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

convenes the

WORKING GROUP MEETING

ADVISORY BOARD ON
RADIATION AND WORKER HEALTH

CHAPMAN VALVE

The verbatim transcript of the Working
Group Meeting of the Advisory Board on Radiation and
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TRANSCRIPT LEGEND

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

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

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

P A R T I C I P A N T S

(By Group, in Alphabetical Order)

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P R O C E E D I N G S

(10:00 a.m.)

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WELCOME AND OPENING COMMENTSDR. CHRISTINE BRANCHE, DFO

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DR. BRANCHE: Good morning, and welcome to the working group meeting on Chapman Valve. I just want to make certain that I've got the right people for the right call. So this is the work group meeting for Chapman Valve. It is Thursday, May 1st. I am Christine Branche. I'm the Designated Federal Official from NIOSH.

And, Ray, you're up?

(affirmative response)

DR. BRANCHE: Would the Board members in the room please announce your names please for the record?

DR. POSTON: John Poston.

DR. ROESSLER: Gen Roessler.

MR. GRIFFON: Mark Griffon.

MR. GIBSON: Mike Gibson.

DR. BRANCHE: Are there any Board members participating by phone?

(no response)

1 **DR. BRANCHE:** Is there anybody on the line?
2 If you could just please announce so I can
3 make sure the line is working.

4 **DR. MAURO (by Telephone):** Yes, Christine,
5 this is John. The line's working fine.

6 **DR. BRANCHE:** Thank you very much.

7 Are there any Board members who've
8 announced who have any conflict with Chapman
9 Valve?

10 (no response)

11 **DR. BRANCHE:** We do not have a quorum of the
12 Board so we can go on. NIOSH staff in the
13 room, would you please announce your names?

14 **MR. ROLFES:** Mark Rolfes, NIOSH, no
15 conflicts.

16 **DR. NETON:** Jim Neton, NIOSH, no conflicts.

17 **DR. BRANCHE:** Are there any Oak Ridge staff
18 on the line? I'm sorry, any NIOSH staff on
19 the phone would you please announce your names
20 and say whether or not you have a conflict
21 with Chapman Valve?

22 **MR. KATZ (by Telephone):** Yes, Ted Katz,
23 NIOSH, no conflict.

24 **MS. ADAMS (by Telephone):** Nancy Adams,
25 NIOSH, no conflicts.

1 representatives on the line who would like --

2 **UNIDENTIFIED SPEAKER (by Telephone):** Yes.

3 **DR. BRANCHE:** Sir, would you like to
4 identify your name or just want us to know
5 that you're there?

6 **UNIDENTIFIED SPEAKER (by Telephone):**

7 Representing for Theodore Quall (ph),
8 deceased.

9 **DR. BRANCHE:** Thank you very much.

10 Are there any members of Congress or
11 their representatives on the line?

12 (no response)

13 **DR. BRANCHE:** Are there any others who would
14 like to mention their names?

15 (no response)

16 **DR. BRANCHE:** Before I hand it over to Dr.
17 Poston, I would just ask that those of you who
18 are participating by phone, we appreciate that
19 you're there. And we would ask that you mute
20 your phones. If you have a mute button, then
21 please use it. However, if you do not have a
22 mute button, then please dial star six to mute
23 your line. And then when you are ready to
24 speak you can use that same star six to unmute
25 your phone.

1 I understand from Dr. Poston that we
2 will not be taking a lunch break, but we might
3 be taking other biology breaks as necessary.
4 So please understand that we will be working
5 through. And again, thank you for muting your
6 phones, and we do ask that you stick with us
7 today.

8 And, Dr. Poston, it's all yours.

9 **INTRODUCTION BY CHAIR**

10 **DR. POSTON:** Thank you, Dr. Branche.

11 First, I want to welcome everyone
12 here. I know it was a short fuse trying to
13 get this meeting put together. I appreciate
14 the fact that we have everyone here face-to-
15 face as opposed to on the telephone. I did
16 finally get out an agenda on Tuesday, and I
17 think everyone has a copy of that. I'd like
18 to stick to that as much as possible, but I'd
19 see if there's any additions or anything that
20 we need to add to the agenda.

21 (no response)

22 **DR. POSTON:** Hearing no additions, then
23 we'll just assume that this is the accepted
24 agenda. As Dr. Branche indicated and I
25 indicated to you in e-mails, I would like to

1 try to finish today about 2:30. If we have to
2 have an additional meeting, then we'll do
3 that. We'll try to schedule that at some
4 time, but I think there's a lot of things that
5 we can do today that perhaps would resolve a
6 number of the issues.

7 **DEAN STREET FACILITY**

8 The first thing I'd like to do is try
9 to agree on those things upon which we can
10 agree so that then we can focus our efforts
11 and our energies on those things that need
12 discussion and resolution. And so I have put
13 down as the first item for discussion the
14 impact of adding the Dean Street facility to
15 the Chapman Valve cohort, and exactly how that
16 would play into the work of this working
17 group. And I'll try to explain what I mean by
18 that.

19 As I understand it -- and I'm subject
20 to being corrected -- there's a specific time
21 period over which we're considering this
22 cohort. And that time period is in the 1940-
23 '49 timeframe. And even according to the SC&A
24 review, the Dean Street facility was
25 dismantled essentially immediately after, or

1 at least was abandoned immediately after the
2 dropping of the bomb on Hiroshima and
3 Nagasaki. So it's unclear to me what impact
4 adding the Dean Street facility to the site
5 actually has as an impact on this, on what
6 we've been doing so far.

7 So is that a correct assumption?

8 **DR. MAKHIJANI:** Dr. Poston, just a
9 clarification of what's in the SC&A report.
10 The only information in this as you know is
11 from that interview. And in the interview it
12 was that the work that was described by the
13 interviewee about cleaning the manifolds was
14 terminated immediately after the end of World
15 War II.

16 **DR. POSTON:** Well, what your report actually
17 says is you began -- and I read the report on
18 the plane again to make sure that I had it
19 correct. The report actually says they began
20 packing things and moving out of that facility
21 immediately after Hiroshima.

22 **DR. MAKHIJANI:** Right, that's what --

23 **DR. POSTON:** Well, that's --

24 **DR. MAKHIJANI:** That's according, all I'm
25 saying is that in the report, everything in

1 the report about the Dean Street facility --
2 as you know, well, there are two reports of
3 SC&A. But in the first report, everything
4 about the report and the Dean Street facility
5 was based on the site expert interview. In
6 the second report we reviewed the documents
7 also provided by DOE, which are only Manhattan
8 Project documents. And as you know, we didn't
9 do a review beyond that at the instruction of
10 the working group.

11 And so just for the record, what is in
12 the SC&A report is really based on the DOE and
13 Manhattan Project records and what happened
14 after World War II in terms of work at the
15 Dean Street facility based only on the site
16 expert interview. That's it, and I just
17 wanted to say that.

18 **DR. POSTON:** So let's get back to the
19 question. Does the addition of that facility
20 to the site because there were no activities
21 after World War II, does that have any impact
22 on the evaluation of this, the original
23 Chapman Valve facility that we were charged to
24 review?

25 **DR. BRANCHE:** Before you begin responding,

1 again, if everyone on the line would please
2 mute your phone, it will enhance the quality
3 of everyone on the line being able to hear.
4 We hear some typing. We hear some typing on
5 the line. If you don't have a mute button,
6 then please use star six.

7 I'm sorry, Dr. Poston.

8 **DR. POSTON:** That's all right.

9 I mean, I'm trying to understand this
10 situation. Maybe Emily could help. The
11 charge to the committee was to look at this
12 particular timeframe, and there was a certain
13 activity inside of that timeframe that was
14 going on. And we've established that that was
15 only a small portion of this year and a half
16 or so time period. And since the Dean Street
17 facility was added, that to me doesn't have
18 any impact on what we've done so far, but I'm
19 ready to be corrected by members of the work
20 group that see it differently.

21 **MR. GRIFFON:** I guess that's the question is
22 that if the expert's account is accurate, then
23 it would fall outside that time period. I
24 guess that's true. I don't know if NIOSH has
25 done any other, I don't think so based on

1 what's on the O drive you haven't found any
2 other documents to corroborate that or to
3 modify that opinion. But I mean, I guess
4 that's --

5 **DR. NETON:** The only thing I can point to is
6 the H.K. Ferguson report is very explicit as
7 to what work was done and where and how in the
8 1948 and '49 timeframe for AEC operations.
9 And nowhere in that report does it mention
10 anything about a Dean Street, interaction with
11 the Dean Street facility as far as the
12 preparation of the slugs. Now, I can't speak
13 to what went on at Dean Street now other than
14 what the site subject expert said at Chapman
15 Valve that after the war, it seemed to have
16 been put to bed so to speak. But I can't
17 speak as to what happened.

18 **MR. GRIFFON:** And I guess if the Dean Street
19 facility operated into a later time period, it
20 could still be treated separately, right? I
21 mean, I don't think we're locked out of that
22 time period. So either way we could separate
23 Dean Street, I guess.

24 **DR. POSTON:** You know how you solve
25 problems. You define what the problem is

1 first, define what it is. And it appears to
2 me that if we take the opposite view, that
3 there's nothing to refute or substantiate,
4 then we just dissolve the work group because
5 we can't go forward because we don't know.

6 But based on what I think we know or
7 the lack of records, then I think we need to
8 not worry about the Dean Street facility and
9 consider the facility that we've been, that
10 we've put so much effort into already. And if
11 we can agree on that, then we can move
12 forward.

13 **MR. GRIFFON:** I mean, I think as long as we
14 can legally treat it separately I guess that
15 seems reasonable to me.

16 **MS. HOWELL:** My understanding of what the
17 Department of Energy and the Department of
18 Labor have done at the facility is that they
19 just said that Dean Street is now considered
20 part of the facility. And in other classes we
21 have certainly split various physical areas of
22 a facility. So I don't think that acting on
23 the main portion of Chapman Valve and not
24 acting on the Dean Street portion would
25 preclude you from being able, if information

1 was found or it was determined that a lack of
2 information was substantial enough, to later
3 have a class.

4 **DR. NETON:** Well, let's be careful because,
5 if you recall at the last Board meeting, we
6 modified the proposed class definition to
7 include Dean Street. Right now it reads all
8 employees who were involved in work at Chapman
9 Valve manufacturing facility, i.e., Building
10 23 and the Dean Street facility. So if the
11 class is decided not to be added, for example,
12 then that would imply that Dean Street would
13 have been --

14 **MS. HOWELL:** But you could --

15 **DR. NETON:** -- but new information could
16 always --

17 **MR. GRIFFON:** For that time period, yeah.

18 **DR. NETON:** Yeah, for '48 and '49.

19 **MS. HOWELL:** New information can open it,
20 and if NIOSH and the Board members were
21 agreed, you could also renew, I mean, we could
22 go back to the old definition that was --

23 **MR. GRIFFON:** If we didn't say Dean Street
24 in there, I think we could --

25 **DR. NETON:** Yeah, we're not required to have

1 Dean Street in. We just added it because it's
2 part of the facility.

3 **DR. POSTON:** Would we have to make a formal
4 decision to go back to the old definition or
5 can we --

6 **MR. GRIFFON:** I think the Board can make
7 their own definition, too, right?

8 **DR. NETON:** It can happen several ways.
9 Either NIOSH could amend their definition if
10 we chose to or the Board could, in voting on
11 this, just restrict their change.

12 **MS. HOWELL:** And the Board and NIOSH don't
13 have to have the same definition. It's
14 certainly helpful when we do, but it's not a
15 requirement.

16 **DR. POSTON:** So would it be appropriate for
17 this work group to bring a recommendation to
18 the Board that those be separated? Is that
19 what we're saying?

20 **DR. ROESSLER:** To me it's most easy to
21 understand a way to do it. Otherwise, we're
22 always going to come back to the same
23 discussion and talk about dates and talk about
24 the lack of any information for including it.

25 **DR. BRANCHE:** I think it would help your

1 fellow Board members who are not on the work
2 group to know what your thoughts are.
3 Whatever your recommendations are be able to
4 provide them in writing and present them in
5 such a form will facilitate it at the Board
6 meeting.

7 **DR. POSTON:** Well, working group members, is
8 there an objection to or is there agreement
9 that we should make a recommendation to the
10 Board that these be separated?

11 **DR. ROESSLER:** By separated do you mean go
12 back to the original --

13 **DR. POSTON:** Right, go back to the original
14 definitions where we're just going to focus on
15 the Indian Orchard. We don't have any data on
16 the, or very little.

17 Mike, how do you feel?

18 **MR. GIBSON:** Yeah, that's fine.

19 **DR. POSTON:** Okay, so we've agreed that
20 we'll go back. So I'll make, at our next
21 Board meeting I'll make a recommendation that
22 we go back to the original definition because
23 keeping the two together makes our job almost
24 impossible.

25 Well, we're having a nice discussion.

1 I'm taking a minute here to write this down so
2 the old man doesn't forget.

3 **INDIAN ORCHARD SITE**

4 Since we've done that I'd like to sort
5 of interpose a three and a half agenda item
6 here and see if there's a couple of other
7 things that we can agree on since now we're
8 focusing on the Indian Orchard site. Is it
9 generally agreed among the working group
10 members that the external dosimetry that is
11 from the film badges and so forth is
12 sufficient to reconstruct doses?

13 **MR. GRIFFON:** I think the data was there for
14 that.

15 **DR. POSTON:** So there's general agreement
16 that the external dose then the records are
17 sufficient to --

18 **MR. GRIFFON:** Can be bounded, yeah.

19 **DR. POSTON:** -- so that we can bound them.
20 So what I'm trying to do is peel this onion or
21 whatever you want to call it.

22 So that brings us to the internal dose
23 assessment situation, and I, as I told Arjun,
24 I re-read the SC&A report and found it very
25 interesting as they went to some of the other

1 places like Simonds Saw and so forth. And I
2 forget the words you used in your report, but
3 it's amazing, unbelievable or something
4 agreement between the results at Chapman Valve
5 and the results at some of the similar
6 facilities.

7 **DR. MAKHIJANI:** I think the revision was not
8 done by me, so I don't remember the exact
9 words.

10 **DR. NETON:** Which report are we speaking
11 about?

12 **DR. MAKHIJANI:** This must be the earlier --

13 **DR. POSTON:** This is the earlier one, 2/06.

14 **DR. NETON:** Oh, the original draft.

15 **DR. MAKHIJANI:** But I do remember there was
16 a fair amount of discourse about these
17 bioassay records.

18 **DR. MAURO (by Telephone):** This is John
19 Mauro. The December 6th report goes into quite
20 a bit of detail on the bioassay records and
21 sort of like to validate the bioassay records.
22 What they would mean in terms of what kind of
23 air dust loading you might have to have to get
24 that kind of urine, uranium concentration in
25 urine comparing that to the large array of

1 different sites where we do have air sampling
2 data. So there's quite a bit of work went
3 into the December 6th report. It's a
4 relatively large report not only on the
5 external but also on the internal. But, of
6 course, the internal focused entirely on
7 natural uranium.

8 **DR. POSTON:** Well, I guess I was caught, I
9 came up short here, John, because when I sent
10 you an e-mail asking you to send me the latest
11 report, your staff sent me the 2/06 report so
12 that was the one I read thinking that was the
13 latest one.

14 **DR. MAURO (by Telephone):** Oh, that's an
15 error on our part. Yeah, of course, there's
16 the later report, March 2008, which was
17 prepared by Arjun and reviewed by me which
18 specifically addresses I would say the delta
19 issue related to Dean Street and the
20 radiochemical issues related to enriched
21 uranium. So it's unfortunate -- well, I guess
22 it's good you looked at the December 6th
23 because that's sort of like a baseline, the
24 rock we're standing on.

25 And many of the issues by the way that

1 are identified in the December 6th report
2 related to the fire and there are a number of
3 issues that we do raise. All of these have
4 been addressed and I believe resolved to the
5 satisfaction of the working group except for
6 the matter of Dean Street and the enriched
7 uranium matter.

8 There's one other issue that I believe
9 that really has not been addressed has to do
10 with the later years and using data obtained
11 during the FUSRAP Program characterization to
12 reconstruct the doses to people who worked at
13 the facility after termination of AEC
14 operations at Chapman Valve. We really never
15 talked about some of our concerns there. I
16 would think that that kind of concern leans
17 more toward a site profile, but I wouldn't,
18 I'll certainly leave that to the working
19 group. It's really a matter of how do you use
20 the available data to characterize internal
21 and external exposures post operations from
22 residual radioactivity. We really never
23 talked about that.

24 **MR. CLAWSON (by Telephone):** John? I'm
25 calling for John Poston. I just wanted to

1 make sure that John Poston knew that Brad
2 Clawson was on the line. I apologize, but I
3 had a meeting overrun into this one, and that
4 I am board. I wanted to let John Poston know
5 that I am on the line.

6 **DR. POSTON:** Great, Brad, thank you very
7 much.

8 **DR. ROESSLER:** John Mauro, this is Gen.
9 What years are you talking about on the later
10 comment that you had?

11 **DR. MAURO (by Telephone):** After the period
12 of operations, which I believe is a year, year
13 and a half, 1948, '49, '50, that timeframe.
14 Then there is -- in fact, the way the petition
15 is written, there's various time periods that
16 follow operations that are addressed. And one
17 of our concerns was that once operations
18 terminated where the majority of the exposures
19 of concern, then you move into this residual
20 period where all you really have is some clean
21 up. There's certainly quite a bit of clean up
22 took place, and we describe that in some
23 detail in the December 6th report. But there's
24 always the question, okay, what do we do about
25 the residual radioactivity. And there was the

1 FUSRAP work that took place, I believe, in the
2 1990s where they fully characterized the
3 residual activity. And, of course, that was
4 the basis for further FUSRAP clean up
5 activities. Now, one of the concerns we
6 expressed, I believe, was that the data that
7 was collected in support of the FUSRAP clean
8 up was used, which was done many, many years
9 later, I believe in the '90s --

10 **DR. MAKHIJANI:** 'Ninety-two.

11 **DR. MAURO (by Telephone):** 'Ninety-two. Was
12 used, in other words the Becquerels per meter
13 squared contamination on surfaces. And then
14 knowing that level of contamination in theory
15 you could predict what the inhalation
16 exposures may be based on resuspension. What
17 they did is they took that characterization
18 and assigned that level of contamination to
19 the post-operation years at Chapman Valve
20 which goes all the way back, I believe, to the
21 much earlier years, back 30 years or more.
22 And we were concerned that you really can't do
23 that. There might be a better way to come at
24 the problem than to use because so much time
25 has passed by there's some question whether

1 you can back extrapolate that way. And there
2 may be better ways in which you could come at
3 the question of exposure to residual
4 radioactivity. We never really talked about
5 that issue.

6 **DR. NETON:** John, let me remind you about
7 the proposed class definition only covers '48,
8 '49 and the petition requested '91 through
9 '95. There was no petition here evaluating
10 '50 through '90 at all.

11 **DR. MAURO (by Telephone):** Okay, so the --

12 **DR. NETON:** That period, it was silent in
13 this evaluation for it because that was not
14 petitioned.

15 **DR. MAURO (by Telephone):** No problem then,
16 so the resolution is that that issue really
17 goes away as long as we're only dealing with
18 the period of operation.

19 **DR. NETON:** It's a profile issue, but it's
20 not been evaluated in this evaluation report.

21 **DR. MAURO (by Telephone):** Okay, then that
22 helps. Thank you.

23 **MR. GRIFFON:** But can you clarify, Jim, in
24 the later part of '49 I thought there was a
25 back extrapolation technique used there, too,

1 or no?

2 **DR. NETON:** Yes, yeah, we would use a back
3 extrapolation technique to go back into the
4 period, but that technique is not being
5 evaluated in this evaluation report.

6 **MR. GRIFFON:** I thought it was for the --

7 **DR. NETON:** The '91.

8 **MR. GRIFFON:** -- last six months of '49.

9 **DR. MAURO (by Telephone):** Mark, I believe
10 you're correct. I'm looking at, I believe
11 there's a May 1st, 1949, --

12 **MR. GRIFFON:** Yeah, to December 31st, yeah.

13 **DR. MAKHIJANI:** I believe there is an eight-
14 month period in 1949 --

15 **DR. NETON:** We've been through this before.
16 I mean, we've discussed that. We looked at
17 operations they conducted and -- I didn't come
18 prepared to discuss --

19 **MR. GRIFFON:** I need to refresh my memory,
20 but I think --

21 **DR. NETON:** But that's not what John's
22 talking about.

23 **MR. GRIFFON:** Oh, I thought he was. I
24 thought that was in part. I mean, it extends
25 beyond --

1 **DR. MAURO (by Telephone):** Let me clarify.
2 I have to go back and read it again. I was
3 sort of trying to read through it all early
4 this morning. There are time periods that are
5 residual radioactivity periods. The question
6 I have is, are any of the residual
7 radioactivity periods included within the
8 scope of the matters we're discussing today?

9 **DR. NETON:** Yes, and that's 1991 through
10 '93. That's what was evaluated in this SEC
11 evaluation.

12 **MR. GRIFFON:** So not those last eight months
13 of '49?

14 **DR. NETON:** Eight months of '49 are
15 included, but those are not, we don't consider
16 those residual. Those are considered part of
17 the work activities.

18 **MR. GRIFFON:** How was the dose --

19 **DR. NETON:** And you're right. There were
20 bioassay samples that were taken somewhere
21 before the end of the operations.

22 **MR. ROLFES:** I think the last date of
23 bioassay was October 7th, 1948. That was the
24 last day based on the H.K. Ferguson document
25 that we have. There is some information on

1 the decontamination proceedings that were
2 documented. This is dated January 17th, 1949.
3 It goes through the extent of the
4 contamination that was observed at the site.
5 I believe what we did in the site profile was
6 to extend the intakes beyond 1948 in order to
7 be claimant favorable. The information that's
8 presented in the H.K. Ferguson document
9 indicates that the contract was actually
10 completed, that the production of the slugs
11 was completed by the end of 1948.

12 **DR. MAKHIJANI:** There's just no
13 clarification about the dates. I've got the
14 ER, Evaluation Report, open here and what it
15 said, just for clarity as to what it said.
16 For purpose of this evaluation the period from
17 January 1, 1948 through April '49 is evaluated
18 as the operational period -- semi-colon. The
19 periods from May 1, 1949 through December 31,
20 1949, and from January 1, 1991 through
21 December 31, 1993 are evaluated as residual
22 radioactivity periods.

23 **DR. NETON:** That's what, okay, you're right;
24 you're right. So those six months --

25 **DR. MAKHIJANI:** Yeah, eight.

1 **DR. NETON:** Did we not --

2 **MR. GRIFFON:** And that's the question. Was
3 there bioassay data there or was that back
4 extrapolated from FUSREP-type survey data?

5 **MR. ROLFES:** For the 1949 period I believe
6 we just extended the intakes based on the
7 previously calculated intakes based off those
8 bioassay --

9 **DR. NETON:** I believe we assumed the chronic
10 intake for the entire time period based on the
11 bioassay that was collected during the
12 operational period. In other words it wasn't
13 modeled as a residual contamination issue 'til
14 '49.

15 **DR. MAURO (by Telephone):** Jim, that might
16 be my mistake because when I reviewed the work
17 -- now we're talking about the report --

18 **DR. NETON:** See, I didn't know we were going
19 to go back into this bioassay issue again.

20 **DR. MAKHIJANI:** Yeah, I think on page -- I'm
21 also not fully prepared for this, but just
22 looking at the ER on page 21 of the evaluation
23 report just about 7.1.1.2, there's a very
24 short two-sentence paragraph for the post-
25 April '39-'49 residual radioactivity period.

1 NIOSH reviewed the file containing the
2 radiological survey data used in the
3 development of the residual radioactivity
4 portion of the Chapman TBD. So this would
5 indicate that the '92 data were used for that
6 eight-month period, I think.

7 **DR. MAURO (by Telephone):** That's my
8 recollection also, Arjun.

9 **DR. MAKHIJANI:** The '92. This is my
10 recollection, also from doing the TBD review
11 that was carried over into the ER.

12 **DR. MAURO (by Telephone):** That was my
13 recollection, too, Arjun. And right now I'm
14 looking at our report. Yes, and I believe
15 it's absolutely what was done. And we
16 expressed some concern about that.

17 **DR. NETON:** That might have been changed in
18 our review. Let's see, I'm looking. Bear
19 with me here. I think either way if we
20 didn't, it certainly would be bounding to use
21 the bioassay data through the end of '49 which
22 is what I thought we had done.

23 **DR. POSTON:** That's what I thought you did.

24 **DR. NETON:** Estimation internal exposure
25 uranium bioassay. Summary for the operational

1 period, 1/1/48 through four. It does stop
2 4/30/1949; that's correct. You're right. So
3 for that period from '48, from May 1st -- wait
4 a minute, through '49.

5 **DR. MAKHIJANI:** May 1st of '49, I think, yes.

6 **DR. NETON:** May 1st of '49.

7 **DR. MAURO (by Telephone):** Yeah, May 1st, '49
8 through December 31st, '49 is the area at
9 question. And I believe you did use the back
10 extrapolation as opposed to forward
11 extrapolation.

12 **DR. NETON:** Right, okay.

13 **MR. GRIFFON:** I mean, I sort of, John
14 started this whole thing by saying it was
15 maybe a site profile issue, too.

16 **DR. NETON:** We've got the site data here and
17 Mark just pointed out that we've got the
18 January 1949 survey data from the H.K.
19 Ferguson report which is obviously much more
20 contemporary. So between those two pieces of
21 information, I'm pretty comfortable that we
22 can bound those exposures.

23 **MR. GRIFFON:** We may have disagreement on
24 how it's done right now, but it might be a
25 site profile discussion.

1 **DR. ROESSLER:** So what is the conclusion
2 with regard to the SEC event periods that
3 we're talking about? Are you in agreement
4 that this is a reasonable approach, the
5 bounding from, and the dates, May 1st, 1949 to
6 December 31st?

7 **MR. GRIFFON:** Well, that's the separate
8 discussion. And I guess I'd want to qualify
9 my answer to your previous question, too, Jim,
10 that on the external dose I think if under the
11 premise that everything that the operations
12 are only as discussed in the H.K. Ferguson
13 document, I'd say that the external data they
14 have can be used to bound. But my problem is
15 going back to this question of was there other
16 operations there that are not described. And
17 this gets back to the americium-uranium sample
18 which we're going to, it's further on in our
19 agenda. But, I mean, if there was different
20 stuff going on there, then that raises
21 questions of bounding the external.

22 **DR. POSTON:** Of course, of course. But
23 based on what documents we have, and as I say,
24 if you're going to put a caveat on everything,
25 we just as well dissolve the group and go away

1 and say we can't --

2 **MR. GRIFFON:** I'm not the one putting an
3 asterisk on the U-235 sample, so you know.

4 **DR. POSTON:** I mean, I think we have to
5 resolve that, and that's why it's next on the
6 agenda. I really want to understand that. I
7 mean, even today with our modern computer
8 techniques and so forth that we have with
9 radiation detectors, it's easy to have
10 radionuclides that show up in the spectrum be
11 identified as something else which is -- I
12 just want to learn more and understand more,
13 and I'm somewhat skeptical right now because
14 it's so close to, it could be close to natural
15 uranium. So are we okay on the periods now?

16 (no response)

17 **DR. POSTON:** Okay, and so all right, I've
18 got your caveat about if we understand that
19 there's further activities going on or we
20 discover other activities, then that may not
21 apply. But as we see it now the external dose
22 is not an issue based on the availability of
23 the dosimetry data. We can bound it.

24 **ELEVATED SOIL SAMPLE RESULTS**

25 How about the soil sample results? I

1 looked at that again, and I'm somewhat
2 confused I must admit. Maybe someone else can
3 help me like Arjun or Jim or somebody.

4 **DR. NETON:** I can provide some, it's new
5 information, and I don't know if it's going to
6 be helpful, but it's new. After the last
7 Board meeting we contacted, I attempted
8 through various channels to get a hold of the
9 authors of the --

10 **DR. MAKHIJANI:** May I interrupt? Is there a
11 piece of paper that we can be looking at while
12 you're speaking from this new information?

13 **DR. NETON:** It's going to be about four
14 sentences.

15 **DR. MAKHIJANI:** Oh, okay, okay.

16 **MR. ELLIOTT:** It's not a document.

17 **DR. MAKHIJANI:** I thought there was a new
18 analysis.

19 **MR. ELLIOTT:** It's a status report because
20 at the last working group meeting I think it
21 was you, Arjun, that suggested has anybody
22 talked to whoever -- maybe it was -- can we
23 find the guy that did the analysis.

24 **DR. NETON:** This is not new data. This is
25 new information.

1 **DR. POSTON:** As I told the NCRP in my paper
2 a couple weeks ago, this is a new technique
3 called listening. I don't have any slides, no
4 PowerPoint, no anything. They had to listen
5 to what I had to say.

6 **DR. NETON:** So what we did was through
7 various channels I tried to find get a hold of
8 one of the authors. It turns out that Ray
9 Foley, one of the authors of the 1992 FUSREP
10 Report, authored by Foley and Uziel, has
11 retired from Oak Ridge National Laboratory but
12 is available for discussion.

13 And I've had a couple phone
14 conversations with him now, and he's agreed to
15 work on our behalf to try to shed some light
16 on the nature of this sample. I only had
17 quick call with him. He was on his way to Oak
18 Ridge National Lab to try to figure out -- he
19 knows where these records all are.

20 But he in his mind is not clear what
21 type of analysis was done. I asked him
22 specifically was it alpha, gamma or neutron,
23 and he said he wasn't sure because they were
24 changing techniques around that time period.
25 Originally he thought it would have been

1 neutron, but then he backed off into I'm not
2 sure. We were changing our analytical
3 protocols during that time period.

4 So I hope to have a better update on
5 exactly what happened, but he's working on
6 that right now. The bottom line is even the
7 author of the report right now doesn't know
8 how they did the analysis.

9 **MR. GRIFFON:** Maybe he can find the reports,
10 too. That would be great, right?

11 **DR. NETON:** Well, he actually, he was going
12 to the lab to look at the data cards. He
13 knows where they were. He was a team leader
14 and was actually there collecting the samples,
15 was in charge of the collection of the samples
16 and the analysis of them. So if anyone should
17 be able to help us shed more light on this, I
18 expect he will, but we're not there yet. So
19 that's what's, Larry's correct. It's a status
20 update.

21 **MR. ELLIOTT:** We hope to be there within a
22 matter of days maybe. I don't know, a month?
23 I don't know. Before the next board meeting?
24 I don't know.

25 **MR. GRIFFON:** There's a glimmer of hope

1 there anyway.

2 **DR. NETON:** It may be that those results are
3 gone because we heard through other channels
4 that those results may have been either
5 destroyed or transferred somewhere where no
6 one knew. But I'm confident if anyone could
7 find them, Ray Foley, who knew where they were
8 stored originally, should be able to.

9 So that's where we're at. Given any
10 of those three techniques, I'm not sure, NIOSH
11 is certainly not in a position to say anything
12 about the 2.16 percent number yet. Because we
13 have no idea how they were analyzed.

14 **MR. GRIFFON:** Did you follow up at all on
15 naval operations? Because my question is if,
16 I just have this, I think there was some
17 information in a newspaper, some naval work
18 was done there. And that could have been, I
19 don't even know if it was radiological naval
20 work.

21 **DR. NETON:** I did look into that a little
22 bit. I didn't contact the Department of the
23 Navy or anything like that, but --

24 **MR. GRIFFON:** But if they worked with
25 enriched with the Navy --

1 **DR. NETON:** There were naval manifolds being
2 made back there. Recently in one of the work
3 group meetings that we had where someone
4 indicated in 1943 timeframe possibly they were
5 manufacturing valves for the Navy. They did a
6 fair amount of contract work for the Navy as
7 well.

8 **MR. ROLFES:** There's a picture in a
9 newspaper article of a valve that was produced
10 at Chapman Valve for naval applications. The
11 valve which weighed 15,000 pounds was made of
12 special corrosion-resistant ^ tight steel.
13 The mammoth casting is part of the Chapman
14 project to manufacture for atomic power
15 installations. So, yeah, they did --

16 **DR. POSTON:** 'Forty-three?

17 **MR. ROLFES:** Yeah, that's --

18 **DR. POSTON:** I'm saying Navy in '43?

19 **DR. MAKHIJANI:** This would have been for the
20 Manhattan Project, atomic power.

21 **MR. ROLFES:** There were separate contracts
22 for the Navy as well, yes. They did produce,
23 it was in the later years, Crane Company did
24 produce, they had an atomic power division
25 that produced valves. Chapman Valve was

1 bought out by Crane Company in roughly 1958,
2 and they did do additional work in the more
3 recent time period for nuclear reactors and
4 for the Navy as well.

5 **DR. MAKHIJANI:** Would this be the Naval Lab
6 in Washington that they were working for?

7 **MR. ROLFES:** I don't know.

8 **DR. NETON:** It said that this one person who
9 was interviewed in the worker outreach meeting
10 that was conducted around 2005 talked about
11 work for the Navy that was done in 1943 and
12 1945. He specifically remembered doing some
13 radiography on these units to check the
14 integrity of the valves for the U.S. Navy.
15 The exposed film was sent to the hospital.
16 This was in '43, '45. The Navy compiled the
17 X-rays. At least his recollection there was
18 work in '43 and '44 for the Navy at the same
19 time.

20 The other piece of information, for
21 example, that's interesting -- I've re-read
22 almost all this stuff again -- is that when
23 Bechtel went in there to, you know, in 1992
24 ORNL went in and did a FUSREP survey, and they
25 identified the areas of contamination.

1 Bechtel then went in 1995, and using those
2 measurements, went about decontaminating the
3 facility.

4 They, of course, identified that hot
5 spot again. But in their report they indicate
6 that that spot, they had to actually dig out
7 the ramp to get to the contamination that was
8 underneath the ramp. Kind of interesting,
9 they used a jackhammer to pull out all the
10 concrete to get to this contamination they dug
11 out and shipped off. They don't characterize
12 it at all unfortunately. But it was almost
13 like fill material that was there of some type
14 which leads me into this next area where the
15 floor was made with fire brick in certain
16 places.

17 If you look at the Bechtel report they
18 talk about the floor was made of wood, three-
19 by-three-by-five wooden blocks. So they
20 essentially made a parquet floor out of, you
21 know, the five inch went deep and then three-
22 by-three on top, and they made a block floor
23 out of it. Where those blocks had eroded or
24 become decayed, the report says they replaced
25 them with fire bricks.

1 So I don't know if that adds anything
2 to it at all or not, but fire bricks are known
3 to contain a fair amount of natural
4 radioactivity, if you look around, up to 38
5 micro R per hour which is amazingly close to
6 the reading of 32, I think, that was taken at
7 that area. That's all speculation, just
8 things that are sort of, that are available.

9 **DR. POSTON:** So to summarize, we basically
10 have an opportunity maybe within a few days,
11 maybe within some period of time to have some
12 information to help to shed more light on this
13 one sample, that soil sample, and how it was
14 measured and so forth.

15 **DR. NETON:** I think there's one more piece.
16 If you look at all of the health protection
17 measurements that were made for Bechtel clean
18 up, they were all made assuming that they were
19 working with natural uranium. If you look at
20 the values they would take air samples and
21 transport them in the natural uranium intakes
22 and that sort of thing. So in their mind they
23 were dealing with a natural uranium
24 contamination problem.

25 **DR. MAKHIJANI:** It seemed like it was an

1 assumption.

2 **DR. NETON:** Yeah, it was. They didn't do
3 any more spectroscopy on them, but you're
4 right. They assumed they were working with
5 natural uranium.

6 **DR. POSTON:** Well, I guess to continue this
7 discussion, I'm trying to understand what is
8 the impact of this one sample on you folks in
9 NIOSH to assessing doses. I mean, for
10 internal exposure, I guess in my feeble mind,
11 taking the approach that they did is a huge,
12 huge overestimate of the potential internal
13 doses for the workers. But I guess I can in
14 the spirit of discussion, I'd be glad to hear
15 someone else's opinion on that.

16 **MR. GRIFFON:** Well, it's not the issue of
17 dose assessment, I mean, as we've discussed
18 before, it's the issue of your whole story
19 revolves around natural uranium, and here's an
20 outlier that doesn't fit the story. So was
21 something else going on there? I mean, if it
22 was only two percent enriched, then I would
23 think, sure, you can adjust your intakes, and
24 you're already doing an overestimating
25 technique. I would agree then.

1 But everything says they only worked
2 with natural uranium, and you have this
3 potentially outlying sample here that doesn't
4 sort of fit the story line of the facility.
5 So the question in my mind is what else, was
6 anything else going on there or is this, you
7 know, I mean, that's the question. It's more
8 than can we adjust the dose a little higher by
9 assuming two percent enriched. That's not
10 really the question.

11 **DR. POSTON:** Yeah, but I understand your,
12 from a scientific standpoint I understand what
13 you're asking, but it appears to be an
14 unanswerable question. We don't have the
15 data. No one's turned up the data to indicate
16 that anything's going on that is a, that one
17 sample is an anomaly.

18 **MR. GRIFFON:** Well, it's one out of two. So
19 if you want to look at it that way.

20 **DR. POSTON:** And when we talked to the folks
21 up there, we immediately jumped to the fact
22 that it may have come from Oak Ridge from one
23 of the manifolds, but there's no evidence to
24 show that there were any manifolds shipped
25 back to Chapman Valve for testing. It was

1 only ones that were tested were shipped out.
2 So even there's a conflict between what the
3 folks are telling us in the interviews and
4 what paperwork there is to indicate what
5 direction things went.

6 **MR. CLAWSON (by Telephone):** John, this is
7 Brad Clawson. That's very true, and I agree
8 with that. We have not found anything that
9 has said that there were any manifolds or
10 anything, but we have not found anything that
11 says that there wasn't either. This is part
12 of the problem with a lot of these buildings
13 and so forth like this. And we've had this
14 with other site profiles and so forth like
15 this.

16 We've got into it, and they've said,
17 well, we can't find any information for this
18 and that, and then all of a sudden stuff
19 appears three years down the road out of some
20 other place. I can't, on my conscience, be
21 able to say that there wasn't something else
22 that was going on there.

23 We see this at numerous facilities
24 that a lot of these sites were interconnected
25 with one another and did work with one

1 another. And just because we can't find a lot
2 of this paperwork does not mean that it didn't
3 happen though.

4 This is what we've got to come to, and
5 I understand your issue with not, being an
6 unanswerable question, but this is what this
7 whole system was set up to be able to do. You
8 know, Dean Street wasn't even into the part of
9 it at the very beginning of it.

10 There's a lot of unanswered questions,
11 and we've got to research these the best that
12 we can to make sure that when we give this to
13 the rest of the Board, that we have uncovered
14 every rock that there is.

15 **DR. POSTON:** So should I adjourn the
16 meeting, and we should go look? I mean, what
17 do you, what are you saying?

18 **MR. GIBSON:** I'm with Brad. I mean, was
19 this an anomaly or not? And if you're just
20 going to depend on DOE's records to rewrite
21 history, I think we all agree, that's why this
22 program's in effect because of DOE's poor
23 record keeping. So you can't look at the
24 records that are there that they have
25 generated and maintained as an adequate record

1 of history.

2 **DR. POSTON:** What are you going to use,
3 Mike?

4 **MR. GIBSON:** Well, I would value more a
5 worker's opinion even if it was a worker that
6 was 80 years old than DOE records.

7 **DR. POSTON:** I'm not saying that we
8 discounted the ^. I've said it a couple
9 times, you know, I went up there with Arjun
10 and John, and we heard what they had to say.
11 And even though there are no records that
12 those manifolds came back, the folks
13 remembered it quite well, and they pointed to
14 a window and said they were about as big as
15 this window. And Mark was there, and they
16 have very vivid memories.

17 **MR. GIBSON:** We're not going to get an
18 answer for what we're going, we should use,
19 but I don't think we can just --

20 **MR. GRIFFON:** Well, I mean, but, John, you
21 also said we've got an unanswerable question.
22 But I think the law allowed for that
23 potential, and that's why we have the SEC. If
24 you can't answer a question, then we have a
25 timeliness issue and a bounding issue.

1 **DR. NETON:** Can I point one thing out
2 though? I've said this several times, but
3 maybe it bears repeating again. The SEC class
4 is specifically for evaluating the exposures
5 in Building 23. That was a 16-by-200 foot
6 area carved out, the project was carved out.
7 And that's what we reconstructed.

8 We have very good details of all the
9 material that was used in that project for
10 this year and a half, which was uranium slugs,
11 natural uranium slugs, no indication of any
12 enriched uranium being processed in the
13 facility. It was specifically put in place
14 for this project. I see no evidence of any
15 enriched uranium being used or in this little
16 area. I don't disagree that we don't know
17 what happened outside of Building 23, but
18 that's not what we're looking at.

19 **MR. GRIFFON:** But the sample. We've been
20 through this, too, Jim, the sample was in
21 Building 23. It might not have been in --

22 **DR. NETON:** Yeah, underneath the loading
23 dock. They would jackhammer out --

24 **MR. GRIFFON:** It wasn't a soil sample first
25 of all, right?

1 **DR. NETON:** Yes, it was.

2 **MR. GRIFFON:** I don't think they
3 jackhammered to get the sample, did they?

4 **DR. NETON:** Not the sample, but it was a
5 couple centimeters worth of soil, which is
6 about 120 picocuries per gram. What I'm
7 saying is how does that affect the
8 reconstruction of this project that went on in
9 that building. And that's the only project we
10 know went on there because it was an AEC
11 secret project with guards stationed at the
12 entrance. There's no evidence that anything
13 else happened inside this little 60-by-200
14 foot area.

15 **MR. ROLFES:** I'll add a statement from this
16 report --

17 **MR. GRIFFON:** The only piece of evidence is
18 that one, is the sample, the sample that we've
19 been talking about for months.

20 **DR. NETON:** Yeah, right. But if you're
21 going to throw away all that data and say,
22 well, that one sample trumps --

23 **MR. GRIFFON:** So do you throw away one out
24 of -- again, this is 50 percent of the samples
25 that came up enriched. It only took two that

1 they did, did isotopic analysis on.

2 **DR. NETON:** So are you saying then that
3 there was enriched uranium throughout Building
4 23 that we don't know where it came from?

5 **MR. GRIFFON:** I'm saying I don't know. And
6 I'm saying I agree with you. Everything we've
7 seen about that project indicates -- or was
8 that the only project in Building 23? I don't
9 know.

10 **DR. NETON:** The way it's written up it is.

11 **MR. ROLFES:** The DOE researched their
12 information and that was the only thing that
13 they had found under this contract that
14 occurred at Chapman Valve, under Contract 74 -
15 -

16 **DR. NETON:** Radiologically, and now you're
17 also talking about a sample that was taken and
18 was found 50 years later after the project,
19 and now you're saying, well, it more than
20 likely, could have likely happened in the
21 middle of the project where we have no
22 indication that there was any other
23 radiological work going on.

24 **MR. GRIFFON:** We're in the tricky position
25 of refuting data that we're later going to

1 rely on for doing these back estimates for the
2 resuspension doses and everything else. I
3 mean, we've relied on FUSREP data in quite a
4 bit of the site profiles, I believe, to back
5 extrapolate things for non-active periods, and
6 now because one sample doesn't sort of fit the
7 bill here, we're saying it might be, we don't
8 even know, but there might be uncertainty --

9 **DR. NETON:** Are you saying all the samples
10 they didn't measure for enriched then, are
11 probably enriched now? Is that what you're
12 saying?

13 **MR. GRIFFON:** No, I'm just saying you're
14 saying you can throw this one out because it
15 doesn't fit the story line. That's what I'm
16 concerned about. We can't just ignore it
17 because it doesn't fit the story.

18 **DR. POSTON:** But we're not ignoring it. Jim
19 just stated he was --

20 **MR. GRIFFON:** Right, so you're following up
21 on that. I think that's where we're at with
22 that one. I don't know.

23 **DR. POSTON:** We have no intention of
24 ignoring it. We're trying to understand it.
25 I mean, I certainly would like to understand

1 it better.

2 **MR. GRIFFON:** Me, too, and I'm not, I put it
3 out there the question in my mind of the other
4 things including other non-covered, like the
5 naval operations because a lot of these
6 facilities did do naval nuclear work. And if
7 that is tracked back and we find out that they
8 were working with enriched uranium from the
9 Navy, that could very well explain the sample,
10 and it's not even covered, so we don't, you
11 know, we wouldn't have to do anything with it
12 really.

13 **DR. POSTON:** Well, they wouldn't have been
14 doing any work for the nuclear Navy in 1948.

15 **MR. GRIFFON:** No.

16 **DR. POSTON:** And this is the thing I raised
17 at the very beginning. Are we going to focus
18 on that period where we feel like we have good
19 data as to what went on in that room in that
20 facility or are we going to look at all other
21 eventualities? I mean, maybe something did go
22 on. I don't know. I don't understand the
23 sample yet. But the sample was collected a
24 long time after this activity was over. We've
25 found no evidence that they did anything but

1 uranium rods and cutting and knelling (ph)
2 those rods, and then shipping them to
3 Brookhaven for use in the reactor. I haven't
4 seen any evidence anyone has brought forward
5 that says there was something else going on.
6 If there was, then isn't it appropriate that
7 we do something else? I'm trying to bound
8 this problem for this working group. And
9 we're what-iffing ourselves to death here
10 outside our timeframe.

11 **MR. GRIFFON:** I think you have seen evidence
12 that they've done something else, and that's
13 that sample.

14 **DR. POSTON:** That one sample, yeah.

15 **MR. GRIFFON:** Well, you haven't seen no
16 evidence.

17 **DR. POSTON:** We've seen that one sample, one
18 out of two. You can play that either way,
19 Mark. But the fact is I'm trying to bound
20 this problem so that we can make a decision or
21 delay it further and wait for what we hear
22 from Oak Ridge, from the work that Jim's
23 doing.

24 **MR. ELLIOTT:** I think it's appropriately
25 stated to wait until we can get some more

1 information or resolution as best we can on
2 that sample, but I think it bears saying that
3 it's so difficult to prove a negative here,
4 and we may not find more information about
5 that sample. And the working group's going to
6 be faced with what you're still faced with
7 today. I think you know that's stating the
8 obvious I guess.

9 **MR. GRIFFON:** I mean, but the other thing
10 you can do is to at least lay out how we can
11 separate Dean Street out. I mean, I think
12 that's a reasonable thing.

13 **MR. ELLIOTT:** Separate Dean Street? I'm
14 sorry. I was preoccupied. When I first sat
15 down in here you all were talking about that.

16 **DR. POSTON:** The Dean Street facility has
17 been added, but we decided that since there
18 was a different period, that we would
19 recommend to the Board that it be taken out
20 again so that we have a problem that we can
21 get our hands around. So we agreed to do
22 that.

23 Well, Mark, you mentioned that -- this
24 Mark -- you mentioned the fact that we could
25 do the calculations using the elevated uranium

1 sample or using data from the elevated uranium
2 sample and recalculate the internal doses.
3 You said that was a possibility.

4 **MR. GRIFFON:** Yeah, it's not a question of -
5 -

6 **DR. POSTON:** It's not going to change the
7 doses significantly.

8 **MR. GRIFFON:** Right, not being able to bound
9 the doses. It's a question of do we know the
10 operations that went on there.

11 **DR. NETON:** Well, ^ machining operations in
12 Building 23. We know that.

13 **MR. GRIFFON:** The what?

14 **DR. NETON:** Machining operations, grinding,
15 cutting, sawing.

16 **MR. ROLFES:** Every step of the process is
17 clearly detailed in the H.K. Ferguson.

18 **DR. NETON:** ^ brought in special machines.
19 You know what the airborne is going to be in
20 Building 23 based on the bioassay data.

21 **MR. GRIFFON:** I mean in terms of the
22 materials the question of was there, other
23 than what's described in the H.K. Ferguson,
24 was there something else that went on in that
25 building. And it certainly could have been

1 later or earlier. In my mind it was probably
2 later, but I don't know that overlapped that
3 one '48-'49 period.

4 **DR. NETON:** What I'm saying though is if
5 they did something with uranium that was
6 enriched in Building 23 in 1948 and '49, we
7 have diagrams and layouts of all the machines
8 and operations that would have been conducted
9 there. And we have bioassay samples on what
10 we believe will represent workers from that
11 operation. So if they did process enriched
12 uranium, we could double the dose from the
13 intakes or double the dose of enriched
14 uranium.

15 **MR. GRIFFON:** Number one, that hasn't been
16 put on the table, your evaluation report. But
17 number two, I mean I would almost think that's
18 just this question of throwing a higher number
19 at the problem, you know. You haven't really
20 answered whether they really did enriched
21 work. You're just going to say, well, --

22 **DR. NETON:** All we're saying is, say that
23 you can't. Say it never comes to light, any
24 of these records, we'll still have no
25 knowledge of that. So then what we're saying

1 is if it's the general belief that enriched
2 uranium was processed there, then that's how
3 we'll, an approach.

4 **MR. GRIFFON:** That's a possibility.

5 **DR. POSTON:** Well, yeah, it seems to me in
6 an effort to move forward if we make that
7 assumption that's a reasonable assumption.

8 **DR. MAKHIJANI:** I don't know. I think there
9 may be some technical difficulty with that
10 because there was processed steel, regular
11 work going on in that building after 1949.
12 And so, and that's, of course, the natural
13 uranium gets deposited. So when you measure
14 something that had layers of natural uranium
15 deposited on it from other contamination, then
16 I don't know what the procedure would be to
17 determine the actual enrichment of the work
18 that was done.

19 Presuming if there was work that was
20 done, I think it would be a big problem in my
21 mind, a technical issue as to what the
22 enrichment was. Basically, I think it's an
23 issue of determining whether there was
24 anything done or not in my opinion.

25 **DR. NETON:** If we're forced to prove a

1 negative that's not going to happen. We can't
2 do that if that's the standard.

3 **DR. ROESSLER:** What would you propose is the
4 worst-case scenario during that timeframe?
5 Describe to me what you think could be the
6 worst case, and then I think we have to look
7 at that and decide how would it affect the
8 doses. That's, after all, what we're after.

9 **DR. MAKHIJANI:** I actually would be very
10 hesitant to say because anything that I said
11 would be just speculation because --

12 **DR. POSTON:** I agree with that.

13 **DR. NETON:** I totally agree with that.

14 **DR. MAKHIJANI:** It would be completely
15 speculation. All we know is that they tested
16 two samples for enrichment and assumed
17 everything else was natural, and one of the
18 two came up with this measurement that is
19 being investigated. So that's not a lot of
20 information to go on.

21 **MR. ELLIOTT:** What was the purpose of that
22 sampling effort? What can we say about that?

23 **DR. ROESSLER:** Good question. Good
24 question.

25 **MR. ROLFES:** I just wanted to say that there

1 wasn't an assumption that everything else was
2 natural uranium. It is very clearly
3 documented that in the machining of uranium
4 for Brookhaven reactor, the very first
5 sentence states the metal for the Brookhaven
6 reactor consisted of natural uranium slugs of
7 the same overall dimensions as those used at
8 Clinton, and it goes on.

9 **MR. GRIFFON:** I think it is worth running
10 down, I mean, maybe we come up empty, but
11 because that question, you know, if that's the
12 case, and if what you guys are, and what we've
13 found so far is the case, it strikes me that
14 nobody would have addressed that in those
15 reports when they did the, when they come out
16 with a 2.1, 2.2 percent.

17 **DR. NETON:** I asked that question.

18 **MR. GRIFFON:** There has to be some
19 explanation like wait a second, we weren't
20 expecting this and then --

21 **MR. ELLIOTT:** Go back and --

22 **MR. GRIFFON:** Resample or something, yeah,
23 but we don't have any of that. Maybe they did
24 it.

25 **DR. NETON:** I specifically asked Ray Foley

1 that question. They were not going in there
2 with any expectations in mind other than they
3 were a contaminated ^ . They kind of had a
4 general knowledge of what went on. And I
5 asked him why they specifically chose that
6 sample to analyze. And he said because it was
7 one of the first samples they saw, and it had
8 a high --

9 **MR. GRIFFON:** High exposure, right, right.

10 **DR. NETON:** So that just triggered their
11 mind, and they pulled it.

12 **DR. MAKHIJANI:** Don't misunderstand the
13 import of what I said. I agree with you,
14 Mark, that if you look at the documentation
15 from the period about what they were doing in
16 regard to the machining and the Brookhaven,
17 they were doing, I mean, the best, most
18 sensible conclusion from the documentation is
19 that they were doing natural uranium slugs for
20 the Brookhaven reactor.

21 What I said in regard to the
22 assumption is directly from the 1987 Oak Ridge
23 measurement protocols is when they took these
24 samples, they analyzed the U-235 content, and
25 they assumed that the samples were natural

1 uranium and calculated the U-238 from that. I
2 mean, that's stated in the --

3 **MR. GRIFFON:** ^ methodology.

4 **DR. MAKHIJANI:** So that's the FUSRAP
5 methodology that was adopted, and then they
6 did these two samples to investigate whether
7 there was enriched uranium or not, and we have
8 the result. So that's just a matter of what
9 they did during the FUSRAP and not the
10 documentation from the period.

11 **DR. NETON:** Right, I think it would stretch
12 credibility to believe that all those samples
13 were nothing more than natural uranium up in
14 the rafters and the joists because we know
15 what they did. They processed tons of uranium
16 through that facility, and it's pretty
17 contaminated and to suggest that it's not
18 natural uranium would be plausible.

19 **MR. GIBSON:** Just look at samples from the
20 rafters and everything else, you know, to me
21 the structure of that floor and the way it was
22 built was wooden blocks. That porous material
23 will absorb any history that that building has
24 had, and you can go by and take a survey and
25 not see something one day, and the next day

1 when the weather changes, you're going to have
2 contamination showing up.

3 I mean, that was the same at Mound in
4 M Building. Floors were made like that to
5 absorb vibration of machines. But supposedly
6 no hot work was done in M Building, but they
7 take surveys through there for years, and
8 there's nothing. One day they'll come through
9 there, and they'll have to rope off total
10 areas as contamination areas. A month later
11 it goes away.

12 **DR. NETON:** All I can say to that is that
13 this act is to reconstruct dose from AEC
14 operations and activities. We have right now
15 knowledge of two contracts only that Chapman
16 Valve had with the AEC. One was the
17 manufacture of valves that were original
18 valves that were shipped to Y-12. The second
19 one is to process these slugs. There's no
20 other contracts that have come forward that we
21 know about that they did any other radioactive
22 work for AEC. That's all we have.

23 **MR. ELLIOTT:** We asked DOE specifically --

24 **DR. NETON:** And DOE went and combed their
25 records --

1 **MR. ELLIOTT:** -- to look for that. So if
2 your assumption is that this enriched sample
3 may represent other work that's not been
4 characterized, you also are presuming in that
5 assumption that DOE, for whatever reason, is
6 being inaccurate in their response to did they
7 have other information.

8 But at the end of that day -- the
9 Board can exercise its prerogative -- but at
10 the end of the day we're only going to be able
11 to reconstruct the dose on what's called, you
12 know, uncovered exposure for the activity
13 that's designated at that facility. But we
14 can't presume or you can recommend that there
15 may have been something else that happened,
16 but we can't presume it did unless we have
17 some documentation to support that.

18 **MR. GIBSON:** Well, I'm not necessarily
19 saying it's even a covered activity. But I'm
20 just saying that type of material is going to
21 absorb every bit of history that's ever been
22 there.

23 **MR. ELLIOTT:** I don't disagree with you at
24 all.

25 **MR. GIBSON:** It could be someone just

1 dragging something through the building.

2 **MR. ELLIOTT:** They run a little tow motor in
3 one building and bring it into the next
4 building with that floor and run it across
5 that floor, sure.

6 **DR. NETON:** I guess it's my point though is
7 if it's not a covered activity that happened
8 during '48 and '49, it's not relevant for our
9 evaluation report.

10 **MR. GIBSON:** I don't think that's clear at
11 this point.

12 **DR. NETON:** We don't have any contract in
13 1948 and '49 other than this contract right
14 now that generated any kind of radioactive
15 contaminant. We can't find any. There's none
16 we can locate.

17 **MR. GIBSON:** Again, I fall back on DOE's
18 poor record keeping history. Oversight at
19 30,000 feet throughout their history.

20 **DR. NETON:** Well, and you can say that, but
21 --

22 **MR. ROLFES:** They did do well on the
23 documentation presented in the H.K. Ferguson
24 report. I could certainly say that they did a
25 very good job. This is a very complete

1 report. This is probably one of the most
2 complete reports that we have had for any
3 given facility in the details that are
4 presented to us. It's one concise report.

5 **DR. NETON:** It's very concise.

6 **DR. POSTON:** Mark, you would like to say
7 something?

8 **MR. GRIFFON:** I was going to say I don't
9 think we have many follow-up items or many
10 areas of disagreement, but I think we need to
11 really wait on Mr. Foley and what he finds
12 out, if he finds out anything, and --

13 **DR. NETON:** I guess, I don't know. You
14 could delay or you could say, well, what if
15 it's not enriched? What's the Board's
16 opinion? What's the working group's opinion?
17 You're going to have to face that issue at
18 some point.

19 **MR. ELLIOTT:** Either way. If he confirms
20 that it's enriched and it was an anomaly, and
21 they never followed up, you're still going to
22 have to deal with that. And if he confirms I
23 can't find anything on it. I had no idea what
24 we did, why we did it back then, you still are
25 faced --

1 **DR. NETON:** I guess that's what I'm saying.
2 There's only two possible outcomes here. We
3 either know what the sample was, and it was
4 truly enriched, back to that, or the sample
5 does not conclusively demonstrate that it was
6 enriched because of some analytical issues
7 with the sample.

8 **DR. POSTON:** If there was no -- back to what
9 we agreed at the last meeting which is that
10 the internal dose is of sufficiently bound
11 based on the assumptions that you guys made
12 for that exposure period.

13 **DR. NETON:** I think it's going to be a
14 little murkier than that in the sense that
15 we're not going to be able to say it wasn't
16 enriched. The best we'll be able to say is
17 it's not statistically significant that it was
18 enriched because there is already a number
19 that says it was enriched.

20 **DR. POSTON:** I misspoke.

21 **DR. NETON:** Well, I just wanted to be clear.

22 **DR. POSTON:** The other option though is if
23 it is statistically significant, then one
24 approach would be to essentially double the
25 doses. That would also bound the internal

1 dose, right? Is that correct?

2 **DR. NETON:** If they worked with uranium
3 slugs that were two percent enriched, yes,
4 that would be the case.

5 **DR. POSTON:** I mean, that assumption bothers
6 the heck out of me, but I mean, one approach -
7 - I'm not suggesting that it's the only
8 approach -- one approach is to say, okay, the
9 data says that they worked with natural
10 uranium, but we found this enriched uranium,
11 so let's make the assumption that the entire
12 covered period they were working with uranium
13 at two percent.

14 **DR. NETON:** I would say it would bound it if
15 we agree that that's, if we know what work
16 went on there, which was machining of uranium.
17 And say for some reason unbeknownst to anyone,
18 they processed a few uranium slugs that were
19 enriched that no one knows about. It would be
20 hard to imagine, but that would certainly be a
21 bounding scenario.

22 **DR. ROESSLER:** What I'd like to revisit is
23 the doubling of the dose. Where does that
24 come from? How do you come to that?

25 **DR. NETON:** It's just a fact that the dose

1 per unit intake from enriched uranium has a
2 higher amount of alpha activity due to the
3 Uranium-234. So you just intake a lot more
4 alpha --

5 **DR. ROESSLER:** So you would assume that all
6 the time they were working with enriched
7 uranium?

8 **DR. NETON:** Right.

9 **DR. ROESSLER:** Which to me seems like, and
10 what I was trying to get out of Arjun is, to
11 me that seems like the worst-case scenario.

12 **DR. POSTON:** That's a huge stretch.

13 **DR. ROESSLER:** And you're bothered by it
14 because you think that's a huge --

15 **DR. POSTON:** Well, I am bothered by it, but
16 it is a huge stretch, and it would allow us to
17 say that the doses are bounding. I mean,
18 we've already agreed that as we understand
19 what went on there that the external doses are
20 bounded by the film badge data. And what
21 we're trying to do is provide, can we provide
22 doses for the internal exposures or not.

23 And so one approach is to assume that
24 the uranium sample is not statistically
25 relevant. We're back to what we agreed last

1 time that what NIOSH has done in making this
2 conservative assumption that these people were
3 exposed to the maximum concentration for the
4 entire working period and calculating the
5 doses based on that exposure is bounding.

6 **DR. ROESSLER:** Is that a productive way to
7 go rather than just wait and find out what we
8 are going to find out as to talk about that
9 particular --

10 **DR. POSTON:** I would be happy to do that.
11 We can adjourn to the dining room and have
12 lunch, and Christine could make it home, and
13 Jim could go play golf this afternoon.

14 **MR. ROLFES:** Please also keep in mind the
15 way the initial intakes were calculated in the
16 site profile, we used the two highest uranium
17 urinalyses to calculate intakes. We assumed
18 that the production occurred from January 1st,
19 1948 through April 30th of 1949. So we've
20 assumed roughly 16 months of production-level
21 intakes that were incurred for everyone that
22 worked in Building 23 --

23 **DR. POSTON:** When we know it's only a
24 fraction of that.

25 **MR. ROLFES:** -- when we know the actual

1 production operations were only conducted from
2 May until October 7th of 1948, so roughly, say,
3 six months of production-level intakes versus
4 the 16 which we've assumed based on claimant-
5 favorable assumptions.

6 **MR. GRIFFON:** I think we've beat that one
7 around plenty. I mean, I'm on the record
8 saying I think that is conservative assuming
9 the sample can be explained as enriched. So
10 that's where I'm stuck.

11 **DR. NETON:** I still have trouble figuring
12 why that's important for bounding doses for
13 this exposure that we know occurred. This is
14 the only AEC operation that we know, we've
15 been able to find, that exposed these workers
16 --

17 **MR. GRIFFON:** You said that we know of. I
18 mean, I don't think we have evidence of is a
19 good question, and this, this is...

20 **DR. NETON:** We don't know that it's AEC
21 exposure. We don't know if it's AEC, and we
22 don't know when it occurred.

23 **MR. GRIFFON:** I agree.

24 **DR. NETON:** You'd have to believe that
25 there's some contract that we don't know about

1 that happened in '48 and '49 that exposed
2 these people to radioactive materials that was
3 enriched uranium.

4 **DR. ROESSLER:** And that wasn't --

5 **DR. NETON:** -- that happened in Building 23,
6 which we have a very good accounting of
7 exactly what they did.

8 **DR. ROESSLER:** That didn't show up in the
9 bioassay.

10 **DR. NETON:** Well, we did a mass uranium
11 measurement, so you wouldn't be able to tell
12 if it was enriched or not.

13 **DR. ROESSLER:** But still it would, the
14 bioassay would, if it did occur there it seems
15 like the bioassay reflects what they were
16 exposed to.

17 **DR. NETON:** Well, that's what we're saying.
18 If it was enriched uranium --

19 **DR. ROESSLER:** That's why I can't figure out
20 why there's any doubt about using this
21 conservative bioassay data even with a
22 question. It seems like you've got it
23 covered. I just don't understand why that
24 doesn't cover it. And I'd like somebody to
25 explain what is --

1 **MR. GRIFFON:** It's just a question of did
2 it, I mean, I'm not arguing that, first of
3 all, it's total uranium bioassay, but I'm
4 still not arguing that you can't be
5 conservative with that estimate based on what
6 we know, as Jim said, of what was done in that
7 building. It's this point that's been
8 discussed in public meetings for over a year
9 now I'm sure that I think if we can find an
10 answer to and get rid of it, then it appeases
11 everyone, even the public and everyone, that
12 we've found, you know, we've got an answer on
13 why. Instead of, I don't want to be in a
14 position where we're trying to explain
15 something away. If we have an explanation for
16 it, if his reports say something more, I mean,
17 I would argue there's three things in my mind
18 that I would like follow up on.

19 **DISCUSSION OF DOE FOLLOW-UP INVESTIGATION**

20 I don't think anybody ever followed up
21 on the Y-12 shipping records. I know it's
22 later in your agenda. I didn't want to get
23 ahead, but it seems like we're circling around
24 there. But the Y-12 shipping records, and I
25 think that was a really, we asked DOE to --

1 **MR. ELLIOTT:** I thought they did.

2 **MR. GRIFFON:** I don't know if they did. I
3 didn't get a sense that they, they said they
4 hadn't had any --

5 **MR. ELLIOTT:** We can verify that by asking -
6 -

7 **MR. GRIFFON:** We can verify it, yeah.

8 **MR. ELLIOTT:** We should do that. My --

9 **MR. GRIFFON:** It's not a NIOSH task.

10 **MR. ELLIOTT:** No, but my ^ to scour
11 everything they could and included that.

12 **MR. GRIFFON:** Maybe it was a matter of them
13 saying they couldn't find anything and Bob
14 Presley saying I know that stuff's there or
15 something. So maybe we need to push --

16 **DR. NETON:** Let me ask you. What would this
17 do?

18 **MR. GRIFFON:** The only thing that would do
19 is that question of manifolds being returned.
20 And then if that was the case, then we could
21 attribute it to Dean Street and maybe separate
22 that whole thing. At least that would provide
23 an explanation.

24 **DR. NETON:** I could tell you I've looked
25 through all the contracts for 1948 and the

1 amendments of the contracts, and they're all
2 out there on the O drive. And the contract
3 itself speaks specifically about manufacturing
4 like a couple thousand of these huge valves.
5 And it's a one-way shipment from there to Oak
6 Ridge, and all these acceptance testing
7 criteria that were applied at the Dean Street
8 facility. And there's not one memo -- we have
9 a listing of all the memos that were generated
10 in '48 and '49. I guess 50, 60 memos that
11 were generated, and not one speak about in
12 that time period of anything coming back other
13 than --

14 **DR. MAKHIJANI:** You mean '43 to '45.

15 **DR. NETON:** 'Forty-three to '45, I'm sorry.
16 But my point is we have a listing of all the
17 memos, the correspondence, from that time
18 period, and there's not one memo that I could
19 find that says, by the way, we're waiting
20 those contaminated shipments to come back
21 here, those samples.

22 Everything is a one-way street
23 shipping brand new valves that have been
24 factory acceptance tested using very similar
25 techniques that the subject matter expert

1 talked about that she thought were in regards
2 to repair. In fact, those same techniques
3 were applied to the brand new manifolds when
4 they were being factory acceptance tested
5 which is the coatings and the abrasives and
6 all that kind of stuff. So there's a fairly
7 good record here of memos for that entire two-
8 year period, and not one memo speaks about
9 that. I think that's pretty clear.

10 **MR. ELLIOTT:** A couple different questions
11 for DOE to answer. Were there other
12 contracts? What did Dean Street mean to this
13 covered facility designation? Was there other
14 contracts? What did that mean? And I thought
15 there was another one or so that we asked.

16 **MR. GRIFFON:** I thought I mean, maybe that's
17 just a matter of clarification. Maybe I'm
18 misremembering, but that alone with the
19 question about the Y-12 shipping records along
20 with question of can we do -- and I don't want
21 to, I don't know how big of an effort this
22 would be -- but is there any way to find out
23 whether there were Naval operations involved
24 with enriched uranium at the facility.
25 There's probably no quick or easy way or you

1 would have done it already I'm sure.

2 **MR. ELLIOTT:** But we know that this facility
3 changed hands, was bought out and operations
4 were held in that facility under a new owner,
5 too. So we'd have to check also those
6 subsequent owners, right?

7 **MR. GRIFFON:** I mean, I don't know if DOD
8 would have any of these records.

9 **MR. ELLIOTT:** Well, ^ I'm going to say it.
10 We get nothing out of DOD. We get nothing but
11 a cold shoulder. I'm sorry to say that.

12 **DR. NETON:** And, frankly, I'm afraid to say
13 if we do that, we find nothing, we'd be in the
14 same position. You can't prove that either.
15 I mean, we can always get down that road.

16 **MR. GRIFFON:** Well, and the last one is the
17 Foley report, I guess.

18 **DR. POSTON:** Jim, I don't want to start an
19 argument with you, but I do want to express a
20 little different opinion. And I understand
21 that you have all the paper, but the thing
22 that sticks in my mind is those folks when we
23 talked to them, they specifically testified --
24 not testified because they weren't under oath
25 -- they specifically remembered those

1 shipments coming back from Oak Ridge. And
2 they were very precise about it.

3 **DR. NETON:** But there were shipments coming
4 back, but they weren't manifolds. They were
5 test equipment that was shipped to --

6 **DR. POSTON:** They said they were big tanks.

7 **DR. NETON:** Right. Those are not manifolds.
8 Those are pressure tanks that are used to test
9 these vessels.

10 **DR. POSTON:** Well, okay.

11 **DR. NETON:** I think it might be worth
12 getting back with this subject expert and
13 just, not to challenge, but to just sort of,
14 in light of the facts as we know them now, to
15 sort of try and --

16 **MR. ELLIOTT:** You may want to lay it out in
17 front of her and just say here's what we have.
18 How does this match up with what your
19 recollection is? And maybe --

20 **DR. POSTON:** Maybe I can get Arjun to help
21 here, but my recollection is that she said not
22 only did she remember them, but she typed most
23 of the shipping orders or something like that.
24 Is that, do you have some sort of recollection
25 of that?

1 **DR. MAKHIJANI:** I agree with you, Dr.
2 Poston. She was very specific about saying
3 manifolds. Now, there could be a
4 misunderstanding. I'm not saying that. It's
5 just a characterization. And I found her
6 memory to be very remarkable because she was
7 so precise.

8 And she remembered the names of the
9 people who she wrote letters to and what she
10 ordered in terms of equipment and that was
11 returns of manifolds on rail to the main site
12 where it was transferred to truck. So, we
13 don't have another explanation. All I know
14 about it from the point of view of returns is
15 what we have documented from this expert.

16 **DR. POSTON:** And I'm not disputing anything
17 you said.

18 **DR. NETON:** I'm not either. I mean, I've
19 gone through all the memos, and I can't find
20 one memo -- as a matter of fact, she may have
21 typed some of these memos. I haven't gone
22 into that level of depth. But there are memos
23 about, typed memos, saying please ship these
24 here by rail to the facility and drop off
25 here, and they'll be. It's very similar.

1 **DR. MAKHIJANI:** I have gone through as part
2 of our review of your revised ER, I also
3 looked at all the documents. And as we said
4 in our report, we have no disagreement about
5 what's in those documents. Those documents
6 are all about manufacturing manifolds and
7 valves and shipping to Oak Ridge. And as we
8 said I believe pretty explicitly, that in
9 those documents there's no evidence of
10 returns. But that's very clear.

11 **DR. NETON:** I'd be surprised, we have all
12 the documents in those time periods and these
13 other ones would be just -- I think it's
14 worth, I don't know if it's worthwhile.

15 **DR. POSTON:** Can we go back to, whose action
16 would that be if we went back and talked to
17 her again?

18 **MR. ELLIOTT:** I think it ought to be a joint
19 action.

20 **DR. NETON:** Yeah, I think it --

21 **MR. ROLFES:** I think it would be a good
22 idea.

23 **MR. ELLIOTT:** I'm sorry, but I just think it
24 needs to have the stakeholders'
25 representativeness at this point.

1 **DR. NETON:** It might be worth waiting on the
2 sample results before we do that because in my
3 --

4 **MR. ELLIOTT:** It may go away. Why frustrate
5 this poor lady.

6 **DR. NETON:** Yeah, I mean, I don't want to
7 confrontational mode.

8 **MR. GRIFFON:** Yeah, eight people
9 interviewing, yeah. She's got to be pretty
10 old.

11 **DR. ROESSLER:** Be careful what you say about
12 being old.

13 **MR. GRIFFON:** As old as me.

14 **DR. POSTON:** Because she was actually a
15 young woman, I mean, in her 40s.

16 **DR. NETON:** All I just thought it was
17 uncanny how the description in these memos
18 matched almost exactly to what she said. And
19 it was something different than what she said
20 it was.

21 **DR. POSTON:** So the two issues, the two
22 things that we've somewhat decided was we're
23 going to wait to hear from Foley on the
24 samples.

25 **DR. NETON:** I expect that to happen soon.

1 **DR. POSTON:** And if that doesn't remove the
2 concern then we may schedule another trip to
3 Springfield to see if we can talk to these.
4 And I don't know whether it, I guess, it would
5 be better for us to go there than trying to
6 get her. You have all the records.

7 **DR. NETON:** Well, they're all right here.

8 **DR. POSTON:** So it's not that big a deal.

9 **DR. NETON:** No.

10 **MR. GRIFFON:** Can we follow up on this Y-12
11 question? Maybe it's my misremembering --

12 **MR. ELLIOTT:** I'll send an e-mail on that to
13 Pat Worthington, and I'll ask her to confirm
14 whether or not they examined in their search
15 for Chapman Valve and the Dean Street issue
16 and this manifold transfer issue, did they
17 check the shipment records for Y-12 to Chapman
18 Valve for any --

19 **MR. GRIFFON:** I mean, the --

20 **MR. ELLIOTT:** -- any product or anything
21 like that. Enlighten us here.

22 **MR. GRIFFON:** I'm curious if they --

23 **MR. CLAWSON (by Telephone):** Hey, Larry.

24 **MR. GRIFFON:** -- you know, if they were done
25 onsite checking for records or had the local

1 DOE check, not just a review of their
2 archives, records in D.C.

3 **DR. BRANCHE:** We need a person to mute the
4 phone, please.

5 I think somebody had a question for
6 you, Larry.

7 **DR. POSTON:** Brad, did you have a question?

8 **MR. CLAWSON (by Telephone):** Yeah, I did. I
9 can't hardly hear you guys because somebody
10 hasn't got their phone muted or whatever. But
11 what I wanted to bring up to Larry is he was
12 talking to Y-12 and so forth like that. I've
13 dealt in the manufacturing area before, and a
14 lot of times when we send out products and,
15 yes, they made all the criteria, all of our
16 pressure tests.

17 They may get back there, and they may
18 get, there may be a malfunction in one or
19 tracked or dropped, and it always came back to
20 us to be able to repair these, to make them to
21 the standards they wanted. I hope that we
22 would look into and make sure that we look at
23 any kind of the return receipts for anything
24 like that for any of these shipments.

25 I know it'd probably be easier for the

1 ones just going out, but a lot of times if
2 there was a malfunction with one, or one was
3 dropped, they would always send them back to
4 these facilities to do the repairs so that
5 they meet their criteria that they need. I
6 just hope that we look into that.

7 **MR. ELLIOTT:** I will ask that question Brad.
8 It's a valid point. I'm working on an
9 assumption that DOE has done that, but we'll
10 verify that they have or have not.

11 **DR. NETON:** I'm looking at their report
12 here, and actually, what it says is for the
13 Oak Ridge Y-12 facility using all possible key
14 words identified for this site, Oak Ridge Y-
15 12, the Department of Energy's National
16 Security, the NNSA, performed comprehensive
17 searches of all records in our custody for any
18 documents on Chapman Valve. The only
19 documents they found were 37 drawings that
20 were in there.

21 **MR. CLAWSON (by Telephone):** Well, and I
22 understand that.

23 **MR. ELLIOTT:** That's shipment records and
24 return receipt.

25 **DR. NETON:** Chapman Valve would have been a

1 key word if there was a shipment record with
2 Chapman Valve, but we can ask that question.

3 **MR. CLAWSON (by Telephone):** We need to look
4 into this because I am not trying to slam DOE
5 or anything else like that, but I got to take
6 the -- this is in today's time -- I have to go
7 out and have my picture taken by the side of a
8 building that they said didn't never exist.
9 And that was just done yesterday.

10 So as I said when I came back to
11 Cincinnati when this program first started
12 going, that if we are relying on just the data
13 of DOE, we're in for a world of hurt. And I
14 talked very in depth to Larry about that, but
15 you know, we've been given this project. This
16 is what we're trying to do. The thing is is
17 we need to make sure that we have overturned
18 every rock we can so that when we put this out
19 that we've done the best that we can. That's
20 my main concern.

21 And I really have an issue with a lot
22 of, and I understand John's frustration and so
23 forth like that, but I have a real heartache
24 with a lot of these documents and stuff. You
25 know, these searches and stuff like that, a

1 lot of these searches haven't shown a lot of
2 stuff, but all of a sudden papers that have
3 came up, when they're switching from one
4 computer program to another, there's a lot of
5 things lost. And I just, we need to do the
6 best, in my mind, we can. And if we can't, my
7 personal opinion is we've got to fall towards
8 the claimant-favorable situation. Thank you.

9 **DR. POSTON:** So basically then to summarize
10 what we've been talking about, we would wait
11 for the results from or any feedback from Mr.
12 Foley. Larry's going to contact DOE and Pat
13 Worthington about more records regarding
14 shipments and returned shipments especially if
15 those pop up on a... And then we may actually
16 make another trip back to Springfield to talk
17 to the folks up there about what they remember
18 and so forth although they were pretty sure.
19 I understand that because I feel the same way
20 sometimes. I can take the health physics
21 research reactor apart in my sleep, and it's
22 been 40 years since I worked there. So you
23 remember, it's amazing the kind of crazy
24 things you remember.

25 Mark, do you want to say something

1 about when you say ORAU, is that what you were
2 talking about, the O-R-A-U results? You were
3 talking about actually the ORNL results?

4 **MR. GRIFFON:** ORNL, yeah.

5 **DR. POSTON:** Yeah, your e-mail said O-R-A-U.
6 I just took it literally. Okay, so we've got
7 that.

8 Other records, I'm not sure --

9 **MR. GRIFFON:** That note I put in, just as a,
10 and I think Jim followed up on this. This is
11 the question of when Bechtel did the clean up,
12 and I think you found some of the --

13 **DR. NETON:** No, there's a full report.
14 There's a document I've gone through, 787-page
15 docket that Bechtel filed after the clean up.
16 And I've searched for enriched uranium, looked
17 for it, and saw nothing in there.

18 **MR. GRIFFON:** I had mentioned in past
19 meetings this question of was there any
20 manifest, was there any records of manifests
21 that went to waste disposal, but I don't think
22 you had any luck finding that, right?

23 **DR. NETON:** No, but even within that
24 document they would have identified if there
25 was enriched uranium.

1 **MR. GRIFFON:** They assumed, as you said
2 before, it was all natural, right?

3 **DR. NETON:** Yeah, they assumed it was all
4 natural.

5 **MR. GRIFFON:** The shipping records, the
6 waste records would probably match that, I'm
7 sure.

8 **DR. NETON:** Exactly. In fact, I think they
9 could have done that because the shipping
10 criteria, I think, for shipping small amounts
11 of enriched like that were similar to just
12 natural uranium. So there would have been no
13 motivation on their part to segregate it
14 legally as like a fissionable material because
15 it was so low I think.

16 **MR. GRIFFON:** Well, the sites have limits on
17 grams of U-235 usually, to use that, separate
18 that out.

19 **DR. NETON:** But I did go, and in fact I --

20 **MR. GRIFFON:** And that was certainly placed
21 in the '90s.

22 **DR. MAURO (by Telephone):** Jim, this is John
23 Mauro. I have a thought question that it
24 might be helpful here. What I heard, which I
25 wasn't aware of until this conversation, is

1 that the methods used by the FUSRAP folks were
2 to grab the samples and do an analysis of the
3 samples for U-235 and then based on that
4 activity in the sample they estimated the U-
5 238 and U-234 content of the sample. Is that
6 a correct statement?

7 **DR. NETON:** I'm not sure that's correct.

8 **DR. MAURO (by Telephone):** Okay, because
9 that's what I heard earlier. It did sound a
10 little unusual.

11 **MR. GRIFFON:** The neutron activation
12 methodology, but we don't know if that's what
13 --

14 **DR. NETON:** Yeah, if you look at their
15 methodology, that's exactly what it says. But
16 in this particular case I can't imagine that
17 they would have done that because then they
18 couldn't have decided if it was enriched
19 uranium.

20 **MR. GRIFFON:** Exactly.

21 **DR. NETON:** There's sort of a logic flaw
22 there.

23 **DR. MAURO (by Telephone):** I do want to
24 point something out. I think this is probably
25 a consideration. If they did do that, then

1 that means the estimates, whatever they
2 estimated for U-238, were, and there really
3 was, let's say, a considerable amount of
4 enriched uranium of any level, you would have
5 a lot more U-238. In other words the
6 estimated activity, I'm trying to figure out
7 how that would affect the amount of U-238 that
8 now is being reported.

9 **DR. NETON:** Well, I think if you look at
10 their report, it's pretty clear in my mind
11 that they quantified U-238 by gamma
12 spectroscopy. Because there's numbers for all
13 of them, and they did gamma spec, and they
14 pulled these two samples out and said we want
15 to do isotopic analysis for uranium on them.
16 The question is how did they do that analysis
17 for isotopic uranium. And we don't know
18 whether it was alpha, gamma or neutron. Now
19 if you look at their neutron procedure, it
20 says, the neutron procedure is sort of generic
21 in the sense that they're trying to quantify
22 total U by that procedure, not enrichment.
23 But if they already knew the amount of U-238
24 based on the gamma, and then they could
25 measure the U-235 using neutrons, then they've

1 got their enrichment. I would suspect that's
2 what they would have done. But we'll wait to
3 see if Ray Foley can elaborate on that.

4 **DR. MAURO (by Telephone):** Okay, okay.

5 **DR. POSTON:** That reminds me, you raised
6 manifest on waste disposal and Mike raised an
7 issue about the floor. I don't recall any
8 discussion of what happened to the floor. I
9 remember the discussion that the floor was
10 made of blocks, but were they removed,
11 disposed, how were they disposed and so forth.

12 **MR. ROLFES:** We do have information from one
13 individual who said that he had assisted in
14 washing down the walls following the machining
15 operation that was conducted, and he also did
16 indicate that he had removed the blocks from
17 the floor as well and replaced the flooring
18 material. I thought I recalled that it was
19 concrete that they put in there, but Jim said
20 that he thought it may have been fire brick as
21 well.

22 **DR. NETON:** Well, the fire brick was used to
23 replace the deteriorated blocks. So when they
24 took out the wood -- I can't speak to what it
25 was -- I think I did recall concrete.

1 **DR. POSTON:** But in the clean up there's no
2 records of anything of surveys of the wooden
3 floor or anything?

4 **DR. NETON:** Oh, yeah.

5 **MR. ROLFES:** In the H&K Ferguson Report at
6 the end there is some information regarding
7 the decontamination proceedings that were
8 conducted after the uranium machining
9 operation after it ended on October 7th, 1948.

10 **DR. POSTON:** They went all the way, they
11 took all of that out and went all the way to a
12 concrete floor? Is that what they did?

13 **MR. ROLFES:** I'm not certain. Let me take a
14 look here.

15 **DR. ROESSLER:** But the fire bricks were part
16 of the original building. Is that what you're
17 saying? Was it fire bricks and then wood
18 floor on top of it? Or, no, the wood floor
19 when it deteriorated was replaced by fire
20 brick. During what time period was that? Was
21 that in the operational period?

22 **DR. NETON:** I believe so, yes. Because I
23 think Ray Foley was telling me that there were
24 gaps in the floors. By the time they got
25 there in 1992 the floor was pretty

1 deteriorated, and there were bricks put in
2 where the floor had deteriorated.

3 **DR. POSTON:** Oh, so the floor was still
4 there when they got there.

5 **DR. NETON:** I believe it was in '92, yes.

6 **DR. POSTON:** Because Mike raised a very good
7 point.

8 **DR. NETON:** Yeah, because he told me,
9 clearly he told me that there was a wood
10 floor. So the only way he would have known
11 that is he got there in '92. Now, I don't
12 know whether Bechtel took out that entire wood
13 floor. I think it might be in the
14 certification docket, but I didn't read it in
15 that detail.

16 **DR. POSTON:** I don't have any, I didn't see
17 anything about it either. That would have
18 certainly given some information.

19 **DR. NETON:** We don't know what type of
20 information.

21 **DR. POSTON:** Well, Mike was saying that you
22 never knew what was down in the cracks between
23 the blocks. And sometimes the stuff would
24 come up and --

25 **MR. GIBSON:** Actually absorbed in the

1 blocks.

2 **DR. POSTON:** -- in the blocks. And if there
3 was enriched uranium of any sort it ought to
4 be, could be in those blocks. But I was just
5 wondering what they did with them.

6 **DR. NETON:** Oh, the blocks. They're
7 probably shipped already, buried them
8 somewhere. I can look through the
9 certification report docket and see if they
10 talk about disposal. They pretty much tore
11 down the whole building I thought. I don't
12 think they would have left the wooden blocks -
13 -

14 **DR. POSTON:** My thought, my logic is -- if
15 there is such a thing, and please don't answer
16 that question -- but my logic is, okay, we
17 have this sample which is at the loading dock,
18 but it's outside of this area that we're
19 concerned about. But there is this wooden
20 floor and Mike has said, okay, we have a
21 history of stuff going into the wood and going
22 between the woods and so forth, and if it's
23 natural uranium, then, and it could be in
24 those blocks.

25 So we could verify one, it's either

1 natural uranium or it's slightly enriched
2 uranium simply by looking at the contamination
3 on those blocks. But we don't even know where
4 they went and so forth. Nobody analyzed them
5 as far as we know.

6 **DR. MAURO (by Telephone):** John, this is
7 John Mauro. I'm looking at our report. There
8 was a [Personal Identifier redacted] that was
9 interviewed as part of the work that NIOSH did
10 in terms of compiling all the records. And
11 I'm reading his case here. He was a person
12 that spent time at the site in the 1940s, and
13 he states that when all work was completed at
14 the end of 1948, the equipment and machinery
15 used in the program were removed along with
16 the wood blocks. So apparently there was
17 quite a bit of decontamination took place in
18 1948 after the completion of the machining
19 operation. And that included removal of the
20 wood block floors.

21 **DR. NETON:** Excuse me, John, but Mark Rolfes
22 just gave me an except here out of the H.K.
23 Ferguson report that talks about large-scale
24 incineration of lumber, rags, oil-soaked
25 material. They put a big pan out there and

1 burned all this stuff.

2 **MR. GRIFFON:** But you said Ray Foley
3 remembers the wood floor as being there still,
4 later.

5 **MR. ROLFES:** Yeah, they did put down --

6 **MR. GRIFFON:** It sounds like at least they
7 removed some of it.

8 **MR. ROLFES:** The H&K Ferguson Report does go
9 on to say that after the floor was cleaned,
10 they did put down -- let me get the exact
11 sentence here. They did put down new blocks
12 in some areas, three inch --

13 **DR. POSTON:** So we don't have any, so that
14 might --

15 **MR. GRIFFON:** The originals are gone, yeah.

16 **DR. POSTON:** -- I was hoping that would
17 provide some evidence.

18 **RECOMMENDATION TO THE ABRWH**

19 Well, folks, I'm at a loss as to what
20 to do right now. If we do get the information
21 from Foley then we could have a telephone
22 conference and try to work this out. We're
23 down to if it's not statistically significant,
24 then I think we've already agreed what our
25 path is. If it is statistically significant,

1 then we need to think pretty hard about what
2 we're going to recommend.

3 **MR. GRIFFON:** Well, and then we have those
4 few other actions to follow up at the same
5 time, right?

6 **DR. POSTON:** Right, so if we could get all
7 those or have something as soon as we hear
8 from Mr. Foley. When is our next meeting?
9 It's not until the end of June, isn't it?

10 **DR. BRANCHE:** Yes, we have a conference call
11 on the 14th, and actually Chapman Valve is on.
12 Dr. Ziemer wanted to hear your progress.

13 **DR. POSTON:** Well, that should take about
14 ten seconds.

15 **DR. BRANCHE:** But I think the members, the
16 representatives for the members of Congress
17 are going to be alerted because it's a
18 specific item on a brief telephone, I mean
19 it's a fairly brief agenda.

20 **DR. POSTON:** So I don't know what else to
21 do. I mean, there's no path forward here
22 until we have the answers to those questions.

23 **MR. GRIFFON:** Yeah, I think those actions
24 are --

25 **DR. POSTON:** I'm sitting here counting my

1 tax dollars at work because it took a lot to
2 bring everybody together, and I apologize for
3 that.

4 **DR. BRANCHE:** Well, I think a face-to-face
5 meeting after having had the decisions. As
6 you said in our meeting in the early part of
7 April, you all hadn't met face-to-face or by
8 phone since you got the information from DOE,
9 and now you have some better indication. You
10 have some assignments, and being able to
11 schedule a follow-up conference call or
12 meeting --

13 **DR. POSTON:** Well, today's the first, so we
14 actually have two weeks before the conference
15 call, right?

16 **DR. BRANCHE:** About ten days.

17 **DR. POSTON:** I thought you said the 14th.

18 **DR. BRANCHE:** It is the 14th. I'm thinking
19 business days. And our Board meeting begins
20 on the 24th of June.

21 **MR. GRIFFON:** You might want to, I don't
22 know if you're getting ready to close. I
23 don't know if anyone on the phone has
24 comments.

25 **DR. POSTON:** Is there anything else that we

1 need to talk about?

2 **DR. NETON:** The three things that we're
3 following up on are the Y-12 shipping records
4 from DOE. Mark raised this issue about
5 looking at naval operations. I'm not sure
6 where we would start with that.

7 **MR. ELLIOTT:** Even if we could, even if we
8 tried something as straightforward as a
9 Google, it's not going to be productive. We
10 take a more active action like approach DOD.
11 You all could be sitting here next year
12 waiting for us to find something out. They
13 don't have to give us anything. There's no
14 leverage for us to use for this law that would
15 force them to give us.

16 **DR. POSTON:** Well, the issue is really not
17 the '48, '49 period; it's subsequent periods,
18 right?

19 **MR. GRIFFON:** Yeah, it could be. Anything
20 that explains that sample basically is what
21 we're looking for.

22 **MR. ROLFES:** Information, we do have some
23 information, limited information. It's from a
24 newspaper article regarding some work that was
25 done. Chapman Valve did produce some canned-

1 type valves for naval nuclear propulsion
2 applications in the '50s which was 1957. They
3 also did -- let me take a look here -- this
4 was related to the Nautilus, the first
5 submarine that was produced for the Navy. It
6 says they had produced, the valves were of the
7 canned-type utilized in a completely enclosed
8 operation. Westinghouse's Atomic Power
9 Division was not affected by the strike. Also
10 built a reactor for Nautilus -- it goes on.
11 If you'd like a copy of this, I believe it is
12 on the O drive already. But it does discuss
13 that they did produce a non-radioactive valve
14 for the Navy.

15 **MR. GRIFFON:** I know, when was that dated?

16 **MR. ROLFES:** This was from 1957. It was
17 March 13th, well, 1956. I take that back. It
18 mentioned 1957 in here. That was the Navy's
19 plans for submarines in 1957, and it discussed
20 their fiscal budget in 1957.

21 **DR. BRANCHE:** And then the third follow-up
22 item is the --

23 **DR. NETON:** Foley Report.

24 **DR. BRANCHE:** -- the Foley Report.

25 **DR. NETON:** I hope we can get something in

1 the next week or so. I mean, they're either
2 there or they're not, I mean, the records.

3 **DR. BRANCHE:** Will it come in a form that
4 you can either, that you can use e-mail to get
5 it to the work group members?

6 **DR. NETON:** Yes.

7 **DR. POSTON:** So the goal would be then to on
8 the 14th discuss this or make a report.

9 **DR. BRANCHE:** Make a report on the 14th.
10 Even if you have to schedule a meeting of the
11 work group after that to discuss this further.

12 **DR. POSTON:** Mark, anything else?

13 **MR. GRIFFON:** I think those three cover it.

14 **DR. POSTON:** Gen?

15 **DR. ROESSLER:** (no audible response)

16 **DR. POSTON:** Michael?

17 **MR. GIBSON:** Maybe one more little thing
18 here. I just asked Mark, I guess these valves
19 and stuff, their inception was originally
20 somewhat classified so if that's being the
21 case, there wouldn't necessarily be commercial
22 shipping invoices and everything else for
23 these valves if they did, in fact, come back
24 to the site.

25 DOE probably used DOE couriers. So I

1 don't know if that would have, those kind of
2 records even exist or if they would have even
3 showed up in the types of searches that DOE
4 did.

5 **MR. ROLFES:** If the materials were
6 classified, it's very likely that they would
7 be more carefully documented in order to
8 prevent the loss of that material or
9 equipment. So whether they still exist today
10 if there were, in fact, shipments, that's, I
11 couldn't comment on that.

12 **MR. GIBSON:** I mean, but a lot of critical
13 components, well, some critical components,
14 were shipped back to the site where they were
15 built and dismantled to check the reliability,
16 et cetera, and there was no procedures allowed
17 to be generated. This all had to be done from
18 memory.

19 **DR. POSTON:** Let me make sure I understand
20 what you're saying. Courier, you're talking
21 about DOE personnel themselves or, again,
22 relying on Arjun to correct me, they were very
23 adamant about rail transport coming in on
24 rails right beside the facility. And that was
25 my recollection.

1 **DR. BRANCHE:** That was described at the
2 Naperville meeting.

3 **DR. POSTON:** And that is a good point.
4 Maybe that some of the records were not
5 available because shipping the valves one way
6 --

7 **MR. ELLIOTT:** Well, what questions do you
8 want us to ask DOE? Because now I hear your
9 point, Mike, and I want to make sure that we
10 ask the right questions of DOE to verify,
11 validate as best we can from their response
12 that they turned over every stone or thought
13 about their searching for information with
14 these kinds of thoughts in mind.

15 **MR. GIBSON:** Well, I guess just that a lot
16 of the required DOE activities for different
17 items, different sites was not necessarily
18 printed in black and white on a contractual
19 agreement between them and the contractor.
20 Somehow it could have been stated in there and
21 some wording that didn't make it clear to the
22 public what was going on, but would those type
23 of situations, documents, would DOE have
24 pulled those up or found them or references to
25 them in the search that they have conducted?

1 **MR. ELLIOTT:** Would their search include
2 secure, restricted data information.

3 **MR. GIBSON:** Based on this little blip that
4 came up yesterday via e-mail, I don't know if
5 they'd tell you anyway, but --

6 **MR. CLAWSON (by Telephone):** But, Mike, what
7 Larry is saying is true. We need to look at
8 the classified data because I agree with you.
9 Up until about two or three years ago, we
10 still used certified couriers for the
11 paperwork. Now the shipments were done on
12 normal transports, but it was just understood
13 what was classified. You know, a lot of the
14 stuff wasn't opened up.

15 As a matter of fact, I get shipments
16 today that are classified material on public
17 carriers. They're just locked up boxes. So
18 when Larry goes to DOE to ask this, we need to
19 look at the sensitive, classified information
20 of any kind of shipments or so forth on this.

21 **MR. ELLIOTT:** And I presume they've done
22 that, but --

23 **DR. NETON:** I guess I'm at a loss as to why
24 they would be classified since we have the
25 original contract with all the specifications

1 and all the engineering drawings for all the
2 valves that they made. Why, all of a sudden
3 then when they became contaminated, they would
4 have been secret classified and shipped back
5 separately. I mean, we've got shipping
6 paperwork here for virtually everything. It
7 seems to be the substantial bulk of what they
8 produced.

9 **MR. GIBSON:** I'm just raising the
10 possibility.

11 **MR. CLAWSON (by Telephone):** Oh, and Jim, I
12 agree with you 100 percent, but you know what?
13 There's a lot of stuff out there that I don't
14 understand why they classified it or whatever.
15 But they may have. If they were contaminated,
16 and they didn't want people to know outside
17 the area what they were really working with or
18 different isotopes or so forth like that,
19 there's a lot of things that have been
20 classified that in my mind's eye I don't see
21 why they were. But guess what? DOE has done
22 a lot of that. And I just want to make sure
23 that we're checking every avenue that we've
24 got.

25 **MR. ELLIOTT:** Well, Mr. Chairman, I'm asking

1 Jim to craft this e-mail to send to Pat
2 Worthington in my absence. And I want to make
3 sure that he includes the questions this
4 working group wants answered to verify, I want
5 him to reference the letter that he's speaking
6 from that Pat sent to the Board, and ask these
7 pointed, pertinent questions that the working
8 group has.

9 I don't want, right now, I don't want
10 to be the one to frame those. I don't think
11 Jim should be the one to frame those. Please,
12 if you will, frame the questions you want us
13 to ask. Besides we've got to do something
14 until the food arrives anyway.

15 **DR. NETON:** I think I've got that captured
16 here.

17 **DR. POSTON:** Well, what I was going to
18 suggest is if you think you've got it
19 captured, then why don't you draft it and send
20 it to us an e-mail, and we'll send it right
21 back to you.

22 **MR. ELLIOTT:** This falls back in your court.

23 **DR. BRANCHE:** I would suggest that it --

24 **DR. NETON:** Why don't you guys craft what
25 you want us to ask --

1 **DR. POSTON:** And then we can do that.

2 **DR. BRANCHE:** Yeah, that might be the better
3 thing.

4 **MR. ELLIOTT:** I don't want to put words in
5 your mouth.

6 **DR. POSTON:** Let's not do it in session.
7 Let's proceed on, and we'll decide what it is
8 --

9 **MR. GRIFFON:** It's hard to --

10 **DR. POSTON:** -- and then the four of us will
11 get together, and we'll write some sentences
12 and put --

13 **DR. BRANCHE:** Or you could assign one person
14 to come up with a first draft.

15 **DR. POSTON:** Well, I think we just, the four
16 of us need to put our heads together and
17 decide what it is we want from them.

18 **DR. NETON:** Then there'll be no --

19 **DR. POSTON:** And I'll take responsibility to
20 get you something ASAP, hopefully before we
21 leave.

22 Brad, do you have anything else?

23 **MR. CLAWSON (by Telephone):** No, that's it.

24 **DR. POSTON:** Any comments from anyone else
25 on the speakerphone?

1 (no response)

2 **DR. POSTON:** How about anybody else here?

3 (no response)

4 **DR. POSTON:** Well then, I think we'll
5 adjourn.

6 **DR. BRANCHE:** I'm going to close out the
7 line then.

8 (Whereupon, the working group meeting
9 concluded at 11:51 a.m.)

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CERTIFICATE OF COURT REPORTER**STATE OF GEORGIA****COUNTY OF FULTON**

I, Steven Ray Green, Certified Merit Court Reporter, do hereby certify that I reported the above and foregoing on the day of May 1, 2008; and it is a true and accurate transcript of the testimony captioned herein.

I further certify that I am neither kin nor counsel to any of the parties herein, nor have any interest in the cause named herein.

WITNESS my hand and official seal this the 4th day of Dec., 2008.

STEVEN RAY GREEN, CCR, CVR-CM, PNSC**CERTIFIED MERIT COURT REPORTER****CERTIFICATE NUMBER: A-2102**