6 would cede this 500 keV and below.

18 And then the other health
19 physicists added, there was a memorandum
20 generated telling them how to assign the dose.

21 I can only tell you, we searched high and low
22 for that memorandum or some documentation that

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1 would kind of put this in perspective.

2 We could not find it. But that
3 was probably, you know, the most telling. And
4 I guess, Grady, it's not inconsistent with
5 what was in your response.

6 I mean, I think it suggests that,
7 you know, they were pretty much aware of the
8 issue and were trying to reconcile the
9 disparity.

10 But we could not find any
11 documentation which pinned down how they
12 adjusted the dose of record and whether the
13 dose of record was always adjusted.

14 And, as Ron was pointing out, it's
15 not clear from looking at the actual dose
16 records exactly what was done. So there's a
17 level of uncertainty.

18 Although, from the health physics
19 commentary that we have heard, it seems like,
20 you know, these are smart people and they knew
21 that had to come up with some adjustment. We
22 just can't quite find it.

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1 And this is 30 years, so to be
2 fair about it, you know, it's not necessarily
3 going to be easy to find out the A to B to C
4 that was done in the record.

5 But that's something I think it's
6 worth trying to cross the T on, because you
7 know, again, as it was allowed in this
8 interview, 150 millirem certainly is an
9 adjustment that would be useful to have
10 included in any dose reconstruction process.

11 So, that's the only thing I want
12 add, that I thought, you know, going back over
13 all of our interviews since Day 1, I thought
14 that was the closest to getting a little bit
15 more perspective on that.

16 We didn't get much on the follow-
17 up interviews we did in September.

18 MR. FAUST: This is Leo. I don't
19 -- I was not a party to any of the
20 interviews, so I can't speak about that. But
21 I do know from all of the material that I've
22 gone through, at least, that they did a whole

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1 series of additional measurements besides
2 their dosimetry using Bonner spheres and
3 Snoopys and carbon-14 and I don't know what
4 else.

5 But they did a whole series of
6 additional measurements and they concluded
7 that all of them, the maximum error between
8 the measurements and what the dosimeters read,
9 it seems to me was like 20 percent was the
10 maximum error that they found, covering the
11 whole energy ranges, up to and including 20
12 MeV.

13 There's also that note concerning
14 the discrepancies between CR-39 and Lexan.
15 And they ordered the stoppage of use of Lexan
16 because of that.

17 And how they corrected, if they
18 did, in the doses of record, other than
19 recording the highest exposure, I'm not
20 certain.

21 Because neither Paul nor I have
22 found any place where a correction was made.

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1 Fading, they insisted on a two-week maximum
2 use period for NTA film to tend to reduce the
3 impact of the fading.

4 And if I'm correct, they did a
5 considerable fading study, particularly in a
6 relative humidity atmospheres upwards of three
7 or four months, if I recall correctly.

8 And they found that if they used
9 either a desiccant or wrapped that film in
10 some kind of a plastic, they reduce that
11 fading down to where 90 percent was probably a
12 conservative value.

13 DR. BUCHANAN: This is Ron
14 Buchanan, SC&A. Leo, yes, that's correct.
15 What you say is correct. However, we don't
16 know whether they did seal it. We hadn't
17 found any documents saying they sealed it or
18 used a desiccant or when that started.

19 And if they didn't, the two week
20 exchange period, obviously from the Mound
21 Study, shows you can lose up to 56 percent, so
22 that's a factor of two, which is significant

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1 in the dose reconstruction.

2 So we have not found anything that
3 documents what they did to their actual NTA
4 film that the users wore. We did, you know,
5 they did do the studies and they did some
6 fairly good studies, but we don't know what
7 was implemented from that.

8 MR. FAUST: Yes, I can't -- that
9 study actually that we're talking about, was
10 done in May of -- well, the report anyway was
11 dated May 1975. And unfortunately, it does
12 not say what they ended up employing. So I
13 can't answer. I don't know.

14 DR. BUCHANAN: Yes, I don't
15 either, that's the reason that we brought it
16 up as an issue. And I agree the Bonner
17 spheres and such were used, ionization
18 chambers, Bonner spheres, and carbon-12
19 activation.

20 But when there's a discrepancy --
21 and so when we look in the records, we don't
22 know really, you know, this is Lexan and a

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1 dose, we don't know if that was the
2 combination.

3 Because at some points they were
4 adding them, the doses, and according to some
5 of those memos, the NTA and the Lexan or all
6 three or two out of the three, and we don't
7 know which that includes.

8 And so if some of them were
9 missing some of the neutrons, we don't know if
10 that was included or not. And so, we're not
11 sure what the dose of record actually
12 reflects.

13 And, like Joe says, if we could
14 find that memo that would help.

15 MEMBER MUNN: Well, this is Wanda.

16 As having been pointed out here that these
17 are fairly bright people that we're talking
18 about, not your average bear.

19 And given the philosophy of health
20 physics from the outset, the tendency to be as
21 conservative as possible has always been a
22 basic tenet.

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1 When you have statements that more
2 than one reading, the conservative one was the
3 one that was accepted, it would seem to me
4 that that simply follows the normal
5 philosophy.

6 Questioning it may be a good
7 academic exercise, but in terms of
8 practicality, in all possibility -- in all
9 probability, the general philosophy would have
10 been followed. Which is, use the most
11 conservative number, which would be the
12 largest number.

13 CHAIR BEACH: But you also have to
14 see the proof of that. Which is, I think, the
15 problem, we're not finding that.

16 MEMBER CLAWSON: This is Brad. In
17 following a lot of this, the problem that I'm
18 having following this is that we're going off
19 of memos that have gone back and forth.

20 But, as Josie has said, there's no
21 proof of what was put in there. And as these
22 individuals being the best and brightest,

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1 there's no doubt to that.

2 But this is also why we're in this
3 program, is because through the years we have
4 learned things, but the bottom line is, we
5 need proof of what they did do, because this
6 is why we've had to implement programs that
7 everybody would do all these processes the
8 same and monitor people the same.

9 I guess my problem in reading this
10 is, these are just memos back and forth,
11 there's nothing there that shows us what they
12 really did do.

13 MR. FAUST: I think that they
14 never used, when they were playing around with
15 Lexan, in particular in CR-39, also, they also
16 used NTA film. And I think that they used
17 either one or the other, depending upon the
18 facility, in addition to the NTA.

19 And from the instrument
20 measurements that were made, dating back to at
21 least 1965, they found that they were, the
22 maximum error that they found was about 20

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1 percent between what the instrument readings
2 were and what the dosimetric readings were.

3 And the fact that they used ten
4 for an RBE, later a Q, was certainly
5 conservative. So, all in all, and also we do
6 know that they do record the highest dose,
7 which is the dose of record.

8 But when you look at it all, it
9 seems to me like no matter what the plastic
10 was used in, or in the dosimetry, that it's
11 always been claimant-favorable, the result.

12 I mean, that's the conclusion I
13 have to reach.

14 MEMBER CLAWSON: So, Leo, this is
15 Brad. You're telling me that you've got
16 record of how they did this?

17 MR. FAUST: No, but all of the
18 data, all of the data from their activities is
19 indicative of what they ended up doing. I
20 can't put my fingers on a document that says
21 this is exactly what we did, I can't do that.
22 At least I haven't found it yet.

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1 DR. BUCHANAN: This is Ron
2 Buchanan with SC&A. Now, I'd like to clarify
3 a point here. It is true that when they did
4 the experimental setup and they did Bonner
5 spheres, ion chambers and carbon activation
6 and put NTA film or Lexan or CR-39 in there,
7 at that particular point, and then had it
8 read, then they came within 20 percent.

9 But then we look at the memos that
10 went back and forth, in the real world, from
11 the wearers and the process -- the vendor, in
12 everyday work, they were getting factors of
13 two and three different -- in reading, some
14 would read minimum and some would read like
15 1,000 millirem and then later on it would be
16 reversed.

17 Lexan would read more, NTA would
18 read less, vice versa. So the 20 percent
19 wasn't across the board. This was in a
20 particular experimental setup when they had
21 controlled conditions.

22 When it got into everyday

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1 practice, by what the memo said, there was
2 large discrepancies that people that were on
3 vacation, they got readings of 1,000 millirem.

4 And people that were working in
5 the field were getting minimal. And so it
6 was, we want to put the 20 percent in
7 perspective.

8 MR. FAUST: I read that too, but I
9 can't say somebody going on vacation and
10 ending up with a horrendous dose on his
11 dosimeter, hard -- you don't know what
12 happened. So, I don't look at that with any
13 favorability at all.

14 But what you said was in fact
15 correct. That also drove them to insist that
16 they quit using Lexan, which was kind of dumb
17 in the first place.

18 But, nonetheless, that's what they
19 did. And they got -- they quit using it and
20 rightly so.

21 DR. BUCHANAN: Yes, but we still
22 have some of the dose of record, if you go

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1 through the claimant files, you'll see
2 numerous entries using Lexan.

3 MR. FAUST: That may be and
4 probably because it was the highest dose that
5 they got between the two. Because they always
6 did have NTA film there also.

7 DR. NETON: This is Jim. I'd just
8 like to go back to the fading issue. From
9 what I've heard, it seems like there's been a
10 fairly well-designed study to evaluate the
11 degree of fading on these dosimeters. And,
12 given that we know that, I don't know why this
13 would not be a Site Profile issue because it's
14 just a matter of whether we apply that
15 correction factor or not.

16 Why is that being discussed in
17 this context? I guess I don't understand.

18 CHAIR BEACH: The other issue I
19 had with the study Ron discussed, the 16
20 people that he polled, six of them they found
21 -- and Ron, correct me if I'm wrong on any of
22 this -- the six people were fine, but were

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1 before the new TBD, the ten were after, and he
2 found that they weren't using the new method,
3 so that's another issue, for me too, is how
4 that's -- what's happening with the TBD that
5 dose reconstructors aren't using that?

6 MR. CALHOUN: This is Grady. I'll
7 take that one on. I need, if Ron at some point
8 could email me those 16 case numbers, that
9 would be great, and I'll take a look at that
10 and see what happened there.

11 MR. FITZGERALD: As a matter of
12 context, I'll disagree with where you're going
13 with that. It's just that the treatment on
14 these issues in the ER were slight, and we
15 raised them from the standpoint, as I started
16 the conversation, as a matter of clarification
17 as to what was going to be used.

18 And I think that's where I see the
19 train headed, but we need some clarification.

20 On the other issues, the discrepancies in the
21 Landauer issue, I think there's been a good-
22 faith effort, on everybody's part, to try to

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1 nail that one down.

2 I tried to find documentation and,
3 you know, after going through thousands of
4 pieces of paper, I mean, we just can't find
5 it.

6 What would be helpful, I think,
7 is, and I was thinking about this as Leo was
8 talking, what is the, you know, what is the
9 variance that we're talking about? Because it
10 does get less as you go higher in energy.

11 And really it may just be a
12 relatively minor, you know, you add ten
13 percent or something to certain energy levels,
14 lower energy levels, and if one can't
15 substantiate in any way, shape or form,
16 whether or not the dose of record was
17 adjusted, it might make more sense and be more
18 cost-efficient.

19 Say, well, okay, really we're
20 talking ten percent or whatever, 12 percent, I
21 don't know what the number is. Maybe it would
22 just be helpful saying, okay, for

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1 conservatism's sake and not to dig any deeper,
2 I think we've dug as deep as we can. Maybe
3 that would be a reasonable way to go.

4 I mean, I was kind of hoping that
5 the interviewees would be more specific, but I
6 think what we got was similar to what Wanda
7 was saying.

8 Everybody sort of said, well, you
9 know, of course health physics practice, you
10 would take the higher dose. But it was sort
11 of a little speculative in the sense that, you
12 know, of course that was good health physics
13 practice, we're all smart people.

14 But nobody knew for sure and there
15 was no documentation. When he said there was
16 a memo, that was sort of like the Holy Grail
17 that we were trying to find and we couldn't
18 find it.

19 So, in that context, that would be
20 something that might be helpful to do. Just
21 figure out, you know, in the end, what are we
22 talking about?

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1 We're talking ten percent. Maybe
2 it's, you know, it's worth just saying, not to
3 beat a dead horse at this point, but perhaps
4 that would be one way to get to this thing.

5 CHAIR BEACH: So is that an action
6 item for NIOSH to --

7 MR. FITZGERALD: Well, that's, the
8 Work Group has to consider that.

9 CHAIR BEACH: Well, I'm just
10 writing down --

11 MR. CALHOUN: I have like six
12 right now.

13 CHAIR BEACH: Oh, really?

14 (Laughter.)

15 MR. FITZGERALD: I just don't see
16 any real resolution on that issue, because
17 that's a matter of trying to find some
18 evidence beyond, you know, sort of the more
19 speculative thing.

20 And rather than try to keep
21 looking for paper, it might be useful just to
22 find out what does it mean, in the end?

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1 CHAIR BEACH: Right.

2 MR. FITZGERALD: Does it really
3 matter that much? If it doesn't, maybe just
4 let it go.

5 MEMBER MUNN: It probably doesn't.

6 MR. FITZGERALD: Well, I'm
7 thinking if it's 20 percent at, you know, the
8 higher levels, then maybe it's something in
9 the order of ten or 12 percent, at the levels
10 we're talking about in most operations, energy
11 levels.

12 MEMBER MUNN: Or even lower. Ten
13 and 12 percent would be --

14 MR. FITZGERALD: Well, maybe even
15 lower, I don't know. But it just seems like
16 you could figure that out and if it were --

17 MEMBER MUNN: Well, it would
18 certainly be claimant-friendly.

19 MR. FITZGERALD: It would be
20 claimant-friendly. Just to assume that, you
21 know, we can't really nail it down. On the
22 other hand, if they did not, then this is how

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1 much it would come to.

2 DR. BUCHANAN: Yes, this is Ron
3 with SC&A again. I think, Jim, that what SC&A
4 would like to see is that these items be
5 addressed so that they can be taken off the
6 SEC issue because I think fading is
7 addressable and I think that angular is
8 addressable and even this suggestion that Joe
9 made addresses that issue.

10 It's just that if fading was a
11 problem, and if you look at 56 percent, that
12 increases your neutron dose by two, if they
13 didn't use any sort of compensation program in
14 their NTA film.

15 And so that is a large dose
16 factor, a factor of two and then 1.3 on top of
17 that and then, say, 20 percent on top of that.

18 That's leading to, you know, two or three
19 times the original recorded dose, and so
20 that's pretty significant.

21 But if those issues could be
22 addressed, then that would be under Site

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1 Profile.

2 MR. FAUST: We -- this is Leo
3 again. We're under the, I mean, we're in the
4 process of trying to find a reference that was
5 actually made by Ernie Piesch over at
6 Karlsruhe, I believe, on fading.

7 My information tells me that it's
8 probably one of the best fading studies that
9 was ever done. We're trying to locate a copy
10 of that to see just exactly what he ended up
11 with.

12 It may take us a few days yet to
13 get that, but we're in the process of doing
14 it. Hopefully, from that, we can put this
15 fading issue to bed.

16 Everybody knows that we had a
17 fading problem, but nobody knows how we went
18 about trying to alleviate that problem. One
19 other thing, there is a note, again dated
20 1965, that suggests that regardless of what
21 dosimeter -- well, this is NTA film,
22 obviously.

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1 Regardless, they say the technique
2 is always overestimated exposure by between 30
3 percent in a factor of about five.

4 So, you know, when you read all
5 this stuff, you've got to conclude that their
6 dosimeter program ended up with an
7 overestimation of what actual exposures were
8 encountered.

9 And I can only assume that that's
10 what was reported was, whatever exposure was
11 measured is what was recorded.

12 Anyway, it seems like we're
13 conservative regardless of what we do.

14 DR. BUCHANAN: Leo, this is Ron
15 with SC&A again. Now, the fading study, I
16 missed out, who did this that you're referring
17 to, that you're hunting?

18 MR. FAUST: Ernie Piesch.

19 DR. BUCHANAN: And was he with
20 BNL?

21 MR. FAUST: No, no, no, he's with
22 Karlsruhe, Germany. His last name, you spell

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1 it P-i-e-s-c-h.

2 DR. BUCHANAN: And do you know when
3 that study was done?

4 MR. FAUST: About 1975 is when the
5 journal was issued, but I can't tell you if
6 that's when the study was done or not. But it
7 probably was done prior to '75, not too much
8 before that.

9 DR. BUCHANAN: This is Ron again.
10 Okay, well, what we need to know, you know,
11 what BNL did, if we can find anything that BNL
12 did about fading.

13 If not, then we have to use a
14 conservative approach and assume they didn't
15 and apply some factor. On the 1965 note about
16 30 percent the five times, I agree at that
17 time that was probably true.

18 Now, as they increased in energy
19 and they had higher-energy neutrons, I think
20 that that conservative factor probably
21 narrowed but it still probably was
22 conservative.

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1 We don't know that for sure. And
2 so that's the reason we have concerns about
3 the '85 to '95 error, because of the memos
4 that went back and forth.

5 So I agree, in '65, they were
6 pretty conservative at that point.

7 MR. FAUST: Yes, that value goes up
8 as high as 30 MeV neutrons. Does that -- that
9 certainly covers the energy ranges in
10 existence at Brookhaven at that time, and
11 probably later also.

12 CHAIR BEACH: Yes, I have one more
13 question before we review the action items.
14 How about badge -- people that didn't wear
15 their badges. Is there any -- how will you
16 handle that? Is there coworker modeling done?

17 MR. CALHOUN: We actually do have
18 a bit of a coworker model that we're using,
19 but I would have to see if, there's got to be
20 an ambient, there may be an ambient neutron
21 dose assigned.

22 I don't know, I'd have to go back

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1 and look at the TBD, I don't know off the top
2 of my head.

3 CHAIR BEACH: And that's the same
4 TBD-6?

5 MR. CALHOUN: Yes.

6 CHAIR BEACH: Has SC&A reviewed
7 TBD-6 by any chance?

8 MR. FITZGERALD: Well, Ron, we
9 haven't provided written responses.

10 MR. CALHOUN: No, I'm talking
11 Technical Basis Document 48.

12 MR. FITZGERALD: Oh, 48.

13 CHAIR BEACH: Forty-eight.

14 MR. CALHOUN: Yes, that's the
15 Brookhaven TBD.

16 CHAIR BEACH: Okay, so is there
17 any other items to cover on neutrons, before
18 we go into that -- hello?

19 MEMBER ANDERSON: I don't have any
20 comments.

21 CHAIR BEACH: Thanks, Henry.

22 Okay, Grady, you said you had six and then you

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1 lowered it to three.

2 MR. CALHOUN: Well, let's see, I
3 just had a little, some notes written down.
4 Let's see, I'll see what I've got here.

5 MR. KATZ: While you're looking,
6 one is that Ron is going to email these 16
7 cases to Grady.

8 MR. CALHOUN: Yes, that's one
9 thing.

10 MR. KATZ: At SC&A.

11 MR. CALHOUN: I'm going to take a
12 look at that. And then I have: need to find
13 out if BNL did any fading corrections prior to
14 issuing the dose of record. Probably a TBD
15 issue, is what I have written there.

16 Most of these others are just
17 bullets under the Lexan/NTA issue. So I think
18 that we're going to look for any additional
19 documentation, memorandum, whatever, that may
20 discuss further what was done or if there was
21 any instruction on how to assign the higher of
22 the two doses.

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1 CHAIR BEACH: Okay, and then Joe
2 talked about a variance?

3 MR. FITZGERALD: Well, no, I was
4 saying if that didn't bear fruit, it was a
5 two-part thing. If that doesn't bear fruit,
6 because we did look for that, then maybe the
7 Work Group would benefit from knowing what the
8 variance would be. The range, and whether that
9 was seen by NIOSH as something that could be
10 accommodated.

11 CHAIR BEACH: So is that
12 something, Grady, that you can just do as a
13 secondary, if the first one doesn't bear
14 fruit, as Joe indicated?

15 So that we don't -- that we can
16 just keep moving forward?

17 MR. CALHOUN: What was the actual
18 specific issue?

19 MR. FITZGERALD: Well, the issue
20 is that we've been looking for that, I call it
21 the Holy Grail.

22 MR. CALHOUN: Yes, sure.

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1 MR. FITZGERALD: The documentation
2 on what they actually did, in terms of
3 adjusting the dose of record. If you don't
4 have any luck finding some documentation to
5 that effect, the fallback position is just,
6 you know, does it really matter, what's the
7 variance of all of --

8 MR. CALHOUN: What would be
9 helpful is a discussion of the variance over
10 range, maybe we can just adopt a correction
11 factor and does it really matter?

12 MR. FITZGERALD: Range of energy.
13 And can it be accommodated, just add it in
14 just for the sake of claimant-favorability and
15 we'll be done with it.

16 MEMBER MUNN: I think if we have
17 the claimant-favorable boundaries, then --

18 DR. NETON: Yes. At some point we
19 have to acknowledge the records aren't
20 findable and we're going to have to move
21 forward one way or the other.

22 MEMBER MUNN: Is claimant-

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1 favorable in the findings? That ought to
2 certainly cover any problems with any issues
3 that would arise.

4 CHAIR BEACH: Okay, and Ernie
5 mentioned the Ernie P. study. Are you
6 actively looking for that, Leo?

7 MR. FAUST: Yes, we are.

8 CHAIR BEACH: And if you obtain
9 that, would you make that copy available to
10 the Work Group, SC&A?

11 MR. FAUST: Sure.

12 MR. KATZ: That's the study on
13 fading.

14 CHAIR BEACH: Fading, yes.

15 DR. BUCHANAN: This is Ron
16 Buchanan, if I could interject one thing --

17 CHAIR BEACH: Yes, please.

18 DR. BUCHANAN: -- on the issue of
19 correction factor.

20 I guess a starting point would be
21 that if, under controlled conditions, they
22 said that they can measure within plus or

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1 minus 20 percent. And honestly, the minimum
2 claimant-favorable figure would be 1.2,
3 because that would be 20 percent.

4 So that would be a starting point.
5 We need to look at that and go on from there.

6 CHAIR BEACH: Okay. Is there
7 anything else on neutrons? And I'd like to
8 ask, are there any petitioners on the line at
9 this time?

10 (No response.)

11 CHAIR BEACH: So I would suggest
12 that we go ahead and take our break, before we
13 get into the internal. Is everybody agreeable
14 to that? Ten minutes?

15 MEMBER MUNN: Sure.

16 MR. KATZ: Sure.

17 MR. FAUST: How long are you going
18 to be on break?

19 CHAIR BEACH: Ten minutes.

20 MR. KATZ: Just ten minutes.

21 MR. FAUST: Okay, I'll call back
22 in.

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1 MR. KATZ: Thanks.

2 (Whereupon, the above-entitled
3 matter went off the record at 10:02 a.m. and
4 resumed at 10:14 a.m.)

5 MR. KATZ: Okay, we're reconvening
6 after a short break. This is the BNL Work
7 Group, Advisory Board on Radiation and Worker
8 Health. Andy, do we have you back, and Gen?

9 MEMBER ROESSLER: I'm here.

10 MR. KATZ: Hi, Gen. How about
11 Andy? Okay, I'm sure he'll join us soon.

12 CHAIR BEACH: Okay, so what we're
13 going to get started on now is the internal
14 data issues, it was actually Issue Number 1 in
15 our Matrix that came out last July.

16 I think what we'll do is go ahead
17 and let Grady, NIOSH start with responses to
18 those questions.

19 MR. CALHOUN: Okay, basically,
20 everybody knows this but the reason that we
21 established 1980 -- or the reason that we have
22 said that we can't do dose reconstructions

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1 prior to that, had to do with records
2 retrievability. They did not keep their
3 records, BNL did not keep their records in a
4 very readily retrievable manner.

5 So, anyway, one of the go dos that
6 we had was to interview some individuals,
7 well, actually, it was interview the
8 individual currently compiling records and ask
9 his opinion on what he has, when the records
10 are complete, et cetera.

11 Well, there's actually not a single
12 individual that does that. When we make a
13 records request, BNL goes through two or three
14 different record sources and looks for the
15 records and compiles them and then sends them
16 on to us.

17 One of the, I don't know if it's in
18 this first one or not, but Department of
19 Energy was tasked with -- there it is, it's C
20 -- was tasked with coming up with a nice
21 description of how they, in a step-by-step
22 manner, look for records before they give them

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1 to us.

2 And, as of today, they've still not
3 provided that to us. So, anyway, but
4 basically we did talk to a few people that
5 were involved in records, as part of our
6 interview.

7 It seems like everybody is on board
8 with the fact that there was an effort in the
9 late '70s to try to consolidate records. Our
10 Evaluation Report was based on what records
11 were actually retrievable.

12 So what we did is we had this 69-
13 person study, is what we call it. We had
14 maybe ten or so people per decade. Now these
15 are random folks, these were not necessarily
16 claimants. We asked the -- all of these
17 individuals were people that we had found
18 memos for that said, you need to go get a
19 whole body count.

20 So what we did was we requested all
21 the dosimetry data as we would, as if it was a
22 dose reconstruction request from Brookhaven

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1 National Lab, for all of those individuals.
2 And we kind of grouped them to see what we got
3 back, because we know that these individuals
4 were determined to have needed some type of
5 bioassay and they were told to get that
6 bioassay.

7 So we wanted to find the records
8 and see did they get the bioassay. And the
9 way it fell out and this table is in the ER,
10 is that in the '70s, and this was only from
11 '73 to '79, we got 75 percent of the records.

12 Beginning in 1980, we got 92
13 percent, which was, one record was missing.
14 We subsequently found that record, but it was
15 18 months after the request date, so we didn't
16 count it.

17 So we have a whole body count for
18 that, for that guy, but it was 18 months after
19 the request date so we didn't count it.

20 In the '90s, we had 11 people.
21 They were all in 1992, actually, and we got
22 100 percent of all of the records from whole

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1 body counts. So that's how we came up with
2 1980. Now, as part of this re-review, I guess
3 I'll call it, I was going through some
4 documents and I evidently failed miserably in
5 this table that I put in here.

6 Because I don't think I explained
7 it well enough for Josie to understand it, you
8 know. This was not my work. There was a memo
9 ivehat was out there that requested missing
10 whole body count data.

11 And I don't know who the person is,
12 I've got the SRDB number --

13 MR. FITZGERALD: Milt. Oh, I'm
14 sorry.

15 MR. CALHOUN: It was Miltenberger?
16 Okay, good.

17 MR. FITZGERALD: I'm not sure --

18 MR. CALHOUN: Oh, sorry. But
19 anyway, we had that, he made a request and
20 said, hey, I'm missing these records from
21 these individuals, can you give them to us?
22 And this was in May of 1980.

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1 And it went back from '73, all the
2 way from 1973, by year, and the number
3 reported I put in this table. Now this is
4 what he had asked for.

5 I went through the records that we
6 have. Now, keep in mind, we don't have every
7 single record that was ever generated at
8 Brookhaven.

9 And the vast majority of these
10 individuals are not claimants, these are just
11 records that we have found in our data
12 capture.

13 And what we found is that there's
14 actually a very significant drop off here, but
15 the percent that I could not find, you can see
16 that on the far, right-hand corner, ranged
17 basically from zero percent to 80 percent.

18 And in '79, 80 percent of them were
19 still missing. Now that's only four out of
20 five cases, that was a small sample number.
21 This memo was put out in May of 1980, so there
22 were only two whole body counts that he

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1 determined were missing in 1980, when he made
2 the request to, what I'll call the project
3 managers of different divisions.

4 And I have both of those whole body
5 counts, I found those in the data. So this
6 was not an independent review that I did, this
7 was based on a memo that he put out in 1980,
8 and I just tried to follow that up.

9 So, I did poorly in explaining that
10 table that I put in there, I should have done
11 better on that. I guess another part of my
12 response here is that we, in part of our
13 interviews that we had, I guess Ron mentioned
14 it was September.

15 Gosh, it seems like a long time
16 ago. You know, we did ask the question of
17 folks and, as I said earlier, you know,
18 everybody there that we talked to that had an
19 opinion about the records, thought that, you
20 know, right around 1980 and or late '70s,
21 things were getting together.

22 We were starting to get

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1 consolidated records. Nobody really had any
2 strong feeling that records should not be
3 available. That's all I have on 1-A, if we
4 want to talk about that before we move on to
5 1-B?

6 CHAIR BEACH: Yes, let's do that.

7 MR. CALHOUN: Okay.

8 MS. ROBERTSON-DEMERS: This is
9 Kathy DeMers. I have a couple of questions
10 about the table.

11 MR. CALHOUN: Okay.

12 MS. ROBERTSON-DEMERS: Okay, I know
13 you referenced an SRDB number. But if I,
14 first of all, that makes this 1980 memo was
15 to Rothman from Miltenberger, so I don't know
16 if that constitutes Department Heads.

17 But the data that immediately
18 follows it is called Missing Results for Whole
19 Body Analysis. And I could not reconcile the
20 numbers in your table with the data provided
21 in those two pages.

22 And I'm wondering if you can be

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1 more specific about where you got the data for
2 each of these columns?

3 MR. CALHOUN: I can, I can't do it
4 right now, because it's going to be in
5 multiple, multiple documents, but I can.

6 MS. ROBERTSON-DEMERS: Okay, so you
7 can give us the page numbers?

8 MR. CALHOUN: Yes.

9 MS. ROBERTSON-DEMERS: Within that?

10 MR. FITZGERALD: It's a derivation
11 of that table?

12 MR. CALHOUN: Yes.

13 MR. FITZGERALD: Okay.

14 MR. CALHOUN: It's just going to
15 be, yes, Column 3 and Column 5.

16 MS. ROBERTSON-DEMERS: Okay, and I
17 wasn't sure how you determined what was found
18 amongst the missing records?

19 MR. CALHOUN: That I found records
20 for those individuals.

21 MS. ROBERTSON-DEMERS: So you have,
22 separate from this SRDB number --

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1 MR. CALHOUN: Yes.

2 MS. ROBERTSON-DEMERS: You have
3 data?

4 MR. CALHOUN: Yes.

5 MS. ROBERTSON-DEMERS: For example,
6 in your set of 69 or --

7 MR. CALHOUN: No, it's completely,
8 this is completely different. This was just,
9 I saw that he made this request, you can see
10 that some of them are checked off, but I
11 couldn't put a whole lot of faith in that.

12 So, I went back to the other
13 documents that I had and looked them up, name
14 by name, to find if there was a whole body
15 count.

16 And they are in, I promise they're
17 in at least five or six different documents.
18 But I can look that up. I think it's going to
19 take a while. I should have wrote them down.

20 MS. ROBERTSON-DEMERS: Well, if we
21 had the page numbers, it would be more helpful
22 because that SRDB document is over 100 pages.

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1 MR. CALHOUN: Right, and really,
2 really the only one that matters is 1980.

3 CHAIR BEACH: Well, 1980 and
4 beyond.

5 MR. CALHOUN: But this specific one
6 was issued in March or May, because I can't go
7 any further than that. So what I'll do, is
8 I'll just focus on 1980, because prior to that
9 doesn't matter.

10 MS. ROBERTSON-DEMERS: I also
11 wanted to say something about the interviews
12 that we did. It wasn't clear to me that they
13 were coming out and absolutely saying that it
14 was reasonable to assume that everything was
15 centralized by 1980.

16 They weren't coming out with a
17 concrete declaration that that's what was
18 happening.

19 MR. CALHOUN: I agree.

20 MS. ROBERTSON-DEMERS: It was more
21 of a, yes, it was right about around then.
22 And if you go down and you read the, well,

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1 this is under Section C, really.

2 And read how you summarize these
3 interviews, you kind of get that feeling. So
4 they never came out and said, yes, this is a
5 concrete date. And, in fact, I actually got
6 the feeling that they were saying, yes, it was
7 reasonable sometime within the early '80s.

8 One of my concerns about these
9 interviews and stating so concretely what
10 these interviewees believe, is that they have
11 not undergone review by the interviewee.

12 And you provided us with a phone
13 number, so we're going to give those out.

14 MR. CALHOUN: Okay.

15 MS. ROBERTSON-DEMERS: And allow
16 them the opportunity to validate what we have
17 summarized.

18 MR. CALHOUN: I in no way meant to
19 imply that they said a concrete date, because
20 they certainly did not. They just, nobody
21 thought that that was unreasonable.

22 MEMBER MUNN: We wouldn't be

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1 talking about this now if they had.

2 (Laughter.)

3 MR. FITZGERALD: Well, you know,
4 this is Joe. I think it's important to
5 remember the context. I think it was Dr.
6 Roessler who felt it would be important to,
7 you know, revisit the question of the
8 [identifying information redacted] memorandum,
9 since that was cited in the Evaluation Report,
10 and see if we can find some of his
11 contemporaries that could speak to, first hand
12 knowledge of what happened and maybe what he
13 meant in the memos, since we only have that
14 one memo.

15 That memo, again, to put it in
16 perspective, was a proposal to his management
17 that it made sense to do this, to centralize
18 into his division, the whole body counting
19 responsibility.

20 But, you know, that was the only
21 sliver of information we have. And so we went
22 back and started talking to some of the same

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1 people that we had talked to earlier, and to
2 be very fair about this, if anyone asked me to
3 think back 30 years, to what I was doing in
4 one year 30 years ago, and did I know about,
5 you know, what one of my coworkers was up to.

6 I mean I think generally the
7 response is, you know, I have no idea what I
8 was doing 30 years ago. And, yes, I knew
9 [identifying information redacted], but, you
10 know, I don't know about that memo, I don't
11 know about any specific attempted to
12 centralize, but no.

13 You know, certainly it would, it
14 would make sense that things were getting
15 better in the early '80s, that's kind of in
16 general what I kind of recall.

17 But, you know, when we were
18 pressing their memories to come up with
19 something, I thought that was, it wasn't
20 something that could substantiate the original
21 question that Dr. Roessler raised.

22 I think it was just their

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1 acknowledging, in a general sense, no specific
2 knowledge, no specific, you know, information
3 that, yes, you know, certainly in the '80s,
4 things got better.

5 That was the context that we got
6 that with. The only thing I would take
7 exception, Grady, I don't think they were on
8 board. I think they were reflecting that,
9 yes, general things got better during the
10 '80s, but that wasn't enough to give us, I
11 think, the specific information that would
12 allow us to feel more comfortable, that it was
13 January 1st, 1980.

14 So, you know, again I think it was
15 a good faith effort by all of us to try to
16 find somebody who could say, yes, I remember
17 the memo, I remember when that went in, I
18 remember what happened.

19 That would have been perfect, but
20 that did not happen. So, I think it was
21 important to do that. My comment on this
22 thing, you know, I think everybody agrees the

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1 records at Brookhaven, even in the '80s are
2 very sketchy.

3 I mean it's just the nature of the
4 beast. And part of what I hear Grady talking
5 about is, given that, and we normally do sort
6 of a database analysis.

7 Well, in this case, we already know
8 the data is in different places and different
9 forms and hard copy, you know, it's just in
10 rough shape.

11 So, I think NIOSH, and
12 appropriately so, looked at a retrievability
13 process saying, okay, we're not going to look
14 at this thing as a whole, but we're going to
15 see, empirically.

16 It makes sense. Empirically sample
17 by decade, by year and see, you know, when we
18 start feeling more comfortable that we can
19 actually recover data.

20 And, given the circumstances, that
21 makes perfect sense. And to see if there's
22 any documentation where, almost in the same

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1 vein that, where somebody like this individual
2 was making a special request.

3 He was getting more success in
4 getting or seeing that the bioassays were
5 done. So, in a way, that was almost an
6 empirical test that was done at that time, by
7 an individual.

8 So, same issue as retrievability.
9 But my concern is that when you base the
10 retrievability sampling or test, on these
11 memos requesting, I don't know whether it's
12 biasing the sample.

13 Because where someone is actually,
14 I think this is something I'd like to discuss.

15 When you're actually making a request by
16 memorandum that this Joe Blow needs to be
17 bioassayed.

18 That's a pretty, you know, that's a
19 special request. I mean there's routine
20 monitoring and then you really are asking for
21 somebody to be bioassayed because they
22 obviously must have been seen as exposed,

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1 above and beyond your normal program, routine
2 program.

3 So, you know, the 69 sampling that
4 was done, even the Miltenberger request. I'll
5 throw that out. I'm not sure if that's the
6 universe of bioassay sampling.

7 I think it's certainly the universe
8 of specially requested, you know, please
9 bioassay this person. So, that would be one
10 cautionary note, because I don't know what the
11 answer is.

12 But that's certainly is one
13 question in my mind. The other question gets
14 to more the state of the Brookhaven records.

15 I think we kind of agree that the
16 records aren't in good shape and they're
17 working hard to find records and get them
18 together and make them available and all that.

19 I don't know what the status is
20 now, but when we were out there, we met the
21 individual who was running around. And he was
22 still pulling records together. He wasn't

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1 sure exactly what the situation would be.

2 But when we step back from this,
3 there seems to me two real central questions.

4 One is retrievability, which is, can we even
5 do dose reconstruction?

6 Can we ask for records and get
7 them? And I think NIOSH has made a good faith
8 effort to figure out, you know, let's do some
9 sampling to see if that's even doable.

10 And the question I have for that is
11 how's it going? You're doing claimant, you
12 know, you're actually doing dose
13 reconstruction on claimant files and to us it
14 would be useful to know, in real time, whether
15 or not you're getting the records for the
16 active claims as they stand.

17 I mean the sampling is one issue,
18 but you're actually now in the real thing. So
19 that would be a helpful thing to know. The
20 second thing is, apart from the retrievability
21 question is the completeness and aptitude
22 question.

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1 This Work Group, this Board, has to
2 answer a question. Are the records complete
3 and sufficiently adequate? And that goes to,
4 you know, question of coworker.

5 Where you have individuals that
6 don't have a dose, how are you going to assign
7 that dose. And you have to have a complete
8 enough set of records that you get a
9 distribution that represents the site.

10 And it gave me great pause when we
11 were talking to -- in fact the individual who
12 was actually trying to get this stuff together
13 for NIOSH, and he was, you know, sort of like
14 going door-to-door, if I may, at the lab,
15 trying to see who had records.

16 And the first thing that crossed my
17 mind is that's going to be a heck of a
18 challenge, being able to feel you have a
19 complete enough set of records that you could
20 construct a coworker dose model that would be
21 representative, sufficient representative, if
22 you felt the distribution was there.

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1 I know the last time we talked you
2 said you hadn't had, put a coworker model
3 together, right?

4 MR. CALHOUN: Not completely.

5 MR. FITZGERALD: And, so the second
6 part of the question is, apart from
7 retrievability, are the records complete
8 enough that, in fact, a coworker model is
9 even feasible. And, as of today, I don't have
10 the answer and I don't think you do either.

11 Which is central to this Board's
12 decision on an SEC, I believe. And I think
13 that, I'm not sure how long you want to wait
14 until Brookhaven has searched, you know, for
15 records, but I think that assessment of what
16 we've got, is it complete enough that you
17 could have some confidence on distribution
18 that you could come up with a coworker model
19 or not? And if we don't either know or don't
20 think so, based on what we can understand is
21 the state of the records, then I think that
22 puts everybody in the same situation as, you

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1 know, what are we going to do for missing
2 doses?

3 So I can see that the issue in
4 those two parts, and I can emphasize on the
5 retrievability question, you have no choice.
6 You have to look at retrievability because you
7 can't go from A to B on dose reconstruction if
8 you can't be sure you're getting records.

9 But then you still have that second
10 question that has to be answered, if somebody
11 don't have a dose of record, and you're going
12 to assign something, how are you going to do
13 it.

14 So, I have some cautions on the
15 first, but I really am lost on the second.
16 And it would almost, you know, at some point,
17 one has to then go and do what we would call a
18 Data Adequacy and Completeness Review and just
19 say, what do we got?

20 Is there enough there it could
21 support the coworker dose model construction
22 and we don't have anything to look at, because

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1 I guess you haven't done it, but that, you
2 know, before we go too far, that certainly is
3 something that we have to look at.

4 MEMBER MUNN: Well, before we go
5 any further, why don't we have a reality check
6 here. We've gotten pretty esoteric about,
7 we're wandering around out there in the
8 general miasma of what might we have where?

9 The reality is this is one of the
10 nation's leading research and development
11 laboratories. By definition, it is not a
12 process.

13 It is not an organization. It is
14 not a site where a charge was given to what
15 was going to take place there and that charge
16 was followed through and developed over time.

17 That's not what --

18 CHAIR BEACH: May I ask a question?

19 Are you talking the charge being the memos
20 that we have read? Is that the charge?

21 MEMBER MUNN: No. I'm talking
22 about the basic charter of this -

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1 CHAIR BEACH: Of the work at the
2 lab, okay.

3 MEMBER MUNN: The basic charter of
4 this site is not like the basic charter of
5 Mound, or Oak Ridge, of Hanford. This is not
6 the same kind of thing. And we, if we
7 approach this with the concept that we're
8 going to try find the same set of data, the
9 same set of records that we find at production
10 facilities, or pure development facilities,
11 then we're fooling ourselves because that's
12 not going to happen.

13 When we talk about coworkers, we're
14 not talking about coworkers who were on a
15 single site that did a single thing, and who
16 shared, even if they didn't have, they had
17 many different jobs, but they were all in the
18 same place, the end result, the goal for the
19 site was the same.

20 This is a site where there were two
21 dozen different activities going on at the
22 same time. And the need for record keeping in

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1 each one of those projects, would be entirely
2 different, entirely different.

3 One can see how it would be
4 illogical to be having a strong dose
5 reconstruction activity going on for some
6 project where the level of exposure in that
7 project was minimal, as opposed to a project
8 where esoteric kinds of activities were going
9 on with unusual materials or with unusual
10 levels of energy.

11 It is an extremely diverse site
12 with extremely diverse projects and they've
13 changed over the years. So for us to even go
14 searching for the kinds of records that we
15 would like to have, that we've seen in other
16 DOE sites, may not be a realistic goal for us.

17 CHAIR BEACH: And that's what makes
18 this a potential SEC issue. Because the
19 workers still deserve to have those dose
20 records found and attributed to whatever dose
21 they may have received.

22 MEMBER MUNN: But that's a part of

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1 my point, too. The part of my point is that
2 the probability, this is another one of those
3 can you prove a negative?

4 Can I prove that this worker was
5 involved in a project that did not require
6 close exposure monitoring. How can you ever
7 prove that?

8 I don't believe it can ever be
9 proved. I don't, there's no reason why it
10 should be proved, if the project -- but, of
11 course, that worker is not going to be with
12 that project only.

13 After 14 years, that worker is
14 probably going to be involved in some other
15 project. So, it would be expected that an
16 individual worker's record would not be
17 continuous, the way it is, or the way we would
18 like it to be in other kinds of -- I can see
19 I'm losing the audience.

20 DR. NETON: I think this speaks to
21 the issue of what we talked about in Santa Fe,
22 which is this, you know, what do you do with

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1 these sort of low dose facilities where they
2 handle a lot, for lack of a better word,
3 exotic radionuclides, where in general there
4 is the, at least impression, that most people
5 didn't get exposed to very much.

6 They weren't, you're right, these
7 weren't factories. They were doing bench top,
8 for the most part, experiments working with
9 small amounts of radionuclides, so how does
10 one establish that these exposures were low
11 and put some upper bound on those doses.

12 And I think, as I mentioned in
13 Santa Fe, I think the approach that needs to
14 be taken is to look at the health physics
15 program that was in place, or the start of
16 one.

17 Were they consciously aware, were
18 the aware of the hazards and was there some
19 type of evaluation done, of the hazards, and a
20 decision made whether this constituted some
21 potential for exposure or not.

22 And I think, we're in the 1980s.

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1 And, I don't know, maybe Grady is going to
2 shake his head on this, but it seems like we
3 should be able to find some sort of program
4 documentation that substantiates that.

5 We've made some decisions, we've
6 looked at the hazards and we evaluated them.
7 And they were either small or large and here's
8 what we're going to do to either mitigate them
9 or monitor them.

10 MEMBER ANDERSON: Well, this is
11 Andy. And again I think we may not get
12 specific values, but I think what you're
13 saying is there ought to be some qualitative
14 evaluation made at some point.

15 And that should be recorded
16 somewhere.

17 DR. NETON: Well, exactly.

18 MR. FITZGERALD: Before we go too
19 far on giving credit to the program, you know,
20 we also talked about this in Santa Fe, that
21 the regulation calls for quantitative analysis
22 and I think quantitative in the broadest

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1 sense, not just numbers.

2 But certainly it's something beyond
3 program performance. We would think the 1980s
4 would be the great awakening. But since I was
5 in DOE in the 1980s, I can tell you that
6 wasn't the case.

7 It was an evolution that started in
8 the mid '80s and culminated with Tiger Teams
9 in the early '90s. So, as far as the early
10 '80s, no, I don't think there was a great
11 wellspring of change in the Energy research
12 labs tending to lag behind everybody else.

13 Pretty much because of what you
14 said. They weren't really seen as facilities
15 with high source terms, so the spotlight
16 wasn't really on them.

17 And going back to your comment, I
18 agree that the diversity of the labs is a
19 challenge. And certainly the fact that they
20 didn't really have these kinds of production
21 facilities and the sources, you know, led to
22 situations where they did it activity-by-

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1 activity more.

2 It wasn't an overall program. So
3 you had a decentralized approach. Now the
4 flip side of that is that's a real challenge
5 with this program.

6 And we've confronted the same
7 challenge at the other laboratories. This
8 isn't the only laboratory. We have the
9 defense labs, we have the other Energy
10 research labs at Berkeley and what have you.

11 And the issue is the same. And
12 what I'm saying is that, you know, you need
13 certainly the act recognized in the beginning
14 that, you know, you're going to find a rather
15 diverse situation on the part that some
16 facilities will have wonderfully centralized
17 and automated data records.

18 Dose records, so that it's going to
19 be readily, you know, much more feasible to do
20 those reconstruction. In other cases, you're
21 not going to have that good fortune.

22 You're going to have situations

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1 where the records are not centralized, they're
2 not in good condition, are missing. And the
3 Act provides for the SEC process when you have
4 situations where the records are, in fact, you
5 know, just not really adequate.

6 And so what we're aiming toward is
7 saying, okay, given the reality, in this case
8 Brookhaven, how are you going to, in fact, do
9 dose reconstruction with sufficient accuracy.

10 Is there a way to get there, from A
11 to B? And, as I was saying earlier, I think
12 the approach that NIOSH has taken, starting
13 with retrievability, is about the only place
14 you can start on that question.

15 Because you're looking at a very
16 direct question, can we even, you know,
17 retrieve the records that would support dose
18 reconstruction for the time periods in
19 question.

20 That's more of an empirical
21 approach, that's why I'm saying, you know,
22 saying, okay, let's pulse the system and get

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1 some level of confidence that when you pulse
2 the system we get what we need.

3 But the other question I would
4 raise, is a broader question of, you're not
5 going to have, you know, when you have
6 claimants, you're not always going to have a
7 dose of record for that individual. And you
8 have to rely on some ability to assign a
9 coworker dose.

10 And it may just be facility-
11 specific, and I think for a laboratory that's
12 very appropriate. And what we've done at
13 other sites, so you look at facility-specific
14 coworker doses, you don't do everybody.

15 You don't do the entire lab, you
16 just pick those places in those time periods.

17 Where clearly you have the potential, this
18 was what Jim was saying, the potential for
19 exposure.

20 And you use that data to assign a
21 coworker dose. But what I'm questioning is
22 1980 and beyond, do we in fact have adequate

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1 records to provide that information for those
2 facilities.

3 And I don't think that question has
4 been answered, you know, in the process that
5 we've been through so far. And I think that's
6 got to answered before we have a level of
7 confidence on the SEC.

8 CHAIR BEACH: Well, one of the, can
9 I stop you just for a second?

10 MS. ROBERTSON-DEMERS: This is
11 Kathy DeMers, can I kind of remind you guys of
12 an interview that we did in 2009, with the
13 personnel monitoring group.

14 And one of the interviewees that we
15 talked to September, actually referred us to
16 one of the individuals who participated in
17 this interview.

18 I just wanted read this back to
19 you, because it conflicts with the information
20 that we were given in September. Which means
21 we have to go back and rely on the record.

22 They said BNL radiation exposure

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1 records can be broken into three categories.
2 The later the person's start date, the more
3 complete the record for internal monitoring.

4 From the 1940s though the 1970s,
5 BNL maintained an individual folder by name.
6 From the 1970s through the 1980s, there was a
7 transition to electronic recording.

8 Unfortunately, the folders became
9 increasingly incomplete during this time frame
10 and data are missing. This is the period of
11 most concern.

12 From the '90s to the present, there
13 is a more systematic and complete electronic-
14 based record keeping.

15 They also mentioned that one of the
16 problems they had was in the folders, they had
17 indications that someone had, for example,
18 bioassay, but they had no results. And at the
19 time, they were working on compiling a list or
20 a catalog of data, so that they would know all
21 the different places they had to go, to
22 compile a complete record.

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1 Now those interviews were done,
2 like I said, in 2009.

3 CHAIR BEACH: What month was that
4 Kathy?

5 MS. ROBERTSON-DEMERS: Let's see,
6 the interview with these people was done on
7 May 19th, 2009.

8 CHAIR BEACH: Okay, thank you. I
9 remember reading that last night as I was
10 reviewing these older interviews.

11 The other thing I want to bring up
12 is, that I was going to say just before Kathy
13 spoke, is when I was looking at the interviews
14 that we did back in 2009, a lot of these were
15 considered event driven.

16 So, if there was an event, then
17 they would bioassay for that event. In some
18 cases, the event was brought to the attention
19 by the person that took, went home and
20 thought, oh, well maybe I have a problem.

21 I guess, the bottom line here for
22 me is what was considered an event at the lab?

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1 I'm thinking when there was an interview I
2 read on whole body counting.

3 The interviewee or the whole body
4 counting folks would come in with contaminated
5 lab coats, so they would send them out and
6 have them change into Tyvek suits.

7 To me, that's an event, but it
8 seemed like, and Grady you mention that in
9 your response back. But it didn't seem like
10 it was considered an event at that time.

11 So, I guess I'm curious of what was
12 considered an event and what was not
13 considered an event.

14 MR. CALHOUN: That particular issue
15 is one that, you know, when you're working,
16 when you're working at a production facility
17 or a lab, when you're handling rad materials,
18 your lab coats are going to get contaminated.

19 They're going to get washed, but
20 they're never going to be free of
21 contamination that could be seen on whole body
22 counter.

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1 You could hold it, you could wave a
2 wand over it all you want, and not see a
3 thing. But, as soon as you bring it into the
4 whole body counter, you see contamination and
5 you know that that's not inside.

6 But, aside from that, what I have
7 and I'm kind of jumping down to B, but it's
8 very much in line with what we're discussing
9 here.

10 I've looked at so many of the
11 documents, over the last couple of months. I
12 have found documents before 1980 and after
13 1980, that say that anybody with potential of
14 receiving 100 millirem internal dose, needs to
15 be monitored internally for that.

16 I have found documents that show
17 that prior to maintenance activities, things
18 were surveyed before the work could get done,
19 to make sure that proper precautions were
20 taken.

21 I have found documents that show
22 that bioassay for exotic nuclides was taken

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1 because something didn't go as planned. I
2 found documents that list the thousands of
3 smears and air samples that were taken in
4 certain facilities.

5 So where I believe that we've got
6 a firm indication that a program was in place,
7 and that there was a threshold for monitoring.

8 Like Wanda said, and I've only, I've been to
9 the site multiple times, I haven't toured the
10 whole facility.

11 It's like a big university. And I
12 would say that more people were in jobs that
13 had no potential for exposure than were in
14 jobs that had potential for exposure.

15 So that pretty much necessitated
16 the activity-by-activity or department-by-
17 department determination on, of who's going to
18 get bioassayed.

19 I don't believe that the bioassay
20 was generally incident driven. From the memos
21 that I've seen, they're like project specific.

22 You know, these people in your group need to

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1 be whole body counted.

2 It's not because it was an
3 incident, it's because these people need to be
4 whole body counted. And then we believe that
5 this monitoring was done, but I can't prove it
6 until 1980.

7 Nothing before then, even though I
8 believe that these people were monitored, I
9 just can't prove it because the documents just
10 weren't there.

11 So that's why I don't know of many
12 other options other than falling back on the
13 empirical data when somebody says they should
14 be monitored and then we find out that they,
15 in fact, were monitored.

16 That's where we are with, again,
17 that's just kind of just banging on that, but
18 coming up with a 1980, date.

19 MS. ROBERTSON-DEMERS: Grady, this
20 is Kathy DeMers, I had another request for
21 you, back under, I guess, Item B.

22 MR. CALHOUN: B as in boy?

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1 MS. ROBERTSON-DEMERS: Yes.

2 MR. CALHOUN: Okay.

3 MS. ROBERTSON-DEMERS: You said
4 that you looked at eight employees?

5 MR. CALHOUN: Oh, okay, yes, I
6 didn't even get to there yet, but go ahead,
7 continue that.

8 MS. ROBERTSON-DEMERS: And you
9 looked at their CATI interview and determined
10 whether they had mentioned that, whether a
11 bioassay was collected or whether they had
12 participated in whole body counting.

13 MR. CALHOUN: Yes.

14 MS. ROBERTSON-DEMERS: And my
15 question for you was whether you could give us
16 the NIOSH ID number for those?

17 MR. CALHOUN: Sure.

18 CHAIR BEACH: We jumped ahead a
19 little bit to B. Is there anything else under
20 A that we have not covered?

21 MR. FITZGERALD: Well, again, I'd
22 like to have this discussion on the, how the

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1 coworker approach is going to be done at
2 Brookhaven. Just like it seems like it's a
3 threshold question that the worker has to
4 address at some point.

5 I know, based on the last Work
6 Group Meeting you had said, Grady, that you
7 have not addressed that, but I think just to
8 hear from you what the plans are, what your
9 sense of it is? Is it a matter of waiting for
10 Brookhaven to sort of get to some point of
11 records completeness before you look at it?

12 Or, are you looking at it now and
13 you have some initial thoughts on it?

14 MR. CALHOUN: It's on the list, but
15 it's pretty far down on the list. I know that
16 we've recently received a big bunch of tritium
17 data and other urinalysis data with thousands
18 and thousands and thousands of entries.

19 Those are for later years, though.
20 I want to say that those are like in the
21 '90s.

22 MR. FITZGERALD: Ninety's.

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1 MR. CALHOUN: Yes. But they were,
2 I'm told that using the term database is not
3 appropriate, it's a list of intakes and
4 results. So it's not as easy to wade through
5 as some other things.

6 But I think that we'll look at
7 that. Certainly, right now, if somebody that
8 worked past the '90s, or past the '80s, is
9 working in a job that doesn't seem to, they
10 don't have any dosimetry at all, we assign
11 ambient for internal and external.

12 I'll have to look back and see what
13 the thoughts are for coworker, I don't know
14 for sure on that one.

15 MR. FITZGERALD: Because, yes, the
16 other thing too, I guess based on the last
17 Work Group meeting, you know, the status of
18 the DOE efforts. DOE -- the Brookhaven Lab
19 efforts to bring these records together, you
20 weren't able to get a handle on, you know, how
21 they felt or even what their spreadsheet
22 looked like at this stage, because of their

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1 Privacy Act concerns.

2 Which puzzled me a little bit, and
3 I guess, you know, as I understand it,
4 government-to-government, we're all one
5 government. That should not be an issue and
6 I'm kind of puzzled why they would be citing
7 Privacy Act to another federal agency.

8 MR. CALHOUN: Well, you know, on
9 the same thing they gave us all this data just
10 now, and that's not of claimant's either. So,
11 it's kind of --

12 MR. FITZGERALD: I'm puzzled by
13 that. I think the notion of how complete do
14 they think it is and what their spreadsheet
15 looks like. It should be accessible by NIOSH
16 and I think Greg needs to address that.

17 Because, you know, I think this
18 whole question about what are we dealing with
19 as far as the body of records. This is so
20 central to this Work Group and what you're
21 doing, that you almost have to know that.

22 MR. CALHOUN: Right.

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1 MR. FITZGERALD: And that would
2 also inform this question about are we on
3 stable ground for a coworker thing, for those
4 facilities that really require it.

5 Again, I think it's going to be
6 facility specific and time period specific.
7 Because I think that the, you know, whether
8 it's the reactor, certain time periods, maybe
9 certain, maybe high flux beam reactor.

10 You know, there's certain
11 facilities where you would probably want to
12 have a pretty good sense that the distribution
13 of dose is such that you could use that for
14 workers that claimed they worked there during
15 that time period. But I don't know how you
16 can get there without knowing whether or not
17 the lab is, has what they have or, you know,
18 that part of it, I think.

19 So I would say that would be one
20 question as to reach resolution as to where
21 they stand as far as retrieving what records
22 they have --

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1 MR. CALHOUN: Where BNL stands?

2 CHAIR BEACH: Well, and what have
3 you done to retrieve records and what are you
4 planning to do in the future?

5 MR. CALHOUN: There's, well, we've
6 gotten these two big data dumps recently, and
7 we've had our folks go through all of those,
8 in link, by name, any of the data. So, even
9 if Brookhaven weren't to give us that
10 information, we will have that link to those
11 individuals.

12 We're also going to go through the
13 process, like I just, just the other day I
14 found, it was 420 pages of termination
15 urinalysis over multiple years.

16 And we're going to link those by
17 name too, to any claimant that comes in, just
18 as a stopgap measure in case we're not getting
19 the right information.

20 That will help people prior to
21 1982, because we won't just say, oh, we can't
22 assign any dose. If we've got some dose for

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1 people in the SEC period, and they've got skin
2 cancer or whatever, we'll be able to assign
3 some dose based on that, too.

4 So, it is certainly an evolving
5 process. But, you know, I do feel confident
6 and comfortable with 1980. Everything that
7 I'm looking at actually makes me more
8 comfortable with that. And I think Brookhaven
9 certainly needs to get on board with their
10 record retrieval, it will make it easier for
11 them.

12 CHAIR BEACH: So everything that
13 you've looked at, is that previous to the data
14 dump, stuff that we have had access to, or is
15 it stuff that you still --

16 MR. CALHOUN: The data dump is
17 after, so it doesn't --

18 CHAIR BEACH: That is not making
19 you uncomfortable.

20 MR. CALHOUN: Well, no, it's not
21 making me uncomfortable, it's just from
22 digging into this and writing my responses to

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1 these questions, it's just, I feel like we've
2 got the memos and things that say the process
3 is in place.

4 We've got numbers that say, you
5 know, monitor people if they have a potential.

6 We've got, you know, I've got another memo
7 that says if there's excess contamination,
8 monitor these people.

9 I've got memos that show that
10 somebody, because they had a high external
11 dose, we did a whole body count on them.

12 So, it seems like they were very
13 attentive in what they did and the whole
14 records retrieval thing is what we have to
15 evaluate.

16 And that's why, prior to 1980, I
17 just, you know, I can't say with as much
18 confidence that we have all of the records
19 available for those individuals, as I can
20 after.

21 CHAIR BEACH: Well, and I read
22 those same memos and I do agree they said we

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1 have to centralize the records in October, and
2 I'm not clear that two months later it was
3 actually accomplished.

4 I think the only way that I can
5 evaluate that, is when somebody is supposed to
6 get a whole body count, and they say this
7 person has to get a whole body count. If I
8 can find that whole body count, I've got it.

9 It doesn't matter if they were
10 centralized or not. If I'm getting the data
11 that I need to get, that's what's important.

12 MR. FITZGERALD: Yes, I think one
13 thing we have to do is separate the commentary
14 from the time from what you're doing in terms
15 of empirically establishing that you have
16 retrievability.

17 Because I read the memos, you know,
18 I've looked at some of the documentation and
19 it sort of suggests that things were moving in
20 a good direction, that they got it.

21 But, as far as whether that
22 actually manifested itself, you know, actual

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1 adequate records that can be used, I don't
2 know if you can make that leap.

3 But the retrievability testing that
4 you're doing I think is probably the only
5 avenue that's left to you. The concern I have
6 is that, it's empirical.

7 I mean it's sort of saying, okay,
8 you know, I've picked 1980 because, you know,
9 the Gestalt of all these documents seems to
10 suggest that was as good as any date.

11 And I've, like we were talking to
12 interviewees and I said, well, what about '79?
13 What about '82? And they're saying, oh, that
14 sounds just as good, too.

15 So, you know, but you know, the
16 stakes are pretty high by drawing that line in
17 terms of claimants and what not. And so I
18 think the care that must be taken is okay.

19 If empirical, given the state of
20 records, is what you've got, then I'd
21 certainly be interested in the ongoing
22 experience with the claims that are going in

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1 on one hand, and also trying to pin down
2 better, you know, Kathy mentioned when they
3 were transitioning from paper records to
4 electronic records.

5 They stopped filing things in the
6 personnel files. And, based on the interviews
7 we had, you know, data got lost just because
8 it was disturbed by this handoff between one
9 system and another.

10 They just didn't do that. Now, in
11 the Evaluation Report, I mean that is actually
12 highlighted. And it was portrayed a little
13 softer in a sense that, from the '70s and
14 '80s, limited electronic record keeping was,
15 I'm reading from Page 49 of the ER.

16 Was started for some BNL monitoring
17 data sets. BNL's decision to leave the
18 electronically reported data stored as such,
19 tresulted in a somewhat reduced use, in
20 parentheses, and completeness of individual
21 file folders.

22 That is, although electronically

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1 reported data are available, hard copies of
2 this information were not typically placed
3 within the individual file folders, during
4 this period.

5 So, you know, that's how, you know,
6 that was characterized. But we talked to the
7 HPs that had knowledge of that, they felt,
8 yes, data got kind of lost in that shuffle.

9 And this is the early '80s. So
10 even there we have a completeness question.
11 So I think it comes back to retrievability is
12 one tool and there's some questions about the
13 completeness of the data, you know, quite
14 apart from retrievability.

15 You can retrieve something but if
16 you're retrieving an incomplete set of data,
17 then you're going to be facing dose
18 reconstruction on an incomplete set of data.

19 So I think the completeness issue
20 comes into that. So retrievability is a
21 process. Can you get something when you ask
22 for it for an individual?

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1 That answers one question but it
2 doesn't answer all the questions. It says,
3 you know, are you retrieving something that
4 is, in fact, adequate. And that part of it I
5 think we still have to go back to the records,
6 themselves, and try to establish how complete
7 they are.

8 MR. CALHOUN: That's a tough
9 question. I didn't say it's complete.

10 MR. FITZGERALD: It's a tough
11 question.

12 MR. CALHOUN: But I mean even
13 today, even today --

14 MR. FITZGERALD: It is, but Grady,
15 I'll concede, but Brookhaven, Brookhaven, you
16 know, we know that is a big question because
17 as of two years ago, they had no idea what
18 records they had and whether they could, in
19 fact, get those records in one place.

20 And maybe it's a little better now,
21 I haven't talked with them in about a year and
22 a half on that question.

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1 But, think about it for a second.
2 They had no idea what records they might have.

3 And they were in the process of trying to
4 figure out by knocking on doors and going --

5 MR. CALHOUN: Oh, I agree, I agree.

6 MR. FITZGERALD: So, in those
7 circumstances, we have to attempt an answer.

8 MR. CALHOUN: Sure.

9 MR. FITZGERALD: Because if the
10 answer is we still don't know, then I think
11 the Work Group has to grapple with that. And
12 if we don't, if DOE and Brookhaven doesn't
13 really know and it is the best they can do, is
14 that good enough?

15 I think that judgment still has to
16 be made. And, you know, I think everything
17 has been done from your part, whether it's
18 retrievability of documentation, but I think
19 that last question is still hanging out there.

20 MR. CALHOUN: Well, one of the
21 things that we can, at least I like to hang my
22 head on, is you know, I'll go back to the fact

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1 that, I do put a little credence on the memos
2 and the interviews.

3 And I've got something that says we
4 have a program, I've got people that agree
5 we've got a program. I do the empirical
6 review to see retrievability.

7 Now, we've also got some, I'll call
8 them annual summaries, of the whole body
9 counts and urinalysis and what not that was
10 taken over, by year, over the years.

11 And you'll see that what happened
12 is the urinalysis fell down to pretty low,
13 with the exception of tritium. And the whole
14 body counts kind of took over.

15 So, that follows exactly what we're
16 seeing. So it kind of makes me think that,
17 you know, we're getting the data from the '80s
18 on, that exists.

19 You know, I was talking to you
20 about this one earlier, is that I've got other
21 annual reports that say, you know, in all of
22 1986, and they're for several different years,

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1 there's been, you know, all bioassay results
2 taken have been zero or less than, the result
3 and the dose less than that required to be
4 reported to the Department of Energy.

5 I mean all of them, for the entire
6 site. So, we know that this was a pretty low
7 dose site, but that's not the issue. The
8 issue is were they monitoring people and can
9 we get the records.

10 CHAIR BEACH: Ted, did you have
11 something?

12 MR. KATZ: I just was thinking
13 maybe a path forward. Because the
14 conversation keeps washing back and forth
15 between general and, you know, in other words,
16 BNL as a monolith versus the specific
17 operations.

18 And we know that it's different
19 requirements for these different operations in
20 these different facilities. So I just
21 wondered whether you couldn't just take, say,
22 as a sample, a sample of say eight or ten

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1 operations where you know some folks, you
2 would have concerns about exposure at those
3 operations.

4 And then, so use those to drill
5 down and then do the empirical testing for
6 those operations and see, you know, can we for
7 these workers, can we actually do a coworker?

8 Do we need to do coworker dose
9 reconstruction, because we don't have the
10 records. And, if so, how do we do it for
11 those eight or ten operations so that you're
12 then specifically getting at this issue
13 because BNL is not a monolith.

14 And if you're just sort of sampling
15 randomly, you know, 20 or 40 or 80 cases, but
16 they cover every operation and everything,
17 you're not getting very deep into answering
18 the question for this project that occurred in
19 this building.

20 You know, anybody who was involved
21 with that, can we do that dose reconstruction?

22 MR. FITZGERALD: And that's kind of

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1 what I'm suggesting. Is that whether NIOSH,
2 Grady, was in a position to have sufficient
3 records for those facilities in those time
4 periods.

5 And I think your answer was it was
6 still flooding in. And what I'd tell the Work
7 Group is this is a work in progress. So we're
8 kind of in an interesting position.

9 Most sites you sort of have the
10 data and you're just trying to judge the
11 accuracy of data. Here, it's not clear how
12 adequate it is, because it's a moving target.

13 And what we're going by on the ER,
14 you know, we kind of, we are focused on the
15 Evaluation Report and going from there. The
16 Evaluation Report singled out January 1st,
17 1980, based on a couple of memorandum and an
18 empirical test sort of to corroborate those
19 memorandum that was based on two out of two in
20 1980.

21 MR. CALHOUN: I don't have nothing
22 to do with the ER, by the way, that was

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1 afterwards.

2 MR. FITZGERALD: But, you know, I'm
3 just saying that what you have, though, think
4 about it for a second. And we're basing the
5 threshold to decided when the SEC ends.

6 We're basing on a couple of memos
7 and, you know, again, we can argue about
8 interpretation, but beyond that, we're doing
9 sort of empirical tests to see if there's any
10 problem with picking 1980. But really 1980
11 was based on those couple of memos. So I'm
12 just --

13 MR. KATZ: But all I'm saying,
14 just, can I --

15 CHAIR BEACH: What I'd like to
16 propose based on what you said, Ted, is SC&A
17 generally does a data adequacy and
18 completeness for all sites.

19 So, I would like the Work Group to
20 decide if that is something we need to do
21 here, as well. Which would take into account
22 what you were saying earlier, Ted, I believe.

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1 MEMBER CLAWSON: We've, this is
2 Brad. We've always had to do that on the
3 sites, because the information that's coming
4 in is very sketchy anyway.

5 And as we have seen at numerous
6 sites, and has been said, a lot of these,
7 where they had a lot of scientists and stuff
8 weren't even for it. Because they didn't want
9 to mess with it.

10 DR. NETON: I would just maybe
11 suggest that that might be jumping the gun a
12 little bit because we still don't have a
13 position on the table as how we're doing this.

14 MR. CALHOUN: Coworker -

15 DR. NETON: Coworker. And
16 typically the data adequacy comes into play
17 after NIOSH puts a position and says we
18 believe the data are adequate, here's how
19 we're doing it.

20 And SC&A would go out and evaluate
21 the -- is it true, does it pass the sanity
22 test.

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1 MR. KATZ: But if you are a
2 facility specific or project specific, I mean
3 it seems like you already are doing dose
4 reconstructions for folks.

5 I mean, so for a specific project
6 of concern, you can look it, well have we done
7 dose reconstructions and what are we finding
8 now in terms of, you know, is there any
9 indication that we're actually able to do, for
10 that facility, for that project?

11 MR. CALHOUN: Exactly what, you
12 know, we go into this thing, you know, when
13 you just think about, you think okay and it's
14 a facility like this. The significant
15 internal exposure is going to come from the
16 reactor facilities, from isotope separation,
17 the accelerator facilities are not.

18 Okay, we're not going to have a
19 significant internal exposure. That was also
20 brought up in our interviews, the people said
21 the same thing.

22 And what we find is that the

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1 individuals who worked at the reactor
2 facilities are much more likely to have whole
3 body counts and urinalysis than the people who
4 work at the accelerator facilities.

5 I remember that Ron actually asked
6 a question during, I don't know why this one
7 sticks in my brain, but asked a question
8 during one of the interviews about isotope
9 separation because it made medical isotopes
10 there.

11 And that's kind of a, you know,
12 there's a whole gambit of, I'll call them
13 exotic, nuclides that were produced there
14 during that process. And Ron asked the
15 person, and said well what about people at the
16 isotope separation facility?

17 And the response was, yes, we
18 counted those people, I don't recall anybody
19 ever being positive, and there were only about
20 eight people doing it.

21 So we, based on what we would think
22 the internal monitoring requirements and

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1 practices would be, we kind of see that with
2 the dosimetry that we're getting back from
3 Brookhaven.

4 MR. KATZ: But so, anyway, I don't
5 want to, I shouldn't even be spending your
6 time with my questions. But my point was why
7 not take a bunch of snapshots of facility's
8 projects of concern and do whatever, bring to
9 the table whatever there is on that.

10 Sort of wrestle down the question
11 on a project or facility specific basis for a
12 sample of these, because it seems like you
13 need to do that to get comfort and to know
14 that you actually can handle the cases that
15 come in for that facility.

16 MR. FITZGERALD: Well, there's two
17 questions really. Certainly it would need to
18 be that way, just because that's the nature of
19 the beast. At Brookhaven you'd have to do it
20 facility-specific, time-specific.

21 Going back to Jim's comment,
22 though, do we know whether we have a complete

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1 set of records for Brookhaven. I mean I have
2 to tell you a year and a half ago, they didn't
3 have any idea.

4 So, you know, it's sort of the cart
5 before the horse, to know if you can have that
6 comfort level that you have what you're going
7 to have.

8 I don't, maybe at this point you
9 can make a conclusion that irregardless of
10 whatever else they collect for the facility's
11 time periods of concern, do you feel confident
12 that there's enough there to propose an
13 approach.

14 And I don't even know if you have
15 claimants where, your missing dose where you
16 would need yet. It sounds like it's low
17 priority so that suggests that you don't
18 really have, you know, you haven't deferred
19 that many claimant cases where you are missing
20 dose.

21 MR. CALHOUN: Right, in most cases
22 when we have absolutely no dosimetry we assign

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1 ambient.

2 MR. FITZGERALD: But is that
3 decision based on the operations and time
4 frame, where they were. So these are people
5 that did obviously not work in the facility.

6 MR. CALHOUN: And for the most
7 part, all the rad workers are going to have
8 external dosimetry. You know, the issue is
9 internal dosimetry.

10 MR. FITZGERALD: It's internal,
11 right.

12 MR. CALHOUN: Yes.

13 MR. FITZGERALD: I'm just saying
14 those workers, in terms of their claims, if
15 they didn't have any data, at this point --

16 MR. CALHOUN: It's typically
17 ambient internal dose.

18 MR. FITZGERALD: Even for the
19 facilities where you have a, obviously, an
20 exposure potential to internal?

21 MR. CALHOUN: I would have to make
22 sure of that, I don't want to just jump out on

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1 --

2 MR. FITZGERALD: But that's
3 something, I would be interested in that
4 question, because that's sort of raises the
5 issue of is there a real, you know, sort of
6 pragmatic need for a coworker model.

7 I would argue that applying ambient
8 to somebody working in the HFBR or something,
9 or whatever it is would be questionable because
10 they have a potential.

11 And you would want to assign the
12 coworker to those people. But I don't know.
13 I don't know the circumstances.

14 And that would be a good answer, at
15 least to bring people up to speed on that.
16 And then the second question gets to whether
17 NIOSH can make a judgment as to what you have
18 on hand as far as information.

19 Whether as Ted is pointing out,
20 whether it's sufficient to feedback to us, you
21 know, yes, we have enough information for the
22 reactors that we feel comfortable, there's a

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1 coworker approach that we can apply if
2 somebody came in.

3 And we wouldn't assign him an
4 ambient environmental, we would assign this
5 and here's why. That would give us something
6 to chew on and you might come back and say,
7 but we don't really have a complete set of
8 records for a different facility.

9 And we're going to have to sort of
10 kick, you know, kick on Brookhaven to see if
11 they have any possible other sources of
12 information that would give us more
13 information.

14 DR. NETON: That's not unlike the
15 course we took at Los Alamos.

16 MR. FITZGERALD: Yes.

17 DR. NETON: Looking at the separate
18 facilities and seeing, do we have data for the
19 fission products are whatever it is, the
20 accelerators or reactors -

21 MR. FITZGERALD: Right. This may
22 be a hybrid what you're talking about. We're

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1 saying, one, you know, what's the circumstance
2 now because, what are you assigning for
3 missing internal dose for those facilities in
4 those time frames.

5 And even specifying for the Work
6 Group what facilities you're going to count as
7 ones where you have exposure potential to
8 internal where a coworker dose would make
9 sense.

10 Would it be helpful with the time
11 periods and that way we can evaluate, you
12 know, is everybody on board with what
13 facilities and what time periods.

14 And then where do you have
15 sufficient information that, you know, maybe
16 the first feedback was, yes, we haven't
17 constructed a coworker model, but we think we
18 have enough that we could come up with
19 something that would be plausible and we'll
20 get that back.

21 But maybe for some other time
22 periods at other facilities, not quite there

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1 yet and we need to go back, iteratively and
2 see if Brookhaven has anything else to offer.

3 And so that might be a way to move
4 it forward without waiting for the whole
5 shebang to be done, which is what I think
6 you're suggesting.

7 CHAIR BEACH: So it sounds like
8 this is a two-part, where Grady would have to
9 come up with that report and then you would
10 have to evaluate.

11 MR. FITZGERALD: Yes, I agree with,
12 Jim. I mean, we have nothing to evaluate
13 because I don't think they've had a chance to
14 figure out, you know, if you were going to
15 apply that, what time periods and facilities
16 would you apply it and where do we stand as
17 far as the status of information and records
18 for Brookhaven.

19 And maybe have a load, maybe we're
20 halfway there for, you know, the site, but
21 there's still other information that hasn't
22 been forwarded yet.

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1 And my guess that's probably where
2 everything stands. So it would be a two part.

3 But if you've done dose reconstructions
4 already and have assigned environmental
5 ambient to individuals, as well as time
6 periods where there's exposure potential,
7 which is what I think Jim was talking about,
8 exposure potential. Then I think we would
9 question that.

10 CHAIR BEACH: Absolutely. And then
11 the other part of that is going back to the
12 DOE question and trying to retrieve those
13 records from Brookhaven for the early '80s
14 into the '90s.

15 And Joe had mentioned talking to
16 Greg. I guess I'm wondering what the path
17 forward is there.

18 MR. FITZGERALD: I just read that
19 and that doesn't make any sense to me, you
20 know, citing Privacy Act does not give --

21 MR. CALHOUN: What we were wanting
22 to do was we were wanting to just get --

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1 MR. FITZGERALD: Their index.

2 MR. CALHOUN: Yes, of all the
3 workers and just do a study that way. And
4 their lawyers some how wouldn't let us do
5 that.

6 But they did let us do the study
7 based on a memo, for other people who weren't
8 claimants. And they said these, you know, we
9 said we want these individuals.

10 I think the, and it doesn't make
11 sense to me either. But I think the fact that
12 they were, that we were asking for a certain,
13 you know, Joe Fitzgerald, and not everybody
14 who worked there, they were okay with.

15 MR. FITZGERALD: They're giving you
16 the actual personnel records.

17 MR. CALHOUN: Right.

18 MR. FITZGERALD: So that, it
19 doesn't make any sense, it's inconsistent.
20 You can't hold back one from the other. I
21 think maybe if pressed through Greg, that may
22 go away and that would be to get a broad view.

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1 CHAIR BEACH: So we've also talked
2 about an individual, who I won't name, that
3 was a year and a half ago gathering up and
4 looking at data from all the locations.

5 Is it possible to go back and talk
6 to that individual and see how it's coming?
7 How that data retrieval, based on his work, is
8 going?

9 MR. CALHOUN: Do I know this
10 person?

11 CHAIR BEACH: I don't think you
12 interviewed him, I think --

13 MR. FITZGERALD: We interviewed him
14 but you make a point that there's several
15 people that are actually going around. Now
16 this individual sounded like he was on point
17 to figure out who has what.

18 This was two years ago and I have
19 his name. But, that would be a starting
20 point.

21 MR. CALHOUN: It's a BNL person?

22 MR. FITZGERALD: Yes.

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1 MR. CALHOUN: Okay.

2 CHAIR BEACH: So is that a starting
3 point for SC&A to go follow up with that
4 individual since you did the original
5 interview?

6 MR. FITZGERALD: No, I think this
7 is part and parcel to this other question
8 about getting their index or spreadsheet and,
9 you know, where things stand.

10 I think that was what they were
11 using to track what they were collecting. And
12 this individual was actually using that.

13 So I think it's part of that one
14 where if we can gain access to the index or
15 the spreadsheet and we certainly would also
16 want to talk to this individual again and find
17 out where things stand.

18 And if they sort of, you know,
19 stopped the exercise, I'm wondering about
20 that. Whether they've done all they can do,
21 it's been two or three years and, you know,
22 this is it.

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1 And that would be helpful to know
2 as well, that anything more would have to come
3 from us saying what about this facility, look
4 for that, be more specific.

5 If the broader effort on their part
6 may have stopped.

7 MR. CALHOUN: Yes, our thought, at
8 the time, and I don't know if we determined
9 they didn't have it, but I don't think we ever
10 believed that they had a comprehensive list of
11 everybody who was ever monitored.

12 MR. FITZGERALD: No.

13 MR. CALHOUN: What our thought was,
14 was we want a list of people who worked at
15 BLIP for these different time periods.

16 And then we were going to see what
17 kind of bioassay was done. That was what we
18 wanted to do.

19 MR. FITZGERALD: Yes, that makes a
20 lot of sense. Because then you have a
21 baseline of all the employees that would have
22 been potentially exposed and you could

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1 crosswalk that, as opposed to using memo
2 which, again, my concern about memos is that
3 might be a subset of the broader population
4 that was potentially exposed. It might give
5 you a different answer.

6 MR. ADLER: Joe, this is Tim. I
7 think that notion may be erroneous. I think
8 that, as we talked about before, there was no
9 real set internal bioassay program at the
10 site.

11 I think that the requests typically
12 were done by memos and there really would be
13 nothing special or unusual about that.

14 MR. FITZGERALD: No, I guess I was
15 thinking more about those programs where you
16 had routine bioassay, because you had a
17 chronic source term.

18 MR. ADLER: There might be one memo
19 covering a longer time period or something
20 like that, but I just don't think there's
21 anything usual or special about these memos,
22 and they compromises their usefulness as far

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1 as determining retrievability.

2 And I'd also argue they determine
3 completeness, completeness, I don't know how.

4 MR. FITZGERALD: Well, you know,
5 that's another thing that we can validate by
6 getting to these employee lists and what have
7 you, because the memos by themselves I don't
8 think we can surmise is the universe of people
9 that were bioassayed. I think --

10 MR. ADLER: They're just the ones
11 that we happened --

12 MR. FITZGERALD: You happened to
13 have them. I mean, if you found more memos,
14 it doesn't mean you have more people that were
15 bioassayed, it just means that you have some
16 more record that you can track.

17 So, yes, I think it represents a
18 subset of everybody that was bioassayed. It's
19 useful for operations, but I think it's
20 necessarily useful to establish the monitored
21 population.

22 I think going back to, going back

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1 to Brookhaven and seeing what their employee
2 lists were for BLIP and for the reactor. I
3 mean that would, to me, would be a strong
4 baseline of who was at that facility in what
5 time frame and that would be a comparison
6 point, I think.

7 MR. ADLER: Sure.

8 CHAIR BEACH: Grady, I'm looking at
9 an interview that was done on May 19th, and
10 there was a question asked from SC&A. Is
11 there a database with incidents listed?

12 And the interviewee responded that
13 there is a radiological footprint project
14 which documents historical radiological issues
15 in a spreadsheet.

16 The information was gathered to use
17 for D&D and it contained historic spills and
18 other contamination incidents. It says here
19 toward the end that NIOSH had asked for this
20 database and were told that they could not
21 have it.

22 This was a management decision, and

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1 it says there are 100 buildings in the
2 database. And it doesn't say who in NIOSH
3 asked for, but it seems like that would be a
4 document that would be interesting for us to
5 try to locate. And I have the interview here
6 to give you.

7 MR. CALHOUN: Yes, I'll follow up
8 on that. I don't know of that, I don't know
9 of that interaction.

10 CHAIR BEACH: Yes, so I'm not sure,
11 you know, other than that I thought it was
12 something we should follow up.

13 MR. FITZGERALD: You know, as I
14 recall, I think they had a lot to do with
15 maybe some of the D&D that was being
16 considered toward the '90s, and they were
17 trying to go back and figure out, like a lot
18 of other sites. You know, what was handled in
19 what locations.

20 MR. CALHOUN: Can we take a
21 wrecking ball to this or do we need to save
22 it.

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1 MR. FITZGERALD: Well, it's sort of
2 the notion if we go in, what were some sources
3 that we might be able to get. So, it will be
4 a useful thing to find.

5 We didn't find it when we were
6 doing the Site Profile.

7 CHAIR BEACH: It reminded me of
8 some of the work they did for Mound, to kind
9 of blueprint the different facilities. That
10 was just one thing I had.

11 How are we doing on, as far as, it
12 looks like we've covered A.

13 MR. CALHOUN: I didn't really finish
14 B.

15 CHAIR BEACH: No, we never started,
16 actually.

17 MR. CALHOUN: Well, I've gone over
18 the bullets time and time again on that. But
19 I can go through what I found when I looked at
20 the cases.

21 CHAIR BEACH: Okay.

22 MR. CALHOUN: Because that was one

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1 of the, one of the specific tasks that I had
2 was to look at the cases that we had in house
3 and see, you know, what I could determine from
4 the monitoring, you know, if they could have
5 been monitored or should have been monitored,
6 what not.

7 Obviously I only looked at those
8 cases for which he had received responses. I
9 only looked at those cases with employment
10 after 1980.

11 Because prior to 1980, I wasn't all
12 that concerned. I looked at the CATIs and
13 this goes back to the whole retrievability
14 thing.

15 And, at least in my mind, the best
16 way to determine if people were monitored was,
17 they were asked in their CATIs if they had
18 whole body counts or if they had any kind of
19 bioassay.

20 There were eight people that
21 reported that they had had at least one
22 bioassay. We received five either whole body

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1 counts or urinalysis.

2 Urinalysis and whole body counts,
3 four of those, or five of those individuals.
4 Two of those people worked before and after
5 1980, so I really couldn't get a good grip on,
6 you know, whether they, if they were monitored
7 prior to 1980, we didn't have the information.

8 The only person that I, that was
9 really a hold out, was one individual who
10 worked as a design engineer. He worked 12
11 months in 1985 and 1986, in the Van De Graaff
12 Building.

13 Not a building you would expect to
14 have bioassay. He didn't wear external, he
15 had no external badge, he reported that, but
16 he did leave a urine sample.

17 Although I can't be 100 percent
18 certain, my guess is the urine sample was for
19 medical analysis.

20 So, that's what we found from
21 looking at the in case documents. No doubt,
22 I've received more since I did this evaluation

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1 from Brookhaven.

2 I don't know how many more I've
3 received since then.

4 MR. FITZGERALD: Would it be
5 possible to, you know, since the sample size,
6 I guess, for the after '80, two of three,
7 before or after January 1st.

8 Are you suggesting we might be able
9 to increase that sample?

10 MR. CALHOUN: Yes, maybe. I'd have
11 to look at it --

12 MR. FITZGERALD: That would be, you
13 know, I think, you know --

14 MR. CALHOUN: It's all about what
15 we've received since I did this.

16 MR. FITZGERALD: Right, I mean --

17 MR. CALHOUN: There's a bunch. I
18 mean they're, I think they're outstanding on
19 like 50.

20 MR. FITZGERALD: Yes, there's some
21 downside to the empirical approach but at
22 least it would provide further corroboration.

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1 MR. CALHOUN: Right.

2 MR. FITZGERALD: And if it were 46
3 out of 46, as opposed to two out of three or
4 something, that would be a bit more
5 compelling.

6 MR. CALHOUN: That's just all a
7 head, that's all you're going to go with.

8 CHAIR BEACH: So that's an action?

9 MR. CALHOUN: Yes, I'll try to
10 update that is what I'll do. Because I've
11 looked at, and I've got a spreadsheet
12 somewhere that shows the last one I looked at.

13 CHAIR BEACH: And are you capturing
14 your action items?

15 MR. CALHOUN: I am but we'll
16 discuss them at the end here, I would hope,
17 and we can kind of try to, try to sort of
18 agree.

19 MR. FITZGERALD: Now I think it
20 would helpful for, I guess, 1980 through, I
21 don't know, five or six years beyond that.

22 MR. CALHOUN: I just looked at

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1 anything past 1980. It could have been 19, it
2 could have been 2005.

3 MR. FITZGERALD: Okay.

4 MR. CALHOUN: Anything past '80, I
5 looked at.

6 MR. FITZGERALD: All right.

7 DR. BUCHANAN: Okay, this is Ron
8 with SC&A, just before we move on, Grady, on
9 the side that had bioassay, and when you do
10 more, do you recall like they said you had
11 bioassay, so you looked, did you look and see
12 what years they worked at that facility and
13 then how many bioassays they had --

14 MR. CALHOUN: Yes.

15 DR. BUCHANAN: One per year or they
16 had one bioassay and you counted that as
17 sufficient? Or how did you say, yes, they've
18 bioassay.

19 MR. CALHOUN: If the person
20 reported that they had participated in a
21 urinalysis or whole body count and they had
22 one, then I said that yes they did.

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1 DR. BUCHANAN: Okay, you know, when
2 you go back and do this again on these other
3 cases that you've received information on, it
4 would be helpful if you kind of categorize.

5 Say, okay, this person worked there
6 five years and he had one bioassay or he
7 worked there five years and he had five
8 bioassays.

9 A number of bioassays per year
10 worked with the helpful information. That's
11 contained in the data you received.

12 MR. CALHOUN: Okay.

13 MS. ROBERTSON-DEMERS: This is
14 Kathy DeMers, can I make an additional
15 requests?

16 CHAIR BEACH: Yes.

17 MS. ROBERTSON-DEMERS: When you
18 break it out, can you break it out by
19 radionuclide?

20 MR. CALHOUN: Not if it's a whole
21 body count. If it's a urinalysis, you know, I
22 could. I'll look at that, I'm not going to

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1 promise.

2 MS. ROBERTSON-DEMERS: Okay.

3 CHAIR BEACH: Anything else on that
4 particular item. We've already covered C, I
5 think, unless there's more information --

6 MR. CALHOUN: Well, that's just a
7 sad story that, the story, and I just sent him
8 another email today, is just that I've pinged
9 him. Routinely we meet with him every couple
10 of weeks.

11 MR. FITZGERALD: It sounds like we
12 may have to elevate that a little bit.

13 MR. CALHOUN: So, I do not have the
14 procedure, officially. They produce them all
15 DOE sites, their search procedure criteria,
16 whatever process. And BNL has not done that.

17 CHAIR BEACH: Okay, and then do you
18 want to go over D?

19 MR. CALHOUN: And D, you know, I
20 don't know if we want to go through those.
21 Basically, the general opinion is nobody
22 thought that 1980 was ridiculous.

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1 Nobody said that January 1st, 1980,
2 was the date. There's some other neutron
3 issues that, you know, Ron was more involved
4 with in the discussions, but, so I don't
5 really have much more on D and what's written
6 there and what we've spoken about.

7 MR. FITZGERALD: Yes, we, I think
8 it was our joint hope that somebody would
9 raise their hand, you know, and say, yes, I've
10 worked with the individual and was aware of
11 the memo and, yes, 1980 was the big time.

12 And that didn't happen but, again,
13 given the time frame I wasn't too shocked and
14 so it was an attempt to try to provide more
15 corroboration.

16 CHAIR BEACH: One of the questions
17 I wrote down was where are the log books now?
18 Have you had any access to any of those log
19 books from the earlier --

20 MR. CALHOUN: The whole body
21 counting log books?

22 CHAIR BEACH: Any of them, the

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1 urinalysis, the whole body?

2 MR. CALHOUN: I believe we have. I
3 think most of those are prior to '80, though.

4 I don't know, Tim, if you have any additional
5 information on that, but I am fairly certain I
6 saw some of those yesterday, when I was going
7 --

8 MR. ADLER: Yes, we have some of
9 those.

10 CHAIR BEACH: Well, there's one
11 interviewee on your second page of
12 interviewees, I won't mention his name.
13 Stated that records were kept in log books
14 from about '78 to '82, so I was wondering if
15 those later log books are available. I don't
16 know what dates you have.

17 MR. CALHOUN: I don't know that,
18 I'd have to see which ones I have. But I'm
19 fairly certain I saw some yesterday in the
20 SRDB. And we will, you know, every time that
21 we have something like that, we try to go
22 through the process of linking that

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1 information.

2 It's very laborious, because you've
3 got to go over it every time because you don't
4 have, every month or so or half year to
5 determine what your claimant, you know, your
6 claimant's come in.

7 You can't link it to somebody you
8 don't have.

9 MS. ROBERTSON-DEMERS: Josie, this
10 is Kathy DeMers. Would you consider sending
11 us interviews for review and action items?

12 CHAIR BEACH: Are you talking about
13 the later ones or the earlier ones, Kathy?

14 MS. ROBERTSON-DEMERS: The ones we
15 did in September and October.

16 CHAIR BEACH: Okay, so you want us
17 to give you those interviews for review, is
18 that what you're asking?

19 MS. ROBERTSON-DEMERS: No. The
20 interviews need to be sent out to the
21 interviewee.

22 CHAIR BEACH: Correct, and that was

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1 one of my questions I was going to ask, if
2 that had been done.

3 MS. ROBERTSON-DEMERS: I just got
4 the phone numbers yesterday from Grady.

5 CHAIR BEACH: Okay. So I think
6 that is, has to happen to substantiate, to
7 make sure that what was said is what they
8 actually said. So, yes, if that's in
9 agreement to everybody that that be done.

10 I certainly think that's a good
11 call. Thanks, Kathy, for reminding me.

12 MS. ROBERTSON-DEMERS: Okay.

13 CHAIR BEACH: Anything else on
14 this? Any other follow-up interviews that
15 came from that, that we need to do?

16 MR. CALHOUN: There was one
17 individual we couldn't get a hold of. We
18 tried a couple times and he didn't seem
19 interested. But I know SC&A reviewed him,
20 interviewed him earlier.

21 MR. FITZGERALD: Yes, we did. And,
22 again, I think the information he provided

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1 tended to be more on the environmental side,
2 and he was at a senior level and had less
3 knowledge of the specific things that were
4 going on.

5 Although, I guess I held out the
6 hope he would be able to speak to something as
7 fundamental as the centralized record, but he
8 didn't have any firsthand knowledge.

9 CHAIR BEACH: Excuse me, sorry.
10 Gen or Andy, do you have any other follow-ups
11 for the interviewees or questions?

12 MEMBER ROESSLER: Josie, this is
13 Gen, I probably missed something when I was
14 unmuting. Did you ask if we have any
15 additional questions?

16 CHAIR BEACH: Questions or any
17 follow-up interviews you'd like to see take
18 place?

19 MEMBER ROESSLER: I don't think
20 that we're going to get any follow-up. I
21 agree with a lot of the things people have
22 said here today. And, of course, the one

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1 thing with those interviews that we did, I was
2 hoping because of the red flag that came from
3 the [identifying information redacted] memo,
4 that something very simple would follow.

5 Somebody would lead us to a printed
6 memo that would say, yes, here's what
7 happened. And a certain date and that would
8 simplify things.

9 I don't think that's going to be
10 coming so I appreciate all of the effort that
11 went into those interviews. But I think we
12 probably are at a dead end on that.

13 MEMBER ANDERSON: This Andy, yes, I
14 was hoping, I was wishful to, but I would
15 agree, I think we've chased the best we can
16 and I think the interviews were helpful, but
17 unfortunately they didn't turn up what we
18 really needed.

19 CHAIR BEACH: Okay, thank you. So
20 anything else before we go into the action
21 items and the path forward?

22 DR. BUCHANAN: Yes, this is Ron

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1 with SC&A. I wanted to say that one thing
2 that's not being addressed, I think clearly,
3 and this is, has to do with your next step,
4 the action item path forward, is that I think
5 something that would be helpful and almost
6 necessary, is for us to get a handle on what
7 the data systems were and how they were handed
8 off and to where they're at today. And maybe
9 this has been lightly touched on, but I think
10 we ought to decide whether we should take
11 definitely action item steps.

12 For example, how were the
13 handwritten data transport to the first
14 electronic data system to the second and to
15 today.

16 Because that would answer some
17 questions if we see that this was done
18 faithfully then that would give us a level of
19 comfort that we don't have now.

20 If we find out we don't know or
21 they weren't verified as they were
22 transformed, what databases are out there with

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1 that, maybe they were transferred but maybe
2 that database is stuck in the basement some
3 place, so we can't get to it, well then that
4 sends up a red flag.

5 So I would suggest that as a main
6 ingredient in valuating this, is to have
7 someone look at how the databases were
8 transferred and verified through the years.

9 CHAIR BEACH: Yes, let me understand
10 this. So we went from paper to electronic and
11 then we went to electronic and then again to
12 another electronic system?

13 Was that the history of it, that
14 you recall?

15 DR. BUCHANAN: Yes, and I kind of
16 laid that out, somewhat, in my July report in
17 the appendix in the back.

18 CHAIR BEACH: Right.

19 DR. BUCHANAN: But this is just
20 what I scratched together from documents I
21 had. This really wasn't, you know, a BNL's
22 sanctified type -- information.

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1 And so I think we need to be able
2 to link these and see if they were verified
3 when they went from one place to another and
4 just see if that sheds any light on all the
5 questions we have here.

6 MR. FITZGERALD: Yes, and we did
7 touch upon, you know, one artifact of that
8 whole process which was the feedback from the
9 HPs at, in the early '80s, when they went from
10 paper to the electronic system.

11 There was, you know, the
12 completeness issue where not everything that
13 was being collected was filed in the personnel
14 folders.

15 So there was a gap there. It was
16 not really well defined as to, you know, what
17 the implications would be as far as having
18 complete records.

19 But it was just noted that the
20 records were probably incomplete, to some
21 degree, because of that transition. So that
22 sort of argues, I think, for what Ron is

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1 saying.

2 That we don't really know what the
3 implications are for completeness, and I guess
4 I had originally thought we would address that
5 as part of data integrity.

6 You know, the V&V, the validation
7 verification part of it. But, again, I think
8 that could be looked at separately from the
9 usual completeness thing that would be focused
10 on the coworker model.

11 So maybe that's something that SC&A
12 could revisit with Brookhaven and look at the,
13 look at this V&V, the data integrity question
14 of transition between systems from 1980,
15 forward.

16 It shouldn't be as hard as trying
17 to do it in the prehistoric days. And I think
18 there's still people there that were involved
19 with it.

20 Now we touched on it, so we have a
21 very broad outline, but we didn't really go
22 any deeper than that. I'll leave it to Grady,

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1 is that something that --

2 MR. CALHOUN: Yes, I don't know, I
3 mean, we can certainly look at it. I think
4 that what you're more likely to find, and this
5 is just my opinion, is that you're going to
6 find the actual paper records placed into
7 their file, than you are somebody typing in a
8 result, from a record from 1960 --

9 MR. FITZGERALD: You know, that's
10 what I thought too, but we got exactly the
11 opposite from the HPs and I thought it was a
12 little bit hard to understand, but they're
13 saying because they were switching over to the
14 electronic system, they stopped being so
15 religious about putting the paper in the
16 files. And that actually led to a gap --

17 MR. ADLER: This is Tim. I think
18 that maybe getting misinterpreted, I'm not
19 sure that, I think maybe, at least the
20 impression I got was there was no paper to put
21 in the files.

22 And then, as Grady said, there's

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1 only a transition of data from one format to
2 another over time. If it was generating
3 paper, it's still pretty much in paper, and
4 that's what I've seen.

5 And BNL has made very little effort
6 to go back, as some sites have, and get these
7 things electronically entered and stored. If
8 it was paper, it is paper. If it was a memo,
9 it's still a memo.

10 MR. FITZGERALD: Again, Tim, I'm
11 just going by what we were told by the
12 personnel that were involved. And maybe they
13 didn't choose their words as carefully as they
14 needed to, but they basically said, and this
15 is in the interview notes again.

16 From the 1970s to 1980s, there was
17 a transition to electronic record keeping.
18 Unfortunately the personnel folder became
19 increasingly incomplete during this time frame
20 and data is missing.

21 From the 1990s to the present there
22 is a more systematic complete electronic based

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1 record keeping. Now that doesn't obviate your
2 interpretation either.

3 MR. ADLER: Right --

4 MR. FITZGERALD: It just could be
5 that they relied on electronic systems so the
6 personnel folders were missing pieces, but it
7 didn't mean anything.

8 I think what we're saying, maybe we
9 can put that to bed, and just know that during
10 these transitions, the integrity of the
11 information was preserved.

12 And that's something that maybe is
13 part of --

14 MR. CALHOUN: We can look at it,
15 I've got it written down here.

16 MR. FITZGERALD: All right.

17 DR. BUCHANAN: This is Ron, again.
18 What I'm referring to is Page 35 of our July
19 1st, 2010 reply, Attachment B. And that is
20 very, you know, a very preliminary look at the
21 basic data systems and that's what I would
22 like to see expanded upon, so that the Work

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1 Group and us and NIOSH can have a feel for
2 actually what was done when, and how much
3 confidence can we have in the data that they
4 give us today.

5 CHAIR BEACH: Okay, so I'm getting
6 a little bit of mixed signals, because I know
7 SC&A said that they would look at that, and
8 Grady just said you wrote that down.

9 Are you going to take that as an
10 action to do that and then --

11 MR. CALHOUN: I can ask. What I
12 can do is I can try to find something or
13 interview some people. I don't how else I'd
14 be able to do that.

15 MR. FITZGERALD: Well, I think it
16 looks like, you know, we had looked at the
17 same documentation and got sort of the same
18 feedback.

19 What Tim is saying doesn't, you
20 know, contradict what we're saying, it's just
21 sort of the interpretation of what it means
22 and maybe we can pin that down better.

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1 Does it mean that they still had a
2 complete record, it's just that they were no
3 longer using those personnel files.

4 MR. CALHOUN: Yes, I'll try to find
5 that out.

6 MR. FITZGERALD: And then going
7 forward, I think Ron's point is that, you
8 know, and he went through some effort to go
9 ahead and spreadsheet the systems. If one can
10 be a little more specific about 1980 and
11 beyond period, as to what that means, then I
12 think that would answer the question.

13 MR. CALHOUN: When new databases
14 were started, did we transcribe the data and,
15 if so, was it verified.

16 CHAIR BEACH: Well, it seems like
17 the 1982, I think the last one came on-line in
18 2002.

19 DR. BUCHANAN: Right, HBRS came on
20 in 2002. This is Ron. HBRS was started in
21 '95, and external was entered on it, somewhere
22 in the mid '90s.

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1 Then the internal was entered in
2 2002, which beginning, when they started
3 entering all the bioassay records from
4 internal into the HBRS, and I understand that
5 some of the older legacy electronic systems
6 are being entered in, but I don't know to what
7 percent of completeness that has been done.

8 And I don't know if the old
9 electronic systems are all supported. Are
10 they able to retrieve all that information,
11 from the old electronic system? That still is
12 an item that's hanging in the air.

13 MR. CALHOUN: I'll see if we can do
14 that. What I have written down here, was data
15 transcribed from one system to another. And
16 if it was, was it verified.

17 MR. FITZGERALD: Right, I mean you
18 know, I think trying to avoid having too many
19 people come at Brookhaven from too many
20 different directions.

21 MR. CALHOUN: Yes, they don't like
22 that.

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1 MR. FITZGERALD: They don't like
2 that. So, I'd rather have one contact on this
3 stuff and then maybe go from there.

4 MR. CALHOUN: Once we get the list
5 of the go dos together, we can decide what to
6 do and maybe we can tag team.

7 MR. FITZGERALD: Well, I'm just
8 saying we'd be glad to help, glad to take
9 something off. I just don't want to get
10 Brookhaven agitated.

11 CHAIR BEACH: Correct.

12 MR. CALHOUN: Or else they'll stop
13 giving us records.

14 (Laughter.)

15 MEMBER CLAWSON: Grady, you talked
16 about earlier, this is Brad. That you just
17 received a bunch more, a capture whatever.

18 MR. CALHOUN: I don't want to say
19 just. I'll it happened in the last eight or
20 nine months probably. And I've written this
21 in here just to kind of tell you what, I can
22 tell you what it was.

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1 It was a data dump and, where was
2 it. I got a bunch here, let's see. Where is
3 it? Oh, here it is. BNL has provided data
4 sets including in vivo results and tritium
5 urinalysis for later years.

6 Tritium data contains 11,000
7 entries from 1995, to 2003. In vivo data set
8 contains more than 2,800 individual whole body
9 counts from 1999, to 2001.

10 MEMBER CLAWSON: I'm just, one of
11 my pet peeves is there's a lot, this is
12 continuously going on stuff and I just want to
13 make sure that when this comes in we kind of
14 have a running file of what it is and where
15 it's at.

16 This one I've got in Pantex, we've
17 got new data in and it goes into the O: drive
18 and then all you have is a number.

19 MR. CALHOUN: It would be cool if
20 it had a date entered.

21 MEMBER CLAWSON: Or what I've been
22 requesting is, there's just a little folder up

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1 at the front, as stuff came in. Just, you
2 know, this came in or whatever.

3 And they have been good enough to
4 sometimes put PDF files and so forth like
5 that. But that's another issue. I just
6 wanted to make sure that we were on top of the
7 information as it came in.

8 Because this is a continuous thing
9 and it's at every site. Just kind of a data
10 capture. This one sounds like it will just be
11 one, one file that will be pretty easy to
12 find.

13 MR. CALHOUN: I assume that's SRDB,
14 is that right, Tim?

15 MR. ADLER: Yes.

16 MEMBER CLAWSON: So it's just in
17 one folder then and we can review it from
18 there.

19 MR. ADLER: In the SRDB it ends up
20 being a link for that spreadsheet.

21 MEMBER CLAWSON: Okay.

22 MR. ADLER: And I think your SRDB

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1 may be a little bit different than ours, so I
2 can't guarantee how that will work for you.

3 MR. CALHOUN: It shouldn't be, but
4 let's, if I can get the, if you can give me
5 that number, Tim, after the meeting, I'll
6 forward that to Brad.

7 MR. ADLER: Okay.

8 CHAIR BEACH: And just forward it
9 to the Work Group, if you don't mind. Okay,
10 anything else before we go into the action
11 items and future plans?

12 (No response.)

13 CHAIR BEACH: Who would like to
14 start with their action, there's a lot of
15 action items here, so Grady, why don't you go
16 ahead?

17 MR. CALHOUN: Yes, this is just
18 from the neutron part. Let's see, what I have
19 is need to find out if BNL did any fading
20 corrections prior to issuing the dose of
21 record.

22 And, let's see, Ron looked at,

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1 okay, I need to look at those 16 DRs that were
2 completed after the revised TBD and look at
3 the angular dependence correction factors.

4 And part of that is Ron is going to
5 send me those numbers, so I know which ones to
6 look at. I guess we're going to look for, I
7 guess we'll try to look for the Holy Grail
8 again.

9 Maybe a memorandum discussing how,
10 a memorandum discussing how to assign dose,
11 with the two different dosimetries.

12 MR. FITZGERALD: Well, I guess
13 whether they assigned dose and how they did
14 it.

15 MR. CALHOUN: Yes. Maybe a
16 discussion of the variance over range to see
17 if it really even matters. Okay, so that's
18 one, two, three, four, that's all neutrons
19 right now.

20 Leo Faust is looking for the Piesch
21 memo. Okay, that's all I have for neutrons
22 for me.

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1 CHAIR BEACH: Okay, and I believe
2 SC&A just had the one action item to send you
3 the case studies. Does anybody have anything
4 else for neutrons?

5 (No response.)

6 CHAIR BEACH: And then again these
7 will be typed up and sent out within the next
8 couple of days. All right.

9 MR. CALHOUN: Okay, let's see, for
10 internal data, okay what I'm going to do is
11 I'm going to provide Kathy, or I guess I could
12 provide it to everybody, the two data points
13 for 1980, that I have, that I found for the
14 table in Item Number 1.

15 I'm going to provide a status of
16 the BNL requests for data on case-specific
17 basis. I'm kind of, this one is kind of
18 general, but we're going to kind of look at
19 where we stand on the coworker model.

20 CHAIR BEACH: Is that going to be
21 in the form of like a memo to us or a White
22 Paper?

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1 MR. CALHOUN: Just let me, just
2 leave it at that right now, so I can figure
3 out how my response is going to be. I've got
4 to look and see where we are before I respond.

5 CHAIR BEACH: Okay.

6 MR. CALHOUN: So how I deliver it
7 to you is not as important as that I do. I'm
8 going to get Kathy case IDs for the eight
9 CATIs. Let's see, that's with the coworker.

10 Do we have enough data for coworker
11 by facility? That's part of that. I'm going
12 to update the review of the in-house study
13 that I did, based on any new information.

14 CHAIR BEACH: And add cases
15 possibly to that --

16 MR. CALHOUN: Yes, that's it.
17 Those will be the cases, the claimant's that
18 we have received and I'm looking at the dose
19 -

20 MR. KATZ: Can we go back a second
21 to the "by facility" part of that coworker
22 question. Do you guys need to select, some

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1 how, a sample of, sort of, higher concern
2 facilities because you can't do it for the
3 whole BNL. I mean, you're just, right?

4 MR. CALHOUN: Yes, but we're, I
5 think, it's a big look. This is not a trivial
6 go do, you know, to go see what --

7 MR. KATZ: I'm sure.

8 MR. CALHOUN: You know, what we
9 have. So --

10 MR. KATZ: But that's part of the
11 reason for also narrowing the --

12 CHAIR BEACH: Right.

13 MR. CALHOUN: But it certainly, we
14 would certainly look for, we would certainly
15 look a the high potential facilities.

16 You know, I'd look at the HBFR or
17 BLIP, maybe. But I wouldn't look as much at
18 the reactor facilities because those are, or
19 not reactor, accelerator facilities because
20 those are going to be external.

21 MR. FITZGERALD: Well, there's, you
22 know, that is helpful. I think it is a multi-

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1 step thing and it's a big task. I mean I
2 think the first step is, you know, what is
3 the, what are the facilities and time periods?

4 MR. CALHOUN: And that, yes,
5 because that's going to involve talking to
6 BNL.

7 MR. FITZGERALD: Right, and then I
8 think the Work Group would want to see what
9 the judgment is, early judgment and decide
10 it's comfortable with that judgment.

11 Then we go from there to see, you
12 know, what's the completeness of the
13 information.

14 MR. KATZ: So then the first step,
15 Joe is saying, is actually just identify a
16 candidate?

17 MR. FITZGERALD: Right, and this
18 hasn't been a high priority because there
19 hasn't been a demand. But, nonetheless, if
20 it's going to be a higher priority then it's
21 going to be a big task.

22 MR. CALHOUN: And most likely it's

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1 going to be HBFR, but --

2 MR. FITZGERALD: Yes, your right, I
3 think it probably in that time frame, no
4 doubt. But the other thing is what are you
5 doing now with active claims coming in,
6 whether, just sort of a little bit of
7 housekeeping as far as, you know, okay, would
8 any of those be affected by your
9 categorization that, you know, you're
10 assigning ambient environmental but clearly if
11 they fall within the time periods of
12 facilities that would argue for a coworker
13 assignment.

14 And I think you were going to
15 advise, anybody at all falls in there.

16 MR. CALHOUN: I'll write that down.
17 What are we doing now for coworker internal -
18 -

19 MR. FITZGERALD: For those
20 facilities --

21 MR. CALHOUN: At high --

22 MR. FITZGERALD: But I agree before

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1 you can even answer that question you have to
2 decide what facilities and what time.

3 MR. CALHOUN: Right.

4 MR. FITZGERALD: Then you know, you
5 know, what people.

6 MR. CALHOUN: And then the last one
7 I have is, was data transcribed from one
8 system to another and was it verified, if so.

9 CHAIR BEACH: Okay, then I had one
10 that I wanted you to go see if you could find
11 that radiological footprint?

12 MR. CALHOUN: Yes, that's good.

13 CHAIR BEACH: Here, I'll hand this
14 over to you. It's kind of the third paragraph
15 down there.

16 MR. CALHOUN: Oh, you've got notes
17 on this, let me just write down then, I guess.

18 CHAIR BEACH: Well, or write down
19 the interview, you can go find it, it's out on
20 the O: drive.

21 MR. CALHOUN: Okay.

22 MR. FITZGERALD: And that goes hand

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1 in hand with obtaining the information that
2 has been kept back on a Privacy Act basis
3 which is the, what Brookhaven has compiled as
4 far as their records.

5 CHAIR BEACH: It looks like they
6 did some of that work for you.

7 MR. FITZGERALD: Then we have the
8 action to send interviews out to the
9 interviewees, I guess that was the last thing.

10 CHAIR BEACH: Yes, that was.

11 DR. BUCHANAN: This is Ron
12 Buchanan, I couldn't see what was going on.
13 What was that last one you handed Grady?

14 CHAIR BEACH: Sorry, Ron, that was
15 the May 19th interview that Kathy and Joe did,
16 and there was a question, one of the
17 interviewees talked about a list that was put
18 together.

19 And NIOSH had requested that and
20 was denied, so I just asked Grady if he would
21 go back out and find that list.

22 DR. BUCHANAN: What was the list

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1 of?

2 CHAIR BEACH: It was a list of
3 historical documents, it was a spreadsheet
4 that they had completed for D&D work. It was
5 gathered for use and for D&D.

6 MR. CALHOUN: Incident driven
7 wasn't it, didn't you say it was incident?

8 CHAIR BEACH: It was called a
9 Radiological Footprint Project and it
10 documented historical radiological issues in a
11 spreadsheet.

12 DR. BUCHANAN: Okay, thank you.

13 CHAIR BEACH: And I don't believe
14 anybody has it, it's at Brookhaven.

15 MR. FITZGERALD: Yes, it's the kind
16 of, it's similar to what we saw at Mound, it's
17 like the King Report. It's a baseline to guide
18 D&D so they know what the source, potential
19 sources might be at different facilities.

20 CHAIR BEACH: Well, one thing it
21 said, some of the departments were more
22 forthcoming than others, so it's not complete,

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1 but it sounds like it's a good place to start,
2 or at least look at.

3 Okay, is there anything else, Kathy
4 or Ron, that we've missed in the action items?

5 MS. ROBERTSON-DEMERS: I can't
6 think of any.

7 DR. BUCHANAN: No. Let's see.
8 They did cover going back and looking at the
9 database system and the fading.

10 I will send those 16 cases to
11 Grady. Now, I want to clarify a statement.
12 Six of those were Dose Reconstructed before
13 the new TBD and ten after the new TBD.

14 CHAIR BEACH: Correct.

15 MR. KATZ: Right, that was
16 understood, right. Thanks, Ron.

17 MR. CALHOUN: And all I need is
18 just the numbers.

19 DR. BUCHANAN: Right.

20 CHAIR BEACH: And when you send
21 things out, could you please send it out to
22 the whole Work Group, for those of us that

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1 want to track.

2 DR. BUCHANAN: Okay, sure will.

3 CHAIR BEACH: And then give me a
4 time frame on when these lists of actions
5 items will be typed up and sent back and forth
6 and then out to the whole Work Group? What
7 do you think?

8 MR. CALHOUN: I can get mine done
9 by end of the day Monday.

10 CHAIR BEACH: Okay. And then out
11 to the Work Group maybe Tuesday or Wednesday
12 after we've both looked at them?

13 MR. FITZGERALD: Yes, it will be
14 sometime mid next week.

15 CHAIR BEACH: Okay, and then how
16 about time line for the next Work Group
17 meeting. I know I'm pushing here, it's a
18 stretch.

19 Because I know NIOSH has got quite
20 a few things.

21 MR. CALHOUN: Gosh, I would think
22 that I'm going to need a few months, at least.

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1 MR. KATZ: I would guess.

2 CHAIR BEACH: Well, you're going to
3 need a couple of months, then I know SC&A will
4 have to respond or review some of that?

5 MR. FITZGERALD: Yes, I would say,
6 to have a profitable meeting, it would be
7 helpful to have a meaningful, even a technical
8 call if necessary, to make sure that, you
9 know, we understand where the analysis has
10 gone on, and particularly on the coworkers
11 because that's a pretty big piece of this.

12 CHAIR BEACH: So possibly we'd need
13 a technical call and then --

14 MR. FITZGERALD: It will be a few
15 months. I mean I would guess, maybe sometime
16 early May.

17 MR. KATZ: Okay, which -- do you
18 guys want to pick a date now?

19 CHAIR BEACH: I think we should
20 pick.

21 MR. KATZ: Since we're all
22 together. If we could just shoot for a date

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1 in May. It can always be changed.

2 MR. CALHOUN: I'm out of town the
3 13th to the 20th.

4 CHAIR BEACH: Well we have a LANL
5 meeting on the second here, so the third would
6 be a nice time for those of us that are
7 already going to be here, if that's still
8 available.

9 MR. KATZ: And so Andy and Gen, why
10 don't you look at your calendars, too.

11 MEMBER ROESSLER: I'm looking, I'm
12 free on the third.

13 MR. KATZ: That's good for Gen.

14 MEMBER ANDERSON: What dates again?

15 MR. KATZ: How is May 3rd for you,
16 Gen, I mean, Andy?

17 MEMBER ANDERSON: May 3rd looks
18 good.

19 MR. KATZ: Okay. And Brad?

20 MEMBER ANDERSON: Must be something
21 going on bad then.

22 (Laughter.)

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1 MR. KATZ: So Brad is nodding yes,
2 too.

3 MEMBER CLAWSON: Yes.

4 MEMBER ANDERSON: Most definitely a
5 yes.

6 MR. KATZ: Okay, why don't we --

7 MEMBER ANDERSON: What was the
8 other date?

9 MR. KATZ: That's the only date
10 we're talking about right now. It sounds like
11 that's a good date for everyone.

12 MEMBER ANDERSON: Okay.

13 MR. KATZ: Okay, and then we'll
14 just check in closer to time, Grady, about,
15 and Joe, about readiness.

16 MEMBER ANDERSON: So we need a
17 whole day?

18 MR. KATZ: Yes, let's plan on it.

19 CHAIR BEACH: Yes.

20 MEMBER ANDERSON: Okay, that's fine.
21 Then I'll plan to come in person.

22 CHAIR BEACH: Oh, nice.

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1 MR. CALHOUN: Great, always good to
2 see you, Andy.

3 MEMBER ANDERSON: Yes, right. And
4 eat at that wonderful --

5 MR. KATZ: Absolutely.

6 MEMBER ANDERSON: Restaurant in the
7 hotel.

8 MR. KATZ: Absolutely.

9 MEMBER ANDERSON: I think I've had
10 everything on their menu.

11 MR. KATZ: Well, Andy, you're not
12 even close to the rest of us.

13 MEMBER ANDERSON: I'm not even
14 close, I know.

15 MR. KATZ: The record some of us
16 have with that nutritional value.

17 CHAIR BEACH: And we haven't heard
18 from --

19 MEMBER ANDERSON: Okay, I'll mark
20 down the date, the 3rd it is.

21 MR. CALHOUN: How about you, Tim,
22 and your group?

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1 MR. ADLER: I guess I'm open at
2 this point.

3 MR. CALHOUN: That's what I like to
4 hear.

5 CHAIR BEACH: Okay, great meeting
6 everybody, thank you and we're adjourned.

7 (Whereupon, the above-entitled
8 matter went off the record at 12:04 p.m.)

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