

120U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
CENTERS FOR DISEASE CONTROL
NATIONAL INSTITUTE FOR OCCUPATIONAL
SAFETY AND HEALTH

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ADVISORY BOARD ON RADIATION AND
WORKER HEALTH

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KANSAS CITY PLANT WORK GROUP

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TUESDAY
JANUARY 20, 2015

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The Work Group convened in the Brussels Room of the Cincinnati Airport Marriott, 2395 Progress Drive, Hebron, Kentucky, at 8:30 a.m., Josie Beach, Chair, presiding.

PRESENT:

JOSIE BEACH, Chair
BRADLEY P. CLAWSON, Member
JAMES E. LOCKEY, Member
LORETTA R. VALERIO, Member*

ALSO PRESENT:

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TED KATZ, Designated Federal Official
RON BUCHANAN, SC&A*
MAURICE COPELAND
PETE DARNELL, DCAS
JOE FITZGERALD, SC&A
JOYCE FRANCIS, ORAU Team*
JOSH KINMAN, DCAS*
WAYNE KNOX
JENNY LIN, HHS*
JOYCE LIPSZTEIN, SC&A*
ARJUN MAKHIJANI, SC&A*
JOHN MAURO, SC&A*
PAT McCLOSKEY, ORAU Team
JIM NETON, DCAS
MUTTY SHARFI, ORAU Team
MARLON SMITH
JOHN STIVER, SC&A*

*Participating via telephone

T-A-B-L-E O-F C-O-N-T-E-N-T-S

Issue

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1 (8:42 a.m.)

2 MR. KATZ: All right. Well, let's get
3 rolling. We may not have our full complement of
4 Board Members. Someone has an open speaker again
5 because I can hear myself.

6 So let's begin with roll call. Welcome
7 everybody in the room and on the line. This is
8 Advisory Board on Radiation Worker Health, Kansas
9 City Plant Work Group.

10 Roll call, for all the agency-related
11 people, please speak to conflict of interest when
12 we run through the roll call. And let's get
13 started with Board Members in the room.

14 (Roll call.)

15 MR. KATZ: And we're expecting Dr.
16 Lockey. He's in the hotel, but not sure where.

17 So the agenda and some materials for the
18 meetings are posted on the NIOSH website. They're
19 under the Board section under today's date. So
20 people on the line you can follow along with some
21 of the documents that will be discussed during the
22 discussion by going there.

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1 And, Josie, it's your -- oh, and folks
2 on the line, please mute your phones except when
3 you're speaking. It'll improve the audio quality
4 for everybody. And, Josie, it's your meeting.

5 CHAIR BEACH: All right, thank you.
6 Like Ted said, there is an agenda posted, however
7 I'm going to make some modifications to the agenda
8 this morning. We do have a very full agenda. And
9 we are going to adjourn at 2:45. So hopefully we
10 will get through, I would say, 80 percent of our
11 agenda.

12 We're going to start with Issue Number
13 13, it's the mag-thorium alloy operations and
14 exposure potential. If you remember back, the
15 first White Paper came out August of 2014. SC&A
16 produced that. And then NIOSH came out with their
17 White Paper on January 9th of 2015.

18 We're going to go from Issue 13 to Issue
19 20 and then we're going to go back up to the top
20 of the agenda with Issue 1 and then work our way
21 through the rest of the issues in that order.

22 Lunch will be sometime mid-day. We're

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1 going to try and go for about a 45-minute lunch and
2 then back to work. So, comfort breaks when we need
3 them, as we can.

4 So, NIOSH, Pete, can you go ahead and
5 start us off on the mag-thorium?

6 MR. DARNELL: All right, thank you.
7 NIOSH and ORAU put together a thorium-magnesium
8 White Paper. Basically, we've gone through the
9 available monitoring data, SWIMS data, telling us
10 what materials were onsite when and came up with
11 a method to bound the doses that were at the Kansas
12 City Plant.

13 MR. STIVER: Pete, I hate to interrupt,
14 this is Stiver, I can barely hear you on the line
15 here.

16 MR. KATZ: Yes, his voice is hush, I'm
17 going to move the speaker closer.

18 MR. DARNELL: I'm sorry. I'm going to
19 let Pat talk about it, I'm not --

20 MR. McCLOSKEY: Oh, sure, I'll take it.

21 MR. DARNELL: If you don't mind. I'm
22 sorry, I'm just not very --

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1 MR. KATZ: It's okay.

2 MR. DARNELL: -- good today.

3 MR. McCLOSKEY: Okay, this is Pat
4 McCloskey with the ORAU Team. So, when this
5 petition first qualified in March of 2013 there was
6 nothing on our books, nothing in the TBD, about
7 mag-thorium machining at the Kansas City Plant.

8 It was new information that we started
9 with working on this petition. So we put together
10 what we knew in the petition and then SC&A came out
11 with some comments -- in the ER, I should say. And
12 they came up with some comments in the ER and they
13 said that operations timeframe, data adequacy and
14 completeness, dose estimation approach and the
15 1970 breathing zone sampling need to be validated.

16 I'm reading from our White Paper.
17 Skipping around in there just hitting the
18 highlights so we can keep the meeting going.

19 And they also wanted us to verify
20 offsite mag-thorium fabrication.

21 So I didn't know a lot about mag-thorium
22 alloys in the summer of 2013 when I started this.

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1 And so I wanted to bring to light some of the stuff
2 that I found in the SRDB about it.

3 And so it was a new alloy in 1957,
4 brought to the market by Dow. And they named their
5 alloys with some annotations, such as HK31.
6 And each one of those letters in the name has a
7 meaning. I put this in the paper because there was
8 some question about the thorium concentration in
9 the alloys used at the KCP.

10 So the two alloys used at the Kansas
11 City Plant were HK31A and HM21A. The designators
12 talk about the nominal concentrations and various
13 elements in the alloy. H, meaning thorium, and K,
14 meaning zirconium, and M, meaning manganese. And
15 those numbers talk about the nominal
16 concentrations in the alloy.

17 Matter of, I think that's publically
18 available information. But just thought I'd set
19 that out there to talk about concentration.

20 Magnesium is used in missile
21 construction because it's lightweight. And they
22 added the thorium to the alloy for strengthening

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1 at higher temperatures.

2 So, Dow, with their introduction of the
3 alloy in 1957, did some testing of the material,
4 because they knew that there would be work done with
5 it and they were concerned with safety.

6 They took some air sampling, did some
7 air monitoring during some hand-sanding of HK31 and
8 some power disc sanding. And they did not exceed
9 their permissible limit of 0.1 milligrams per cubic
10 meter for the hand-sanding. And they did slightly
11 exceed it for the power sanding. But they weren't
12 using local exhaust ventilation.

13 That 0.1 milligrams per cubic meter air
14 concentration deserves a little bit of
15 elaboration. They would have performed that
16 sampling and analyzed it with mass spectrometry,
17 delivering results in a mass per cubic meter of air
18 format.

19 And if you realize that essentially all
20 of the weight of thorium -- so the mass spec would
21 have delivered some results back in saying the
22 species of thorium is there, but not talking about

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1 the different nuclides.

2 But if you realize that, by weight,
3 thorium is essentially all thorium-232, and you use
4 the specific activity of thorium, you can derive
5 a radioactivity concentration that would be equal
6 to that of 1.1 E minus 11 microcuries per
7 milliliter. That's just for reference.

8 So the paper goes on and it talks about
9 some more studies that Dow did in '56. And it was
10 a paper titled, "Magnesium-Thorium Alloys --
11 Industrial Health Experience in Fabrication and
12 Production." And the report has air samples for
13 grinding, filing, buffing and sawing
14 magnesium-thorium with various concentrations of
15 5.5, 5.4 and 3.3 percent thorium. And the highest
16 recorded level was 0.53 milligrams per cubic meter
17 during those operations.

18 There's a White Paper also written by
19 SC&A back in 2007 where they analyze these same air
20 sample data at the Dow plant. That paper is "A
21 Focused Review of Operations and Thorium Exposures
22 at the Dow Chemical Company -- Madison Plant,"

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1 produced in August of 2007.

2 And they went a little bit further than
3 we did in our paper and determined that the doses
4 that you would receive from those type of machine
5 operations right there would, for the highest
6 airborne concentration, give 5 millirem per hour.

7 Skipping down a paragraph. Dow put
8 together a bulletin. Dow Bulletin Number 141-179.
9 I have a copy of that, that's this one here. They
10 produced this for their merchandising department
11 and for engineer end-users, for customers that they
12 were selling the mag-thorium to, such as Kansas
13 City Plant.

14 CHAIR BEACH: That's in the SRDB, too,
15 right?

16 MR. McCLOSKEY: Yes. 39899 is the
17 SRDB number. Feel free to interrupt me if you ever
18 have any questions.

19 Okay, so in here there's a few more air
20 sampling results. They have one for the drumming
21 of very fine powder at 0.015 milligrams per cubic
22 meter. And slabs of mag-thorium in heat treat

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1 ovens, with air sample data on that as well.

2 And they have arc welding analyzed in
3 here. And their conclusion on the arc welding is
4 that it would be possible to keep the thorium fumes
5 at acceptable levels using local exhaust. And they
6 have a picture of the way they would have done that
7 and analysis.

8 So this is something that would have
9 been in the hands of Kansas City Plant when they
10 bought the magnesium-thorium from Dow. And they
11 incorporated a lot of these same controls into
12 their work control documents.

13 The exception on this one, the local
14 exhaust that they have right there at the tack weld,
15 they say 390 cubic feet per minute, but KCP
16 specified 400 cfm. Little bit more. Pretty much
17 everything else is the same.

18 So, still giving some background on
19 magnesium-thorium. The Air Force published a tech
20 manual, so we have an independent organization that
21 looked the processing of mag-thorium alloys. And
22 they believe that the 0.1 milligrams per cubic

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1 meter air limit was readily met in processing
2 magnesium-thorium alloys containing up to ten
3 percent thorium.

4 For example, stirring an alloy melt
5 with five percent thorium content resulted in 0.002
6 milligrams per cubic meters. And grinding an
7 alloy of three percent thorium content gave thorium
8 contamination of breathing zone ranging from 0.008
9 to 0.035 milligrams per cubic meter. Separate
10 organization there.

11 And then in the next paragraph we talk
12 about the fact that there's an exemption. It would
13 have been from the AEC, at that time, in 10 CFR 40,
14 for mag-thorium alloys containing less than four
15 percent thorium. This is something that Kansas
16 City Plant was aware of when they were working with
17 it, that it was a non-licensed material.

18 Then there's a NUREG-1717 that talks
19 about the exemptions for mag-thorium alloys. And
20 they also discuss a fire, if it were to happen, what
21 would be the repercussions of that. They would
22 suggest an effective dose equivalent to an

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1 individual who is not using respiratory protection
2 during cleanup after the fire would be one
3 millirem. Just a data point to consider.

4 So now we're going to start talking
5 about mag-thorium operations specifically
6 occurring at the Kansas City Plant.

7 When we first wrote the ER we based the
8 start date for mag-thorium machining operations at
9 1957 based on some Dorothy Troxell court documents.
10 And what it said was that magnesium-thorium alloys
11 were first handled in the plant in 1957. But it
12 didn't speak to the nature of that handling
13 operations.

14 Now given some more time and some more
15 data capture in October of last year and some more
16 documents, we were able to better refine what we
17 believe the start date of the machining operations
18 to be.

19 And so the first few years, from '57 up
20 until '61, the magnesium-thorium parts that they
21 had at the Kansas City Plant were machined offsite
22 at three different subcontractors. The Sheffield

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1 Corporation, it appears, did the majority of that
2 machining. And also Twin City Tool Company and the
3 Ladish Company.

4 So we have reports of Kansas City Plant
5 safety personnel visiting the facilities and
6 giving them the Dow safety bulletin to follow to
7 make sure that they were being safe, and even giving
8 them some more advice as far as using local exhaust
9 and wetting controls while they were working.

10 I'm trying not to read this entire thing
11 for the sake of time, but if anyone would like to
12 read and visit any specific topic, feel free.

13 MR. DARNELL: Why don't we move ahead
14 to how we bounded the dose and our assumptions
15 therein.

16 MR. McCLOSKEY: Okay, let make sure --
17 sounds good. There's essentially two campaigns of
18 mag-thorium machining operations at Kansas City
19 Plant: the campaign that occurred in the '61 to '63
20 timeframe that we have data on, and then another
21 campaign that was in the '70s.

22 Okay, I guess I'll jump to the section

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1 titled "SC&A White Paper Conclusions and NIOSH
2 Responses."

3 So at the end of SC&A's review of our
4 ER methodology, they boil a lot of their comments
5 down to, what is it, four or five -- seven basic
6 comments. And I'll go through those.

7 For the comment number one, 1957 to 1959
8 period, "it's unclear whether the 9 E minus 11
9 microcurie per milliliter for the thorium-232
10 limit, the nature thorium limit or gross alpha
11 limit. That issue is central for determining
12 whether a mass loading limit can be used for the
13 period. Furthermore, there are no data to enable
14 determination of whether this limit was enforced
15 and actual air concentrations for thorium-230 Type
16 2 remained generally below this limit."

17 Our response is, considering the
18 monitoring equipment available to Kansas City at
19 the time, the year one concentration limit of 9 E
20 minus 11 microcurie per milliliter would have been
21 implemented as a gross alpha limit and supplemented
22 with the industrial hygiene limit of 0.1 milligram

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1 per cubic meter.

2 NIOSH has continued to research and
3 discover new information regarding the operations
4 and now understands that those operations that
5 began in '57 did not involve machining or an
6 internal exposure pathway, as described in this
7 paper, until August 23 of 1961. Therefore, NIOSH
8 now considers that date as the start of mag-thorium
9 machine operations for which an internal exposure
10 bounding method would be necessary.

11 The next SC&A comment. 1958 to 1970
12 air concentration data that NIOSH referred to are
13 for DU and not thorium. NIOSH has provided no
14 evidence that any of these air samples are related
15 to the mag-thorium processing.

16 And the NIOSH response is mag-thorium
17 machining ops began at Department 20, also known
18 as Department 22 or the heavy machining area, in
19 August 23 of '61, and were only performed in that
20 department until September 21st of '70 when they
21 were moved to the model shop, described previously
22 in this report.

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1 This means the bulk of the available air
2 monitoring data was obtained in the department
3 where mag-thorium machining occurred and at the
4 same time. Although these six-footer air
5 monitoring stations were established primarily for
6 Kansas City principle machining activities, they
7 would have been analyzed for gross alpha and can
8 be used to bound thorium exposures.

9 And then I show there an example of some
10 of the air monitoring results. They were specific
11 to say at which machine number the sample was taken
12 and the types of instruments used. I provided this
13 to speak to the idea that it would have been gross
14 alpha counting at that time.

15 So, moving onto the next comment from
16 SC&A. For the period of after '59, it's unclear
17 whether the limit of 3 E minus 11 microcurie per
18 milliliter includes thorium-228 and possibly other
19 decay products of thorium-232. The limit for
20 thorium-232, based on the lung as the critical
21 organ set in NBS 69, was 1 E minus 11 microcurie
22 per milliliter. And that was published in 1959.

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1 Okay, our response. Title 10 CFR Part
2 20, Appendix B, dated January '57, with amendments
3 dated in '57, '59 and '61, define the occupational
4 maximum permissible concentration for air for
5 thorium-232 and natural thorium to be 3 E minus 11
6 microcuries per milliliter.

7 The document states, in Section
8 20.5(c)(1), a curie of natural thorium, or
9 thorium-natural in Appendix B or C, means the sum
10 of 3.7 E to the 10th disintegrations per second from
11 thorium-232 plus 3.7 E to the 10th disintegrations
12 per second from thorium-228.

13 That information substantiates the
14 basis for the 3 E minus 11 microcurie per milliliter
15 MPC air limit and makes it clear that thorium-228
16 was included in the limit.

17 NIOSH believes it is clear, from
18 reading from safety practice as it was conducted
19 in the '60s, that the MPC air value would have been
20 interpreted as a gross alpha limit.

21 Applications of alpha spec to routine
22 air sample counting is seldom seen, even now, in

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1 a comprehensive, well-run radiological control
2 program and it would not have been routinely used
3 in the '60s.

4 Notice that we have propose to use the
5 constant 3 E minus 11 microcurie per milliliter
6 limit and not the lower value of 1.1 E minus 11
7 microcurie per milliliter, which is equivalent to
8 0.1 milligrams of thorium, like we described
9 earlier.

10 So, consequently, discussion about how
11 to covert these airborne concentrations to
12 airborne mass concentrations is not pertinent to
13 the bounding dose reconstruction method proposed
14 by NIOSH.

15 "NIOSH has not provided any air
16 monitoring data for the '71 to '79 period." That's
17 the second mag-thorium machining campaign I just
18 described. And that's right, we have not found
19 additional air monitoring data for that time
20 period.

21 They did the negative exposure
22 assessment at the beginning of the second campaign.

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1 It's the one where it's described in the ER where
2 they went to each work station in the model shop,
3 performed some breathing zone sampling, and showed
4 that they didn't think there was an exposure
5 potential for all the wet machining and machining
6 with the ventilation in place. And we're going to
7 talk about that one a little bit; it's its own
8 separate issue coming up.

9 So there's that air sample data. And
10 after that we don't see any routine air monitoring
11 of the machine ops. So we tried to build a model.
12 We built a model here, in the absence of that data,
13 that considered data from their surface
14 contamination monitoring program as an indication
15 of their workplace conditions.

16 We modeled the surface contamination
17 that would have been created from the natural
18 settling of air concentrations at Kansas City
19 Plant's prescribed limit and compared the result
20 to the actual surface contamination data.

21 We took that 3E minus 11 control limit
22 and assumed a 7.5E minus 4 meters per second

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1 settling rate for 30 days and derived 1,295 dpm per
2 100 centimeter squared surface contamination
3 level.

4 By comparison, routine survey records
5 show the average measured level recorded for
6 Department 20 general area from 1962 to '69 to be
7 892 dpm per 100 centimeter squared. And there's
8 no indication that Kansas City's control of work
9 or in-plant environmental working condition
10 degraded in the years after the cessation air
11 monitoring.

12 And that leaves us confident that
13 exposures remain bounded with the use of the 3E
14 minus 11 microcurie per milliliter limit specified
15 in the ER.

16 All right, next comment. SC&A's next
17 comment, Number 5. "NIOSH refers to one thorium
18 machining air concentration test. The test is
19 inadequate to determine the value that should be
20 used, even for the year of the test, much less for
21 any other year."

22 Now, this is that air sampling that

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1 occurred that I described as the negative exposure
2 assessment at the beginning of the second campaign
3 where they went to each work station. And I guess
4 I'll talk about that more here.

5 As discussed previously in the paper,
6 mag-thorium operations related to Kansas City
7 Plant's second machining campaign would not have
8 commenced in the model shop until after receiving
9 approval from the health services department in
10 September of '70. From September 18 to October 10,
11 1970, Mr. Triplett performed a negative exposure
12 assessment for the industrial hygiene and health
13 physics department. And the following
14 information was included in the report of that
15 assessment.

16 Breathing zone samples were taken with
17 the Unico 11 portable air sampler. Air flow for
18 the samples were -- I give all the information about
19 how the samples were done. And we're basically in
20 agreement with what SC&A has said in their comment
21 about the ability of the air monitoring to be
22 conclusive.

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1 And I'll skip to the next paragraph
2 there. SC&A concludes from this information, and
3 NIOSH agrees, that the sensitivity of this test was
4 not high. SC&A calculated the capability of KCP's
5 analysis method using worst case background of
6 three counts per minute and determined thorium-232
7 plus thorium-228 concentration of 6E minus 11
8 microcuries per milliliter.

9 NIOSH also agrees that it's evident
10 from the one hour counts that a considerable amount
11 of short-lived activity was present in the air.
12 However, NIOSH accounts for that activity in the
13 ER by including an additional thorium bounding
14 model for each employee who performed the work.

15 NIOSH believes that the assessment
16 Kansas City performed from September 18 to October
17 10, 1970, prior to their second campaign, is useful
18 as additional data to support our bounding method,
19 as well as confirmation of Kansas City Plant's good
20 work practices.

21 The next issue, Number 6, the issue of
22 doses from progeny of thorium needs to be

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1 addressed. That's in the SC&A paper.

2 And our response, there's no
3 indications that chemical separations of thorium
4 were performed in the Kansas City Plant. And the
5 radioactive equilibrium between thorium-232 and
6 228 and their progenies could not have been changed
7 by the mechanical processes performed at Kansas
8 City.

9 Due to the long half-life of
10 thorium-232 and relatively short half-life of
11 thorium-238, essentially all the mass of the
12 airborne thorium would have been associated with
13 thorium-232.

14 Mag-thorium stock material
15 fabrication, which was done at one of the Dow
16 Chemical facilities, involved chemical
17 purification and heating previously refined
18 thorium-containing materials.

19 Information presented in the August
20 2007 document produced by SC&A. That's this on
21 here that we talked about earlier. That's the one
22 titled "A Focused Review of Operations and Thorium

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1 Exposures at the Dow Chemical Company -- Madison
2 Plant" shows that mag-thorium material was a new
3 product in '57. It also shows that the thorium was
4 procured from a Canadian vendor as pellets, ores
5 and master alloy which contained a reactively high
6 concentration of thorium.

7 It's likely that thorium or milling and
8 other chemical purification processes occurred
9 prior to metal pellet or master alloy fabrication.
10 So it's likely that the thorium would have been
11 triple separated over the course of several years
12 prior to use at Kansas City.

13 We can use this information to
14 reasonably bound the degree of this disequilibrium
15 that would have been associated with material that
16 was mechanically fabricated in Kansas City.

17 OTIB-76 is a document entitled,
18 "Guiding Reconstruction of Intakes of Thorium
19 Resulting from Nuclear Weapons Programs,"
20 addressed the similar situation involving triple
21 separated thorium at Fernald. Triple separated
22 thorium subject to pessimistically chosen

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1 intervals between chemical purification results in
2 thorium-238 to thorium-232 activity ratio of 0.19.

3 Radium-242, an alpha emitter decay
4 product of thorium-228, would also exist in the
5 activity ratio of 0.19. The beta emitters in the
6 decay chain, radium-228 and actinium-228, would
7 also be present in the aerosol at an activity ratio
8 of 0.19.

9 By minimizing the ratio of thorium-228
10 to thorium-232, the assumed isotopic mixtures
11 weighted in favor of 232 thorium. And that is a
12 claimant-favorable assumption because the dose
13 conversion factors are higher for thorium-232.

14 This information can be used to
15 interpret a gross alpha air sample taken in a
16 thorium fabrication area. In keeping with typical
17 air sample counting protocol, we assume that the
18 air sample had been stored for a nominal four days
19 prior to counting to allow short-lived progeny to
20 decay.

21 Assuming 100 becquerels was detected in
22 the gross alpha sample, 73 becquerels would have

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1 been associated with thorium-232, 14 becquerels
2 would be from thorium-228, 14 would be from
3 radium-224. And we rounded those numbers.

4 The selection of intake method, most
5 likely inhalation, and material type, slabs of
6 Class F, M or S, is left to the dose reconstructor
7 to determine based on a counting scenario for the
8 affected organ.

9 Okay, comment number 7 from SC&A.
10 NIOSH needs to determine the various alloy
11 compositions that were machined and whether
12 variations of thorium content may have made a
13 difference in particulate generation during the
14 machining.

15 There were two alloys machined at
16 Kansas City: HK31 and HM21. We talked about what
17 those nomenclatures mean at the beginning of this
18 paper. Various Kansas City Plant letters and
19 reports over time have referenced a thorium
20 concentration range for the mag-thorium alloys
21 processed at Kansas City. The range is explained
22 by the specification of nominal values in the

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1 casting of the alloys and the need of some
2 organizations to specify maximum values of the
3 concentration.

4 While the fact remains that the only
5 alloys machined at Kansas City were HK31 and HM21,
6 with nominal thorium concentrations of three and
7 two percent, respectively. Alternately, the
8 thorium content of the machined alloy does not
9 affect the bounding method due to the method's
10 dependence on gross alpha air monitoring.

11 Therefore, if an employee machined
12 mag-thorium with a higher thorium content, the
13 limit maybe reached sooner, but it would not have
14 effect the limit enforced.

15 Additional evidence that variation of
16 thorium content makes no differences in
17 particulate generation during machining was
18 demonstrated in the Dow studies described earlier
19 in the paper where we talked about them machining
20 three, four and six percent and melting ten percent
21 thorium. At the start of the work from Dow. And
22 that's the end of that paper.

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1 CHAIR BEACH: Great. I think because
2 of the lateness of that paper coming to the Work
3 Group, and with all the Work Group papers this
4 meeting, we're going to have just that conversation
5 and then we'll expect White Papers from SC&A at
6 post-meeting.

7 MR. McCLOSKEY: It was ambitious with
8 our October visit to Kansas City.

9 CHAIR BEACH: Yes. Yes, it was. So
10 I'll go ahead -- if there's any questions for NIOSH
11 from the Work Group Members? If not, then Joe --

12 MR. FITZGERALD: Yeah, thank you for
13 that. And I think, as Pat mentioned earlier, our
14 concerns very early on, you know, you had a
15 mag-thorium source term for which the thorium was
16 a very, very small component. And there wasn't any
17 routine monitoring, but there was good recognition
18 by the site that they were dealing with something
19 that was slightly radioactive. So there were, you
20 know, certainly guidelines and precautions and all
21 that.

22 Most of our concern, and we listed this,

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1 I think, in the very early Site Profile, and then
2 later in our review of the evaluation, is simply
3 to look to at the bounding methods in terms of
4 aligning, because we don't have the routine data,
5 aligning the locations with the times with, you
6 know, what we know as far as characterizing the
7 material. You know, looking at what samples do
8 exist and just validating that from a timeframe,
9 location, all of that kind of marries up. Because,
10 again, I think, you know, there's an approach that
11 can be taken. But all that really has to be
12 validated and be aligned.

13 I think the information that's been
14 collected has focused this much better than it was
15 a year ago. I think there's even new information
16 and revelations in terms of the start date. I
17 mean, stuff like that has gotten better. So it's
18 made it easier for us to look at that.

19 Most of our comments -- and I'm going
20 to give it to our authors. I mean, Joyce, John and
21 Arjun really wrote the last White Paper. So
22 certainly they're going to want to talk about the

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1 details. But most of our comments go into this so
2 called alignment. Just looking at those dates,
3 looking at, you know, the sources we're talking
4 about. And then looking at the bounding technique
5 that's being proposed and just seeing if that all
6 aligns and makes sense to us, that we understand
7 it.

8 So some of our questions are, can we
9 understand how this all works and put us in a
10 position of being able to tell the Work Group
11 whether we're comfortable that all this, you know,
12 in terms of the different phases, different
13 locations and operations, all works.

14 With that, and with the time
15 limitation, who wants to start off on the issues?
16 Joyce or Arjun, John? I guess Joyce has probably
17 spent the most time.

18 MR. KATZ: And just before Joyce starts
19 let me just note for the record, Dr. Lockey joined
20 us at the outset of really the presentation. And
21 he does not have a conflict for the site.

22 And let me just check in and see, do we

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1 have Dr. Poston on the line yet? Okay. Anyway,
2 carry on, Joyce. Thanks.

3 DR. MAKHIJANI: This is Arjun, just
4 briefly before Joyce starts. Let me just say that,
5 you know, I defer to Joyce on this because she's
6 been looking in this in more detail recently.

7 CHAIR BEACH: Thanks, Arjun.

8 DR. LIPSZTEIN: Okay, most of our
9 doubts, as Joe was saying, was looking at the data
10 and seeing what there is really from the
11 information that were collected.

12 We now know that the operation started
13 in August '61. So we don't have to comment
14 anything before that.

15 And from August '61 until March '63,
16 NIOSH is applying a limit of the limit for thorium,
17 which we accept without any further problem.

18 Then we have doubts after '63. Because
19 there is some information on the paper that NIOSH
20 gave us that from '63 to '97 there is no information
21 on magnesium-thorium machining. So the same limit
22 would be applied from '63 thereon. And the limit

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1 was followed using some air samples and surface
2 samples from DU.

3 From '63 to '66, there are air samples
4 in Department 20D, which was the old 22, so there
5 are air samples and some surface samples taken from
6 '63 to '66 on Department 20D. If Mg-thorium
7 machining took place at that time and in that
8 department, 20D, it's okay to apply the limit.

9 Our problem starts on '66. Because on
10 '66 the DU machining went down and Department 20D
11 was cleaned. So there is information that the
12 Department 20D was cleaned. There is information
13 that, even in the NIOSH response to the matrix
14 information, that Department 20D started being
15 cleaned in '66.

16 There are some information talking
17 about surface and floor monitoring done in '67, in
18 which they say it was done in 20D, which was in
19 process of modification to become an open area.

20 So the air samples and surface samples
21 that were taken in 20D from '66 to '70, it seems
22 to us that it was modified to be an open area that

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1 was cleaned. So air samples taken there cannot be
2 used to prove that the limits were followed. So
3 I think NIOSH has to find out where this
4 magnesium-thorium machining took place between '66
5 and 1970.

6 And then after 1970 the operation moved
7 to another department. A model shop. So after
8 '70 there is no data on the model shop. Also we
9 found some documents that were said that the model
10 shop in principle was considered not a radiation
11 area even though the operations from thorium
12 machining took place in the model shop.

13 And then there is no data at all after
14 1971 until 1979. So with no data from '71 to '79,
15 it's very difficult to accept that the limits were
16 followed when the only air samplings and the
17 surface contaminations were done in another
18 department, which was not this one.

19 So that's a summary of our problems.

20 MR. FITZGERALD: I was going to say,
21 after, you know, the 1966 to '70 timeframe that
22 Joyce referenced, what we were trying to reconcile

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1 is the commentary that was in your response under
2 D&D. Where you got in some detail about that
3 timeframe where apparently the DU was ramping down.
4 And a lot of the surface samples and what not were
5 taken from that same period. So it's unclear, you
6 know, if those samples would be representative if
7 the DU was going away, so to speak.

8 And it's not clear how quickly it was
9 going away. It was just indicated that they were
10 cleaning it up, 20D was being D&D'd. So that
11 seemed to be a bit of a contradiction and we
12 couldn't quite reconcile that with what was in the
13 White Paper.

14 I think the other thing that maybe gave
15 us a little pause, too, was the correspondence that
16 was in the SRDB that was collected back in October,
17 which I wasn't aware of. But, you know, the model
18 shop was an uncontrolled area. Not even a
19 radiation zone at that time.

20 And some of the supervisors were
21 concerned about the fact that they were going to
22 start out doing the mag-thorium there because it

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1 was an unrestricted area, and were trying to get
2 it moved back to 20D.

3 And I couldn't find -- you sort of
4 looking for the later memos that said, okay, we
5 either made it a restricted area and that's why we
6 left it in the model shop. You know, it's a little
7 bit uncertain to me exactly what the outcome was
8 on that debate, because they were uncomfortable
9 keeping it there.

10 So apparently the mag-thorium started
11 in the model shop as an uncontrolled operation.
12 Meaning that, you know, all workers had access to
13 the area. They did rope off, I guess, the
14 machinery, but the area itself was fully
15 accessible, which is what I think was the concern
16 of some of the managers, that that wasn't a good
17 idea.

18 But I didn't see what happened. You
19 know, did they make it restricted and then left it
20 there? I would assume that might have been the
21 case, but there was no paper on that.

22 They didn't move it back to 20D, that

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1 was for sure. So, anyway, that was one
2 uncertainty.

3 MR. McCLOSKEY: I read that too, Joe.
4 And my interpretation of that was that those
5 managers were concerned that we were doing
6 mag-thorium work in an area that was not a rad area
7 when we had a rad area already established, and if
8 there were problem here they'd be best if this were
9 to occur in our established rad area.

10 I didn't interpret that that the model
11 shop was ever not controlled or the general
12 population had free access to it.

13 MR. FITZGERALD: It said unrestricted.
14 I haven't seen anything else that could elaborate
15 on that. There's one memorandum that said that
16 part of the concern was that it was unrestricted.
17 Which could be interpreted in different ways. I
18 kind of thought, knowing the terminology, it
19 sounded like you had more access than you would
20 normally have if you would have been in 20D as a
21 rad area.

22 But, you know, it could be something

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1 else. But I'm just throwing it out that I think
2 that kind of opens up that question, which may be
3 answerable if one could find a bit more
4 documentation as to how they resolved that
5 discussion, as it were.

6 But that gets to Joyce's original
7 question, which is whether the sample information
8 would be representative, given the circumstances
9 of the model shop versus how the samples might have
10 been taken in October of '70.

11 I think that was the question that she
12 was posing for the post-'70. '71 to '79. Since
13 that data comes from October of '70. I'm sorry,
14 Joyce.

15 DR. LIPSZTEIN: No, that's exactly it.

16 MR. FITZGERALD: So kind of, in a
17 sense, the early timeframes were fairly
18 comfortable. I mean, I think there's
19 characterization data. It's pretty clear the
20 timeframes. In fact, the start date now is pretty
21 crisp.

22 A little fuzzy on '63 to '66. Just

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1 mainly because, as you acknowledged, there isn't
2 a lot of conformation exactly where mag-thorium
3 stood in that timeframe. That was the question we
4 posed to Pete, and you as well, by email last week,
5 was we couldn't quite figure out what you were
6 saying there. But it sounds like the operations
7 were there, but it was unclear to what extent things
8 went on. Except it looked, in '66, mag-thorium
9 went down and eventually was moved.

10 But we don't really have an issue per
11 se, either, I guess, in that timeframe. It's only
12 after '66 where, you know, using surface
13 contamination information, other validating
14 information air samples, what have you, DU air
15 samples, from that latter 1960s period when if, in
16 fact, DU operations were tailing down as indicated
17 in the D&D response --

18 MR. McCLOSKEY: The other point I'd
19 like to add to that is keep in mind that the
20 mag-thorium machining operations were small scale,
21 so for documentation to not be available, I mean,
22 that could be some explanation for that. I mean,

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1 it was just small piecemeal work.

2 The air sampling in the '60', we just
3 used that as supplemental information to validate
4 that they kept the mag-thorium machining ops in the
5 box.

6 MR. FITZGERALD: And within --
7 certainly well below the criteria that the --

8 MR. SHARFI: We're citing based off the
9 limit, not --

10 MR. FITZGERALD: 3E to the minus 11.
11 It was well below 3E to the minus 11. Right.

12 MR. McCLOSKEY: And we continued to use
13 the 3E minus 11 as a bounding method, from '63, when
14 the last point of good data on the ops occurring,
15 up until the second campaign. Because we don't
16 feel like we have a capital-letter D&D operations
17 that occurred at the end of '63, the first campaign.

18 MR. FITZGERALD: Yeah, our questions
19 sort of go to the supplemental information that
20 says, okay, you know, we don't have a whole lot of
21 documentations, you're pointing out, through the
22 '60s. But we want to certainly support the 3E to

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1 the minus 11th value going forward. And, you know,
2 that's why we're looking at surface contamination
3 level, some air samples.

4 And what we're saying is, well, we're
5 trying to, as I said earlier, align locations and
6 dates. And we're having a little trouble after '66
7 to '70 because, from the response in the D&D issue,
8 that item, it says they were cleaning up 20D
9 starting in that timeframe. And so any samples
10 taken at that time wouldn't necessarily represent
11 mag-thorium.

12 Although, again, as you're pointing
13 out, we don't even know what level mag-thorium
14 operations there were. So there's a lot of kind
15 of fuzziness there. And we're just raising
16 questions whether one can use those samples to
17 supplement or support the criteria. Because it
18 seems like there's a lot of moving parts going on
19 as far as operations tailing down on DU in the
20 '60's. And then, of course, relocation of the
21 operations in the model shop, which happened in
22 1970, late '70.

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1 MR. DARNELL: It almost seems to me
2 though that you're asking a different question from
3 the way we're using the information. We're
4 basically showing in the information that there was
5 a robust safety program going on.

6 They were looking, they were following
7 up, they were doing the things that they were
8 supposed to do for radiation safety. And when
9 we're using the limit with that information, saying
10 that, yeah, it gives us a good idea that the limit
11 would be the bounding case.

12 The other thing you have to remember and
13 not get so hung up on restricted access versus
14 unrestricted access: the guys that were working on
15 that project had to have a specific medical
16 monitoring and other testing done before anybody
17 was allowed to work on that project.

18 So you wouldn't have unrestricted
19 access to the workers doing the project. You would
20 have workers that were specifically set up to go
21 on that project. They may have some other workers
22 around the area. But you would not have them on

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1 the project itself.

2 MR. FITZGERALD: Yeah. Well, that's a
3 secondary comment. I think the primary comment
4 was whether the October '70 samples would be
5 representative for the '71 to '79 timeframe. And
6 I think we agree that that's kind of a reach.

7 But to go back, just to clarify, all
8 we're saying is that we don't have, I don't think,
9 a fundamental problem with the 3E minus 11th. But
10 once you get past '63, we're trying to grab hold
11 of something that gives us the kind of confidence
12 that I think you were seeking when you're looking
13 for supplemental information.

14 And if it's the gross alpha, all we're
15 pointing out is it's unclear whether the operations
16 weren't in fact going down in the latter part of
17 that '60 timeframe and whether or not those samples
18 would be very representative under those
19 circumstances.

20 That's kind of the comment, and we've
21 only had this for a week, but that's kind of the
22 first thing that comes to our mind, saying, well,

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1 the response in the D&D item seems to be hard to
2 reconcile with the reliance on those values on this
3 response, because it just seems like if the
4 operations were being cleaned up in 20D, then how
5 representative are those gross alphas?

6 DR. NETON: This is Jim. I guess I'm
7 finding a little bit more removed from this, but
8 we don't know that any operations occurred from '66
9 to '70, is that right?

10 MR. DARNELL: That's correct.

11 DR. NETON: So there's no indication --

12 MR. FITZGERALD: We don't know of any
13 mag-thorium operations.

14 DR. NETON: -- any mag-thorium
15 operations occurred between '66 and '70. So right
16 now we're in a position of proving a negative, that
17 they didn't occur?

18 MR. FITZGERALD: Well, I don't know.
19 We need to know if there was mag-thorium.

20 MEMBER CLAWSON: This is Brad. That's
21 a part of the problem. We have bits and pieces.
22 And what my issue is, is you have a piece here and

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1 a piece here and you're saying that nothing will
2 add on there because you can't find it. But we're
3 seeing history and information about it. So --

4 DR. NETON: I hear you, Brad. I'm just
5 trying to get it clear. I mean, so you're looking
6 for some confirmation that the operations didn't
7 occur, even though they were D&D'd in the area where
8 they had occurred.

9 So they would have had to move somewhere
10 else and not be monitored, then no indication of
11 any documentation that they monitored that
12 operation, even though they were pretty well
13 established in monitoring it while it was occurring
14 previously.

15 That just seems sort of a stretch to me.
16 I'm not saying it didn't, but I hear what you're
17 saying and --

18 MR. FITZGERALD: It's just -- you know,
19 and I sent this comment to Pete last week because
20 I think we were confused, you know, but we basically
21 said, are we reading that there weren't any
22 mag-thorium operations? I think you're response

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1 is we really don't know for sure. The
2 documentation is so scanty.

3 DR. NETON: Right.

4 MR. FITZGERALD: But the gross alpha
5 measurements that we have, you know, haven't
6 changed markedly or wouldn't suggest it's above 3E
7 to the minus 11th.

8 And then we were looking at the D&D and
9 try to say, well, why would they? Because if
10 nothing was happening in 20D then they wouldn't --

11 DR. NETON: Well, I agree with you.
12 But then they would had to have move it somewhere
13 else and had no --

14 MR. FITZGERALD: No, I understand.

15 DR. NETON: -- so you can't have it both
16 ways.

17 MR. FITZGERALD: Well, no, we're just
18 trying to figure out what exactly is the position.
19 And I think position is we don't really know because
20 there's not enough documentation to fill in that
21 hole. And --

22 CHAIR BEACH: Well, what do we know?

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1 We know there was mag-thorium onsite, right? The
2 inventory says it was there. And we knew they
3 moved it to the model shop.

4 MR. FITZGERALD: In 1970.

5 CHAIR BEACH: 1970. But between the
6 '66 and '70, that's where --

7 MR. FITZGERALD: We don't know.

8 DR. NETON: We're saying they're
9 cleaning up the area where it occurred. It didn't
10 move to the model shop. And so I have a point --
11 your question is, Joyce said, where did the
12 operation occur between '66 and '70?

13 CHAIR BEACH: Sure.

14 DR. NETON: And the possible answer is:
15 it didn't.

16 CHAIR BEACH: Okay.

17 DR. NETON: And I think, you know, we
18 understand what you're saying. You write up your
19 White Paper, you know, we know what you're saying
20 and we'll respond.

21 MR. DARNELL: But what I'm hearing --
22 and I just want to make sure I get it right.

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1 Fundamentally you agree with the use of the limit
2 as the bounding case for the entire period?

3 MR. FITZGERALD: Well, I'm saying we
4 don't know. Between '66 and '70, who knows?
5 We're just saying that the samples that were used
6 as supplemental to say that it was well below, I'm
7 having some trouble thinking that's your assurance
8 because -- and I don't disagree. If there were
9 mag-thorium operations and they were above that
10 limit, you know, it's just that timeframe is just
11 not characterized one way or the other. So I don't
12 know what you can say about it.

13 MR. McCLOSKEY: It's not for the sake
14 of us asking for information.

15 MR. FITZGERALD: No, no, no. I think
16 we're point out the obvious. And your answer was
17 confirming the obvious, that, no, we don't know.
18 And we're saying, okay, then it seems like we have
19 to take that value forward and feel confident from
20 a programmatic standpoint that, you know,
21 programmatically, it's unlikely that you would
22 have a spike or something in that four or five year

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1 timeframe.

2 But there's no way to objectively show,
3 you know, by samples or anything on that.

4 MR. DARNELL: One thing to remember,
5 though, is prior to that period you have a robust
6 program that you can see the operations on. After
7 that period, you see the same thing with
8 radiological operations and how industrial hygiene
9 handled the safety.

10 MR. FITZGERALD: Programmatically. I
11 can feel comfortable programmatically. I'm just
12 trying to figure out if you just took the
13 supplemental samples out, because, you know, for
14 whatever reason, we don't know if they tie in or
15 not. And we don't know if mag-thorium stopped, I
16 could programmatically say I can draw a line from
17 here to there and be okay.

18 But from sort of the data standpoint,
19 right now it's difficult because there's just not
20 any information. That's all.

21 MR. DARNELL: We can go back and look
22 for some more.

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1 MR. FITZGERALD: Yeah, I know.

2 MR. DARNELL: But I'm getting pretty
3 fatalistic about looking again. KCP records, it's
4 just so difficult to find anything.

5 MR. FITZGERALD: I one hundred percent
6 agree with you having been there and experienced
7 it. I just want the Work Group, I guess, to
8 understand that our issue is not one where we have
9 a positive finding of a problem. We just don't
10 know and we can't sort of connect the dots on that
11 time period. That's all.

12 MR. DARNELL: Okay.

13 MR. FITZGERALD: And I don't think
14 there's a disagreement, it's just that that seems
15 to be the case. You almost have to take or
16 interpolate from what happened before to what
17 happened after and say it's unlikely that it would
18 have been one exceeding that criterion.

19 But the change of operations on the DU
20 side, that would have effected the gross alpha
21 measurements. And everything else would have had
22 some --

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1 DR. NETON: I agree with you. If the
2 operations didn't occurred in 20, using the air
3 samples there, is not a good indication that they
4 kept the procedures going.

5 But then if it didn't happen in the
6 model shop either, so now we're going to have to
7 find some place where they could have occurred in
8 the building. Maybe it's a process of
9 elimination. Where else would they have been? I
10 mean, where else could they have processed
11 mag-thorium in the Kansas City Plant besides these
12 two places? And if they didn't, then there's no
13 --

14 MR. FITZGERALD: And the NMMSS doesn't
15 help us because I think that didn't begin until '70
16 or '71. So it doesn't help in the '60's as far as
17 inventory.

18 DR. NETON: Well, I'm not talking about
19 inventory. I mean, there could have been an
20 inventory but it just sat there.

21 MR. FITZGERALD: Yeah.

22 DR. NETON: What I'm saying is if it

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1 didn't happen in 20, it didn't happen in the model
2 shop, where could it have?

3 MR. FITZGERALD: Right. And I think,
4 you know, one could rely on programmatic, but I
5 think before you get that far you might want to see
6 if there's any -- and I don't disagree, it's a
7 challenge -- see if there's any information that
8 would give you some assurance in that timeframe.
9 That's all.

10 DR. NETON: I think I hear you. We'll
11 --

12 DR. MAURO: This is John. I know most
13 of your discussion goes to mapping and location and
14 concentrations. And there seems to be a degree of
15 comfort with the 3E to the minus 11.

16 But I want to go back to that shortly,
17 if it's okay, because I have to say, when I quickly
18 read through the White Paper, I stumbled a little
19 bit. And if you could help me out with this, that
20 would be helpful.

21 The number, the 3E to the minus 11,
22 that's your gross alpha count. And then you have

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1 a 0.1 milligram per cubic meter. And then you have
2 this number, this 0.19 ratio between thorium-228
3 and thorium-232.

4 Now, bear with me for a minute. When
5 I look at the decay chain, I see that -- you know,
6 I'm visualizing someone is doing the separation of
7 thorium, you know, getting pure thorium, triple
8 separation.

9 Which tells me -- and you tell me if I'm
10 wrong, please -- that that means you're going to
11 have equal amounts of thorium-232 and thorium-228.
12 Both of which are pure alphas. The thorium-228 has
13 a 1.9 year half-life. So here I am confronted with
14 what I believe would be, if you take the gross
15 alpha, you could argue that, well, you know, it's
16 coming both from those two radionuclides.

17 But then the thorium-228 has a string
18 of short-lived progeny, several of which have
19 alphas. So in a funny sort of way, when you look
20 at a gross alpha count, I say to myself, well,
21 you're probably -- and the gross alpha count is from
22 this triple-separated thorium that then machined,

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1 and you're counting that, it seems to that you're
2 counting all the alphas, which are one, two, three,
3 four, five, six, seven alphas that are coming.
4 Because they're all going to be there.

5 If you have separated thorium and, you
6 know, have equals amounts of inactivity of
7 thorium-228 and thorium-232. And then I hear the
8 0.19 number. Why would there be a 0.19 on initial
9 purification?

10 I could see at some time the thorium-228
11 is going to decay away before it starts to grow in
12 again. And I have to say, maybe I'm showing
13 naivete in my knowledge of health physics, but
14 there's something about the whole description of
15 this that just left me uncomfortable. Can anyone
16 help me out?

17 DR. LIPSZTEIN: John, I don't know --
18 this was just a way to do a claimant-favorable dose
19 calculation. That's what NIOSH says. And
20 actually I think this was a response to us asking
21 about the progeny of thorium that needs to be
22 addressed. And the response was that NIOSH would

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1 use this 0.19 in order to be claimant-favorable
2 when calculating the doses.

3 Actually, we have some problems with
4 this because not for all organs the dose conversion
5 factors for thorium-232 is higher than the dose
6 conversion factors for thorium-228. But I think
7 this is more -- it's not an SEC problem, it's
8 something we have to discuss.

9 And if NIOSH wants to be
10 claimant-favorable, they could choose which ratio
11 is more claimant-favorable for the organ of the
12 cancer type.

13 For example, the thorium-232 is a
14 factor lower than the dose conversions factor for
15 thorium-238. But the counter is for bone surface.

16 DR. MAURO: Excellent. You know, you
17 brought me right where I wanted to go. So you're
18 being conservative by disregarding the alphas from
19 the short-lived progeny. And basically
20 attributing all the alphas to some mix of 232 and
21 228. And I agree with that. That's
22 claimant-favorable.

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1 DR. NETON: Right, John. This came
2 out -- and I wasn't involved, because I'm
3 conflicted. But I know at the Fernald this triple
4 separated thing came out as an issue. Actually,
5 triple separated is a TIB now on this whole thing.

6 And, you know, it's the most
7 claimant-favorable approach, as Joyce was saying,
8 for most organs. Except maybe the lung where if
9 you had a lot -- it wouldn't be any more than 100
10 percent equilibrium, but you would have a higher
11 dose to the lung. But I think for a systemic organs
12 the triple separate gives you the highest organ
13 dose.

14 DR. MAURO: Okay. But -- no, good.
15 Now, the only, I guess, circumstance, the 0.19
16 sounds to me that it would be claimant-favorable
17 for lung.

18 DR. NETON: No.

19 DR. MAURO: No?

20 DR. NETON: No, I think, if you look at
21 it, if you have a lot more thorium-228 activity --

22 DR. MAURO: Yeah, I'm not sure which is

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1 the limiting organ.

2 DR. NETON: Yeah, we can look at that.
3 Like Joyce says, it's calculable depending on the
4 exposure scenario.

5 DR. MAURO: Good.

6 DR. NETON: But I don't think a one
7 hundred percent triple separated will give you the
8 highest dose to all organs. She's right.

9 DR. MAURO: Okay. I completely agree
10 that this is not an SEC issue. It's just how are
11 we going to deal with the data for different
12 cancers.

13 DR. NETON: It's interpretation.
14 Right.

15 DR. MAURO: And what I'm hearing is
16 you're going to use the assumption regarding what
17 does that gross alpha mean in a way that will
18 maximize the dose for that claimant, depending on
19 the cancer he's dealing with.

20 CHAIR BEACH: Hey, John, can I cut in
21 here?

22 DR. MAURO: Sure.

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1 CHAIR BEACH: Can you do this, I mean,
2 I know it's important, but maybe offline? We've
3 just got a limited time here with the Work Group.

4 DR. MAURO: Sure, no. I just wanted to
5 bring this on the table. We'll resolve this later.

6 CHAIR BEACH: Sure.

7 DR. MAURO: When we write up our
8 material.

9 CHAIR BEACH: Okay.

10 DR. NETON: Yeah, we'll look at your
11 write-up when it comes out and respond to that.

12 CHAIR BEACH: So are there any
13 questions? Loretta, Work Group Members,
14 questions for NIOSH or SC&A at this point?

15 MEMBER CLAWSON: How many -- I'm having
16 a hard time understanding how many actual samples
17 we have to be able to tie this period together. I
18 just know --

19 CHAIR BEACH: Are you talking the early
20 period or the whole?

21 MEMBER CLAWSON: The whole period.
22 Over the whole period, how many samples do we

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1 actually have?

2 MR. McCLOSKEY: Air samples?

3 MEMBER CLAWSON: Yeah. Of all this.
4 Because I'm just looking at a few that I've been
5 able to find and I'm just trying to understand how
6 we're bridging this gap there. I know that we've
7 got a big blank spot in the middle, but how are we
8 getting from one end to the other?

9 MR. McCLOSKEY: The ER talks about air
10 monitoring that occurred in heavy machining area,
11 Department 20. And so this is our fixed filter air
12 sampling that would have been at all these stations
13 around that area. And that goes from 1958 to 1971.

14 MEMBER CLAWSON: Okay. How many
15 samples would have there have been? How many total
16 do you think there is?

17 MR. McCLOSKEY: Oh boy, there are
18 hundreds.

19 MEMBER CLAWSON: Hundreds of them?

20 MR. McCLOSKEY: Yes.

21 MR. FITZGERALD: Using gross alpha.

22 MEMBER CLAWSON: Using gross alpha,

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1 okay.

2 MR. McCLOSKEY: So what you should be
3 hearing there is the first mag-thorium machining
4 campaign starts '61. Our first routine general
5 air monitoring starts in '58 in that area where
6 they're machining. Okay. So there are arms
7 around that machining work with air monitoring.

8 Okay, and so we talked about this D&D
9 that occurred in, don't quote me, I think we're
10 using the year '66, when the DU didn't completely
11 disappear, they were down to just a few pieces that
12 they were working on. And the air monitoring
13 continue in that area up until '71.

14 And so we wouldn't expect the
15 mag-thorium machining work, after we've seen the
16 documentation of it from the first campaign, to
17 have gotten larger, right? And then when we get
18 to 1970, the mag-thorium machining ops move to the
19 model shop.

20 Just have the one air sample done as a
21 negative exposure assessment at the beginning of
22 that op with breathing zone monitoring in each work

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1 station. And that's it. If that answers your
2 question for air sampling.

3 MEMBER CLAWSON: Okay, yeah. It does.
4 Okay, I'm good right now.

5 CHAIR BEACH: Any other Work Group
6 Members' questions? Maurice, do you have any
7 questions or comments?

8 MR. COPELAND: Yes.

9 CHAIR BEACH: On this issue?

10 MR. COPELAND: Yes.

11 CHAIR BEACH: Okay.

12 MR. COPELAND: With all of what you're
13 doing, where is the medical monitoring running in
14 tandem with your air sampling and all? You know,
15 we took physicals at that plant.

16 Not only did we take physicals, we had
17 people that were going out on disability retirement
18 for respiratory problems and stuff like that.
19 Where was the medical monitoring going along --
20 where's the medical monitoring of the personnel
21 going along with all of this?

22 They have physicals there in the plant

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1 and we also have disability retirements of
2 managerial personnel and the workers. So since
3 we're concerned with the exposure rate, where is
4 the data on the physical, the actual physical
5 exposure rate of the people and the illness that
6 they're coming down with and suffering from?

7 MR. DARNELL: We don't actually look at
8 occupational illnesses, so we have to set that part
9 aside.

10 MR. COPELAND: You're saying you don't
11 actually?

12 MR. DARNELL: We don't actually look at
13 occupational illnesses. We only look at the
14 radiation-related things. So we have to set that
15 part of your question aside.

16 But to answer your question for the
17 radiation aspects and for medical monitoring, on
18 our last trip to the Kansas City Plant we went into,
19 oh, hundreds of medical records for individual
20 workers to look specifically for the data that
21 you're asking about.

22 And that is where it's located. It's

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1 within the employees' medical records, is where
2 that is located.

3 MR. COPELAND: Right. So all of that is
4 going into your -- I don't hear it though, I don't
5 hear it here, but, okay, another thing.

6 MR. DARNELL: So are you asking are we
7 using that in our dose reconstruction?

8 MR. COPELAND: Yes.

9 MR. DARNELL: We use exposure data from
10 that in our dose reconstructions.

11 MR. COPELAND: And the illnesses that
12 --

13 MR. DARNELL: Illnesses don't -- we
14 cannot make any relationship between the different
15 illnesses the worker got and the radiation
16 exposure.

17 MR. COPELAND: So the illness --

18 MR. DARNELL: All we can look at is the
19 radiation exposure.

20 MR. COPELAND: Okay.

21 MR. DARNELL: And we use that data.

22 MR. COPELAND: The illnesses related

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1 to the elements aren't counted?

2 MR. SHARFI: There's a Part B that just
3 deals with cancer induced from radiation, a Part
4 E that's illness related to occupational exposure.

5 MR. COPELAND: Right.

6 MR. SHARFI: This is specific just to
7 the Part B of the cancers related to radiation
8 exposure. So we're not -- this part itself is not
9 covering the decision making on illness related
10 exposures to general exposure. That would be
11 covered under Part E. Is that what you're asking?

12 MR. DARNELL: If you're asking about
13 chemical toxicity of the materials, that would be
14 covered under the Part E of the program.

15 MR. COPELAND: I know that I don't know
16 much about this, but the elements that you're
17 dealing with are radioactive, right?

18 MR. DARNELL: Yes.

19 MR. COPELAND: And there are certain
20 illnesses that come from exposures to these things.

21 CHAIR BEACH: Yes.

22 MR. COPELAND: And that deals with the

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1 SEC, right?

2 CHAIR BEACH: Yes. Some of the
3 questions you're asking will be covered in other
4 items on our agenda.

5 MR. COPELAND: Okay.

6 CHAIR BEACH: So we will get into some
7 of those topics on how they correlate.

8 MR. COPELAND: Okay. And the
9 operations done, an operation that you're talking,
10 the thorium operation, the mag-thorium operations,
11 the engineering process, it seems like you can't
12 find certain things?

13 Certain things are done -- what we do
14 is we work by engineering process controls. It
15 should be found in the engineering process control.
16 It seems like what's missing here is information
17 that you can get directly from the engineers that
18 worked in the plant. Like the period of time the
19 certain thorium operations were done that seem to
20 be missing here.

21 We still got those engineers walking
22 around out here that they should be able to direct

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1 you to their engineering process controls and the
2 work that was actually being done.

3 MR. McCLOSKEY: Is that the title of a
4 document? Would I find a document that says,
5 "engineering process controls?"

6 MR. COPELAND: Right.

7 MR. McCLOSKEY: Okay.

8 CHAIR BEACH: See, through the
9 interview process that's what we were looking for.
10 We didn't find any specifics for that time period
11 through our interviews. And when we go to look for
12 documents, it's -- we've been there, what, three
13 times now looking for documents. And it's
14 difficult.

15 MR. COPELAND: Some of those engineers
16 are still around. I gave you all names. I've been
17 giving you all names for years.

18 CHAIR BEACH: Yes.

19 MR. COPELAND: And it don't seem like
20 we're interviewing those people, because you could
21 get that.

22 CHAIR BEACH: We are trying to. Okay?

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1 We're not done by any means. Anything else on this
2 topic, mag-thorium, that you have?

3 MR. COPELAND: Yeah, I have one. The
4 operations of sanding and grinding these
5 materials. Also the protection of the personnel
6 doing it. Those engineering process controls, the
7 PPE, how you protect the people, the exposure rates
8 and what we wore, what was specifically done to
9 protect the people.

10 And this has to do with the exposure
11 rate. What did we do? What uniforms did we wear?
12 Did we wear plastic suits, did we -- you know, I
13 don't hear any of that. So, you know, that's all.
14 I just wanted to throw that out so that everyone
15 could hear.

16 MR. McCLOSKEY: We have copies of the
17 prescribed PPE and the controls used for the
18 mag-thorium machining. We have five or six
19 iterations of those controls, revisions of them.
20 They first started with the Dow safety bulletin.
21 They incorporated largely all of these sorts of
22 controls that I spoke about earlier.

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1 MR. COPELAND: Yeah.

2 MR. McCLOSKEY: The first revision of
3 them would use these. And they even reference them
4 in the back of their controls.

5 And those controls specify
6 contamination limits on materials that have to not
7 be exceeded and airborne limits. That's where we
8 got our 3E minus 11 control limit from.

9 So we have copies of those. I'm glad
10 to show you some that I have during the next break.

11 MR. COPELAND: And that would be in
12 also the engineering process controls because
13 that's the way we work, step by step. We do not
14 deviate. You use a blue eraser, use a blue eraser.
15 It tells you step by step. Put your gloves on first
16 before you do this.

17 MR. McCLOSKEY: Good.

18 MR. COPELAND: I want to see that.
19 Because I did it. And it wasn't done. Okay.

20 MR. DARNELL: That's actually a very
21 good question, but I think these discussions we're
22 kind of one step above that. We're not looking at

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1 that, we're looking at, worst case, what the doses
2 would be and what the highest boundary of that dose
3 would be. So we actually don't take protective
4 clothing into account.

5 MR. SHARFI: We're assuming your
6 protective clothing fails.

7 MR. COPELAND: I'm sorry?

8 MR. SHARFI: We're assuming the
9 protective nature fails and that you got a full
10 exposure from the loss of the PPE.

11 MR. DARNELL: Right.

12 CHAIR BEACH: A lot of that's in the
13 background documents where you'll read it and it'll
14 say they were wearing plastic suits, eye glasses.

15 MR. COPELAND: That's written by the
16 engineers?

17 CHAIR BEACH: Yes. But it's --

18 MR. COPELAND: I want to see that.

19 CHAIR BEACH: But they're saying you
20 didn't have anything on and this is what you're dose
21 was.

22 MR. DARNELL: It doesn't matter what

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1 the engineers said. If they told you you had to
2 wear a plastic suit with an airline respiratory and
3 the whole bit, that was for your safety then. We
4 assume that you didn't wear any of it. You walked
5 right up and took a straw and went, sniff. That's
6 what we assume.

7 MR. COPELAND: Okay.

8 MR. DARNELL: The absolute worst case.
9 So all that other stuff that you're worrying about
10 doesn't really matter.

11 CHAIR BEACH: Exactly.

12 MR. DARNELL: Because we're not using
13 it anyways.

14 MR. COPELAND: Okay.

15 MR. DARNELL: We described it in our
16 documents, but we don't use it.

17 CHAIR BEACH: Okay, so let's wrap up
18 and talk about actions. What I have is SC&A's
19 action is to write their concern or their issues
20 into a White Paper for the Work Group.

21 And also continue to look for
22 operations during that 1966-1970 timeframe.

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1 That's an ongoing for NIOSH action. I'm assuming
2 we're not finished with that.

3 MR. DARNELL: No.

4 CHAIR BEACH: Anything else on actions
5 for this 13, mag-thorium?

6 MEMBER LOCKEY: What was going to be
7 for after '70? Is there any action after '70?

8 CHAIR BEACH: No, I believe that SC&A
9 --

10 DR. NETON: Well, SC&A's going to
11 comment on that in their report, their White Paper.

12 MR. FITZGERALD: We'll include that.
13 But I think our comment is -- and I'm not sure
14 there's a big disagreement. We have the one
15 October '70 negative exposure assessment. That
16 one set of samples, breathing zone samples. And
17 we're questioning how that can be applied to the
18 model shop given, you know, the change in location
19 and the admitted inaccuracies involved with that
20 particular test.

21 That's always been kind of a standing
22 question we've had, which is you got one sampling

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1 and you don't have any more sampling after that.

2 MEMBER LOCKEY: I understand that, so

3 --

4 MR. FITZGERALD: So we're questioning
5 whether that can be applied.

6 MEMBER LOCKEY: Well, I understand the
7 question. How is NIOSH going to --

8 DR. NETON: We can't react to it until
9 I see it in writing.

10 MEMBER LOCKEY: I'm sorry?

11 DR. NETON: I'd like to see the report
12 and see exactly, you know, how they did couch it.
13 I mean, we're not going to --

14 MEMBER LOCKEY: If there's just one
15 sampling data, are you going to go back and look
16 for additional data or --

17 DR. NETON: No, no. We'll respond to
18 the White Paper when it comes out.

19 MEMBER LOCKEY: I'm just curious --

20 MR. FITZGERALD: I thought the White
21 Paper we've got actually came up with several more
22 information we had before.

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1 DR. NETON: The fact is that there are
2 a lot of other engineer -- there's a lot of
3 engineering documents out there that show it's very
4 hard to get large concentrations of airborne
5 thorium when 98 percent of the material's inert.
6 It's magnesium. So you generate some very large
7 dust clouds before you get to the point where you
8 start seeing 3 times E to the minus 11.

9 It's that sort of common sense approach
10 that you got to start going back to when you start
11 saying, you have a negative exposure assessment,
12 they're not seeing anything, they did all this
13 stuff. There's studies done by Dow back in the
14 '50's that shows if you grind it, you weld it, you
15 do all this stuff, there's not much in the air.

16 Like I said, if you have 98 percent of
17 a material is inert material, only two percent is
18 radioactive. It gives you some cushion.

19 MEMBER LOCKEY: The dust is going to be
20 huge.

21 DR. NETON: You get huge doses.

22 CHAIR BEACH: So they'll include '70 to

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1 '79 in their White Paper for --

2 DR. NETON: Yes. That would be our
3 kind of response.

4 CHAIR BEACH: Okay.

5 MEMBER LOCKEY: I just wanted to know
6 what you're going through.

7 MR. FITZGERALD: Yeah, I think, you
8 know, based on this dialogue, clearly there's the
9 two timeframes that we'll comment on. I think
10 we're okay with the early timeframes and we're okay
11 with the thorium progeny.

12 So we're trying to narrow this thing
13 down to really questions revolving around those two
14 time periods. And we'll lay that out and, you
15 know, try to get that to you as soon as possible.

16 MR. DARNELL: Thanks.

17 CHAIR BEACH: Okay. All right, so the
18 next item is 20. How does the Work Group feel? Do
19 you guys need a comfort break?

20 MEMBER CLAWSON: We need a break.

21 CHAIR BEACH: Okay. So try to do a
22 quick five minute break. That work? Five to

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1 seven.

2 (Whereupon, the above-entitled matter
3 went off the record at 10:05 a.m. and resumed at
4 10:15 a.m.)

5 MR. KATZ: Okay, we're back. Let me
6 just check on the line and see, do we still have
7 you, Loretta?

8 MEMBER VALERIO: Yes, I'm still here.

9 MR. KATZ: Super. And, John Poston,
10 have you joined us? Okay, then. Carry on.

11 CHAIR BEACH: Okay. So the next item
12 on our agenda that we're going to go to is Issue
13 20, the tritium exposure potential. And I'm going
14 to let NIOSH jump right into that one.

15 MR. McCLOSKEY: Is that my cue, Pete?

16 CHAIR BEACH: That's the new one.

17 MR. DARNELL: Yes, if you don't mind.
18 I just don't have the voice.

19 MR. McCLOSKEY: Oh, no problem. So
20 Issue 20 was something we added --

21 CHAIR BEACH: In June.

22 MR. McCLOSKEY: Yeah, June. So we

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1 found -- I forget when the first document surfaced
2 showing that we had tritium issues there, but in
3 June we decided that there was something more to
4 look at.

5 I'm reading from -- I'm going to try
6 to read less of this White Paper than I did of the
7 last paper just to keep things moving a bit quicker.
8 I'll just touch on the highlights from it. And if
9 anyone wants to delve into something any deeper,
10 please let me know so we can talk about it.

11 So, the second page of the White Paper,
12 our first indication that tritium was being --
13 well, I'll even go back a bit further. I'll read
14 the introduction. Operations at Kansas City that
15 involved working with tritium and nickel-63 were
16 remitted in the scope.

17 Two production tasks are known to
18 involved tritium. One is the use of luminescent
19 paint to fill engraved markings on a high/low
20 switch plate. And a second operation involved
21 manufacturing instrumentation for tritium
22 analysis in urine and water.

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1 As part of that second operation there
2 was a nickel-63 plating operation associated with
3 the manufacturing of instrumentation for tritium
4 analysis work.

5 That nickel-63 information is probably
6 new to a lot of people. We were just emailed
7 documents on that December 15, 2014. It's when we
8 first learned of it. Kansas City Plant found it
9 and realized that they had not told us about it and
10 sent it over to us.

11 So now we're going to talk about the use
12 of tritium as a phosphor on the high/low switch
13 plates. So the first use of it occurred February
14 8, 1963. And that's in a memo from an industrial
15 hygienist and he states that the activated phosphor
16 is associated with negligible radiation exposure
17 and a non-specified ADC study on the topic is cited.

18 So that's our first notice of it
19 occurring. Let's see. And there's some
20 communications back and forth between Kansas City
21 Plant, another Bendix facility, and U.S. Radium
22 Corporation. And they talk about acceptable

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1 contamination levels that the Kansas City Plant
2 would allow for these parts to be received at their
3 facility. As a non-nuclear facility, they
4 couldn't accept contamination levels at their
5 site, so they had a visit.

6 Let's see here. And they performed
7 some decontamination tests on three batches and
8 showed increasing contamination levels over a
9 one-week period and showed that the contamination
10 levels were, let's see, increased from zero to 1500
11 background detected counts per minute over that
12 period.

13 I'm trying not to read it all and just
14 hit the high points.

15 MR. DARNELL: Any questions on any of
16 the background information? We're going to jump
17 to the bounding scenario. Okay.

18 CHAIR BEACH: So let's be clear.
19 There's two separate operations?

20 MR. McCLOSKEY: Yes.

21 MR. DARNELL: Yes.

22 CHAIR BEACH: Okay. And that Ni-63,

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1 that is associated with the first one, the
2 luminescent paint? Or is that separate?

3 MR. DARNELL: It's associated with the
4 tritium monitor that they were building.

5 MR. McCLOSKEY: The second application
6 was the one associated with --

7 CHAIR BEACH: The second one, okay.

8 MR. McCLOSKEY: So now we're talking
9 about, you know, the use of this luminescent paint
10 on a switch.

11 CHAIR BEACH: Okay.

12 MR. McCLOSKEY: Okay. I'm trying to
13 skip ahead.

14 CHAIR BEACH: I'm just wondering if you
15 can just describe what they were doing and maybe
16 like kind of give an overview of it. I don't know
17 what the rest of the Work Group needs, and we've
18 all read the White Paper.

19 MR. McCLOSKEY: Okay. So the
20 application of the paint occurred at another
21 facility. And the parts, the switch plates, were
22 brought to the Kansas City Plant and handled there,

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1 so they wanted assurance that there was no removal
2 contamination once it got to the Kansas City Plant.

3 CHAIR BEACH: Okay.

4 MR. McCLOSKEY: So the first part of
5 this is the discussion about, you know, how do we
6 survey for tritium in, you know, the early 1960s?
7 What methods are available, what should be used?
8 So we get some Sandia health physicists involved
9 because they were considered the experts on that
10 at the time, and all that's documented in there.

11 Okay. And they landed on the liquid
12 simulation-type of monitoring that would be best
13 for contamination surveys. The work was done in
14 Department 212, the receipt of this work. Okay.

15 CHAIR BEACH: And the dates you have
16 here on Page 4, you've got four sets and the number
17 received, that's the sum total of the operation,
18 that you know of, is that correct?

19 MR. McCLOSKEY: Yes.

20 CHAIR BEACH: So essentially we're
21 talking about 1965 is when that work took place?

22 MR. McCLOSKEY: Well, let's read the

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1 bounding scenario. The exposure bounding
2 scenario from tritium on high/low switch plates,
3 in this scenario, exposure to tritium associated
4 with the radio-luminescent high/low plates is
5 estimated based on the period in which we know the
6 switch plates were used. We assume that exposure
7 occurred continuously between '63 and '68.

8 Okay. They had a formal method for
9 controlling employee access to the work area using
10 security guards, medical screenings, and
11 qualifications.

12 In this bounding scenario, only those
13 workers who received, inspected, installed,
14 tested, and packaged the switch plates may have
15 been exposed to tritium that was incorporated into
16 the zinc sulfide simulator.

17 Okay, now we have a change that we need
18 to make to this document for this next sentence.
19 We now believe that the chemical form of the tritium
20 was an organic compound, okay. And that is a memo
21 by [identifying information redacted] earlier in
22 this document where he says it was an organic

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1 compound. And so that's going to cause us to
2 change this bounding scenario slightly. But we're
3 going to use the rest of this as it stands, and I'll
4 explain a little bit --

5 MR. FITZGERALD: Do you have the SRDB
6 on that already or no?

7 MR. McCLOSKEY: On which one?

8 MR. FITZGERALD: On the organic
9 compound.

10 MR. DARNELL: No.

11 MR. FITZGERALD: Okay.

12 MR. DARNELL: That just came in last
13 night.

14 MR. FITZGERALD: All right.

15 MR. DARNELL: It's hot off the press,
16 so we're going to change to the organically bound
17 tritium, and you'll SRDB references when those get
18 uploaded.

19 MR. FITZGERALD: All right, thanks.

20 MR. McCLOSKEY: Well let's see --

21 MR. SHARFI: The [identifying
22 information redacted], isn't that the 128438

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1 letter?

2 CHAIR BEACH: Yeah, we saw that.

3 MR. McCLOSKEY: Let's see, on July 1st,
4 1965, a memo written by [identifying information
5 redacted] regarding high/low switch plates used in
6 the MC 1931 cable assembly, SRDB 137154. So look
7 at that one.

8 The memo stated that the tritium
9 phosphor filled the engraved letters so that they
10 could be read in the dark and that the phosphor was
11 a tritiated organic compound. So make note of
12 that.

13 Okay. We know that the surface
14 contamination on the intact switch plates
15 increased as a function of time. This suggested
16 that tritium gas was disassociating from the
17 chemical matrix and diffusing to the surface.

18 At the surface, the tritium would most
19 likely exist as water or hydration on the switch
20 plate. You know, that's the not case now. It's
21 going to be an organic compound. Soon the chemical
22 form makes this tritium readily available for skin

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1 absorption.

2 So that's going to be a more
3 claimant-favorable form of translocation through
4 the skin, so we're going to continue to use that
5 even though we're going to switch to an organic dose
6 conversion factor later.

7 Okay. And then we're going to talk
8 about the number of exposures that could've
9 occurred over this time period. We know that from
10 a February '66 trip report recapping the order
11 status from the prior year that 500 units were
12 ordered and 181 were shipped prior to the report
13 date.

14 We also know from swipe test records
15 that 330 switch plates or components were received
16 in four batches in '65. That suggests two
17 different orders for switch plates were made in
18 '65, and we can use that information regarding the
19 number of items received to estimate what chronic
20 exposure would've occurred daily to estimate that
21 nominally three switch plates per day would've been
22 handled.

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1 Data collected in '65 from 110 swipes
2 used to assess contamination level on the switch
3 plates was fitted to a log-normal distribution and
4 that data was found to have a geometric mean of
5 4,246 dpm per 100 centimeters squared and a
6 geometric standard deviation of 2.32.

7 The upper 95th percentile value of the
8 excretion is 16,900 dpm per 100 centimeters squared
9 and we assume that value for the contamination
10 level in the bounding exposure scenario.

11 We do not the size of the switch
12 plates, but we'll assume they're two-sided and
13 nominally 100 centimeters squared on each side for
14 a total of 200 centimeters squared.

15 And each switch plate had 33,800 dpm
16 distributed over the entire surface. We assume
17 that each switch plate was handled enough for all
18 surface contamination to be transferred to the
19 worker's skin where it was completely absorbed.
20 That would not be the case with an organically bound
21 tritium, but we're going to continue to use that
22 for claimant-favorability.

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1 And for a worker handling three switch
2 plates each day, the bounding intake rate of the
3 tritium through the skin would be 101,400 dpm, and
4 that bounding intake would've been chronic through
5 the years, for the period 1963 to 1968.

6 If we use an ICRP-68 dose conversation
7 factor of 4.19 E minus 9 rem per becquerel, the
8 worker dose would be -- oh, what did I say that would
9 be? It now becomes 1.77 millirem per year.

10 You know, this paper was based on it
11 being tritiated water, and we came to a dose of 0.76
12 millirem per year and we upped that to 1.77. So
13 that's the first tritium operation of the phosphor
14 applied to high/low switch plates.

15 CHAIR BEACH: Okay. So in the
16 scenario that you created, the scenario of the
17 spill, only the workers who received, inspected,
18 and installed, how do you know which workers did
19 that?

20 MR. DARNELL: It's in their medical
21 records.

22 CHAIR BEACH: And we have their medical

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1 records for every person to know that that would
2 be covered?

3 MR. DARNELL: Well, we would have
4 medical records for every claimant. We have
5 searched medical records for other people. How
6 many was that? We got through maybe --

7 MR. SHARFI: They do provide them as
8 part as of a request for records. The medical
9 records are scanned and provided to us.

10 (Simultaneous speaking.)

11 MR. DARNELL: Oh, it's written very
12 plainly on the card, mag thorium evaluation, or DU,
13 or Department 20, so --

14 CHAIR BEACH: Of the known workers?

15 MR. DARNELL: On the cards that we
16 received.

17 MR. FITZGERALD: Were any cards found
18 with tritium?

19 MR. DARNELL: That would --

20 (Simultaneous speaking.)

21 MR. DARNELL: I don't remember.

22 MR. SHARFI: I don't know if they

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1 listed specifically tritium, but you could look,
2 they did list departments.

3 MR. FITZGERALD: Well, do we know the
4 actual work location for these activities?

5 MR. SHARFI: Yeah.

6 MR. DARNELL: Yeah, it's in there.

7 MR. McCLOSKEY: Department 212.

8 CHAIR BEACH: 212.

9 MR. FITZGERALD: 212 for both or --

10 MR. McCLOSKEY: For the next one, for
11 the tritium and water and air monitors that's going
12 to be in the chem labs. So, no, not the same
13 department for both tritium activities.

14 CHAIR BEACH: Okay, so 212 for this
15 one.

16 MR. FITZGERALD: So it's been
17 confirmed both places, the chem lab for the second
18 and the 212 for the first one?

19 MR. McCLOSKEY: Yes.

20 CHAIR BEACH: Any other questions for
21 this first activity before we move on to the next?

22 MR. DARNELL: Yeah, Mutty just brought

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1 up a good point. The dose is a little less than
2 two millirem per year --

3 CHAIR BEACH: I understand that. Yes,
4 we realize it's a small dose.

5 MR. SHARFI: It would probably be just
6 as easy just to give to everybody and not worry
7 about it.

8 CHAIR BEACH: Okay. Okay, so if you
9 want to go with the next one, tritium water.

10 MR. McCLOSKEY: Okay. Next they are
11 making some radiation detection instruments used
12 for the military to monitor, you know, during the
13 Cold War, if there was a nuclear detonation they
14 would have wanted the ability to monitor for
15 tritium in both urine and in air that they were
16 breathing. So Bendix, or the Kansas City Plant, was
17 making some instruments. Let's see.

18 MR. DARNELL: What page are you on?

19 MR. McCLOSKEY: Oh, there it is, Page
20 8. Okay. There's evidence that tritium air
21 instruments and urine monitors designed by Sandia
22 were manufactured by Bendix at Kansas City over an

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1 extended period.

2 The manufacturing involved the use of
3 tritiated water as a calibration standard.
4 Radioactive nickel-63 was plated on a component of
5 one of the in-air instrument models and that is
6 going to be talked about separately.

7 The manufacturing of these instruments
8 began in '59 and four monitoring kits were produced
9 in 1960. And the manufacturing of this equipment
10 continued in campaigns through the 1970s.

11 The manufacturing effort was not in
12 response to tritium used programmatically at
13 Kansas City, rather it was done under contract to
14 Sandia. And they were used by military
15 organizations in the United States during nuclear
16 testing.

17 Okay. I'm skipping ahead to Page 9.
18 By 1972 the tritium in-air monitor Bendix/Sandia
19 Model T446 and the tritium urinalysis model T449
20 was available, as documented in instrumentation
21 for an environmental monitoring published by
22 Lawrence Berkeley Laboratory. Okay. So we're

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1 trying to show that these would've been used into
2 the '70s there.

3 The next paragraph, no evidence was
4 found indicating that tritium gas or tritiated
5 water vapor was used at the Kansas City Plant in
6 direct association with the ion chamber
7 production.

8 Tritium in-air monitors do not
9 necessarily require tritium gas or water vapor to
10 be available during the manufacturing process.
11 These monitors are based on ion chamber technology,
12 and I won't go into all that.

13 CHAIR BEACH: On that same page, I
14 guess I'll ask you a question now. Initially in
15 1959 the bottles were received and inspected
16 without opening and then stored under that
17 ventilation until they were sold.

18 MR. McCLOSKEY: Right.

19 CHAIR BEACH: That was just in a
20 document, that SRDB? I tried to get to most of
21 these SRDBs but I didn't get to that one.

22 MR. McCLOSKEY: Yeah, that's where we

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1 found that.

2 CHAIR BEACH: It just basically
3 explains that that's where they were stored?

4 MR. McCLOSKEY: Mm-hmm.

5 CHAIR BEACH: Okay.

6 MR. McCLOSKEY: I think I brought that
7 one with me if you want to look at it.

8 CHAIR BEACH: Okay.

9 MR. McCLOSKEY: That would have been the
10 chemistry department's. Okay. Let's go to the
11 exposure bounding scenario on Page 10. In this
12 scenario, exposure to the tritiated standard
13 solution while handling and using the solution to
14 test and calibrate the Model T329 urinalysis test
15 kit and the tritium urinalysis model T449 is
16 defined.

17 Initially in '59 small size bottles of
18 standard solution, approximately 400 milliliters
19 of the 250 microcuries per liter, were purchased
20 from Sandia and stored under ventilation until they
21 were used or packaged for shipment with the
22 completed urinalysis kit.

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1 Although we do not know when the change
2 occurred, we know that by 1964 the standardized
3 tritiated water was purchased in one-gallon size
4 units and repackaged at Kansas City into 400
5 milliliter bottles. So they were doing a
6 decanting operation.

7 In '64 we have records of two shipments
8 of eight gallons of standardized tritiated water
9 for a total of 16 gallons and a 400 milliliter
10 bottle of the calibration standard solution was
11 shipped with each urinalysis kit.

12 Decanting the gallon-sized units into
13 400 milliliter bottles would've resulted in 150
14 bottles of standard solution. Based on this, it's
15 reasonable to assume that approximately 150
16 decanting operations occurred in '64.

17 To ensure claimant-favorability we
18 assume that some part of the decanting operation
19 occurred every workday, for a 250-day work year,
20 beginning in 1959 and ending in '75 in Kansas City
21 Plant's chemistry lab.

22 Based on the care that went into the

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1 procurement process and cautionary notes about
2 handling that were included in the purchase order,
3 we assumed that the chemistry technicians that
4 handled the tritiated water would've been careful
5 with it due to its value and hazardous nature.

6 We know that the unopened bottles
7 procured in '59 were stored under ventilation when
8 not used, so we believe it is reasonable to assume
9 that any process associated with the standard
10 tritiated water, including decanting from one
11 bottle to another, would've taken place under a
12 ventilated enclosure, such as a fume hood.

13 CHAIR BEACH: But we found no
14 documentation, procedures, or anything to-date,
15 correct?

16 MR. McCLOSKEY: No.

17 CHAIR BEACH: Okay.

18 MR. McCLOSKEY: No, we don't have a
19 document that describes the work in the fume hood,
20 the decanting.

21 MEMBER LOCKEY: I'm sorry, say that
22 again.

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1 MR. McCLOSKEY: We don't have a
2 document that describes the work of the decanting
3 and the fume hood.

4 MEMBER LOCKEY: Okay.

5 CHAIR BEACH: Well, or even it wasn't
6 a fume hood, you're assuming it was.

7 MR. McCLOSKEY: Yes, since it was
8 stored --

9 MR. DARNELL: We have a historical
10 basis for doing that. What we've seen in the
11 record is that they did this stuff under fume hoods
12 or under local ventilation with established
13 controls.

14 I mean, I don't think it's a far reach
15 to say that if we stored it in the hood, and that
16 was very specific that it was stored in the hood
17 --

18 MR. FITZGERALD: It's a founded
19 assumption, because I think it's based on a
20 programmatic --

21 CHAIR BEACH: Yeah. Okay. I just
22 want to be clear.

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1 MR. DARNELL: Sure, I understand.

2 MR. McCLOSKEY: Reading from Page 11,
3 although decanting could've occurred on a single
4 day soon after a shipment was received, we could
5 postulate a scenario in which each unit's small
6 bottle is filled in a separate operation.

7 For our bounding scenario we assume a
8 small unreported spill of one milliliter of
9 tritiated water occurred during each decanting
10 operation.

11 Spilled water spread over a 100
12 centimeter squared area of the impervious floor of
13 the fume hood, most of the water would've
14 evaporated into the fume hood exhaust air and
15 removed from the air. Some small fraction of the
16 contaminated water would've exchanged and
17 equilibrated with the water of hydration absorbed
18 on the metallic fume hood surface.

19 The absorbed water would've persisted
20 as a source of removable surface contamination, and
21 the thickness of the water is a parameter that will
22 be a function of the surface characteristics.

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1 A 1948 literature review provides
2 insight into the thickness of a water layer
3 absorbed on a glass surface. A glass wall exposed
4 to air saturated with vapor had an absorbed film
5 thickness of 1300 angstrom. We used this as a
6 starting point in making the assumption that is
7 almost certainly maximizing and favorable to the
8 claimant that the hydration water thickness on the
9 glove box floor is a factor of 100 times thicker
10 than absorbed on the glass wall.

11 With this assumption the water of
12 hydration thickness would be 1.33 times 10 to the
13 minus 3 centimeters and the volume of water
14 retained on the 100 centimeter squared area would
15 be 0.13 cubic centimeters, which we round to 0.1
16 cubic centimeters. Thus the volume of retained
17 tritiated water would be 0.1 milliliter.

18 The activity in 0.1 milliliter of
19 standardized tritiated water is 25 nanocuries, or
20 56,000 dpm. A fully efficient wipe test of that
21 area where the spill occurred would yield removable
22 contamination of 56,000 dpm.

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1 The bounding scenario with tritium
2 contamination is completely transferred to the
3 skin of the hand of the chemistry technician, each
4 day that amount of contamination.

5 So, to summarize it, we assume that 100
6 centimeters squared of the same chemistry
7 technician's skin is contaminated with 56,000 dpm
8 of tritiated water on a daily basis and that
9 activity has been completely absorbed as tritiated
10 water through the skin, into the blood. And if we
11 use the ICRP dose conversion factor the worker dose
12 would be 1.68 minus 6 rem per day, or 4.2 E minus
13 4 rem per year.

14 MR. DARNELL: Questions?

15 CHAIR BEACH: Anybody, questions?
16 Okay.

17 MR. DARNELL: Mr. Copeland, we're
18 discussing the tritium White Paper right now.

19 MR. FITZGERALD: Well, just to
20 respond, you know, this was just a reference in a
21 weekly activity report this past summer and it's
22 come a long ways in terms of just characterizing

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1 a operation that we didn't have much information
2 on. So I think, you know, it's certainly a
3 yeoman's job of just putting this together.

4 Clarification. The only, and I think
5 I read this right, the only hard data we still have
6 is the smear sample beta for the high/low plates?
7 I mean, actual measured data.

8 MR. DARNELL: Well, we also have the
9 activity levels in the gallons of water that came
10 --

11 MR. SHARFI: The concentration.

12 MR. McCLOSKEY: We have certified
13 concentrations of the Sandia-provided --

14 MR. FITZGERALD: Of the
15 Sandia-provided, so we have that.

16 (Simultaneous speaking.)

17 MR. FITZGERALD: Okay. So that's not
18 a reference standard, that's actual from Sandia of
19 water.

20 CHAIR BEACH: And that's referenced in
21 that SRDB --

22 MR. FITZGERALD: Right.

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1 CHAIR BEACH: Okay.

2 MR. DARNELL: And the workplace
3 measurements that we have are in there.

4 MR. FITZGERALD: Yeah, I think our only
5 comment, and, you know, not surprisingly, I think,
6 obviously, in this particular case we would have
7 to make a number of assumptions in order to come
8 up with some kind of exposure.

9 And, you know, because, again, the
10 actual monitoring that you would like to have had
11 wasn't done, or we haven't found it yet. But
12 certainly the dose involved would be very, very low
13 and that's the context of the analysis.

14 So, you know, and Jim and I were just
15 talking about this before this session. You know,
16 this question of balancing the leeway on the
17 bounding analyses and the assumptions that would
18 have to go into that is balanced against the dose
19 that you're talking about. And before this
20 meeting we had the same conversation, at least with
21 Josie, just trying to figure out, you know, it's
22 a judgment call based on, you know, the leeway on

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1 the assumptions and the kind of doses that one is
2 working with, since we're talking about tritium in
3 this particular case, and whether the
4 characterization is sufficient to give you
5 confidence that it bounds it at that low level.

6 From a technical standpoint, I don't
7 think we could offer, based on the documentation
8 that was uncovered to date, any better way,
9 necessarily, of how to come up with a bounding
10 analysis. But it sort of still leaves you in a
11 situation where I think the Work Group will have
12 to consider, you know, the assumptions,
13 particularly with the instrument. The high/low I
14 have maybe less of an issue because you actually
15 have some contamination smears, so you really have
16 some hard numbers.

17 On the instrumentation, all we could
18 find was they bottled this stuff, and because of
19 programmatic history we presume they bottled it
20 under a hood so the ventilation would've been
21 there.

22 But beyond that, you have to assume, as

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1 NIOSH I think has done, that, you know, if you had
2 a conservative estimate on the amount of spillage
3 and the potential for absorption in the skin you
4 could, you know, come up with a rather extreme level
5 of uptake which still would result in only
6 single-digit millirems per year.

7 So, again, it's sort of a keep that in
8 context. Could you do better? Only if we could
9 find actual hard data that we haven't found yet.
10 Would it make a difference? I don't think so based
11 on what we've seen so far.

12 So, again, it may be less a technical
13 question than a question of, is this sufficient
14 information to get confidence that, you know,
15 there's a way to bound this and the level is going
16 to be rather low, relatively low in terms of the
17 potential dose?

18 And I think, as Mutty has pointed out,
19 you have different ways you could deal with that
20 dose. You could certainly make an argument to give
21 it to everybody. I think you would have difficulty
22 identifying a cohort in this case. I didn't see

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1 any way, in the weeklies or anywhere else, where
2 it said, you know, "X, Y, Z were involved."

3 MR. DARNELL: The only place it would
4 be if you could actually find the words tritium in
5 the medical records, and you may not get there.

6 MR. FITZGERALD: You may not get there.
7 I don't know if they would see this as something
8 that it could actually point to as being something
9 that was worth pointing to in the medical records.

10 So, again, it's sort of a little fuzzy
11 on that. But I think, for the Work Group's
12 benefit, I think that's where we're at. You could
13 look for, hopefully, more hard data on the tritium
14 operations and you may or may not find it. So far
15 we have not.

16 CHAIR BEACH: One of the comments I
17 have is we found this almost by mistake just looking
18 through records. So once we found the tritium
19 water, Joe found it on weeklies just thumbing
20 through some microfilm or fiche, right?

21 MR. FITZGERALD: Microfilm, yeah.

22 CHAIR BEACH: Microfilm. So looking

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1 for this then NIOSH found a couple other things,
2 so it leads to me to wonder what else is out there
3 that we just haven't discovered. And I know it's
4 a totally open-ended question and there's no answer
5 to it, but there is just maybe a lot more we don't
6 -- or a few things we still don't know, so on this
7 one I agree with --

8 MR. DARNELL: I don't disagree with you
9 at all, but it's a folly to sit here and think about
10 --

11 CHAIR BEACH: I understand. I know
12 we've worked hard on it, I'm not saying we haven't,
13 but --

14 MR. FITZGERALD: The tree has been
15 shaken quite a bit.

16 CHAIR BEACH: It has been, yeah.

17 MR. FITZGERALD: But so far, this is
18 what's fallen out that's not been identified
19 before.

20 CHAIR BEACH: Yeah.

21 MR. DARNELL: Yeah, and I think we all
22 realize that if we do find something --

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1 CHAIR BEACH: Yes, we will, I agree. I
2 probably shouldn't have even brought that up, but
3 it just was something I was thinking about.
4 Anymore questions?

5 MEMBER LOCKEY: You said tritium
6 wasn't mentioned on the work cards, right? The
7 department was mentioned --

8 CHAIR BEACH: The medical.

9 MR. SHARFI: I don't remember seeing
10 the tritium on the medical cards. Thorium was
11 specifically identified, but, you know, the
12 department --

13 (Simultaneous speaking.)

14 MR. SHARFI: So if they worked specific
15 departments a lot of times you would see that
16 department saying they worked under this
17 department. But I don't remember seeing an actual
18 tritium listed.

19 MR. FITZGERALD: And what makes it even
20 more interesting, in the 1964 weekly activity
21 report where they referenced the tritium bottling
22 that was going into this instrumentation activity,

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1 they did indicate that Sandia was sending them some
2 guidance on doing routine bioassays for tritium,
3 which kind of made us feel like, uh, okay, we
4 haven't seen that.

5 So, you know, there's a gap there in
6 terms of if that guidance was sought from Sandia
7 but didn't get followed through, or if it got
8 followed through and the bioassay information is
9 somewhere but we haven't found it yet.

10 To me, that's a bit of a gap, you know.
11 It seemed like they were cognizant of the fact that
12 they should be doing monitoring for this and asked
13 for guidance, but we didn't find any bioassay
14 records, nor did we find any further correspondence
15 on that particular question. So that was a little
16 bit of, you know, a head-scratcher.

17 Certainly the site was aware of the fact
18 that they probably should've monitored for it, and
19 actually was going to do it, it looks like. So I'll
20 leave that with the Work Group, that we are kind
21 of looking for one or the other, some information
22 on what happened after that, and did not find it.

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1 CHAIR BEACH: And I have the weeklies
2 here if anybody wanted -- I didn't know if anybody
3 else had not seen it and wanted to look at it.

4 Questions, any other questions?
5 Loretta, do you have any questions on this topic?

6 MEMBER VALERIO: Actually I do, and I'm
7 going back to my notes. On Page 3 in the memo it
8 discusses the problems with handling the tritium.
9 And I'm going back to that, give me just one second
10 and I'll get there. And then it talks about -- it
11 just seems as though there was a lot of
12 communication back and forth between all the
13 entities involved about the safe handling and
14 requirements, but when you read through this it's
15 a little confusing.

16 So on Page 3, the paragraph that starts
17 on "May 28th, 1965," the last sentence discusses
18 that Kansas City was faced with handling problems.
19 Do you see where I'm at?

20 MR. DARNELL: Yes.

21 MEMBER VALERIO: Okay, so then I'm
22 going to go down to Page 6 now. And this could be

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1 the, you know, two separate campaigns. They talk
2 about the work rules, you know, the requirements.
3 And this goes back to do they know who handled it,
4 do they know, you know, from the time it was
5 received at the plant, through the whole process,
6 do they have anything in the requirements that
7 says, you know, this group of workers would have
8 handled it, this group of workers would've shipped
9 it, transported it, anything like that?

10 MR. DARNELL: There's pretty much a
11 standard site requirement. You had to have the
12 training, medical monitoring, and whatever other
13 requirements were deemed necessary to work on any
14 specific project. So the workers on this project
15 would've had to have had medical monitoring,
16 radiological training and so on to be allowed to
17 work on it.

18 The thing is, is we don't have a list
19 of who was assigned to do what things. So you kind
20 of have to go search to see if a worker was either
21 in the correct area and had correct training and
22 monitoring, or the tritium was actually listed on

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1 his medical records showing that he would have the
2 correct training and monitoring. So we kind of had
3 part of it, but not all of what you're looking for.

4 MEMBER VALERIO: I was breaking up, you
5 were breaking up a little bit. Can you repeat the
6 last part of that please?

7 MR. DARNELL: Basically, because of
8 the site requirements for having radiological
9 training and medical monitoring for any project
10 onsite we know that the workers involved with the
11 tritium work would've had to have the same.

12 We know where to go look for the
13 information, we just don't know which workers were
14 the ones assigned. There's no master list of who
15 was doing what project. You have to go
16 individually into medical records to find out. So
17 for individual claimants we would be able to find
18 out.

19 DR. NETON: This is Jim, and I think we
20 discussed that the dose was so low that we would
21 probably just assign this to every claimant and not
22 try to establish who handled it with the claimants.

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1 CHAIR BEACH: Right.

2 DR. NETON: Because it's in the
3 millirem range.

4 MR. DARNELL: That's true.

5 (Simultaneous speaking.)

6 CHAIR BEACH: Okay.

7 MEMBER LOCKEY: Jim, how many people
8 worked in the lab, do you have any idea?

9 DR. NETON: I don't know.

10 MR. McCLOSKEY: It maxed out during the
11 Reagan Administration at 8,000.

12 MR. SHARFI: Onsite.

13 MEMBER LOCKEY: No, in the lab.

14 MR. McCLOSKEY: Oh.

15 MEMBER LOCKEY: That's a hell of a big
16 lab if it's got 8,000.

17 (Simultaneous speaking.)

18 MR. DARNELL: We don't have a number
19 for maximum --

20 MEMBER LOCKEY: Well, I mean, was it a
21 big lab, small lab? I'm just trying to get a handle
22 on what --

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1 DR. NETON: Probably small. I mean,
2 based the number of plates that they handled, at
3 least in '65, I'd say it's a pretty small operation
4 for the people that handled tritium.

5 MR. DARNELL: The operation itself,
6 but the laboratory was actually fairly large.
7 They were involved in almost every project.

8 DR. NETON: Right, right, but we're
9 talking about how many people we're going to assign
10 tritium dose versus how many actually handled it.
11 Again, you know, you're talking a millirem a year
12 --

13 MEMBER LOCKEY: It doesn't make any
14 difference, but I'm just trying to get --

15 DR. NETON: It doesn't make any
16 difference in anybody's dose reconstruction.

17 MEMBER LOCKEY: And what about in
18 Department 212, how many people worked in
19 Department 212?

20 MR. SHARFI: I don't think we had
21 numbers on per department.

22 MR. McCLOSKEY: I mean, I'm not going

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1 to say we can't find that, but I don't know.

2 MEMBER LOCKEY: Okay, thanks.

3 MR. DARNELL: I don't know how much
4 help it would actually give us to know those
5 numbers.

6 MEMBER LOCKEY: Well, I'm just trying
7 to figure out the number you're going to
8 extrapolate to the whole workforce. You don't
9 have any -- I was trying to get a ratio there.

10 DR. NETON: Yeah, again, you know, and
11 if this were, you know, a rem-type range, 500
12 millirem or 600 millirem, you might be a little more
13 concerned. But, you know, talking about a
14 millirem, and we've done that analysis already
15 basically showing if you change any dose
16 reconstruction by 100 millirem it doesn't move
17 anybody's PC one way or the other.

18 CHAIR BEACH: And we've done that work.
19 Pat, did you want to go into the nickel?

20 MR. McCLOSKEY: Sure.

21 (Simultaneous speaking.)

22 MR. FITZGERALD: I was going to say,

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1 before you finish this, what's the sense of the Work
2 Group? As far as direction, I mean, it's pretty
3 important to us?

4 CHAIR BEACH: Well, I had listed as an
5 action that they owe the change with the organic.
6 And then SC&A would develop a White Paper. Or are
7 you looking for --

8 MR. FITZGERALD: Well, I'm not sure the
9 White Paper is going to say anything much different
10 than that we've said at the table today.

11 CHAIR BEACH: Yeah.

12 MR. FITZGERALD: And I'm not sure we're
13 that far apart, from the discussion. It's just
14 sort of a question of, given the context of the dose
15 involved, what leeway does one have on the bounding
16 analyses, granted there's a lot of assumptions
17 there.

18 The wild card in the deck is whether we
19 would find any additional information, but in the
20 end would that make any difference anyway? That's
21 the kind of a thing we're up against. We could look
22 for more documents, but in the end if it doesn't

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1 move the needle any -- so that's kind of where we're
2 at. And that's kind of a judgment call as to
3 whether we want to try to find more documents that
4 would make it a little bit more objective, or is
5 this enough to give confidence that --

6 MR. DARNELL: Well, if I could make a
7 suggestion? We're going to have to go back down
8 to look for thorium stuff. While we're looking for
9 thorium we'll do a minor search for tritium to see
10 if we can find anything and just say that's our last
11 effort.

12 CHAIR BEACH: Yes.

13 MR. DARNELL: And just go with that
14 mindset --

15 MR. FITZGERALD: Finding the Golden
16 Grail of the weekly activity reports.

17 MR. DARNELL: Yes.

18 MR. FITZGERALD: Which is -- the
19 original intent was to find more weeklies which
20 would describe this and we did not.

21 CHAIR BEACH: Right. Well, and then I
22 think the Work Group is going to have to think about

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1 if they're comfortable with that scenario.
2 There's no bounding information, but the dose is
3 low, and are we going to be okay with that?

4 There's no way to know who was exposed,
5 how much they were exposed, we don't know if it was
6 in a hood or not in a hood, we don't know if there
7 was a gallon spilled or -- I mean, you can come up
8 with some good estimates --

9 MR. DARNELL: One thing you need to
10 recognize is the one milliliter spill assumption.
11 As far as costs go for the plant, that would've been
12 a huge loss for the plant.

13 CHAIR BEACH: Huge, yeah.

14 MR. DARNELL: So you know it was not
15 that high for that long.

16 CHAIR BEACH: And I'm not saying I
17 don't agree with everything, I'm just saying we
18 need to decide as a Work Group are we comfortable
19 with that and assign the dose. So that's the only
20 comment I had.

21 MR. FITZGERALD: I think that sounds
22 like a reasonable course. If we're going to go

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1 down there anyway we'll take one last look and see
2 if we can improve the document.

3 MR. DARNELL: Now, we've got a set of
4 documents that are basically waiting on us. I hope
5 I'm not mixing it up with INL, but we had asked for
6 four tiers of documents and I think we have Tier
7 3 and 4 waiting on us down there to go look at.

8 CHAIR BEACH: Okay.

9 MR. DARNELL: So we should be able to
10 move in quickly to look.

11 CHAIR BEACH: Sure. And I appreciate
12 the work that's gone into this, I'm not discounting
13 that at all, but as a Work Group I just want us to
14 think about that for the next meeting. Once we've
15 looked at whatever is left at Kansas City we're
16 going to have decide as a Work Group where we're
17 going to go and if we're comfortable with that.

18 MR. DARNELL: Sure.

19 CHAIR BEACH: It's assumptions.

20 MEMBER CLAWSON: It's all assumptions
21 and there's no -- I'm not saying that you guys
22 haven't done due diligence or anything else like

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1 that --

2 MR. DARNELL: I'm going to write that
3 down.

4 (Laughter.)

5 MEMBER CLAWSON: No, I hope that you
6 guys always understand. We know what you're up
7 against, but we also have due diligence to the
8 claimants to make sure that we are representing
9 what's best.

10 I'd just like a little bit more time to
11 be able to feed through this because the amount of
12 documents and stuff and we just by luck have found
13 some of this stuff.

14 CHAIR BEACH: Mm-hmm.

15 MR. DARNELL: That is definitely true.

16 CHAIR BEACH: And I appreciate that.
17 Maurice, do you have anything on tritium or what
18 the topic is at this point, anything to add?

19 MR. COPELAND: No. The only thing I
20 had to say was, and it may help you in some
21 situation, talking about the lab. I was a
22 supervisor at a lab, that was my lab.

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1 MR. DARNELL: Do you know about how
2 many people were assigned there?

3 MR. COPELAND: No, but you should be
4 able to find it through ES&H, the same department,
5 through environmental health and safety, the same
6 department that we were attached to, by talking to
7 [identifying information redacted] the director
8 and those people. It's very easy.

9 And, yes, I was the supervisor in the
10 lab. I was the one that closed it up when we closed
11 the lab down. I was the one that cleaned it up,
12 myself, no workers, no one was allowed in.
13 I and another supervisor disposed of the equipment
14 and cleaned the lab up personally.

15 CHAIR BEACH: What years?

16 MR. COPELAND: Ninety --

17 MR. DARNELL: Right before the move?

18 MR. COPELAND: Huh?

19 MR. DARNELL: Right before the move to
20 the new building?

21 MR. COPELAND: No. No, we closed that
22 lab before I retired in 2000.

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1 CHAIR BEACH: Okay.

2 MR. COPELAND: And I closed the lab in
3 ninety --

4 CHAIR BEACH: So, late '90s?

5 MR. COPELAND: Yeah.

6 MR. DARNELL: Which lab are you talking
7 about?

8 MR. COPELAND: The model shop lab.

9 MR. DARNELL: Okay, we're talking
10 about the big chem lab.

11 MR. COPELAND: The chemical lab?

12 MR. DARNELL: Yeah, the chemistry lab.

13 MR. COPELAND: I thought this was the
14 lab that was attached to the model shop.

15 MR. DARNELL: Yeah, that's why I was
16 kind of sitting here thinking it didn't shut down.
17 No, we're talking about two different things.

18 MR. COPELAND: This lab was pretty
19 secure. People that worked in this lab, to show
20 you, I was a supervisor. I did not know who the
21 people were that worked in the lab. My man
22 [identifying information redacted], his name was

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1 [identifying information redacted], I had no
2 employees, model shop employees that were assigned
3 to the lab.

4 The only thing I saw was overseeing
5 cleaning up. And I wasn't a maintenance guy, I was
6 the model shop supervisor.

7 MR. DARNELL: Sure.

8 MR. COPELAND: Cleaning it up, getting
9 all the equipment out. It's pretty secure what
10 went on in there.

11 CHAIR BEACH: All right. Well, let's
12 go ahead and just finish out the rest of your report
13 on the nickel.

14 MR. McCLOSKEY: Okay, sure. I think
15 Brad and you guys were saying some of this
16 information it seems like we got by luck.

17 Another thing we have working for us is
18 Kansas City Plant employees currently are going
19 through their records and they know, they're
20 familiar with us, they know about our visits and
21 their need to dig things out, and the nickel-63 came
22 about because of that.

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1 I guess the health physicist there
2 tripped upon this when he was doing some follow-up
3 work for us. So in December, December 15th, 2014,
4 not too long ago, he emailed us everything he had
5 and everything that we now have. So from this
6 section of the paper forward is just everything
7 that we got right before Christmas.

8 So the nickel-63 plating operations run
9 right alongside with the tritium in-air and
10 in-urine monitoring operations. The nickel-63
11 was plated on small one-inch plates and placed
12 inside the monitors as a check source. So, you
13 know, your machine daily gets checked to see if it's
14 responding to a beta so that when you need it, it
15 works. Just something a lot of technicians do with
16 all the radiation detection devices.

17 So we don't have a lot on it, but I'll
18 just skip ahead to Page 12 there toward the bottom.
19 The nickel-63 plating operations occurred in the
20 small volume plating bath of the finishes
21 development facility. And we have maps of those
22 and they're reflected on the maps on the wall, as

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1 well, where that occurred.

2 On the next page you can see some of the
3 work controls that were specified for the nickel-63
4 plating, pretty similar to the work controls we saw
5 with, you know, any of the other nuclides that they
6 were working with there.

7 And then, in summary, I'll go to the
8 bottom, records show that both management and
9 health and safety staff took careful interest in
10 the procurement and use of the nickel-63 and
11 material during plating ops.

12 Nickel-63 was handled in liquid form
13 until it was essentially immobilized in the form
14 of a durable and metallic nickel plating. The
15 radiologic hazard was evaluating and judged
16 negligible, similar to the general hazards of
17 plating.

18 Other than waste management, spill
19 response and material labeling, no special
20 controls or personal dosimetry were required.
21 NIOSH believes the workers exposure of nickel-63
22 was appropriately judged to have been negligibly

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1 small and the exposure will be plausibly bounded
2 after the issuance of this paper for purposes of
3 dose reconstruction.

4 And we just didn't have the time to get
5 something out to you guys on nickel-63, so we'll
6 do that next.

7 CHAIR BEACH: Okay. Anybody have any
8 questions on that?

9 MR. FITZGERALD: No. I think for that
10 overall issue, obviously, we'll keep it open. I
11 don't think we'll provide a written response
12 pending looking for more information. So we'll
13 keep that pending.

14 CHAIR BEACH: Okay, so at this point
15 SC&A is not going to write up any --

16 MR. FITZGERALD: Not for this, no.
17 We'll look for more --

18 CHAIR BEACH: No paperwork on either
19 one of them.

20 MR. FITZGERALD: For?

21 CHAIR BEACH: For tritium or nickel.

22 MR. FITZGERALD: No, no. Right, we'll

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1 wait and make sure that we've had the opportunity
2 to get whatever additional information is
3 available and we'll see where it comes out.

4 CHAIR BEACH: Okay. All right. And
5 then you'll update your paperwork for the organic
6 compound and then let the Work Group know what SRDB
7 number that is?

8 MR. FITZGERALD: Yeah.

9 CHAIR BEACH: Okay.

10 MR. McCLOSKEY: SRDB number for?

11 CHAIR BEACH: For the organic compound
12 information that you just received.

13 MR. McCLOSKEY: Okay.

14 CHAIR BEACH: I think you said there
15 was an SRDB associated with it.

16 MR. McCLOSKEY: Okay.

17 CHAIR BEACH: Or I'm assuming it'll be
18 -- it'll be in the paper, yeah.

19 MR. McCLOSKEY: The [identifying
20 information redacted] memo, yeah.

21 CHAIR BEACH: Yeah, the [identifying
22 information redacted] memo. Okay, anything?

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1 MEMBER LOCKEY: I got the impression
2 they weren't going to change any, even though it
3 was organic. Is that true?

4 CHAIR BEACH: No.

5 MR. SHARFI: The dose conversion
6 factor changed.

7 MEMBER LOCKEY: What's that?

8 MR. SHARFI: The dose conversion
9 factor changed.

10 MEMBER LOCKEY: Oh, it does change?
11 It will change?

12 MR. SHARFI: Yeah, because the
13 original assessment was like if it was 0.7 millirem
14 and then -- on the plates.

15 MEMBER LOCKEY: Okay.

16 CHAIR BEACH: So it'll go up a little
17 bit.

18 MR. FITZGERALD: A factor of two,
19 maybe, or something like that. Two and a half.

20 CHAIR BEACH: Yeah.

21 MR. McCLOSKEY: So it'll be like a two
22 or three sentences change. You know, we say

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1 translocation of the tritium through the skin as
2 a water is assumed to be 100 percent. We're going
3 to add to that saying, you know, it would be much
4 slower as an organic compound.

5 DR. NETON: I think there's a little
6 more justification as to why we believe it's an
7 organic material.

8 MR. McCLOSKEY: Yeah, we have that,
9 too.

10 DR. NETON: Because there's that one
11 reference to organic, but I think I saw on your note
12 that there's some backup material that talked about
13 it was tung oil and this kind of stuff.

14 MR. McCLOSKEY: Yes, I'll just
15 elaborate --

16 DR. NETON: Elaborate a little bit on
17 why we believe this --

18 MR. McCLOSKEY: Yeah, we'll put the
19 [identifying information redacted] thing out there
20 where he says it's organically bound and then we'll
21 follow that up with some NRC, or some patent
22 information.

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1 CHAIR BEACH: Okay, so site visit to
2 look for more information and then NIOSH's White
3 Paper. SC&A will just review at this point and no
4 White Paper to be sent out. Okay, anything else
5 on that?

6 MR. FITZGERALD: Yeah. We, again,
7 don't have any technical issues.

8 CHAIR BEACH: Right. I understand
9 that. We're very clear on that.

10 Okay, so let's go back to the start of
11 the agenda. What time is it?

12 (Simultaneous speaking.)

13 CHAIR BEACH: Okay, we have time.
14 Data completeness and adequacy, Issue 1, we're
15 going to go ahead and -- I said action was NIOSH
16 provide the QA/QC. Did you want them to go ahead
17 and speak to that or did you want to?

18 MR. FITZGERALD: Well, I can, you know,
19 summarize this. We've kind of had them carrying
20 them the ball for the first couple of hours.

21 I think the response was that Kansas
22 City could not locate that QA/QC methodology

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1 information. We were hoping to have that as a
2 means to corroborate the fact that they had done
3 that when they transferred the recorded data to the
4 electronic database. And they recalled doing
5 that, but they just couldn't find documentation.

6 And I think in the most recent response,
7 NIOSH notes that they have the raw data, of course
8 they do, the original raw data records which will
9 always be available as backup.

10 And I guess my first question is, is
11 NIOSH relying on the raw data records or the
12 electronic records as far as a coworker model? I
13 mean, I would assume you're basing that on the
14 electronic records?

15 MR. McCLOSKEY: When there's a DR, we
16 need to do a DR, we go get the raw data. That's
17 what I'm told goes on.

18 MR. FITZGERALD: You go to the raw
19 data?

20 MR. McCLOSKEY: Yes.

21 MR. SHARFI: From the actual DR.

22 MR. FITZGERALD: Okay.

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1 MR. McCLOSKEY: Yes. But for a
2 coworker, when we revise a TBD, I guess we'd want
3 to first validate the database we would use on it.

4 MR. FITZGERALD: Yeah, the only
5 question we raised originally, and we did this for
6 every SEC, was just to validate the raw data, which
7 I think has been done in terms of looking at the
8 legibility, all those issues, that's behind us.

9 And the only question we had left was
10 did anybody look at when the electronic database
11 was put together making sure that that was
12 transferred accurately and adequately? And since
13 the site can't really corroborate that other than
14 by recollection, the Work Group would have to
15 consider, you know, what assurance would be
16 reasonable.

17 In this case, what we've done in the
18 past, there's a precedent, we've done some limited
19 sampling just to, you know, provide some assurance
20 that, you know, we can't find any reason to see any
21 transfer problems as far as accuracy in terms of
22 the raw data going to the electronic database.

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1 This would affect -- it sounds like it
2 only affects the coworker models that you rely on
3 the data for dose reconstruction, so the Work Group
4 I think would have to consider that, what level of
5 assurance do you want to have that the electronic
6 database reflects accurately the raw data? And I
7 thought, you know, we're comfortable, if the site
8 could account for the fact they did that. And they
9 thought they had done it, but we can't find that,
10 they can't find that documentation. So the
11 question is what does the Work Group want to do on
12 that?

13 CHAIR BEACH: What percentage of a
14 sample would you need?

15 MR. FITZGERALD: That's always the
16 question.

17 CHAIR BEACH: Yes, it is the question.

18 MR. FITZGERALD: You know,
19 statistically or subjectively. Subjectively you
20 could do a small sample; statistically might be,
21 you know, whatever the statistics say.

22 But in this case we haven't had any

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1 evidence of a problem with transfer. This is not
2 because we had some issues.

3 CHAIR BEACH: Right, I understand
4 that.

5 MR. FITZGERALD: It's just because it
6 hasn't -- there isn't any way to corroborate this.

7 CHAIR BEACH: I think it would give us
8 some assurance and put this one to bed.

9 MEMBER CLAWSON: Have you talked to Bob
10 Barton on this?

11 MR. FITZGERALD: We haven't talked to
12 anybody. I mean, it's sort of we were hoping to
13 see that the site had done it. But they can't come
14 up with anything so now we're just saying, okay,
15 what do you want to do?

16 I'm not proposing that you do a
17 statistically pure approach, but, you know, is
18 there any way to provide that assurance?

19 DR. NETON: I kind of lost the train of
20 thought here for a second, but did I hear that we
21 have the raw data that comes to us in the dose
22 reconstruction?

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1 MR. DARNELL: Yes.

2 MR. McCLOSKEY: We have that
3 available. If we wanted to get it, we can go get
4 it.

5 DR. NETON: And we have an electronic
6 database?

7 MR. FITZGERALD: Yes.

8 CHAIR BEACH: Yeah, the question is --

9 DR. NETON: Why can't we just take and
10 balance and look and see, the data that we've been
11 getting, is it in the database?

12 CHAIR BEACH: That's what we were
13 talking about, just doing a sampling of that.

14 DR. NETON: Yeah. I would say, yeah,
15 that makes sense.

16 MEMBER CLAWSON: Well, if you
17 remember, Jim, we've got into this before, and
18 that's why I brought up Bob Barton on this, because
19 we had the similar situation in one of my other
20 sites and he just did a sampling of it to assure
21 that we --

22 (Simultaneous speaking.)

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1 DR. NETON: How many claims do we have
2 from Kansas City? I mean, I don't know.

3 MR. KNOX: Six hundred fifty-one.

4 DR. NETON: So we presumably have 651
5 sets of raw data. Well, not all of them are going
6 to have data, but that's a pretty good sample size.

7 CHAIR BEACH: And out of those -- yeah.

8 DR. NETON: If we sampled 20, 30
9 percent, I don't something in that number.

10 CHAIR BEACH: So is that something
11 NIOSH could do?

12 DR. NETON: Yeah, I think so.

13 CHAIR BEACH: A percentage. And then
14 SC&A could look at that?

15 DR. NETON: Yeah, I think it's
16 incumbent upon us to validate --

17 CHAIR BEACH: Okay.

18 DR. NETON: If we're going to do a
19 coworker model, though, let's talk about that. Is
20 that --

21 CHAIR BEACH: That's our next topic,
22 yeah.

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1 MR. DARNELL: We had 721 total claims.

2 DR. NETON: Right.

3 MR. DARNELL: And nine have been pulled
4 and --

5 DR. NETON: If we plan on doing a
6 coworker model then we're going to have to do that.
7 That's already written into the guide, is, you
8 know, that's the first step almost is to be able
9 to document that the database that you have
10 actually helps you out.

11 MEMBER LOCKEY: I understand why you
12 want to do it, but what are you going to accept?
13 A priority, you probably should establish your --

14 DR. NETON: Well, it's hard to define
15 that. You know, we've done things such as looking
16 as monthly reports and comparing and making sure,
17 you know, these months they said they picked, they
18 collected 600 samples and this database had 600
19 samples in that month, those are some methods we've
20 used.

21 But as far as picking some raw, pure,
22 statistical value, I don't think you really can do

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1 that.

2 MEMBER LOCKEY: I guess what I'm asking
3 was, if you do this analysis, which I think you
4 should do, what's acceptable and what's not
5 acceptable? You're going to have to deal with that
6 at the end.

7 DR. NETON: Well, I think if we develop
8 a plan we would put that in there, but I don't think
9 I'm prepared at this point what the plan would be.
10 But you're right.

11 MEMBER LOCKEY: A priori you should
12 come up with a plan.

13 DR. NETON: Yes, a priori, you have to
14 establish what you're going to look at and what you
15 got, I agree with that.

16 MEMBER LOCKEY: Okay.

17 MR. FITZGERALD: And it does come back
18 to whether you're going to have a coworker model
19 or not, right?

20 DR. NETON: Yeah, and if you don't have
21 a coworker model then it doesn't matter.

22 MR. FITZGERALD: It goes away.

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1 DR. NETON: Yeah, it goes away. I
2 would imagine we probably will have a coworker
3 model because I'm sure a few sites would say that
4 everybody was monitored, and --

5 CHAIR BEACH: Right, right. Okay, so
6 for --

7 DR. NETON: But I agree, we're going to
8 have to do that.

9 CHAIR BEACH: So for this one, then,
10 the action is on NIOSH, and we're saying a 30
11 percent sampling or is that sufficient?

12 DR. NETON: Let's not put a number on
13 it right now. We'll put it on our plan, we'll do
14 an evaluation plan and everything.

15 CHAIR BEACH: Okay.

16 MEMBER CLAWSON: And not to tell you
17 guys, I was just going to say before you go into
18 it, could you just kind of let us know --

19 DR. NETON: Exactly. Because I don't
20 want to go down this path and develop this elaborate
21 analysis and then someone say, well, that's, you
22 know, not --

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1 (Simultaneous speaking.)

2 MR. DARNELL: -- and as things come
3 along I'll be sending it out to the Work Group.

4 MEMBER CLAWSON: There's no question
5 on that, it's just sometimes things have changed,
6 you may have passed a little bit with other sites,
7 which I just want to make sure we're kind of all
8 on board so we kind of know where we're getting to.

9 DR. NETON: Yeah, no problem. I think
10 we'll provide you a plan.

11 CHAIR BEACH: So you'll provide us with
12 a plan of the limited sampling of the records
13 between the raw database and the electronic
14 database.

15 DR. NETON: Right. Because I worry
16 that what happens if we go in there 650 claimants
17 and we have four people with bioassay? What does
18 that mean?

19 CHAIR BEACH: And once that plan is in
20 place then we can say, yea, go for it.

21 DR. NETON: Yes.

22 MR. SHARFI: You're just saying

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1 looking at the claim data that we have, verifying
2 that that claim data is in the database.

3 DR. NETON: Well, let's look at it and
4 see how useful it will be and if there's a lot of
5 them in there, yeah, then we'll develop a plan to
6 cross-compare.

7 MR. SHARFI: Okay.

8 DR. NETON: And we've done this before.
9 I have to go back and look at some --

10 MR. SHARFI: No, no, I just want to make
11 sure I understand what we were saying we're going
12 to do.

13 CHAIR BEACH: Mutty, can you say it
14 again because I thought it sounded different than
15 what I was saying, of what the plan would entail?

16 MR. SHARFI: That we were going to look
17 at our NIOSH claim pool and see, the people that
18 actually had bioassay, does that bioassay
19 corroborate in our database?

20 CHAIR BEACH: Okay, between the raw
21 data and the electronic? Okay, perfect.
22 Anything else on the first one?

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1 MR. KATZ: Yes, just for the record
2 Wayne Knox has joined us. He joined us about five
3 minutes ago, two minutes ago. Welcome, Wayne.

4 MR. KNOX: Oh, thank you.

5 CHAIR BEACH: Okay, anything else on
6 one? So we know what's happening there. The next
7 topic is Issue 2, coworker internal dose modeling.
8 And the action, did you want to speak to that again?

9 MR. FITZGERALD: Yeah, let me just tee
10 that up.

11 CHAIR BEACH: Okay.

12 MR. FITZGERALD: This was on worker
13 location job category in the coworker model. And
14 I would propose to the Work Group that we combine
15 two and three. Actually, three was held in
16 abeyance.

17 CHAIR BEACH: Yes.

18 MR. FITZGERALD: It was the chronic
19 versus acute issue, and I think we decided that
20 there wasn't an issue with chronic versus acute.
21 It was accommodated by the model, you know, the
22 models involved, including TBD-6000, anyway.

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1 But there certainly was a question on
2 coverage in context with the coworker model, which
3 is really Issue 2. So I would propose just
4 combining two and three, making it a little
5 cleaner, rather than have that separate acute one.

6 MR. DARNELL: I do have one question
7 for Issues 2 and 3. They're not used in the ER,
8 so is that something that the Working Group wants
9 to pursue as part of the Evaluation Report or table
10 it back to the TBD once we start working on the TBD?

11 CHAIR BEACH: Well, I know three was
12 tabled to the TBD, so that goes back to -- I guess
13 we should have the discussion on two, is that going
14 to be the same case there?

15 MR. DARNELL: To me, it's fairly clear
16 that --

17 MR. FITZGERALD: Yes, I think the
18 question for the Work Group, is there agreement
19 that it's a TBD issue? It went back to the coverage
20 question I think, Brad, that you raised at the last
21 Work Group meeting, and whether or not the coworker
22 model would in fact encompass the right workers,

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1 or the workers that were in fact potentially
2 exposed. That was kind of the hook point and I --

3 MR. DARNELL: But then again you've got
4 to remember that that's a Technical Basis Document
5 and the ER doesn't use that at all here.

6 CHAIR BEACH: Right, yeah.

7 MR. DARNELL: So, you know, while I
8 think it's a very valid question and something that
9 needs to be looked at, I just think that this is
10 not the right venue.

11 CHAIR BEACH: Well, and that's why we
12 need to clear the table and decide, yes, that we
13 agree it's a TBD issue and we'll couple it with 3
14 and it gets put in abeyance. Is that the thought
15 process, Ted?

16 MR. KATZ: Sure. Not in abeyance,
17 it's just tabled.

18 CHAIR BEACH: Well, like this one.

19 MR. DARNELL: We close it out for this
20 Work Group --

21 CHAIR BEACH: For this and it moves to
22 the other --

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1 MR. FITZGERALD: Well, just so the Work
2 Group acts on it because I think it was carried over
3 from the last Work Group meeting, not closed.

4 MR. DARNELL: Correct.

5 CHAIR BEACH: Okay. So on June 10th we
6 were looking for additional bioassay records and
7 --

8 MR. FITZGERALD: Medical records.

9 CHAIR BEACH: And do you just want to
10 speak to that, because I know you went down
11 specifically --

12 MR. McCLOSKEY: Yeah, we generated a
13 list of names that we sent over to Kansas City and
14 said we want to see their medical records. We got
15 those names from looking at the access lists for
16 the model shop for Project Royal.

17 Project Royal is the natural uranium
18 machine operations that occurred in 1951 and '52.
19 The reason we decided to this was because they
20 uncovered some records, Kansas City did, where we
21 didn't think we had.

22 The first thing we do with this, even

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1 what you guys did a long time ago, is give us all
2 your internal monitoring records, and they said we
3 had them all and then subsequently they found more.

4 So we found a new method to go look for
5 them and Mutty sat in that room in October and we
6 put in a lot of hours looking through all of those
7 names and we generated 164 new medical examination
8 and hospital cards that we put in the SRBD.

9 So that'll help build our case in the
10 TBD going forward.

11 MEMBER CLAWSON: Now, out of that list,
12 and, Mutty, we were both down there at the same
13 time, but when I left we kind of had a gap in there,
14 too.

15 You've taken a list of names of the
16 claimants that you have and you were trying to tie
17 the medical records to their name, correct?

18 MR. DARNELL: It was a list of names of
19 people that had access to these projects, not
20 claimants.

21 MEMBER CLAWSON: Okay.

22 MR. DARNELL: So some of them could've

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1 been claimants, some of them were not claimants,
2 and we looked for them all.

3 MEMBER CLAWSON: What did we come up
4 with percentage-wise? Did we find them all or did
5 we just, 30 percent, 50s?

6 MR. McCLOSKEY: So they handed us over
7 all of the files for all of the employees that we
8 asked for. I mean, we got a high percentage of the
9 names of the people that we asked for. There might
10 have been a few that were missing.

11 And then now you're asking what
12 percentage of those had internal monitoring
13 records?

14 MEMBER CLAWSON: Well, first of all, I
15 wanted to find out did we -- we gave them all these
16 names and you said we got a high percentage, what
17 would that high percentage be? Would it be --

18 MR. DARNELL: We don't have that
19 actually with us.

20 MR. SHARFI: Yeah, I don't know if I
21 have it either.

22 MEMBER CLAWSON: Well, I was just

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1 wondering.

2 MR. SHARFI: Every box they gave me I
3 got through.

4 MEMBER CLAWSON: Right, but I was just
5 wondering, because at one time, you know, you were
6 telling us that we were getting a lot of good
7 records, but if we had like 100 names I was just
8 wondering if we got --

9 MR. DARNELL: We didn't bring that data
10 with us. We can't answer your question.

11 MEMBER CLAWSON: Okay.

12 MR. DARNELL: Do you want us to dig that
13 up for you?

14 MEMBER CLAWSON: No. I was just
15 trying to get a feel for how good they were, and
16 then, also, I wanted to see how good the medical
17 records were as far as being able to tie them to
18 internal data.

19 MR. DARNELL: It's specific to data
20 itself. We didn't find a lot of medical data in
21 the medical records.

22 MR. SHARFI: Bioassay data.

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1 MR. DARNELL: Yes, bioassay data in the
2 medical records, thank you. What we found were the
3 requirements to do all that stuff, but not the
4 specific data itself.

5 So what we thought we were going to be
6 able to find in those records we were not able to
7 find.

8 MEMBER CLAWSON: Okay.

9 DR. NETON: Requirements to do what,
10 take bioassay samples?

11 MR. DARNELL: Yes, the way the medical
12 --

13 MR. SHARFI: Medical classified a type
14 of worker, then the ES&H actually recorded the
15 bioassay, other than the Project Royal, which we
16 found that those bioassays were actually in the
17 medical files, not in the health records, the ES&H
18 records.

19 So we were finding the urinalysis for
20 the uranium for the Project Royal in the medical
21 records.

22 DR. NETON: And that's where we

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1 normally get them?

2 MR. SHARFI: No, that's what drew us to
3 the medical records, was we found a situation where
4 they had a -- they're through LANL, I believe, AND
5 they did the bioassay.

6 DR. NETON: So that was the early time
7 when LANL was doing the bioassay?

8 MR. SHARFI: Yes.

9 MR. DARNELL: Yes, but we didn't find
10 the corresponding to be true with other workers on
11 known radioactive projects, finding their bioassay
12 data on those cards.

13 We found the requirements for the
14 medical monitoring program that went with that, but
15 not the actual data.

16 DR. NETON: Do we get the medical
17 records when we do a dose reconstruction?

18 MR. SHARFI: They scan them. Well,
19 when I talked to -- they actually scan it, both the
20 medical, the S&As, the external, they scan
21 everything and they provide it.

22 DR. NETON: So if there were bioassay

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1 date on this we would get it if it was only in the
2 medical record?

3 MR. DARNELL: Correct.

4 MR. SHARFI: Yes, those we should get.

5 DR. NETON: Okay.

6 MR. DARNELL: But we did a very limited
7 scope. We looked at a set of cards. You get a
8 whole medical record, we looked at the cards
9 looking for the data and we didn't find it specific
10 to those cards, except the Project Royal.

11 MR. SHARFI: Those were the only
12 bioassay that we saw on the cards, or in the medical
13 files.

14 MR. DARNELL: Yes.

15 CHAIR BEACH: So, for the Work Group,
16 do we agree that this is likely a TBD issue and can
17 be coupled with three and taken off the SEC matrix?

18 MEMBER LOCKEY: I agree.

19 CHAIR BEACH: Okay. Loretta, how
20 about you?

21 MEMBER VALERIO: I agree. I'm fine
22 with that.

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1 CHAIR BEACH: Okay. Brad?

2 MEMBER CLAWSON: I don't, but that's
3 just a personal thing, so I'll go with the Work
4 Group on this.

5 CHAIR BEACH: Okay. So I agree with
6 that also and the SC&A's recommendation is clear
7 and we'll add that with 3. In one case, yeah. So
8 no action required here and this does not go away,
9 it's just going to move to the TBD.

10 MR. KATZ: It's postponed.

11 CHAIR BEACH: Which we do have a matrix
12 for that.

13 MR. DARNELL: Yes, ma'am.

14 CHAIR BEACH: Okay.

15 MR. KATZ: Who is the keeper of that
16 matrix?

17 CHAIR BEACH: I think Joe is.

18 MR. FITZGERALD: Yeah, I have the TBD
19 issues. I haven't looked at it lately, but we'll
20 start, I'll start updating that.

21 MR. KATZ: And, Joe, can I just check,
22 are we putting this on the Board Review System,

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1 since we have that capacity now for Work Groups,
2 because I think we really should be here, too.

3 MR. FITZGERALD: That's a good point.
4 How do I -- well, we can talk --

5 CHAIR BEACH: We can talk offline.

6 MR. KATZ: Yeah, Steve Marschke's the
7 one to chat with.

8 MR. FITZGERALD: All right.

9 MR. KATZ: He can guide you. But I think
10 it would be great to put this stuff there. It's
11 makes everybody's job easier down the road.

12 MR. FITZGERALD: All right.

13 CHAIR BEACH: That's a great idea.
14 Make a note of that.

15 MR. KATZ: And give me a call if you
16 have any issues with it and I'll help out.

17 CHAIR BEACH: Steve Marschke is the
18 one, you're right.

19 So Issue 3 is in abeyance pending
20 further discussion for TBD. Issue 4 we closed on
21 June 10th, as well as Issue 5.

22 That moves us to Issue 6. This one I

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1 think we should be able to deal with relatively
2 quickly. It was dealing with the DU ballast, that
3 was the last action of the Work Group that we gave
4 to NIOSH to get some more information on that.

5 If you remember, the DU ballast we found
6 on a SWIMS data report and we wanted to know more
7 about it. So did you want to just tell us what you
8 found?

9 MR. DARNELL: Basically we looked and
10 the indications that we have and information from
11 the plant was these were parts that were machined
12 offsite sent onsite basically to use as ballast
13 weight to make the assemblies that they were
14 putting together weighed correctly and balanced
15 correctly.

16 Almost no exposure to the workforce.
17 There's really nothing here that we can add --

18 CHAIR BEACH: The ballasts are all
19 sealed, right?

20 MR. DARNELL: Yeah.

21 CHAIR BEACH: Okay.

22 MEMBER CLAWSON: Well, wait a minute.

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1 The ballasts was for a GTA so they'd go out there
2 and drop it so you'd have the right balance and
3 everything else.

4 MR. DARNELL: Right.

5 MEMBER CLAWSON: But that was depleted
6 uranium, correct?

7 MR. DARNELL: Yeah, that's what we're
8 talking about.

9 MEMBER CLAWSON: Okay. And that's
10 great because once that's machined it starts to
11 corrode. We've already been through this on --

12 MR. FITZGERALD: But that's the
13 unalloyed version.

14 MEMBER CLAWSON: So this was a sealed
15 depleted uranium source?

16 MR. DARNELL: As far as we know, it was
17 some --

18 (Simultaneous speaking.)

19 MR. FITZGERALD: I don't think we have
20 a corrosion issue in this type of case.

21 MEMBER CLAWSON: Okay. That's what I
22 was wanting to get to, because especially after

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1 they drop it down and it does its thing that's --

2 MR. DARNELL: But that doesn't have
3 anything to do with Kansas City. Kansas City
4 installs these parts in the telemetry unit, it's
5 sent someplace else, whatever testing is done, this
6 stuff that's sent back is supposed to be free from
7 contamination, from other discussions that we've
8 had on that.

9 MR. FITZGERALD: Yeah, our concern was
10 whether it was fabricated or handled onsite in
11 terms of grinding or anything, and we have
12 established it was not.

13 MEMBER CLAWSON: Okay.

14 CHAIR BEACH: Yeah.

15 MR. FITZGERALD: So we're okay with
16 that. And we're satisfied there wasn't any other
17 depleted uranium source terms. I think the
18 ballast item stood out as the one that wasn't
19 covered by the --

20 MR. DARNELL: That was really the only
21 question, a source term, and then we found that it's
22 not a source term.

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1 CHAIR BEACH: Yeah, and I think you ran
2 that down and I think SC&A's happy with that. I
3 read the reports and I recommend closing this item
4 as well, if everybody agrees. Loretta?

5 MEMBER VALERIO: I agree.

6 CHAIR BEACH: Okay. So on that we'll
7 close Item 6.

8 Now, I think the next item is going to
9 take some time, so I'm proposing that we stop for
10 lunch. Is everybody okay with that? How much
11 time do we need, an hour?

12 MR. KATZ: For what?

13 CHAIR BEACH: For lunch.

14 MR. KATZ: They're slow here, so if
15 you're eating at the restaurant here it's just hard
16 to get it done quickly.

17 CHAIR BEACH: Yeah, I would say we go
18 from 11:30, which it's close to that, to 12:30.

19 MR. KATZ: Yeah.

20 CHAIR BEACH: Take a lunch break. Okay.
21 So let's go off the air.

22 MR. KATZ: Okay. So thanks everyone.

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1 We'll be back online at 12:30.

2 (Whereupon, the above-entitled matter
3 went off the record at 11:33 a.m. and resumed at
4 12:31 p.m.)

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A-F-T-E-R-N-O-O-N S-E-S-S-I-O-N

21

(12:31 p.m.)

22

CHAIR BEACH: All right, so we'll just

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1 carry on. We are going to talk about Issue 7, which
2 is the radioactive waste handling, storage and
3 transportation.

4 NIOSH didn't give us a White Paper, but
5 there is a lengthy response in the matrix. So if
6 you have a copy of the matrix, that is there. And,
7 Pat, are you going to go ahead and take that?

8 MR. McCLOSKEY: I'll be happy to.

9 CHAIR BEACH: Okay, great.

10 MR. McCLOSKEY: So there were
11 documents that we wanted to go find during our
12 October site visit, SWIMS records, basically that
13 stands for Site Waste Information Management
14 System, that's an acronym.

15 So we did get a lot of good information
16 there, maybe not as many of the documents as we were
17 hoping to find, but we learned more about their
18 waste management practices there.

19 It helped corroborate some stories that
20 we had heard in interviews about the Red X Lot, that
21 lot outside, where they kept some of the waste prior
22 to it being shipped. And it gave us a map and

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1 showed us what it looked like.

2 And we had some of their waste
3 management plans that talked about how little waste
4 was actually shipped, a lot of years where there
5 was none at all.

6 Let's see, the records indicate that
7 Kansas City's routine waste generation was minimal
8 and the waste shipments were typically made every
9 two years.

10 There were some years where shipments
11 weren't necessary, but there were some years at the
12 close of the primary DU machining operations where
13 there were some bigger shipments like you would
14 expect.

15 We have records of 122 drums, 55-gallon
16 drums, being shipped in 1963 and another separate
17 shipment of another 127 drums being shipped. So
18 there's some indications of some large shipments
19 when you would expect them, but for the most part
20 there were not a lot of waste, radioactive waste
21 created.

22 I think we talked last time about those

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1 pictures that you guys found in your December visit
2 of the back of the truck where they had some leaking
3 drums and you wanted to hear more about that.

4 That report is available in SRDB Number
5 123835. I don't have that listed here, but there's
6 a big rundown there if you want to go --

7 CHAIR BEACH: What was the number
8 again?

9 MR. McCLOSKEY: 123835. So they think
10 some of those drums leaked in transport from Kansas
11 City to Los Alamos. But there's good survey data
12 in that SRDB, in that document, and there is a
13 corrective action that took place afterwards. And
14 that's the only indication that I saw of drums in
15 shipment, or waste in shipment, being found
16 leaking.

17 So as part of that review, we did not
18 discover any new information that suggests that
19 Kansas City's waste generating disposition
20 activities presented exposure pathways that were
21 not bounded by our methodology.

22 So any questions on waste management?

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1 MR. FITZGERALD: Well, if I can
2 comment?

3 CHAIR BEACH: Yes.

4 MR. FITZGERALD: This came up
5 originally because of that one instance where they
6 did find contamination at Los Alamos, in '62, and
7 that was the genesis of trying to figure out, well,
8 does that somehow exemplify some broader question
9 on how waste was handled and could you go back to
10 Kansas City, the originator of the waste, and find
11 similar issues when they packaged and handled
12 waste, in terms of any contamination?

13 And I agree, we went back and looked at
14 all the records and did not find any other instances
15 reported. And Los Alamos was pretty worked up
16 apparently with the contamination they had from
17 that one shipment and there was a corrective action
18 that was pretty stringent. And I think Kansas City
19 was on warning that they had to, you know, tighten
20 up their operation.

21 Los Alamos did not want to receive
22 anything that had any evidence of contamination.

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1 And there was a number of memos on Kansas City's
2 part which, you know, put methods in place and QA
3 in place to make sure that didn't reoccur. And I
4 think they took it pretty seriously and no other
5 instances that we could find.

6 The only thing I would say we differ
7 from the response is you acknowledged in the '60s
8 there were, you know, more shipments. We found
9 that pretty much throughout the '60s, from about
10 '61 through upwards to the late '60s and maybe even
11 1970, in sort of tracking the DU timeframe, where
12 we had hundreds of drums per year, sometimes every
13 month you had almost 100 drums going to Los Alamos.
14 And turns out, toward the low-level landfill,
15 Kansas City was one of the major contributors
16 during that timeframe, both classified waste as
17 well as, you know, sort of standard laboratory rad
18 waste.

19 So it was a fairly large scale drumming
20 operation and shipping operation and it involved
21 depleted uranium, laboratory waste, and on one
22 occasion a thorium-232 oxide was mentioned, but

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1 basically it was DU and laboratory waste.

2 And, again, that one instance was the
3 only instance that was highlighted by Los Alamos,
4 who was tracking it from their end, and Kansas City
5 from their end, so as far as contamination it seemed
6 that that was the one instance that was identified.

7 The only thing that I would I guess
8 mention is that given the scale of the drumming
9 operation, you know, it was hundreds of drums,
10 55-gallon, 30-gallon, 20-gallon containers from
11 that 10-year period. We're almost sort of
12 backdooring this because of that one instance at
13 Los Alamos. I don't know if we found anything that
14 spoke to any monitoring of the actual drumming
15 operation.

16 We knew where it took place, I forget
17 the name of the location, but they would move the
18 drums stacks -- test pit or something. They'd move
19 the drums there and they would be held there until
20 they had enough drums for a shipment and they would
21 ship them out.

22 What I was kind of interested in was any

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1 monitoring that would've taken place while they
2 staged the waste at Kansas City before it got
3 shipped.

4 It gives me some confidence, the fact
5 that they put in these QA controls after the '62
6 incident, that it be unlikely they would've had
7 much in the way of contamination. They were afraid
8 to have those go to Los Alamos, so there was a lot
9 of concern about that.

10 So from a programmatic standpoint, it
11 looked like they were much more stringent after '62
12 in taking a look at the waste making sure there was
13 not contamination, but we couldn't find any data.

14 You know, you would think they would've
15 done smears, they would've done some monitoring,
16 to assure themselves before the shipments were
17 made, but I don't think we've seen that yet.

18 So that's the missing piece on this
19 whole thing. Otherwise, I'd say the waste issue
20 is really a 1961 through '70 issue, and as you were
21 saying, Pat, it's pretty much intermittent, if at
22 all.

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1 It was mostly the DU turnings and some
2 laboratory waste that figured in the '60s, and then
3 after that it was pretty intermittent.

4 MR. DARNELL: Well, the one thing we
5 have to remember is this, like all the other
6 projects onsite, you had to be medically monitored,
7 radiologically monitored and the whole bit.

8 I don't see this as any different than
9 working on the machining part of the DU project.
10 Those guys were doing that DU project, they would
11 carry the waste through the end.

12 So I wouldn't necessarily expect to see
13 dosimetry badges that said "waste," you know, that
14 they were associated with a waste operation. I
15 would expect that the project workers be part of
16 the people that took care of this waste.

17 MR. FITZGERALD: I am just commenting
18 that I know we did a lot of looking. Well, I don't
19 think we've actually uncovered the monitoring
20 information on how they actually monitored those
21 shipments going out.

22 I see more on the other end where Los

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1 Alamos was checking on their end, rather than
2 Kansas City --

3 (Simultaneous speaking.)

4 MR. FITZGERALD: I almost think that
5 that information may reside somewhere.

6 MR. McCLOSKEY: Now, this document I
7 just gave you all the number for a minute ago, and
8 I'm sure you've read it, it's the one with the
9 pictures of the --

10 MEMBER CLAWSON: Trailer?

11 MR. McCLOSKEY: Yeah. There's rad
12 levels on all 127 drums in the one shipment and 122
13 on the other and they're all mostly under two
14 millirem per hour readings. It would be like a
15 DOT-required rad survey before you ship it. So we
16 have that. But I think, aren't you asking for like
17 routine contamination surveys --

18 MR. FITZGERALD: I'm just wondering,
19 you know, they apparently did put a program in
20 place, the QA requirements were written about, but,
21 like some other issues, we just didn't find any
22 records of what the results were.

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1 I think indirectly the fact that Los
2 Alamos was happy thereafter, I didn't see any
3 correspondence that strikes me that, you know, I
4 don't think they got anything that was crapped up
5 after '62.

6 So, you know, from that basis I think
7 there is some comfort level. But given the scale
8 of, again, a fairly intense program of shipping
9 lots of drums, hundreds of drums, in that
10 timeframe, that seems to be the only thing that,
11 you know, is missing, is just any record on the
12 Kansas City side of how they managed the staging
13 area, whether they, you know, did any contamination
14 control, what the results were.

15 The only thing I found was the QA
16 process they were proposing to put in place because
17 of Los Alamos's complaints. So that's one element
18 on Kansas City's side I found.

19 And as you were saying, there's some
20 DOT, I guess, I'm not sure if records, but for that
21 one instance they had some exposure data for the
22 drums, right?

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1 MR. McCLOSKEY: Yes, a serial number of
2 the drum. Drum X, Y, Z, has this millirem per hour.

3 MR. FITZGERALD: But that was just for
4 that shipment, right?

5 MR. McCLOSKEY: For two shipments in
6 that SRDB document, they're all provided.

7 MR. FITZGERALD: Right.

8 MR. McCLOSKEY: So, I mean, I'd look
9 further, but if you saw frequent shipments
10 throughout the '60s I would expect to see the same
11 information.

12 MR. FITZGERALD: Right. I thought
13 SWIMS would provide a lot more than it did. I don't
14 know if we have all the SWIMS or not, but I don't
15 think we got all the SWIMS, I think we got some of
16 them.

17 CHAIR BEACH: Did you find any
18 inventories or anything for anything of these,
19 anybody?

20 MR. FITZGERALD: No. The only thing I
21 found was numbers of drums, size of drums, some
22 information on what was in the drums. And even

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1 this was incomplete, because in '62 you had a
2 January shipment and an April shipment, but, you
3 know, that was the first half of the year. It's
4 unclear what happened after that.

5 '64, May had 160 drums. August, 112
6 drums. 1965, 111 drums for one shipment. '66, 240
7 drums in one shipment. '67, 124 drums in one
8 shipment. 1968, 187 drums on two shipments. And
9 '69, two truckloads of classified rad waste.
10 Whatever that means, two truckloads. And '70 was
11 two truckloads. So, you know.

12 MR. McCLOSKEY: I found some
13 descriptions of inventory for drums, and that was
14 part of the thorium issue that we're going to come
15 up to. We'll talk about the thorium that was in
16 there.

17 But for the 1960s, you know, all of it
18 was classified, and the best I can see it was solid
19 or liquid, you know.

20 CHAIR BEACH: Yeah. So it sounds like
21 there's more work that needs to be done here. I
22 guess I'm curious of where --

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1 MR. DARNELL: And I'm trying to figure
2 out what work needs to be done. You know, we've
3 got to look at it from the dose consequence. You
4 know, how much dose, the workers, and have we
5 bounded that dose.

6 CHAIR BEACH: True.

7 MR. DARNELL: My thought is, if we're
8 going to look for anything, the only thing we really
9 actually need to see is who was handling the waste.

10 If it were the people that were
11 generating the waste and part of that project,
12 we're covered, because we already have that
13 monitoring. We already know what's going on with
14 those folks.

15 If there was a separate group ,we need
16 to find out about the separate group. But right
17 now ,from all indications that we have, it would've
18 been the folks that generated the waste.
19 They're already a part of the program. We've
20 already bounded their dose. There is no more work
21 to do.

22 CHAIR BEACH: Well, there seems to be

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1 a discrepancy between what NIOSH is saying was
2 happening in the waste world and what SC&A has come
3 up with. So, to me, that goes back to the projects
4 and what was being done and the volumes of waste
5 being --

6 MR. DARNELL: But I don't care how much
7 waste is being generated if I've got the workers'
8 doses bounded --

9 CHAIR BEACH: But we don't, so, for
10 that waste.

11 MR. DARNELL: Well, that's the only
12 question that we have to ask.

13 CHAIR BEACH: Right.

14 MR. DARNELL: Not what was going on
15 with the waste or how much was being generated or
16 which project was leading which. If the project
17 personnel were the ones handling the waste, which
18 that's every indication that we have from the site,
19 then that's what we need to nail down, to me, and
20 that's just my opinion. I throw that out for that
21 table, but --

22 DR. NETON: So you have interviews or

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1 documents that suggest that the people that were
2 machining the uranium were the same ones that
3 drummed the waste then?

4 MR. DARNELL: As far as the way the
5 projects were set up, yes.

6 MR. FITZGERALD: Yeah, I would tend to
7 agree that they were putting the shavings in the
8 drums. As far as beyond that point, it's unclear,
9 you know, who was actually moving the waste to the
10 staging areas and then putting them into trucks.

11 MEMBER CLAWSON: Well, and then this
12 gets into another point, and this is when you start
13 to get into the classified waste. That's a whole
14 different set of people there.

15 MR. DARNELL: Now, you're making an
16 assumption that it's a whole different group of
17 people.

18 MEMBER CLAWSON: Wait. I think I can
19 make an assumption because you're making an
20 assumption.

21 MR. DARNELL: No, we've got
22 programmatic data that shows that's the way they've

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1 handled these things. We've got to nail it down
2 to make sure that that is the way they handled it
3 this time.

4 MEMBER CLAWSON: Got to nail it down.
5 So until it's nailed down it's an assumption,
6 bottom line. And this is why with our Issue 2 that
7 I said that I had reservations on it before you
8 could put the people where it was at, because when
9 we get into the metal shavings, the uranium
10 machining, I can understand that, but when we get
11 into these other classified ones, I have a hard time
12 really saying that we have captured all the people
13 per the program. Because there were many
14 different ones going on and it could've been a lot
15 of different aspects of it.

16 And my personal opinion is we need to
17 be able to put our hands around this a little bit
18 better, because the machining part of it, okay,
19 when we get into classified waste, no.

20 You know, you've even got the other
21 incidences of how they got rid of radioactive
22 clothing and so forth, and that ended up getting

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1 changed around because of an incident that happened
2 there.

3 So I think, personally, that we need to,
4 there is a little bit more there to be able to do.
5 And I understand what you say about, well, if we've
6 got all these people there, it's a programmatic
7 bull, and so we're covered by it, but I don't think
8 so.

9 MEMBER LOCKEY: Can I ask for a couple
10 clarifications? So, everything went to Los
11 Alamos, right, all of the drums?

12 MR. FITZGERALD: All of the
13 classified, the laboratory waste, and the DU
14 shavings all went to Los Alamos, the low-level
15 landfill there.

16 MEMBER LOCKEY: And the incident in
17 '62, it was Los Alamos receiving something that was
18 leaking or contaminated, correct?

19 MR. FITZGERALD: Right.

20 MEMBER LOCKEY: So what was the
21 communication, do we have communication in
22 response? They must've gotten back to Kansas City

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1 --

2 MR. FITZGERALD: They went back and
3 forth and Los Alamos, you know, brought this to
4 Kansas City's attention, insisted that Kansas City
5 take action. Kansas City took action, put new
6 procedures in place, practices, and they went back
7 to Los Alamos.

8 MEMBER LOCKEY: I understand that, but
9 did Kansas City have any response to that
10 particular incident as to when it got its status?

11 MR. FITZGERALD: They just put new
12 procedures in place, but there wasn't any
13 documentation that actually showed results per se,
14 okay? What we didn't find was any more complaints
15 or concerns expressed by Los Alamos.

16 MEMBER LOCKEY: I understand that.
17 Los Alamos received the contamination and they were
18 in communication with Kansas City.

19 MR. FITZGERALD: Right.

20 MEMBER LOCKEY: Did Kansas City in any
21 way explain themselves, when that shipment went
22 out, what the status of it was?

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1 MR. FITZGERALD: Yeah, actually that
2 was in there, where they were saying that the tops
3 weren't necessarily always seated well and there
4 were some leakage off the top of the drum, the seam
5 of the lid on the drum wasn't secured and there was
6 leakage at the top.

7 MEMBER LOCKEY: These were Kansas
8 City's statements?

9 MR. FITZGERALD: Kansas City
10 investigated and established that there was some
11 weaknesses in their program, one of which was
12 assuring the QA process, securing that the lids
13 were on top of the drums adequately, that was one
14 issue.

15 MEMBER LOCKEY: Using more absorbent.

16 MR. FITZGERALD: Yeah.

17 MR. McCLOSKEY: They upped the level of
18 absorbent they put into liquids after that.

19 MEMBER LOCKEY: So the leakage did not
20 occur --

21 (Simultaneous speaking.)

22 MR. KATZ: Can you hold one second?

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1 Excuse me --

2 MEMBER LOCKEY: -- it wasn't sealed
3 right before it was shipped?

4 MR. FITZGERALD: It was sealing as well
5 as not enough absorbent in the drum to secure or
6 stabilize the liquid.

7 MEMBER LOCKEY: I got you.

8 (Simultaneous speaking.)

9 MR. KATZ: Okay, can you hold a second,
10 please? On the line, somebody is not muted on the
11 line, and while it's not really in the way of our
12 conversation here, it's certainly getting in the
13 way of other people on the line being able to hear.
14 So anyone who's on this line should have their phone
15 muted. If you don't have a mute button press *6
16 to mute your phone. Much thanks.

17 MR. FITZGERALD: And, Jim, it wasn't
18 anything exotic, it was just really kind of
19 standard QA type of things you would do when
20 shipping waste. And they just weren't as tightly
21 procedurized as they should've been and they went
22 back and really, you know, applied these new

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1 procedures and they had to check these after they
2 secured the lids.

3 And what I was kind of looking for,
4 along those lines, was any evidence that they, you
5 know, recorded, yeah, okay, we okay we checked
6 these drums before the drums were shipped. And the
7 presumption is they did because, again, the
8 procedures call for it but there's not much in --

9 DR. NETON: It seems like these
10 procedures they put in place really didn't
11 necessarily affect the worker exposure that were
12 doing the drumming. These were shipment
13 transportation, so you're not --

14 MR. FITZGERALD: Right.

15 DR. NETON: It's not like they said,
16 well, my gosh, your workers need to be using remote
17 loaders or --

18 MR. FITZGERALD: No.

19 (Simultaneous speaking.)

20 DR. NETON: So it's really not a worker
21 exposure change there at all.

22 MR. FITZGERALD: No.

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1 CHAIR BEACH: Other than, up to that
2 point, that was the first indication that they had
3 a contamination issue on the outside of the
4 containers.

5 DR. NETON: Right, but it seems like it
6 got contaminated during transit.

7 CHAIR BEACH: Possibly, yeah.

8 MR. FITZGERALD: Well, originally we
9 were backtracking it to see if it was in transit
10 or whether it was actually problems at the site.

11 DR. NETON: Right.

12 MR. FITZGERALD: But as it turns out
13 from the documents and records we couldn't see any
14 problem at the site.

15 DR. NETON: Right.

16 MR. FITZGERALD: So the idea was, okay,
17 well, when they loaded these drums and handled them
18 as they were being shipped somehow some of this
19 started getting out, or in transit.

20 DR. NETON: Right.

21 MR. DARNELL: I think it's pretty close
22 to an idea that it was in transit when --

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1 (Simultaneous speaking.)

2 DR. NETON: That leaves us Brad's
3 issue, though. I'd like to talk about this special
4 nuclear material --

5 MR. DARNELL: Yeah, I want to make sure
6 I understand exactly what you're looking for, Brad.

7 DR. NETON: Now, their operations
8 there --

9 MEMBER CLAWSON: The shipment that
10 they're talking about right there is depleted
11 uranium shavings and that changed that.

12 DR. NETON: Right.

13 MEMBER CLAWSON: But then we've got the
14 classified, those classified for certain products
15 that are in there and so forth like that, which are
16 totally different than the uranium ones were.

17 DR. NETON: Okay.

18 MEMBER CLAWSON: I'm sitting here, we
19 have, because of this incident, we have monitoring
20 data for all of those drums and stuff, so we know
21 that.

22 CHAIR BEACH: Well, no, we don't.

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1 (Simultaneous speaking.)

2 CHAIR BEACH: He said we need to see if
3 we have the monitoring data and who did the waste.
4 So we don't know for sure if the people that
5 actually were doing the machining were also
6 handling waste, that's something we need to track
7 down.

8 MR. DARNELL: But the people
9 themselves should have been monitored the way the
10 programs were set up. As far as monitoring of the
11 drums, I don't think we have any of that data at
12 all.

13 DR. NETON: So let me ask this
14 question. I know this is classified information,
15 but is this material different than the source
16 materials that we've been talking about this
17 morning?

18 MEMBER CLAWSON: Yes.

19 DR. NETON: So it's another source term
20 --

21 MR. DARNELL: The radionuclide isn't.
22 What radionuclide are you, we don't have --

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1 MR. FITZGERALD: It's just form.

2 (Simultaneous speaking.)

3 DR. NETON: So it's a chemical form of
4 the same materials we've been talking about? Okay.
5 So then I think we do need to go back and research
6 what Pete talked about, which is to see if the
7 people that were working with this material were
8 also the ones that packaged the waste for this --

9 MR. FITZGERALD: Yeah, I think that's
10 fine. I think that's where we're at, just making
11 sure that there's not an exposure potential that's
12 not covered.

13 MR. DARNELL: Or a group we've missed.

14 MR. FITZGERALD: A group we've missed.

15 MR. DARNELL: If there's waste
16 handlers we definitely need to capture what the
17 exposure --

18 DR. NETON: Right. If there's a waste
19 processing team out there and --

20 MR. FITZGERALD: Well, what gave me
21 pause was is sort of the description that you
22 provided. It seemed to suggest it was

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1 intermittent or not at all, but in the '60s I would
2 say no. I would think it's much more active in the
3 '60s.

4 And there you might actually have some
5 exposure if it were a different group of people.

6 MR. DARNELL: I don't think we're
7 talking about it being a large plant exposure in
8 terms of where the waste was stored and how that
9 was basically separated. What we're talking about
10 is the folks that handled the drums.

11 (Simultaneous speaking.)

12 MEMBER CLAWSON: Yeah, that's fine,
13 but I just want to caution us because I really
14 haven't seen a site yet that we've been able to
15 place people in their jobs and select them down to
16 just, you know, being able to say, oh, yeah, we've
17 got this all covered. I don't think we've seen a
18 site yet that we've been able to really make sure.

19 MR. DARNELL: Well, we've got access
20 lists already on who was assigned to what project
21 and --

22 MEMBER CLAWSON: Pete, and I can blow

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1 that right out the water because it's like Area 20
2 for the machining of the uranium. We've already
3 come to find out that, yes, the people that were
4 doing the machining were fine, the QA, the
5 engineering, they didn't need that access.

6 MR. DARNELL: I don't agree with you
7 though, Brad, I'm sorry.

8 MEMBER CLAWSON: Well, and that's
9 fine, but I just wanted you to know when push comes
10 to shove it'll be there because there's already
11 been documentation of that and the changes to it.
12 So I just want caution us on that.

13 MR. COPELAND: Could I help you out a
14 little bit on that? Those people --

15 CHAIR BEACH: Hang on just a sec. Does
16 anybody else with the Work Group have questions or
17 comments on this?

18 MR. DARNELL: I'm actually curious
19 what documentation Brad is talking about, so I can
20 --

21 CHAIR BEACH: Okay. So we'll get to
22 you, Maurice, hold on to that. And I did add it

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1 for the site visit as though we need to continue
2 looking for waste records for the '60s and waste
3 handlers.

4 MR. DARNELL: Yeah, sure.

5 MEMBER CLAWSON: Part of the
6 documentation that came in to this was from the
7 quality assurance department in one of their
8 reports that they were going in there, because the
9 parts that were being machined and run were going
10 into there and the comment was was that only people
11 that have access badges, with these certain badges,
12 could go in there. Well, the quality assurance
13 people didn't.

14 And then there was the building they
15 were adding on at I believe it was the north end
16 of Area 20, to be able to give a bigger area to be
17 able to put the product for them to be able to test
18 and to be able to check these parts.

19 So from my aspect of saying that we have
20 all these access controls and only those people can
21 go in there, I say that's not so.

22 DR. NETON Yeah.

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1 MEMBER CLAWSON: And the engineering
2 of going in there and doing ventilation upgrades
3 and looking at this, I'm sure that the people that
4 were on the project had access.

5 We've talked about the badges for Area
6 20 and so forth, but the other departments that
7 supported them, I don't think that we really can
8 say that.

9 (Simultaneous speaking.)

10 MR. DARNELL: What we saw in the
11 medical records when we went and looked, those
12 various support people that you're saying you don't
13 think had the training, had the training. That's
14 what is listed in their medical records.

15 DR. NETON: I don't think that we
16 decided yet. I think we've agreed that we're going
17 to pursue a coworker model here. We're going to
18 go look at the data to see.

19 So I think -- I'm not convinced that
20 everybody that needed to be monitored was
21 monitored. I agree, you could never prove that
22 people like maintenance folks didn't go in there

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1 and stuff even though the supposedly had access
2 control. But that's what the coworker models are
3 for.

4 MEMBER CLAWSON: Right.

5 DR. NETON: And I think we're going to
6 pursue that, at least we're going to pursue the
7 option, when we go back and look at the electronic
8 database and match it up with the records we have.

9 So I don't think we're saying that, you
10 know, no one else is going to get dose but just the
11 monitored workers. So I think that's okay.

12 The key question here, though, is were
13 the people that were monitored the same people that
14 actually handled the waste. If there's a
15 different group out there that handled waste that
16 weren't monitored then we could have a problem.
17 That's what I think we're saying.

18 MR. DARNELL: I feel like I'm missing
19 something and I want to make sure that I have the
20 right information so that Brad can be happy with
21 what he's hearing, and I'm not understanding is all
22 I'm saying. I just don't understand where you're

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1 coming from with this, so that's why I am asking.

2 MEMBER CLAWSON: And that's fine. For
3 you to tell me that everybody was monitored that
4 should've been monitored, I don't agree.

5 MR. DARNELL: Well, I don't think I'm
6 actually saying that.

7 CHAIR BEACH: I don't think he -- he
8 said that we need to go, he thinks they know who
9 was involved, but we need to go and make sure that
10 the other areas are covered, meaning the waste
11 workers --

12 MR. FITZGERALD: Meaning, you know,
13 the DU workers were bioassayed, routinely
14 bioassayed.

15 CHAIR BEACH: Yeah.

16 MR. FITZGERALD: If they were the same
17 workers that handled the waste, we have the records
18 then. If they're not, then we may not have those
19 records. And so that's pretty much the --

20 CHAIR BEACH: Yes, so we're going to look
21 for more --

22 MR. DARNELL: And the other thing is,

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1 the way it's supposed to happen and the real world
2 of how it happened, we all know are two different
3 things, and I understand that.

4 I just know that the site was set out
5 to work one way and that's the path I have to follow.
6 And then we've got the coworker model when you get
7 to the TBD to capture those folks that may not have
8 fit in the mold that we have going for the ER right
9 now. So am I catching, getting what you need?

10 MEMBER CLAWSON: Yes.

11 MR. DARNELL: Okay.

12 MEMBER CLAWSON: Yes, you are. And
13 see I have to go back to what we found and some of
14 the areas programmatically it looks very good to
15 say that this is how we did it. But in all reality
16 the way, as you already said, the way it was done
17 differs, and that's why I'm coming back to you.

18 I just want to make sure that when we
19 make an assumption like what we are, that we're able
20 to back it up. And, you know, you're right, we'll
21 see with that, but I don't think that you're ever
22 going to see something that says these people took

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1 this waste and moved it to here and be able to put
2 your hand on exactly who took care of that.

3 It may have sat in Area 20 for a little
4 while till somebody else could take care of it. We
5 don't have that good of information, in my eyes,
6 to be able to say that, really.

7 CHAIR BEACH: Okay. We do have some
8 information that says that it did sit in Area 20
9 with a lid on it until it was full and then it was
10 moved out.

11 MEMBER CLAWSON: Right.

12 CHAIR BEACH: But we don't know if they
13 let five gather or one gather, I don't remember that
14 level of detail.

15 MEMBER CLAWSON: And we don't know who
16 got it from there back to the engine storage.

17 CHAIR BEACH: Yeah, correct. Okay.
18 So I think we're all circling around the same thing.

19 Maurice, did you have something to add
20 to this discussions?

21 MR. COPELAND: Yeah. And when you're
22 looking, I want to help you. I want to help you

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1 pinpoint who the people were that were doing that.

2 And you will find out that they have a
3 program at Honeywell, AlliedSignal at that time,
4 that disqualified all of those people that had been
5 doing that job for 20 or 30 years because they
6 weren't able to read and get training. And they
7 started a training program and it should be very
8 easy for you to find that out.

9 Those people were disqualified and some
10 were put into custodian positions and they started
11 a new position called waste management and
12 hazardous waste management.

13 CHAIR BEACH: What was it called before
14 that, before they disqualified all of them, do you
15 remember?

16 MR. COPELAND: Well, it was waste --

17 MR. FITZGERALD: Handlers?

18 MR. COPELAND: Handlers, yeah.

19 CHAIR BEACH: Waste handlers, okay.

20 MR. COPELAND: Waste handlers. And
21 those people were disqualified, put into reading
22 programs --

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1 CHAIR BEACH: What year was that, can
2 you give me an idea?

3 MR. COPELAND: It was in the '80s.

4 CHAIR BEACH: Okay.

5 MR. COPELAND: In the '80s sometime.

6 CHAIR BEACH: Okay.

7 MR. COPELAND: So these people had been
8 doing that job for years, 20, 30 years, and they
9 find out they were incompetent, couldn't read, and
10 so that would help you. And you said that you
11 interviewed people, well, you ought to have some
12 names.

13 MR. McCLOSKEY: [Identifying
14 information redacted] was the manager.

15 MR. COPELAND: I know [identifying
16 information redacted].

17 MR. McCLOSKEY: Yeah. He was one of
18 our best resources for waste --

19 MR. DARNELL: Yeah, our main resource
20 for finding out information about this.

21 MR. COPELAND: He was what?

22 MR. McCLOSKEY: He was one of our best

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1 resources for waste management.

2 MR. COPELAND: And what was his title?

3 MR. McCLOSKEY: Manager of -- I'm not
4 positive what his title was.

5 MR. COPELAND: Yes, but the actual
6 workers, [identifying information redacted], I
7 forget [identifying information redacted] last
8 name, but they've got the roster there.

9 CHAIR BEACH: Can you tell me, do you
10 know how many workers we're talking about? Was
11 there five, ten?

12 MR. COPELAND: It was a gang.

13 CHAIR BEACH: And that was their only
14 job?

15 MR. COPELAND: In that waste
16 management group, may have been 20, 30 guys.

17 CHAIR BEACH: Okay.

18 MR. COPELAND: Because they handled
19 all the waste in the whole plant.

20 CHAIR BEACH: Okay.

21 MR. COPELAND: The skidwash people,
22 they handled the barrels, the staging area of where

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1 you put the barrels, where the barrels were stacked
2 outside.

3 MR. McCLOSKEY: Red X Lot.

4 MR. COPELAND: Outside. And for
5 months and years, I mean we had barrels running over
6 the place, we had all around the plant, we had
7 barrels all around the plant --

8 MR. DARNELL: We haven't heard
9 anything at all --

10 MR. COPELAND: Huh?

11 MR. DARNELL: We have not heard
12 anything at all about a group of waste handlers.

13 MR. COPELAND: You didn't?

14 CHAIR BEACH: No, Wayne brought it up
15 before. He mentioned it.

16 MR. COPELAND: Yeah, I think they heard
17 it before because I mentioned it in meetings that
18 we had back in 2004.

19 MR. DARNELL: I just don't remember it,
20 sorry.

21 CHAIR BEACH: It might not have been
22 one of your interviews, but, yeah, I remember him

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1 bringing it up.

2 MR. SHARFI: They do have bioassay for
3 handlers. There is a category and we do have --

4 CHAIR BEACH: Waste, yeah.

5 MR. COPELAND: Yes, the supervisor was
6 [identifying information redacted], that's one of
7 the supervisors, [identifying information
8 redacted]. [Identifying information redacted].

9 MR. McCLOSKEY: Say that first name
10 again?

11 MR. COPELAND: [Identifying
12 information redacted]

13 MR. DARNELL: In Table 13 of the TBD
14 there's 145 bioassay results for people called
15 handlers: handlers, laborers, helpers in that
16 group.

17 MR. COPELAND: Those are different
18 groups. Helpers were machinist people, those were
19 people that worked in the machine shop.

20 MR. DARNELL: Well, in our table we put
21 them altogether, handlers, laborers, and helpers.

22 MEMBER LOCKEY: What's the date on

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1 that?

2 MR. DARNELL: This is from '59 to 1970.

3 MEMBER LOCKEY: '59 to '70.

4 MR. McCLOSKEY: Table what?

5 MR. DARNELL: Table 13.

6 (Simultaneous speaking.)

7 MR. KNOX: I think they were also
8 involved in this waste reclamation, the same group
9 of people.

10 CHAIR BEACH: Okay. So can we agree
11 that there's more work that needs to be done in
12 trying to nail this down?

13 MR. DARNELL: Yes.

14 CHAIR BEACH: And then if we're ready,
15 any questions, Jim? Loretta, how about you?

16 MEMBER VALERIO: I think that there's
17 a lot more clarification that we need as to who was
18 handling this, what building were these, you know,
19 was it Department 20?

20 CHAIR BEACH: Yeah.

21 MEMBER VALERIO: Was that ever
22 deconned were there -- there's just too many

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1 unknowns, I'm not comfortable with this. I think
2 we need a lot more clarification on this, on who
3 was handling the waste.

4 CHAIR BEACH: Agreed. Okay, so it
5 sounds like we're going to -- so, actions I have
6 is just to go in and look at more waste records.
7 As far as SC&A, do you need anything from SC&A on
8 what they found that varies from what you guys found
9 if there's a discrepancy?

10 MR. FITZGERALD: No, it states it in
11 the SRDB. It's just waste inventory from the '60s,
12 it's all there.

13 CHAIR BEACH: Okay. I'm just
14 clarifying if we needed anything.

15 MR. DARNELL: I just wanted to make
16 sure that I meet what the expectation is. I wasn't
17 really going so much to look at waste records, but
18 personnel handling, who was touching the stuff.

19 MR. FITZGERALD: As long as we're in
20 agreement that the '60s were a fairly active period
21 of shipments. That's the only thing I didn't quite
22 get in the description that was provided. Other

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1 than that, yeah.

2 MR. DARNELL: Okay. So we will be
3 going back to look for who handled it and find this
4 group.

5 CHAIR BEACH: The waste gang in the
6 1960s.

7 DR. NETON: It sounds like we also need
8 to look at the bioassay database because it appears
9 that waste handlers were monitored.

10 MR. DARNELL: Right. We've got that
11 in the TBD already.

12 CHAIR BEACH: Okay.

13 MR. FITZGERALD: I guess it only gets
14 touchy if they're not in that cohort, because then
15 you'd have to decide if you were going to
16 extrapolate that data or not, you know, it gets a
17 little --

18 MR. KNOX: If you want to put
19 [identifying information redacted] on this,
20 [identifying information redacted] could, he is
21 the one --

22 MR. DARNELL: Could you say the last

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1 name again?

2 CHAIR BEACH: [Identifying
3 information redacted].

4 MR. KNOX: [Identifying information
5 redacted].

6 MR. SHARFI: He was a waste handler?

7 MR. KNOX: Yeah, and was involved in
8 the waste reclamation also. And [identifying
9 information redacted] was there.

10 DR. NETON: We got him.

11 MR. COPELAND: It should be very easy
12 to find the roster of those people that worked in
13 that group. I mean, they had all the
14 classifications --

15 MR. DARNELL: I wish I could say that
16 you are right.

17 MR. COPELAND: Go through the union.
18 They have the roster of every paid number and what
19 their occupations were.

20 MR. DARNELL: Well, we have had a time
21 finding documents.

22 CHAIR BEACH: All right. So let's

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1 move on to Number 8. I am going to push a little,
2 because I know we're not going to get through this
3 and I want to give you guys a few minutes to talk
4 about petitioner's issues at the very end.

5 So Number 8 is our metal tritides
6 exposure potential, and Joe has agreed to kick that
7 off for us.

8 MR. FITZGERALD: Yeah, this will be
9 roughly brief. We originally noted the degree to
10 which metal tritides, particularly at KCP -- and
11 it would've been a potential source, exposure
12 source -- really hadn't been defined as well as it
13 needed to be. And we had some interviews back last
14 year that indicated there were several types of
15 metal tritides that were likely handled with, you
16 know, limited evidence of leakage.

17 There was a couple of incidents, but
18 after the additional research we did onsite it
19 became pretty clear, that unlike Mound, unlike Los
20 Alamos, metal tritides came to Kansas City
21 universally as sealed components, okay, and that's
22 the key thing as compared with other SECs.

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1 And they had acceptance criteria and,
2 you know, with the many, many field containers
3 there were maybe a couple, two or three instances,
4 where those acceptance criteria exceeded. And
5 we're not talking about a very high level of
6 contamination, and I think 100 dpm per 100 square
7 centimeters was typical. No evidence of uptake.
8 And there were a couple of situations in '87 and
9 '90 where they in fact heightened their procedures
10 based on feedback from Sandia and the design
11 laboratories trying to make sure that these
12 acceptance criteria were met.

13 So I guess where we came, we originally
14 were concerned that it wasn't characterized as much
15 as we'd like to see in the ERs. The research didn't
16 show that there was any recurring issues if there
17 were acceptance criteria in place, that these were
18 sealed components and that if there were any
19 contamination it was intermittent, maybe a couple
20 of times in the history of the handling.

21 So without really any exposure
22 potential consequence, we recommend closure to the

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1 Work Group on this particular one. You know, we've
2 been on metal tritides for five or six years, so
3 we certainly, I think, are pretty familiar with
4 when we have a pathway of concern, and I don't see
5 one here.

6 MR. DARNELL: You know, reluctantly,
7 NIOSH agrees that we should close this.

8 (Laughter.)

9 MR. FITZGERALD: Does the Work Group
10 have any questions on that one?

11 CHAIR BEACH: I don't.

12 MR. FITZGERALD: Okay.

13 CHAIR BEACH: There was one incident,
14 right, that we know of?

15 MR. FITZGERALD: Well, there was one
16 erbium tritide release that was investigated. The
17 rest of them, a couple of times the acceptance
18 criteria were exceeded, but there wasn't any major
19 release.

20 CHAIR BEACH: Loretta, do you have any
21 questions on Number 8?

22 MEMBER VALERIO: No.

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1 CHAIR BEACH: And you agree with
2 closure?

3 MEMBER VALERIO: Yes.

4 CHAIR BEACH: Brad?

5 MEMBER CLAWSON: Yes.

6 CHAIR BEACH: Jim?

7 MEMBER LOCKEY: Yes.

8 CHAIR BEACH: Okay. I agree with that
9 also, so we'll close Number 8.

10 MR. FITZGERALD: I could suggest
11 something for the Work Group. Issue 9, 10, 11,
12 12, had to do with external dosimetry, or external
13 exposure issues that we raised which were the
14 subject of a technical conference call that was
15 held last year and I thought it was a pretty good
16 call and if people don't mind I'd like to get Ron
17 Buchanan just to walk the Work Group through that.

18 CHAIR BEACH: Before you do that --

19 MR. FITZGERALD: Yes?

20 CHAIR BEACH: -- any issues on tritides
21 from the petitioners? I don't think it was on your
22 list, but Number 10 I wasn't sure.

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1 No, okay. Thank you. Go ahead.

2 MR. FITZGERALD: So I was just going to
3 have -- Ron, are you on the phone?

4 DR. BUCHANAN: Yes, I am.

5 MR. FITZGERALD: Yes, if you could walk
6 through maybe the issue, what was the exchange on
7 the conference call and where we've come out
8 starting with Item 9.

9 DR. BUCHANAN: Okay. Nine, ten, 11,
10 and 12, like Joe said, has to do with external
11 exposures and nine was concerned with coworker, it
12 started out as external coworker and what that
13 boiled down to was that we found that in 1969 the
14 records were all zeros for external exposure.

15 And so we looked around to see was this
16 reasonable or not or was something missing and what
17 we have arrived at to date is the fact that it
18 appears that from what we can find out, and we
19 worked with the present SRO at Kansas City and such
20 to see if he could find any records for '69 that
21 showed any positive doses and so far we have not
22 found any.

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1 Now we have to look at this in the light
2 that Kansas City normally had a lot of zero doses.
3 If you had say 500 dosimeters you might have 50 with
4 some positive dose, a small amount of dose on it.

5 So we did not find any evidence that
6 showed one way or the other that '69 was missing
7 any data. Now NIOSH did send out a recent
8 reference number that showed zeros for '69 and that
9 was the Reference Number 137215, Page 19, and that
10 was just for a couple of departments though, that
11 was not the whole plant.

12 So that was an interoffice memo that
13 wanted to know the doses for '59 through '72 or
14 something for Department 20 and some other
15 departments, and it did show '69 as being zero, but
16 it also showed other years as being zero, which we
17 know there is some positive doses according to the
18 TBD in other years.

19 So at this point what we have found is
20 nothing concrete one way or the other that '69
21 should be all zeros and so that's where we're at
22 on that.

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1 So it's kind of up to the Work Group
2 whether they'll pursue it further, or we really
3 don't know what to pursue further. SC&A doesn't,
4 and I don't know if NIOSH does, and so we kind of
5 open that up to the Work Group to discuss the fact
6 that 1969 shows all zeros on the external dosimetry
7 section.

8 And if NIOSH wishes to input anything
9 in there that, I welcome them to put in there, talk
10 on it.

11 CHAIR BEACH: Okay.

12 MR. McCLOSKEY: The only thing that I
13 heard the RSO say while we were there is that, you
14 know, they were involved with some
15 inter-comparison studies and there's a small
16 chance that when they were sending their records
17 out they sent the originals and didn't get them
18 back, but I did a search for inter-comparison
19 studies from that timeframe and found nothing, and
20 even if I did I mean I don't know that it would say,
21 well I don't know what it would say, but, no, I don't
22 really have anything more to add to that other than

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1 that.

2 MR. COPELAND: Did it do --

3 (Simultaneous speaking.)

4 DR. NETON: This is Jim, I'm wondering
5 if --

6 DR. BUCHANAN: Okay. I guess that,
7 you know, we kind of defer to the Work Group on
8 whether they feel that '69 should be investigated
9 further and we don't, I don't know what we'd
10 suggest.

11 One suggestion is that, if you look at
12 the years around it, '68 and '70, you'll find some
13 small positive doses. That could be, you know,
14 assigned to '69, except there isn't any indication
15 that there would be large doses in '69, but, you
16 know, that's up to the Work Group what they'd like
17 to pursue from here.

18 CHAIR BEACH: Okay. And, Ron, Jim was
19 going to make a comment.

20 DR. BUCHANAN: Okay.

21 DR. NETON: Yes, I would just, I didn't
22 know if this was specific to 1969 but I was going

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1 to suggest that, you know, we talked about the
2 completeness of the data earlier on Number 2 I think
3 it was.

4 CHAIR BEACH: Yes.

5 DR. NETON: And we need to go back and
6 compare the raw data with the time database, and
7 I think we were talking about internal at that time,
8 but it might be something we could do in parallel
9 and do some sort of a validation as best we could
10 with the external results, the electronic database
11 at the same time.

12 CHAIR BEACH: That was for one, but so
13 basically validating and verifying the records?

14 DR. NETON: Well, you know, if we at
15 least see, if we had the records, we had the raw
16 records, we compared, and they are in the database,
17 and there are no positive values in the raw data
18 that show up as zeros in the regular database.

19 I mean it wouldn't be definitive, but
20 it would certainly be one more thing to look at.

21 CHAIR BEACH: Right. Well and then it
22 would be up to -- I know, Ron, you made a suggestion

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1 about other doses from other years, but that would
2 be up to NIOSH to say this is how they're going to
3 do it and then --

4 MR. DARNELL: That is the actually
5 current approach. We used 1968 for 1969, since
6 it's the higher of '68 versus '70.

7 So we actually used the higher of the
8 years around it to bound the dose for 1969.

9 CHAIR BEACH: Okay. So that's
10 already, so that suggestion, Ron, that you made is
11 already being done, or it sounds like that's how
12 you're doing it.

13 MR. DARNELL: It's currently in the
14 TBD.

15 CHAIR BEACH: Okay. So is everybody
16 in agreement with that, to kind of add nine to what
17 we discussed on one?

18 DR. NETON: Yes, and I think we're
19 probably going to do that anyway, so we may as well
20 formalize that.

21 MR. DARNELL: So we're going to combine
22 them or add them?

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1 CHAIR BEACH: No, not combine them, but
2 --

3 DR. NETON: No, no, no.

4 MR. DARNELL: Okay.

5 CHAIR BEACH: -- the same verification
6 of the, the same process we're going to do.

7 MR. DARNELL: Okay, yes.

8 DR. NETON: Okay, but I wouldn't say
9 it's a definitive analysis, but it's certainly
10 another piece of the, weigh the evidence sort of
11 thing.

12 CHAIR BEACH: Well, and we're going to
13 probably find that on all of these externals, that
14 we're going to have to do that, so okay. Everybody
15 okay with that suggestion and in agreement?

16 (Simultaneous speaking.)

17 MR. DARNELL: Was that for '69 alone or
18 for the whole --

19 DR. NETON: No, it would be for the same
20 years we're doing for, the same analysis we're
21 doing for the internal.

22 MR. DARNELL: Okay.

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1 DR. NETON: I mean the records should
2 be there. It shouldn't be that hard to pull out
3 the internal records as well.

4 MR. DARNELL: Right.

5 DR. NETON: I mean external records,
6 and crosswalk them. It's easy for me to say that.

7 CHAIR BEACH: Easy for you to say
8 you're going to have them do it, yes.

9 DR. NETON: I don't have to --

10 CHAIR BEACH: That's okay, that's how
11 you get things done. Okay. So, Ron, if you're
12 ready go ahead and go to ten.

13 DR. BUCHANAN: Okay. Issue Number 10
14 was non-penetrating dose and this was more of a
15 clarification that it was being done correctly.

16 Prior to 64, the handwritten records at
17 the Kansas City Plant, had several columns, and it
18 wasn't clear which column the DRs were using, they
19 had the rad, a roentgen, and a rem, and some of the
20 later ones had a beta rad.

21 And so I wanted to clarify that and we
22 had a phone call in July of last year to do that

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1 and we learned from NIOSH that they weren't using
2 it correctly, that the rads was the total dose, the
3 roentgen was the deep dose, and the rem dose column
4 was not being used, and that is correct and that
5 the non-penetrating was the rad minus the roentgen.

6 And so the nomenclature wasn't clear on
7 there on their handwritten cards and so we
8 clarified what they were using and we agreed that
9 that was being used correctly and they will make
10 a clarification in the TBD that that's the way it
11 should be used so there won't be any controversy
12 since there is a column listed as rem.

13 If they did use the rem column it would
14 be an overestimate because it's the sum of the rads
15 and roentgens and I don't why Kansas City did that
16 in the early years, but, anyway, it's not to be used
17 in DR.

18 And so if that clarification is made in
19 the TBD we have no further issue with that.

20 CHAIR BEACH: Okay. So what you're
21 suggesting is this becomes a TBD issue with a
22 clarification needed on those columns?

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1 DR. BUCHANAN: Yes.

2 CHAIR BEACH: Okay. How does the rest
3 of the Work Group feel, or, NIOSH, I guess we'll
4 let you --

5 MR. DARNELL: Reluctantly once again
6 we agree.

7 CHAIR BEACH: You were involved in that
8 phone call that discussed this.

9 MR. DARNELL: Yes.

10 CHAIR BEACH: I know I had a chance to
11 listen in but wasn't available. Brad, anything on
12 that for you, do you agree with that?

13 MEMBER CLAWSON: No, I agree with it.

14 CHAIR BEACH: Loretta?

15 MEMBER VALERIO: I agree.

16 CHAIR BEACH: Okay. So we're going to
17 move that over to --- we're going to close it on
18 the SEC and we'll leave it over to the matrix for
19 the TBD issues, which Joe is now handling.

20 Okay. So, Ron, if you're ready go
21 ahead and walk us through 11.

22 DR. BUCHANAN: Okay. Eleven and 12

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1 are both to do with neutron dosimetry and, of
2 course, we brought up the regular concerns about
3 neutrons at the Kansas City Plant about using NTA
4 film and their response to the neutron field plus
5 the TBD and the DR both quoted a ratio of 1:1 using
6 the NP method where you take the photon dose and
7 you assign it with a neutron dose.

8 Well that was very claimant-favorable,
9 we felt that there wasn't any real technical basis
10 behind that and that OTIB-24 wasn't applicable in
11 this case and so NIOSH readdressed the neutron
12 issue and have removed the use of OTIB-24 and the
13 use of N/P value of one and had went to looking at
14 what the actual NTA film results were.

15 Now the reason that we can probably use
16 the NTA film results in that situation, as opposed
17 to some of the other sites that we discussed the
18 NTA film at, is that Kansas City used a high energy
19 neutron generator, DT reaction, which generates 14
20 MeV neutrons, which are high energy, and also to
21 use some PuBe sources, which generate about 4-1/2
22 meV, and they did not have a lot of heavy reactor

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1 shielding and stuff like you'd find around reactors
2 or heavily-shielded accelerators and stuff, so you
3 don't have a semantic and a low-energy neutron
4 component that would add significantly to your dose
5 that you would be missing like you would on some
6 production lines.

7 And so we find that the NTA film results
8 probably were representative of the doses at Kansas
9 City. However, one thing is they didn't have very
10 many positive.

11 They had about 2100 neutron
12 measurements using NTA film and only 35 positive
13 results. And so what NIOSH is suggesting is to use
14 a 95th percentile of those 35 results, which really
15 comes up to the top three results determine your
16 dose and they suggest assigning 154 millirem a year
17 to potential workers, workers that were
18 potentially exposed to neutrons.

19 And so we, while that isn't a large
20 statistic, it is a reasonable assumption. What we
21 would like to see, we have so far no real problem
22 with their approach, we would like to see the 35

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1 data points and the years those were taken, the
2 magnitude and the year and the location if they have
3 a department.

4 We would like to look at that data
5 before we sign on off on Item 11. So that's where
6 we stand at this point. If NIOSH can provide us
7 with those 35 data points, as much information they
8 have on them, we would like to look at those and
9 evaluate them.

10 CHAIR BEACH: That seems reasonable to
11 me. NIOSH?

12 MR. DARNELL: Will do.

13 CHAIR BEACH: Okay. So it sounds
14 like, Ron, that they will make that available. And
15 then on 12 for me, on the last paragraph, I think
16 was a NIOSH, it talked about a bounding assignment
17 of 0.154 rem a year, neutron could be assigned for
18 unmonitored workers who worked with neutron
19 sources or neutron-generating devices as indicated
20 in the CATI or other DOL/DOE information.

21 I guess I'm concerned about that
22 covering all employees because it's not always

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1 clear, unless you tell me it is clear in the CATI,
2 that you wouldn't miss people with that.

3 So how do you not -- I mean I know it's
4 an open-ended question, how do you not miss
5 individuals? I mean what are you using so that you
6 don't?

7 MR. DARNELL: I'm sorry. I was
8 writing my notes and I didn't catch the beginning
9 of what you were talking about.

10 CHAIR BEACH: Well it just says you're
11 going to assign, for individuals you're going to
12 assign a dose and you're going to use the CATI or
13 other available DOL/DOE information.

14 MR. DARNELL: Right.

15 CHAIR BEACH: I guess to me that leaves
16 a question of missed employees.

17 MR. DARNELL: Well the employee would
18 know if they were working with the PB source. I
19 mean this is a fairly significant piece of
20 equipment.

21 DR. NETON: The employee might know,
22 but the survivor might not know.

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1 MR. DARNELL: The survivor may not
2 know.

3 CHAIR BEACH: The survivor might not.

4 MR. DARNELL: That is true.

5 (Simultaneous speaking.)

6 DR. NETON: This is a tough one because
7 I, you know, unlike other sources of exposure
8 where, you know, okay, you could assign to
9 everybody, there were probably very few people
10 working with this and in our experience with
11 external monitoring has been that most people that
12 were exposed to external were monitored unlike the
13 internal.

14 CHAIR BEACH: Were monitored, okay.
15 So you're telling me it's going to be a really small
16 percentage?

17 DR. NETON: I think it would be a very
18 small percentage of people that had received
19 coworker doses.

20 CHAIR BEACH: Okay. I think that's
21 what, I was looking for more of a reassurance there
22 and I'm not looking at a large dose.

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1 MR. DARNELL: I can't give you 100
2 percent --

3 CHAIR BEACH: No, and I'm not asking
4 for a 100 percent.

5 DR. NETON: That would be my guess is
6 that --

7 CHAIR BEACH: Whenever I see the CATI
8 then I start thinking about survivors and --

9 DR. NETON: Yes. No, I agree with you.

10 CHAIR BEACH: Okay. So we're going to
11 hold 11 and 12 open with viewing of the 35 data
12 points and then we'll hear back from SC&A after
13 that?

14 DR. NETON: I think 12 might be a
15 different issue though.

16 CHAIR BEACH: Is it. I thought it was
17 combined.

18 DR. NETON: It's about fading, which is
19 a little different than --

20 CHAIR BEACH: Oh, okay, so there's a
21 little difference, okay.

22 (Simultaneous speaking.)

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1 CHAIR BEACH: We covered them
2 together, 11 and 12.

3 MR. FITZGERALD: Yes. Given the
4 energy levels involved, which is almost
5 universally higher, the NTA film issue we typically
6 have actually doesn't apply to Kansas City.

7 DR. NETON: No, but this is about
8 fading though, which is different --

9 (Simultaneous speaking.)

10 MR. DARNELL: This one actually should
11 be closed.

12 CHAIR BEACH: Which one?

13 MR. FITZGERALD: Twelve. Twelve
14 could be closed. We combined it because it sort
15 of deals with neutrons generically, but 12 could
16 be closed on the NTA side.

17 CHAIR BEACH: Okay.

18 MR. FITZGERALD: The inapplicability
19 of NTA for low energy neutrons wouldn't apply at
20 Kansas City, it's all hard neutrons.

21 CHAIR BEACH: Okay. So the data
22 points we're looking at actually belong to 11.

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1 MR. FITZGERALD: You can close 12 and
2 we'll keep 11 open for the 35 data points.

3 CHAIR BEACH: All right. Ron, are you
4 good with that?

5 DR. BUCHANAN: Yes.

6 CHAIR BEACH: And NIOSH will make those
7 available to you and, of course, the rest of the
8 Work Group will know when that comes out.

9 MR. DARNELL: I'll do it like I
10 normally do, send it to everybody.

11 CHAIR BEACH: Yes.

12 MR. KATZ: Is that good with Loretta
13 and --

14 CHAIR BEACH: I'm going to ask. And
15 then so we're proposing leaving 11 open with the
16 viewing of the 35 data points, closing 12.
17 Loretta, are you okay with that or do you have
18 questions or comments?

19 MEMBER VALERIO: No, I'm fine with
20 that.

21 CHAIR BEACH: Okay. Jim?

22 MEMBER LOCKEY: Fine.

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1 CHAIR BEACH: Brad?

2 MEMBER CLAWSON: Good.

3 CHAIR BEACH: Okay. And I'm fine with
4 that as well, so that's out of where we're at.
5 Everybody got their notes up to date? Where are
6 we at time wise?

7 MR. KATZ: It's 1:30.

8 MR. DARNELL: If we really push we
9 might make it.

10 CHAIR BEACH: Yes, let's carry on. I
11 don't want to --- Item 14, so adequacy of post-1993
12 monitoring.

13 MR. FITZGERALD: Yes, let me tackle
14 that one.

15 CHAIR BEACH: Okay.

16 MR. FITZGERALD: Our original review
17 we noticed that the '93 cutoff point for the SEC
18 was, you know, sort of founded on some sampling of
19 case files and in discussions at the Work Group
20 meeting last year I think there was some discussion
21 that, you know, perhaps more validation was needed
22 on the cutoff date.

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1 And on the October visit that we did at
2 the site we and NIOSH went through a lot of
3 programmatic documentation and actually this time
4 we did find the documentation that tracked with
5 their coming into compliance with 835 and showing
6 what they were doing in terms of making sure the
7 monitoring programs were in place.

8 I would also add DOELAP took effect in
9 November of '92. So we interviewed the RSO, who
10 actually was there at the time, so we've got a lot
11 of data points as far as their coming to compliance
12 and tying this thing with a bow by '93.

13 So we're pretty satisfied that beyond
14 the sampling of case files there's a lot of
15 programmatic compliance records that seemed to
16 point to a rather rigorous program to assure
17 compliance at KCP by '93.

18 So I think that kind of was the missing
19 component that we were looking for, so we would
20 recommend closure of that issue.

21 CHAIR BEACH: Okay. Any discussion on
22 that? Loretta, have you had a chance to review 14

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1 and do you agree with SC&A's recommendation to
2 close?

3 MEMBER VALERIO: I have reviewed it and
4 I do agree.

5 CHAIR BEACH: Okay. Brad?

6 MEMBER CLAWSON: I agree.

7 MEMBER LOCKEY: I agree.

8 CHAIR BEACH: Okay. I also agree with
9 that, so 14 we'll call that closed. Next item is
10 15, the thorium oxide exposure potential.

11 MR. FITZGERALD: Yes, let me tackle
12 that.

13 CHAIR BEACH: Okay.

14 MR. FITZGERALD: On thorium oxide we,
15 I think we scanned the NMMSS database, which is the
16 inventory -- Pat's holding up the sheet that I made
17 notes on. I made it very imprecise, because
18 otherwise it would be classified.

19 CHAIR BEACH: Yes.

20 MR. FITZGERALD: But in any case, from
21 the NMMSS database it was clear they had what they
22 called non-alloyed thorium identified in kilogram

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1 quantities at Kansas City, which kind of raised my
2 eyebrow because I knew there would be alloyed
3 thorium, but un-alloyed thorium sort of pointed to
4 something else.

5 And that something else is what we've
6 actually rigorously looked for ever since to no
7 avail, so we got a disconnect between the inventory
8 and the operational accounts for this material.

9 We've seen laboratory quantities of
10 thorium, but we haven't seen kilogram quantities
11 that seem to be sitting there. And there may be
12 some rather straightforward explanations of that,
13 you know, you could hold thorium in a vault and
14 never have it go into operations and that could
15 account for the inventory totals.

16 However, it looks like there is some
17 stones that need to be turned over. We started
18 talking to the materials accountability people and
19 we think that may be the pathway where we can
20 establish how that got into NMMSS in the first
21 place, and we were successful at Hanford doing
22 that, but we have a new person at Kansas City so

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1 it's a little harder there.

2 But I think if we can reconcile what
3 seems to be a fairly notable entry in that database
4 to what's actually at Kansas City we can put this
5 one to bed.

6 It may just be an anomaly, but it's kind
7 of hard to ignore the kilogram quantities listing
8 for about ten years at Kansas City and, you know,
9 so far we haven't found the operational reference
10 for that.

11 So it's a matter of just kind of making
12 the accounts add up and that's the one area where
13 we haven't done so, but, you know, again, I think
14 turning to the materials accountability side of the
15 house I think we might have more luck and we'll
16 pursue that.

17 CHAIR BEACH: Not that there hasn't
18 been work done because there's two pages of NIOSH's
19 work here that tried to account for --

20 MR. McCLOSKEY: Yes, I mean I don't
21 know how precise the NMMSS kilogram quantities
22 would be, I mean when you got a half a kilogram here

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1 and a half a kilogram there, I think pretty soon
2 you're talking about kilogram quantities.

3 MR. FITZGERALD: Yes. I thought
4 though maybe this is the part we need to discuss,
5 which is they were trying not to exceed 500 grams,
6 weren't they at the lab?

7 MR. McCLOSKEY: It wouldn't have to be
8 accounted for and wouldn't --

9 MR. FITZGERALD: Right. It wouldn't
10 have to be accounted for if it was less than 500.

11 MR. McCLOSKEY: Yes.

12 DR. NETON: With the density of
13 thorium, even if it's thorium dioxide powder are
14 pretty high, so a kilogram quantity could be a
15 couple hundred milliliters which would be enough
16 to fit in a reagent bottle.

17 It might have been, you know, I'm
18 speculating, of course, but it sounds to me like
19 it's conceivable it could've been used as a reagent
20 to be used to develop calibration standards and
21 that sort of thing.

22 MR. FITZGERALD: Yes.

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1 DR. NETON: Because I mean kilogram
2 quantities you think of a lot of material but it's
3 really not. Volume wise it's a pretty small amount
4 of material.

5 MR. FITZGERALD: Yes.

6 DR. NETON: And I've worked in
7 chemistry labs where you have uranium, a kilogram
8 of uranium in a bottle on the shelf. MR.
9 FITZGERALD: And maybe it'll turn out to be a, it's
10 just a --

11 DR. NETON: Yes, we don't know.

12 MR. FITZGERALD: We don't know for
13 sure, but I think it's something that one more level
14 of look I think we'll be able to put it to bed.

15 CHAIR BEACH: Well I put it on the list
16 for a more look at at KCP for the next site visit
17 and I also think that SC&A probably should take some
18 time to digest --

19 MR. FITZGERALD: Right. We just saw
20 --

21 CHAIR BEACH: -- what's in the matrix
22 here because we got this with not really enough time

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1 to kind of --

2 MR. FITZGERALD: It occurred to me the
3 same issue, I said well if you got these 500 gram
4 quantities, well you only have to add three or four
5 them and you got over a kilogram.

6 CHAIR BEACH: I know, I was doing the
7 same thing highlighting different --

8 MR. FITZGERALD: And the other
9 frustration is at Hanford we also worked backwards
10 from the headquarters NMMSS and got a whole lot of
11 information from what the site submitted.

12 The information comes from the site, so
13 their input stuff is where you get the details and
14 we haven't been able to do that at Kansas City yet,
15 but we haven't actually had a chance to turn that
16 rock over either.

17 So I think that we will find, one way
18 or the other we'll find that one out, just haven't
19 done so.

20 CHAIR BEACH: So the action is on SC&A
21 to, or where's --

22 MR. DARNELL: Either. Yes, we'll --

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1 This is going to be part of the next --

2 MR. FITZGERALD: Yes.

3 CHAIR BEACH: Okay, the site. So I'll
4 add that as a combined --

5 MR. FITZGERALD: I think what we'll do
6 is make a stop at materials accountability and
7 actually spend some time trying to figure out.
8 This person was new and didn't really understand
9 I think a lot of what we were trying to get.

10 MR. DARNELL: Yes, and I'll tell you,
11 Pat has been in touch with her on and off several
12 times and it's difficult because she is so new.

13 MR. McCLOSKEY: It's hard.

14 CHAIR BEACH: Yes.

15 MR. DARNELL: She's willing to give it,
16 she just --

17 MR. FITZGERALD: She doesn't know.

18 MR. DARNELL: -- doesn't know.

19 MR. FITZGERALD: It's hard.

20 CHAIR BEACH: Okay. Jim, are you in
21 agreement?

22 MEMBER LOCKEY: I am.

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1 CHAIR BEACH: Loretta, agree?

2 MEMBER VALERIO: Yes.

3 CHAIR BEACH: Thank you. Brad?

4 MEMBER CLAWSON: Yes.

5 CHAIR BEACH: Wayne, did you have
6 something on this item?

7 MR. KNOX: No.

8 CHAIR BEACH: No, okay. I wasn't
9 sure, and so that takes us to 17. Do you know what,
10 should we, 18 should be fairly quick.

11 MR. FITZGERALD: Let me talk to 17.

12 CHAIR BEACH: Let's go ahead.

13 MR. DARNELL: It's 16.

14 CHAIR BEACH: Sorry.

15 MR. FITZGERALD: Well I'm going to,
16 with the Work Group's agreement skip over 16 for
17 a second and go back to 16 afterwards.

18 CHAIR BEACH: Okay.

19 MR. FITZGERALD: Fundamentally we
20 don't have an issue on 16. You've read the White
21 Paper and, you know --

22 MR. DARNELL: Yes.

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1 CHAIR BEACH: Yes.

2 MR. DARNELL: We pretty much are in
3 agreement. We had some --

4 MR. FITZGERALD: On 17, which is D&D,
5 our issue there was that the ER acknowledges the
6 '84 and '86 D&Ds performed by Rockwell, but our
7 concern with it didn't seem like it addressed, well
8 it didn't address, but we felt were likely other
9 D&D activities over the 50, 60-year history of the
10 plant.

11 That was kind of our concern was, you
12 know, making more a complete picture of D&D at the
13 plant and we went back in June of last year to see
14 if we could find weekly activity reports and other
15 documentation that might point to these other D&Ds.

16 And I would call them small D&Ds, not
17 the major D&D in '84, '86, and I think NIOSH's
18 matrix reflects what we found, which is these other
19 instances which were small area D&Ds, equipment
20 D&Ds, and phasing out of operations D&Ds onsite,
21 and so there was a number of those going on as
22 expected.

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1 And the only question we have left, and,
2 again, I'll throw this out on the table, is that
3 are we sure that the '84, '86 D&D would envelope
4 all of the other D&D activities at the plant?

5 I think the assumption is that the
6 monitoring information out of that big D&D was, you
7 know, was bounding of those activities, but would
8 they be bounding of other D&Ds at the site as well?
9 That was kind of the question I had.

10 MR. DARNELL: Why would they need --

11 MR. FITZGERALD: Well I'm saying in
12 terms of the cleanup of the equipment, the area
13 where they took 20D and cleaned it up, you know,
14 those are the same workers that were actually the
15 workers that were running the machines and we
16 assume that they were monitored.

17 I mean how would one handle those kinds
18 of activities? Were they, you know, and this is
19 sort of a similar question we had before.

20 MR. DARNELL: Correct me if I'm wrong,
21 the big D&D had workers from Rockwell come in --

22 MR. FITZGERALD: From Rockwell come in

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1 from the outside.

2 CHAIR BEACH: Yes.

3 MR. DARNELL: -- and do the
4 decontamination and decommissioning.

5 MR. FITZGERALD: Right.

6 MR. DARNELL: It wasn't site people.

7 MR. FITZGERALD: Right.

8 MR. DARNELL: The small D&Ds, the lower
9 case D&Ds were site people.

10 MR. FITZGERALD: Were site people.

11 MR. DARNELL: They would've had to been
12 on the project and have the monitoring that were
13 required at the site for those projects, so I'm
14 missing where the D&D from Rockwell has to
15 encompass the other ones.

16 MR. FITZGERALD: The piece that I was
17 looking for was when 20D was cleaned up in the late
18 '60s were those the operators who did the cleanup?
19 I couldn't find any confirmation on who actually
20 did any of the cleanups.

21 MR. DARNELL: Yes. I don't have any
22 idea.

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1 MR. FITZGERALD: I mean I can envision
2 the operators, you know, being told well now you
3 have to wipe down the wall, but, you know, that
4 wasn't clear to me that they were in fact the folks
5 that would do all the cleanup as well.

6 MR. McCLOSKEY: So there's a memo from
7 the IH person to somebody and I think we can use
8 that document that's referenced here and see who
9 he sent the memo to, but he said, you know, this
10 is how you have to clean it, soap, water, what kind
11 of wiping, some painting involved, and then my
12 folks have to survey it when you're done.

13 MR. FITZGERALD: Yes.

14 MR. McCLOSKEY: So one shot we can take
15 it that it's to see which department he sent the
16 memo to, and I didn't really think about that when
17 I was looking at this previously.

18 MR. FITZGERALD: Well it came to mind
19 when they looked at the, Rockwell is easy because
20 they came from the outside, they cleaned up, they
21 got the monitoring data, they left.

22 These other D&Ds, if it turns out it's

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1 the operators are the same people that were in the
2 department that did the cleanup well they're
3 already monitored, so that's straightforward, but
4 I couldn't distinguish whether those were the same
5 people or not.

6 (Simultaneous speaking.)

7 MR. FITZGERALD: Certainly exposure
8 will be different if you're trying to pick apart
9 a machine and clean it down.

10 MR. McCLOSKEY: Yes. There's
11 specific instructions there for like when you go
12 into the hopper to clean out the turnings you'll
13 put a respirator on and how deep, you know --

14 MR. FITZGERALD: Yes, I saw the
15 procedures I just couldn't figure out who they're
16 talking to.

17 MR. McCLOSKEY: Oh, I'm sure it was a
18 site, I mean someone that's in the program already,
19 but --

20 MR. FITZGERALD: Well that was the
21 comment I had, but I think the listing of the D&Ds
22 that we identified in the document review is pretty

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1 complete.

2 It's a pretty good list if one can
3 establish all those workers are already monitored
4 and, you know, that's it.

5 CHAIR BEACH: So you're talking about
6 the list that --

7 (Simultaneous speaking.)

8 MR. FITZGERALD: Well, the ER right now
9 -- the only thing on D&D in the ER is '84, '86, and
10 it's Rockwell.

11 CHAIR BEACH: Yes.

12 MR. FITZGERALD: I think this last
13 review kind of identified a number of, not
14 unexpectedly, a number of cleanups that occurred
15 over the history of the plant and all I'm saying
16 if you can establish that those cleanups were done
17 by the operators, the workers that were already
18 monitored, then that monitoring encompasses
19 whatever they were exposed to, but it's not really
20 clear yet.

21 Well we just did the research that
22 showed these other D&Ds, but it's not clear who

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1 those workers were, that's pretty much it.

2 MR. McCLOSKEY: For action go find out
3 who did these lowercase D&Ds.

4 MR. FITZGERALD: The lowercase D&Ds,
5 exactly.

6 CHAIR BEACH: Yes, and then the memo.
7 So I have NIOSH doing a little bit more work there.
8 And then do you -- Maurice you were talking about
9 some D&D that happened in the later years, was that
10 considered D&D in your department?

11 (Simultaneous speaking.)

12 MR. COPELAND: In my department?

13 CHAIR BEACH: Yes. Didn't you talk to
14 us about it before lunch? No?

15 MR. COPELAND: I don't know.

16 CHAIR BEACH: So nothing on D&D,
17 nothing to add? Okay.

18 MR. KNOX: Well I have a couple of
19 things on D&D.

20 CHAIR BEACH: Okay, nothing. Jim,
21 anything from you?

22 MEMBER LOCKEY: NIOSH is going to find

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1 out whether they're the same workforce though,
2 right, that's what you're doing, yes?

3 CHAIR BEACH: Well there's a
4 disagreement between --

5 MR. DARNELL: Well, yes, it's I'm
6 trying to figure out what product we can actually
7 get for you that'll mean something.

8 Actually finding out who did the D&D as
9 far as the specific plant personnel with the state
10 of our records I can say with almost complete
11 assurance, or as Brad would say my gut will tell
12 me, that there's no way you're going to get an
13 answer.

14 So I think shooting for that might be
15 unrealistic.

16 MR. FITZGERALD: Even by talking to
17 people who were actually involved with D&D? I
18 don't know if that question was posed that way.

19 MR. DARNELL: I mean we can -- I don't
20 remember ever asking anybody who did what as far
21 as D&D goes.

22 CHAIR BEACH: I remember asking a lot

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1 about Rockwell D&D, but that's what we were focused
2 on.

3 MR. DARNELL: Yes.

4 MR. FITZGERALD: Right.

5 MR. DARNELL: But we never asked about
6 the small --

7 CHAIR BEACH: The in-house, yes.

8 MR. DARNELL: We can go back and do
9 another round of interviews, but as far as finding
10 some type of documentation I think we're on a wild
11 goose chase here.

12 Maybe we can, is there another way we
13 can get the answers that the Work Group needs?
14 Yes, no offense, I don't want to throw the towel
15 in on any issue at all, believe me, but I don't see
16 us finding anything like what you're asking for.

17 CHAIR BEACH: Okay.

18 DR. NETON: Well what about this one
19 memo that Pat just alluded to.

20 CHAIR BEACH: Yes.

21 MR. DARNELL: I'm reading it. It
22 basically says it's a report of the survey that they

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1 did and what needed to be done for D&D.

2 CHAIR BEACH: Was it a post or pre?

3 MR. DARNELL: It was a pre, October 1st
4 '64 [identifying information redacted] monitored
5 the walls, light fixtures, bus bar and piping, in
6 all of Department 217-22.

7 A radiological survey was made with a
8 PAC 3G. It gives maximum readings of 125 counts
9 per minute alpha, 0.1 mR per hour beta gamma, and
10 a [identifying information redacted], asked that
11 all walls, light fixtures, piping and other
12 equipment be wet washed and the walls painted to
13 remove or fix any loose particulate.

14 MR. McCLOSKEY: Who's he asking --

15 DR. NETON: Who's he asking to do that?
16 I mean did --

17 MR. DARNELL: It's a general --

18 CHAIR BEACH: It's not addressed to
19 anybody?

20 MR. DARNELL: Yes.

21 MR. McCLOSKEY: Who's it to up here?

22 MR. DARNELL: Just [identifying

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1 information redacted].

2 MR. McCLOSKEY: So he's from
3 department -- it's from this guy, [identifying
4 information redacted], to [identifying
5 information redacted] --

6 MR. DARNELL: It's from Industrial
7 Hygiene to the guy who did the survey saying the
8 guy who did the survey asked for this stuff to be
9 done.

10 It's a circular. You've got an IH guy
11 talking to a monitor, the guy that did the
12 monitoring, and the guy that did the monitoring in
13 the memo from the IH guy is stating that he wants
14 this other work done.

15 CHAIR BEACH: Okay. All right, so
16 what I would propose, because I know SC&A didn't
17 focus on this, your write-up in the matrix, I'd like
18 to take another look at this and the SRDBs and then
19 come back if there's any more work that we need to
20 do.

21 I mean, we can put it on the list to try
22 to track down at our site visit, but I'm having a

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1 hard time pinpointing --

2 MR. FITZGERALD: Why don't we just make
3 this pending, give us more opportunity to review
4 the list, the SRDB list --

5 CHAIR BEACH: This list here, yeah.

6 MR. FITZGERALD: -- and decide what's
7 a reasonable course.

8 CHAIR BEACH: Does that work for --

9 MR. FITZGERALD: And we'll do that in
10 concert with the Work Group and NIOSH.

11 MR. DARNELL: Yeah, I think we need to
12 really sit down and figure out what it is that we
13 need to do to answer --

14 CHAIR BEACH: And I just don't think
15 we've had time to focus on what you wrote here and
16 look at all of the SRDB numbers that you put here.
17 I know I haven't. I've read your response but I
18 haven't been able to go down back and look through
19 all of it.

20 MR. FITZGERALD: We've scanned them,
21 but, you know, again, it's been five days, six days,
22 so, you know, certainly I agree that planning this

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1 carefully so that we make good use of the time makes
2 sense.

3 MR. DARNELL: Now, based on the second
4 SRDB reference, or the second item in that SRDB,
5 there's a list of four names: [identifying
6 information redacted], people we can follow up with
7 to see.

8 CHAIR BEACH: Okay. Yeah, great.
9 And that SRDB is listed in the matrix, right?

10 MR. DARNELL: It is listed in there.

11 CHAIR BEACH: Okay.

12 MR. SHARFI: The interviews, that's
13 about it.

14 CHAIR BEACH: And then, Wayne, you said
15 you had something on -- or, Maurice -- D&D?

16 MR. COPELAND: Yeah, the department
17 that we closed up, the lab that was connected to
18 the model shop, it was directly under the model
19 shop. I would like to know myself what was I
20 cleaning up?

21 MR. McCLOSKEY: So that's in the
22 basement underneath the model shop?

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1 MR. COPELAND: Basement, no. No,
2 there aren't any basements in that building

3 CHAIR BEACH: Okay, he's trying to find
4 out what room you're talking about, what was --

5 MR. COPELAND: Directly under the
6 model shop adjacent to the cafeteria.

7 MR. McCLOSKEY: The cafeteria.

8 MR. COPELAND: On the basement level,
9 if you want to call it the basement.

10 MR. McCLOSKEY: Yeah.

11 MR. COPELAND: It's directly under
12 there and we called it the lab. Everything in
13 there was top secret. I only caretook the room.
14 I had no personnel. I would send someone down to
15 run a machine every once in a while. What they did,
16 I don't know, I didn't care, but --

17 MR. McCLOSKEY: Radioactive material?

18 MR. COPELAND: Huh?

19 MR. McCLOSKEY: Was there radioactive
20 material down there?

21 MR. COPELAND: You tell me. You tell
22 me. No, and I would like to know.

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1 (Simultaneous speaking.)

2 MR. COPELAND: When we shut that
3 department down, I was assigned no union personnel,
4 no nothing. There was two supervisors assigned to
5 clean the place up, to take the machines, stack the
6 machines, place the machines where they could be
7 shipped out, to clean up the residue and everything
8 else that was in there. I did that. So I would
9 like to know what --

10 CHAIR BEACH: Pat, do you have kind of
11 a room number or do you kind of know where that's
12 at?

13 MR. McCLOSKEY: I think so.

14 CHAIR BEACH: Okay. And, Wayne, you
15 said you had something else on D&D?

16 MR. KNOX: Yes.

17 (Simultaneous speaking.)

18 MR. COPELAND: Well, there's the model
19 shop. Right here. And it would be directly under
20 the model shop on the west side of the aisle. The
21 cafeteria is directly under the model shop on the
22 west side of the aisle. It would be the department

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1 at the end of the cafeteria directly under the model
2 shop, it's called the lab.

3 CHAIR BEACH: Okay.

4 MR. COPELAND: And you could ask the
5 ES&H director, the people assigned to ES&H, what
6 the number of the department was directly under the
7 model shop, called the lab, simply called the lab.

8 CHAIR BEACH: Okay, thank you. And
9 then, Wayne, on D&D?

10 MR. KNOX: Yeah, on D&D, of course,
11 everything focuses on the promethium-147 spill.
12 It's very dear to me since I was responsible for
13 cleaning up Building 325 after a big promethium-147
14 spill.

15 MR. McCLOSKEY: That's at Hanford,
16 right?

17 MR. KNOX: At Hanford.

18 CHAIR BEACH: Okay. So, yeah, could
19 you pertain your comments strictly to KCP so we
20 could -- please?

21 MR. KNOX: Okay, yeah. Okay. What I
22 did was to do some analysis here. That's the

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1 report I found on some contamination on boxes and
2 containers. And this sort of feeds back into what
3 Maurice was saying.

4 They were shipping material here that
5 was contaminated, or it got contaminated within
6 this facility, but they were not opening boxes
7 under the hood like they were supposed to do, and
8 apparently they were not properly surveying the
9 shipments.

10 But the old nuclear flea issue came up
11 --

12 CHAIR BEACH: Okay, so does this have
13 to do with D&D, what we're talking about right now,
14 the D&D of the different rooms? That's what we're
15 looking at right now.

16 MR. KNOX: Well, this was the --
17 Rockwell came in, as I recall, and performed this
18 D&D of the promethium-147 spill.

19 CHAIR BEACH: Yeah, that's very well
20 documented.

21 MR. DARNELL: Yeah, that's not exactly
22 what we're talking about.

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1 CHAIR BEACH: No, that's not. We're
2 looking at just D&D when they were finished with
3 the project, how that area was deconned and
4 decommissioned.

5 MR. SHARFI: The post-operation
6 cleanup.

7 CHAIR BEACH: Post-op, yeah. So we're
8 trying to focus just on that right now, Wayne.

9 MR. KNOX: Okay.

10 CHAIR BEACH: Okay, so hold on to this
11 for later topics. Unless you have something that
12 talks about one of these rooms that can add to the
13 D&D of one of these rooms at KCP.

14 MR. KNOX: Okay. The only comment was
15 that you can't just go in and clean up
16 promethium-147. They have nuclear fleas and it
17 will keep coming back up on you.

18 CHAIR BEACH: Okay.

19 MR. KNOX: And I have some other data
20 I will pass around.

21 CHAIR BEACH: Okay. So then you were
22 going to take on, what are we at now?

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1 MR. FITZGERALD: Yeah, I can finish the
2 last two issues, which is 18 --

3 MEMBER CLAWSON: Well, before we do
4 this, I just want to say one thing. We went down
5 to Kansas City and we're trying to tie Rockwell into
6 this thing because we've found -- there's a common
7 denominator someplace with Rockwell and actually
8 all these other sites.

9 They've got some players in this. We
10 had a whole lot of a group of people that have come
11 in there and done this D&D that really don't even
12 fall into this.

13 I just don't want us, as we're looking
14 through all this paperwork, something might come
15 up, because I'm trying to understand the
16 relationship of Rockwell to these sites,
17 especially in the early years.

18 If you remember right, in the beginning
19 of it we had a fire in Area 20, everybody was
20 assigned to a different area, Rockwell came in and
21 cleaned it up, boom.

22 MR. DARNELL: Well, we had that from an

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1 interviewee. We have yet to find any
2 documentation that Rockwell was there at any time
3 except for the D&D.

4 MR. FITZGERALD: They did pursue that
5 issue, yes.

6 MEMBER CLAWSON: You have, and I
7 understand that. And what I'm getting from you is,
8 well, because we haven't found anything it didn't
9 happen or whatever. All I am saying is we have an
10 interviewee who was actually there and actually was
11 a part of this program telling us this.

12 If we run across something with
13 Rockwell, because we've been looking at contracts
14 with them, I'd sure like to know how they end up
15 coming to these places. Because in the early years
16 it went to KCP, it's gone to Hanford, it's gone to
17 all of this. And, now, I don't know if it's because
18 they were out of Rocky Flats or that they had the
19 area of expertise, but we have a whole other group
20 of people out here that we have no data for or even
21 understand how they worked.

22 So, just in the back of our minds, keep

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1 that open, of if we run across something, because
2 it's really interesting to me that they keep
3 showing up at all these sites. There's got to be
4 a reason why.

5 MR. DARNELL: Well, is that actually,
6 though, a Work Group issue?

7 MEMBER CLAWSON: Actually, Pete, it
8 is, because if you can't tell me what happened in
9 Area 20 there with those -- because that was part
10 of Kansas City then -- you don't have any data
11 there, you don't have anything there, I think
12 you've got to --

13 MR. DARNELL: What if we tell you -- I
14 don't understand.

15 MEMBER CLAWSON: Okay.

16 MR. DARNELL: Tell you what about
17 Department 20?

18 (Simultaneous speaking.)

19 CHAIR BEACH: The clean-up of the fire.

20 MEMBER CLAWSON: Tell me about the
21 fire.

22 CHAIR BEACH: We're going to talk about

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1 that in 18.

2 MR. DARNELL: Yeah, that's coming up.

3 CHAIR BEACH: Is that okay? Hold
4 that. I think Joe's going to go back to 16. Oh no,
5 I'm sorry, you're going to go to 18 first.

6 MR. FITZGERALD: We're going to go 18
7 then 16.

8 CHAIR BEACH: Eighteen then 16, so
9 we're right there.

10 MR. FITZGERALD: Yeah. Our original
11 issue on 18 was just, you know, the accident
12 incidents, there were two that were cited in the
13 ER, the '87 erbium tritide, which we mentioned
14 earlier, and the 1989 promethium-147, which was a
15 big one.

16 Those two were cited, and no question
17 those were two fairly major incidents. But we were
18 concerned about what, you know, seemed to be a lack
19 of maybe a broader accounting of incidents that
20 fell somewhat lower than those but still were
21 significant enough to be reported at the site.

22 And so the subject of the October 2014

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1 visit was to really start shaking the tree and see
2 if we could find a file that was a little more
3 complete, maybe more extensive on incidents and
4 accidents during the operational history of the
5 plant from the '50s, and we didn't find everything
6 we wanted.

7 I mean, the weekly activity reports we
8 were hoping would be a real source and we only found
9 a rather narrow range of those. But we did find
10 a number of radiation incident documents, a folder
11 for '63 through '75 that was pretty extensive, it
12 had I think a fair number of incidents reported.

13 So I think it's a more complete listing
14 now. Whether it's as complete as it could be we
15 don't know at this point, but it's much more
16 complete than it was before. There's nothing that
17 has come out yet that approaches a major release,
18 a major exposure, something that would've been
19 unusual from our standpoint.

20 So the Work Group wanted us to go back,
21 take another look and see if we could find more
22 documentation. More documentation has been

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1 found. In reviewing that, we haven't found
2 anything that would stand as a major release or a
3 major exposure sort of along the lines of
4 promethium-147, something in that universe.

5 It would have been better to find more
6 weekly activity reports than we did, but, you know
7 --

8 MR. DARNELL: And we're still going to
9 look for them.

10 MR. FITZGERALD: We'll still look for
11 them, so it's up the Work Group. I mean, it's just
12 sort of a work in progress. It's a much better
13 listing than it was before. Whether it could be
14 better, it's possible that we might be able to find
15 some more information at the site. So that's kind
16 of where that stands.

17 MR. DARNELL: Hey, Brad, just to let
18 you know, on SRDB Reference 123895, Page 45, a
19 beautiful memo discussing not only who was at the
20 fire, what monitoring was done, results of the
21 monitoring, what medical personnel responded, what
22 IH personnel responded, urinalysis, yeah, the

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1 whole bit.

2 MR. FITZGERALD: That was 123895?

3 MR. DARNELL: 123895, Page 45.

4 MR. McCLOSKEY: They even went up on
5 the roof and checked to see what bypassed the
6 ventilation system and would've been --

7 MR. DARNELL: Yes.

8 CHAIR BEACH: And I know SC&A was
9 recommending closure of this one, but I would like
10 to leave this one open pending the Work Group to
11 have time to look at all of these and feel
12 comfortable with the list that you guys put in here.

13 That's what I think, because, again, I
14 scanned this, but I didn't have time to read all
15 the SRDBs.

16 MR. DARNELL: Sure. There's no way
17 you could get --

18 CHAIR BEACH: I was focusing on a
19 couple and this wasn't one of them.

20 MR. DARNELL: But I just wanted to
21 point that out to Brad because he's very interested
22 in it.

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1 CHAIR BEACH: No, I agree, I'm glad you
2 did.

3 MR. McCLOSKEY: Is that the fire, Brad?
4 '63, is that the --

5 MR. DARNELL: That's the one you're
6 worried about?

7 MEMBER CLAWSON: I'll need to take a
8 look at the report of this because I'm trying to
9 think --

10 CHAIR BEACH: Okay.

11 MEMBER CLAWSON: I'm trying to think of
12 that interview. But the point that, the part that
13 bothers me is that we have this whole other outside
14 group that comes in. It's like they just ride in
15 on their white horse and then leave. We have no
16 idea of what --

17 MR. McCLOSKEY: I can see perfect sense
18 why KCP used them for the promethium spill, because
19 they were just there for their major D&D from '84
20 to '86, right.

21 They were just, they have a good
22 relationship with the site, they're their client,

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1 and so they're still writing the report for the D&D
2 and then they have a promethium spill.

3 So they had a relationship. So that
4 makes sense to call, you got my number on speed
5 dial, you know.

6 MEMBER CLAWSON: I understand that
7 one. I just have a hard time understanding,
8 because this goes clear back into the early years.

9 MR. FITZGERALD: Keep in mind that the
10 Albuquerque Operations Office had the weapons
11 program, had Kansas City, Rocky Flats, Sandia, Los
12 Alamos, all of them were under the Albuquerque
13 umbrella. So it's not overly surprising that, you
14 know, perhaps with that influence that Rockwell may
15 have made the stops within the Albuquerque complex
16 because they were all sort of this one weapons
17 family.

18 MR. McCLOSKEY: Yeah, they all need to
19 be Q-cleared.

20 MR. FITZGERALD: Right.

21 MR. McCLOSKEY: I mean, once you find
22 a D&D group that has this level of --

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1 MR. FITZGERALD: They might have been
2 the ready source of D&D for the Albuquerque weapons
3 complex, which would've been all those weapons labs
4 and the weapons plants, in which Kansas City and
5 Pinellas were actually part of.

6 MEMBER CLAWSON: So we have this whole
7 group out there, we have this group that does this
8 all over there --

9 MR. FITZGERALD: Yeah.

10 MEMBER CLAWSON: -- and we have no
11 information on them.

12 CHAIR BEACH: All right, so I put as an
13 action that we're going to continue looking for new
14 incident reports and report back to the Work Group,
15 and then give the Work Group time to review this
16 list. And we'll leave this open until the Work
17 Group convenes again. Jim, are you okay with that?

18 MEMBER LOCKEY: Yes.

19 CHAIR BEACH: Loretta?

20 MEMBER VALERIO: Yeah, Josie, would
21 you repeat that reference number of the SRDB?

22 CHAIR BEACH: Yeah. Loretta, if you

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1 look in the matrix on Page 27, it's the second
2 paragraph. It's in the 1963 fire for D22. And
3 it's listed, the reference for the SRDB and the page
4 numbers are there.

5 MEMBER VALERIO: All right.

6 CHAIR BEACH: But I would say, yeah, if
7 you have time look at all of them and just feel
8 comfortable with those and that they were covered
9 appropriately.

10 Wayne, did you have something?

11 MR. KNOX: Yes. The Dotty Troxell
12 event was a very serious one in which people,
13 particularly on the roof, would've gotten a lot of
14 exposure.

15 MR. DARNELL: Okay, Mr. Knox, we
16 covered this one with you before. We cannot
17 discuss the court case, okay?

18 MR. KNOX: The court case? The lady is
19 dead. There are no privacy rights afforded her.
20 The lady --

21 MR. DARNELL: This Working Group
22 cannot discuss the litigation. We have gone

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1 through this --

2 MR. KNOX: It's not the litigation,
3 it's the exposure. She ended up with cataracts in
4 both eyes that was internal hemorrhaging and she
5 was sent down to New Mexico to the hospital and
6 everything.

7 MR. DARNELL: I'm going to give you a
8 website. May I suggest that you go actually learn
9 what the Troxell case was about before you come back
10 here, okay?

11 MR. KNOX: Okay.

12 MR. DARNELL: I'll write it down for
13 you. We've discussed this before. We covered
14 this in the last Working Group meeting with you.

15 CHAIR BEACH: Okay, so while you do
16 that, Pete, we're going to start on 16 --

17 MR. FITZGERALD: Just to wrap up the
18 matrix, it's the last item.

19 CHAIR BEACH: The last item on the
20 matrix.

21 MR. FITZGERALD: And then we can turn
22 this over for petitioner discussion.

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1 CHAIR BEACH: Yes.

2 MR. FITZGERALD: This one, we did
3 submit the White Paper last, I think it was July
4 or August, and fundamentally we found no fault with
5 the approach and felt it was conservative and
6 bounding, as well as for the residual period in
7 terms of TBD-6000. So the conclusion is that we
8 really did not have any issues per se.

9 Now, the only proviso was that, you
10 know, there weren't other operations. This is
11 really a TBD-6000 proviso. There were no other
12 operations, rad operations, going on at the same
13 time that, you now, would confound to the
14 application of TBD-6000.

15 We're not aware of any, and we think the
16 rad mapping will help, you know, ensure that
17 nothing like that was happening in the '50s. We're
18 not aware of any other operations, so, frankly, we
19 would recommend closure of that particular issue.

20 The specific comments that were
21 provided in your latest response we had no problem
22 with. I think that certainly they're all well

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1 taken and we find acceptable.

2 So unless the Work Group has any
3 particular questions or issues on that particular
4 White Paper from last year, we're okay with the
5 natural uranium in the '50s.

6 CHAIR BEACH: Okay. For me, because
7 we did want to look at the mapping and we are short
8 of time, I, again, would like to hold this one open
9 until the next Work Group meeting. And then I'd
10 like to go through and look at the mapping, maybe
11 not as part of this meeting, but just as we close.

12 MR. McCLOSKEY: You could probably
13 take that. I could roll it up and you could take
14 it with you and they do FedEx shipping around the
15 country, if that would help you.

16 CHAIR BEACH: Perfect. Yeah, I was
17 going to take a picture but I just haven't got to
18 that point yet.

19 MR. McCLOSKEY: And I'll have a
20 discussion with you afterwards, give you an
21 orientation to help you.

22 CHAIR BEACH: Okay. And then, John, I

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1 just wanted to make sure that, SC&A brought up a
2 couple of points, I know there was a couple of them
3 that were okay. Did you want to provide any
4 feedback? I know Joe said you were okay, so no
5 feedback on the comments that --

6 MR. FITZGERALD: These are the four
7 specific comments that were provided, John.

8 CHAIR BEACH: And John might not be on
9 the line.

10 MR. FITZGERALD: John might not still
11 be on.

12 CHAIR BEACH: Okay. So, because of
13 those comments, I don't want to rush closing it.

14 MR. FITZGERALD: Okay.

15 CHAIR BEACH: And I know there's a
16 couple of them that don't need comments, but there
17 was a couple I thought might.

18 MR. FITZGERALD: Well, just so it's
19 clear, John did review all of those specific
20 comments, did not have any objections to those.

21 CHAIR BEACH: He was okay with them?

22 MR. FITZGERALD: He was okay with them.

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1 So, but, you know, certainly your --

2 CHAIR BEACH: Okay. For me, that's
3 just my opinion. What do you think?

4 MEMBER LOCKEY: Take your time. You
5 want to look at the map.

6 CHAIR BEACH: Yeah, I kind of want to
7 have a feel for the map and I don't -- how are you,
8 where are you --

9 (Simultaneous speaking.)

10 MEMBER CLAWSON: -- get a better
11 feeling of it.

12 CHAIR BEACH: He said I could take the
13 maps with me.

14 MR. McCLOSKEY: You're not flying out
15 tonight, right?

16 CHAIR BEACH: I am.

17 MR. McCLOSKEY: Oh.

18 (Simultaneous speaking.)

19 MR. DARNELL: We'll get them mailed to
20 you.

21 CHAIR BEACH: We'll have them at the
22 next one. Maybe there will be more time.

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1 MR. McCLOSKEY: We can mail you copies
2 if you'd like.

3 MR. DARNELL: We'll make copies and --

4 CHAIR BEACH: I'm going to take
5 pictures of them, so it's fine. I just, I think
6 I'm pretty comfortable with it, but --

7 (Simultaneous speaking.)

8 MR. DARNELL: We're still going to make
9 copies and send them to all the Work Group Members.

10 CHAIR BEACH: Perfect, let's do that
11 then. All right. So, yeah, I just don't want to
12 rush closing stuff if I'm -- I agree with it, but
13 I want to have time to look at the areas.

14 So, that is done. Actions, we'll do
15 the same thing we always do. I'll either send a
16 list out or, I don't know, I was capturing most of
17 them, send it around and --

18 MR. FITZGERALD: We'll send it around
19 like we usually do and make sure everybody's on
20 board.

21 CHAIR BEACH: Like you usually do,
22 okay. Now, before we get to petitioners, do you

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1 have some dates in mind for a site visit?

2 MR. DARNELL: Actually, if we want to
3 have Pat, it needs to be very much sooner rather
4 than later. He's got some stuff coming up in
5 March.

6 CHAIR BEACH: Okay.

7 MR. DARNELL: Personally, I want Pat
8 there, but I don't think we absolutely need his
9 presence, because we're doing so much in looking
10 through boxes. So the timeframe can be pretty much
11 open.

12 CHAIR BEACH: Okay. Do you want to
13 just send around some dates and we'll do it that
14 way?

15 MR. DARNELL: Well, I was just thinking
16 the second week of February.

17 MR. McCLOSKEY: It starts with the 8th.

18 MR. DARNELL: Yeah, it would be the
19 week of February 8th.

20 MR. FITZGERALD: Do you think the site
21 can host us that soon? That's usually the
22 determiner.

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1 MR. DARNELL: I'm not sure, but if we
2 come in with a date that's, what, three weeks from
3 now?

4 MR. FITZGERALD: Right, three weeks.

5 CHAIR BEACH: How many days are you
6 talking?

7 MR. McCLOSKEY: We have to put together
8 a list.

9 MR. DARNELL: They already have Tier 3,
10 Tier 4 boxes pulled for us.

11 MR. McCLOSKEY: Well, we've added some
12 words to the search.

13 CHAIR BEACH: Yeah, I'd rather wait
14 till the last week of February.

15 MR. DARNELL: The last week of
16 February, okay.

17 CHAIR BEACH: Would that work?

18 MR. DARNELL: That works for me.

19 CHAIR BEACH: Okay. I have a wedding
20 I'm planning on the 14th and I would really rather
21 not go the week before that, and I would like to
22 go. So let's shoot for the last week if we could.

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1 Does that ace you out, Pat?

2 MR. McCLOSKEY: I have to look at my
3 budget plan for delivering another ER on another
4 site and see how long I can be away.

5 CHAIR BEACH: Okay. All right. And
6 the next Work Group meeting, we'll send around
7 dates after that. I think I will report to the full
8 Board in March, regardless of what we do, with just
9 what we've done so far, what we've closed, and where
10 we're headed. So, we'll do that.

11 MR. KATZ: So maybe I'll send around
12 -- to try to schedule no matter what since we know
13 when the Board meeting is at the end of March --
14 maybe I'll send out for sort of two weeks before
15 that, those two weeks, available dates for another
16 Work Group meeting?

17 MR. DARNELL: If we pick up anything at
18 all we have to have time to review it before we have
19 the next meeting.

20 MR. KATZ: You will not?

21 MR. DARNELL: Yeah. Not in that short
22 timeframe.

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1 MR. KATZ: Oh, okay.

2 CHAIR BEACH: We can still report out
3 where we're at without having another Work Group
4 meeting.

5 MR. KATZ: Okay.

6 MR. DARNELL: If we pick up stuff at the
7 end of February, we're looking at the earliest the
8 end of March before we'll get it from the site.

9 MR. KATZ: Oh, I see, okay.

10 CHAIR BEACH: Okay. So, Maurice, I
11 wanted to give you a few minutes for petitioner
12 issues or your personal issues to address the Work
13 Group.

14 MR. COPELAND: Yeah, I'll think I'll
15 send an email out. It was an incident, of course,
16 we all know about.

17 CHAIR BEACH: If you send it to Ted, he
18 will make sure that we all get it.

19 MR. COPELAND: Well, it had the
20 question that I'm going to ask now, so I'll read
21 it.

22 CHAIR BEACH: Oh, okay.

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1 MR. COPELAND: And I'm sure that
2 everybody is familiar with the incident of where
3 I received a package.

4 MR. DARNELL: Yes, sir.

5 MR. COPELAND: Okay. It seems to be,
6 and this was an incident of exposure to some type
7 of radioactive device, right?

8 MR. DARNELL: Well, you --

9 MR. COPELAND: Okay. I guess I don't
10 know when we can't get an answer, it's either yes
11 or no.

12 MR. DARNELL: We have no records that
13 have shown, that for any unusual event, that a
14 package showed up like that on anybody's --

15 MR. COPELAND: You have no records?

16 MR. DARNELL: We have no records of it.

17 MR. COPELAND: Okay.

18 MR. DARNELL: We have records of other
19 packages that we've discussed before about how
20 things changed with the way things were shipping.
21 NIOSH views those as two separate things.

22 MR. COPELAND: My concern with those

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1 records, if you have nothing that you found
2 nothing, it's very strange how you can do any type
3 of investigation when the person that was directly
4 involved in this incident is [identifying
5 information redacted]. He was the [identifying
6 information redacted] at the time that this --

7 MR. DARNELL: We have sent to the
8 Kansas City Plant --

9 MR. COPELAND: I can't hear you.

10 MR. DARNELL: We have sent to the
11 Kansas City Plant asking of [identifying
12 information redacted], I forget his name --

13 MR. COPELAND: [Identifying
14 information redacted].

15 MR. DARNELL: Yeah, [identifying
16 information redacted], through the ES&H folks, we
17 have asked them to ask that question and we've got
18 no information from them.

19 MR. COPELAND: Good. Well --

20 MR. DARNELL: Excuse me, we got a
21 response that said they have no information for us,
22 make sure I got that right.

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1 MR. COPELAND: Good. So, in essence,
2 they're saying the incident did not happen. He was
3 directly involved. I gave it to him. I put it on
4 his desk. He said he would take care of it.

5 I have other witnesses to that and we
6 have other people that were exposed. Now, if you
7 can't get a simple answer from [identifying
8 information redacted], how can you be sure that the
9 information that you're getting for the dose
10 reconstruction is proper?

11 So if they're saying that this incident
12 that happened, this was 16 years ago or more --
13 well, I guess I'm fabricating all of this.

14 MR. DARNELL: Well, nobody's trying to
15 say that at all.

16 MR. COPELAND: I can't get an answer
17 after 16 -- one of the questions that you had on
18 the SEC Report, what did the employees know about
19 radiation exposure? That was number one. Yeah,
20 of course, you want to know what did the employees
21 know about exposures of radiation.

22 Look, what do I know after 16 years?

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1 You can't even make a phone call and call
2 [identifying information redacted] to get an
3 answer from him yes or no. Either the incident
4 happened --

5 MR. DARNELL: I just told you we did
6 that.

7 MR. COPELAND: Huh?

8 MR. DARNELL: I just told you we
9 contacted the --

10 MR. COPELAND: What did he say?

11 MR. DARNELL: He said there is no
12 exposure. There's no information to give on the
13 incident. He's not remembering any exposures.

14 MR. COPELAND: He's not remembering
15 that incident?

16 MR. DARNELL: It wasn't a big deal to
17 him.

18 MEMBER LOCKEY: Can I ask you a
19 question?

20 MR. COPELAND: It wasn't a big deal?

21 MEMBER LOCKEY: Does he remember the
22 incident?

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1 MR. COPELAND: He said it wasn't a big
2 deal.

3 MR. DARNELL: We pushed him about it
4 and pushed him about it and talked several times
5 to try to get him to remember.

6 MEMBER LOCKEY: So he doesn't remember
7 it, that's what he said?

8 MR. DARNELL: Doesn't really remember
9 it, doesn't -- he says he would've remembered it
10 if it was a big deal.

11 MR. COPELAND: If it was a big deal. I
12 would like to take a radioactive part and stick it
13 up someone's ass and wonder if they think it's a
14 big deal just because it was a low level deal.

15 Look, he doesn't think it was a big
16 deal. I don't think it was a big deal that the
17 train hit his ass either.

18 CHAIR BEACH: Okay, you're still on the
19 record, just so you know.

20 MR. COPELAND: Oh, yeah. I don't
21 care.

22 MR. DARNELL: I apologize if this is --

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1 MR. COPELAND: But, look, it's me, it's
2 me and my body and we want to know about the people
3 who worked at Bendix and the exposures of
4 radiation.

5 Do you think it's any big deal that
6 we're going through this process to find out if
7 anybody was injured because of this? Do you think
8 it's any big deal?

9 I think it's a big deal on the radiation
10 exposure that I had and I think it's a very big deal
11 that I cannot get an answer after 16 years and now
12 I'm hearing that the guy that was directly involved
13 doesn't think it was a big deal.

14 He can't remember, and I have five or
15 six witnesses, plus we have other people that were
16 exposed to this stuff that have not been told.

17 MR. DARNELL: I will glad to query him
18 again.

19 MR. COPELAND: What?

20 MR. DARNELL: I will be glad to
21 question him again when we go down there. I'll
22 make an appointment to talk to him directly

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1 face-to-face.

2 MR. COPELAND: Make an appointment for
3 me and him.

4 MR. DARNELL: I doubt he'll see you for
5 all the other reasons.

6 MR. COPELAND: He has asked to see me.

7 MR. DARNELL: Well, okay, that's --

8 MR. SHARFI: You can ask.

9 MR. DARNELL: I will be glad to go down
10 there and I will make you this promise, I will ask
11 him directly face-to-face instead of going through
12 the groups that we usually go through, because
13 that's our standard operating procedure.

14 I am so sorry that this information has
15 made you angry that they're not thinking that this
16 is a big deal. I really am sorry that you're angry
17 about that. I will go and --

18 MR. COPELAND: Wouldn't you be angry
19 about it?

20 MR. DARNELL: My level of education and
21 expertise in this --

22 MR. COPELAND: Oh.

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1 MR. DARNELL: Now, listen to the whole
2 response. My level of education and expertise in
3 this field, if I got that response, I wouldn't think
4 twice about it, because of the experience I have
5 with it and my knowledge in radiation, okay?

6 Your experiences and expertise are much
7 different than mine, so I wouldn't expect you to
8 know the ins and outs that I know, just like I don't
9 know the ins and outs that you know.

10 So I truly value your input and truly
11 value what you have to say. I value it enough to
12 go and approach the guy again, this time directly
13 face-to-face.

14 MR. COPELAND: This time approach
15 [identifying information redacted].

16 MR. DARNELL: I don't know who
17 [identifying information redacted] is.

18 MR. COPELAND: I'm giving you her name.
19 She worked for him, also, and she's one of the
20 people that handled the device first.

21 CHAIR BEACH: Maurice, have you been
22 assigned any dose for this incident, do you know?

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1 MR. COPELAND: No, I haven't had any,
2 but isn't it -- from what I'm understanding, the
3 incident did not happen. If the incident had
4 happened, it would be a procedure, a written
5 procedure, in your records of what's to take place
6 afterwards. I should be examined. I should be
7 told what the source of the radiation was. So,
8 evidently -- also the [identifying information
9 redacted], I can give you ten names, but I'm not
10 going to give you all the names, I'm going to tell
11 the people themselves, because they remember the
12 incident.

13 They will remember the incident and
14 I'll let them know that they haven't been told. And
15 a couple of the people are dead, so, you know, I'll
16 tell their families so that they can start
17 inquiring about and he can tell them that it's no
18 big thing.

19 MR. KATZ: Although just what I heard
20 Pete say is that he doesn't recall the incident and
21 he's assuming it's no big deal because he doesn't
22 recall it. It's not the same as him telling you

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1 it was no big deal. It's just --

2 MR. COPELAND: Him not recalling the
3 incident means that after the incident happened he
4 did not follow the procedure.

5 MR. KATZ: Or he just doesn't remember
6 all of it, which is also possible many years later,
7 right? I mean, he may just not remember it, right?

8 MR. DARNELL: Mr. Copeland, do you have
9 a --

10 MR. COPELAND: That's not true. I
11 questioned this incident for years, so how can he
12 not recall when I kept questioning this for years.

13 MR. KATZ: Okay, I see. I didn't know
14 that history.

15 MR. COPELAND: We know what happened,
16 they screwed up and they did not follow the process.
17 What incident takes place after a radiation
18 exposure? What happens? What does ES&H, what do
19 the atomic people tell people to do after an
20 exposure incident?

21 CHAIR BEACH: Document it.

22 MR. COPELAND: Document it.

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1 DR. NETON: It depends on what
2 happened. And I don't want to take a lot of time
3 here, but could you just briefly recount what
4 happened? I might have heard this, but I've
5 forgotten exactly. The package I remember that
6 you received.

7 MR. COPELAND: A box was brought to me.
8 And the box was sealed, was closed, brought to me.

9 DR. NETON: I remember this part.

10 MR. COPELAND: I was told to look in the
11 box. I looked in the box, it was popcorn, the
12 packing material. I took some of the packing
13 material out and then there was a device in the box.
14 And it wasn't a small device like someone put in
15 there. I don't know what you consider small as
16 compared to what. I took the device out, looked
17 at it, I sat it down. The young lady told me you're
18 not through yet.

19 I took the rest of the popcorn out of
20 the box and there was a red tag, a red label in there
21 that says "radioactive material inside." Well,
22 that's not a good thing to do, I don't think.

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1 So I looked at it, radioactive material
2 inside, thank you very much. Check this out, I
3 passed it around to a lot of different people. I
4 said, what are we going to do?

5 CHAIR BEACH: So it was a source? Was
6 it a source, a sealed source? Did you --

7 MR. DARNELL: He didn't know what it
8 was.

9 CHAIR BEACH: I was just asking if you
10 determined -- did you determine what it was? Was
11 it a source or --

12 MR. COPELAND: A source? It was a --

13 MR. SHARFI: Was it a solid material?

14 MR. COPELAND: It was a device --

15 MR. SHARFI: Without getting too much
16 into --

17 MR. COPELAND: Yes. It was a solid
18 material.

19 MR. SHARFI: I don't want to get too
20 much in describing it --

21 MR. COPELAND: Okay. I kept it
22 overnight. We kept it overnight in the

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1 department. And the next day I took it to
2 [identifying information redacted], to his desk.
3 I sat it on his desk. I told him to do the same
4 thing, open the box.

5 He opened the box and went through the
6 same process, got it, looked at it, put it back in,
7 and said "I'll take care of it." That's it, "I'll
8 take care of it."

9 DR. NETON: No one did any surveys on
10 this? You don't know if it was emitting any
11 radioactive material at all? You have no idea what
12 was --

13 MR. COPELAND: I'm telling you nothing
14 came to me after that day.

15 DR. NETON: Well, you no knowledge if
16 this actually had any radioactive material it was
17 emitting or anything like that? You're just going
18 on the fact it said "radioactive material," you
19 believe you were exposed?

20 MR. COPELAND: Yes, right. Right.

21 MR. SHARFI: Were you badged? Were
22 you wearing an external badge the entire time?

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1 MR. COPELAND: No.

2 MR. McCLOSKEY: So you kept it in the
3 department overnight. Which department was that,
4 do you remember?

5 MR. COPELAND: Model shop.

6 MR. McCLOSKEY: Model shop, okay.

7 MR. DARNELL: Mr. Copeland, do you have
8 a claim?

9 MR. COPELAND: Do I have what?

10 MR. DARNELL: A claim with NIOSH?

11 MR. COPELAND: Yeah.

12 MR. DARNELL: Do you remember the
13 number, by any chance?

14 MR. COPELAND: No. No, that's not
15 relevant to what we're talking about.

16 MR. DARNELL: Well, I want to check to
17 see if the incident is in your report so that --

18 MR. COPELAND: Well, if he doesn't
19 recall it, evidently they didn't make a report of
20 the incident. Why would it show up?

21 DR. NETON: Did this come through the
22 mail?

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1 MR. COPELAND: Huh?

2 DR. NETON: Did this come through the
3 mail, or how did it arrive on your desk?

4 MR. COPELAND: A young lady received it
5 in her department.

6 DR. NETON: From where?

7 MR. COPELAND: She was a [identifying
8 information redacted] in the shipping department.

9 DR. NETON: So it came in through the
10 shipping department?

11 MR. COPELAND: Shipping and receiving.
12 Yeah. She was a [identifying information
13 redacted], she brought it to me because she said
14 that I would know what to do with it. And I didn't
15 know what to do with it, I took it to [identifying
16 information redacted], that knows all the
17 processes and the procedures, that seemed to have
18 followed none and it's out of his head now.

19 CHAIR BEACH: Okay.

20 MR. DARNELL: You see, one of the
21 things about radioactive material --

22 MR. COPELAND: About what?

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1 MR. DARNELL: One of the things about
2 radioactive material, I can go to the store right
3 now and --

4 MR. COPELAND: I know that. I know
5 that. Those little watches and stuff like that,
6 that's elementary.

7 CHAIR BEACH: I know you want to get
8 through this, but I have got to leave at 2:45 so
9 we only have a few minutes and I wanted to move on
10 to Wayne.

11 I know however briefly it is and I do
12 apologize for that. So, Pete, you're going to look
13 into Wayne's incident and try to give him a more
14 satisfactory answer.

15 MR. DARNELL: I'll look into it again.
16 Yes, Mr. Copeland's.

17 CHAIR BEACH: Mr. Copeland, sorry.

18 MR. KNOX: And I'm still not satisfied
19 with the development and testing of small reactors
20 at that facility. I looked at the Detroit,
21 Michigan license. It was a byproduct material
22 license that they had.

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1 CHAIR BEACH: Okay.

2 MR. KNOX: Now, if you're telling me
3 that they operated, build, and tested those
4 reactors up, there they have a problem.

5 MR. DARNELL: I'm not telling you
6 anything about reactors up there.

7 CHAIR BEACH: Before you jump into
8 that, Wayne, you sent us a list which I sent -- I
9 mean, we all looked at it and we've come to the
10 conclusion that most of the things on your list,
11 some of them we've already discussed, but we need
12 more information -- I'm going to just speak for
13 myself -- of what specific questions you are asking
14 in order for us to go through this and to get you
15 the answers that you need on this list.

16 So I don't know how NIOSH feels about
17 it, but I'm wondering if you could take some more
18 time -- some of them don't pertain to this Work
19 Group at all and we can't answer them. Some of them
20 I know Josh has sent you some answers.

21 So, for things that we have not
22 discussed that you have questions on, can you give

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1 us more details of what you're looking for, if you
2 don't mind?

3 DR. NETON: Yeah, if you ask specific
4 questions on those general areas and provided them
5 we would address them.

6 MR. KNOX: Okay.

7 CHAIR BEACH: Okay. So, you'll do
8 that for us and then --

9 MR. KNOX: Can you identify the --

10 MEMBER LOCKEY: Yeah, you need to
11 identify the ones you want --

12 (Simultaneous speaking.)

13 CHAIR BEACH: Yeah, they're all
14 general, so all of them. Maybe you can respond to
15 the ones that this Work Group -- because I think
16 one, two and three we can't answer at all.

17 MR. DARNELL: Actually, what I'll do is
18 make a response on that list once my management is
19 happy, if they are happy with it, and I'll send it
20 to the Work Group and they'll send it back down to
21 Mr. Knox.

22 CHAIR BEACH: Okay.

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1 MEMBER LOCKEY: And includes the things
2 that we can respond to and things we can't.

3 MR. DARNELL: Right.

4 CHAIR BEACH: We need just more
5 information of what you're looking for.

6 MR. DARNELL: Well, actually, this,
7 I'm not going to be responding, I'm going to be
8 asking for what kind of a clarification we need to
9 respond.

10 CHAIR BEACH: Oh, you're going to do
11 that, okay.

12 MR. DARNELL: Yeah.

13 MEMBER LOCKEY: He's going to do that
14 and then we can work with that.

15 CHAIR BEACH: Okay, then he can work
16 with that.

17 MR. DARNELL: Is that okay with you,
18 Mr. Knox?

19 MR. KNOX: Yeah.

20 CHAIR BEACH: And then let us know
21 what's not within our purview and maybe what we've
22 already discussed.

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1 And some of the answers you're not going
2 to be satisfied with, Wayne, and at some point we'll
3 have to maybe agree to disagree. Then you'll have
4 to go to other channels to get those answers.

5 MR. KNOX: Yeah.

6 CHAIR BEACH: Okay. So with that
7 said, if there's something else you want to address
8 the Work Group -- and I'll take that back because
9 some of my other stuff is on it.

10 MR. KNOX: I just want to quickly say
11 that I have generated a lot of this data here. It
12 was not meant to be dissected the way you're doing
13 it now.

14 The data that we generated was not
15 complete. It was not such that you could determine
16 accuracy from precision on anything. None of
17 those five data quality measures were able to be
18 performed with the data that we had.

19 MR. DARNELL: I'm actually glad you
20 brought up the data quality objectives. We are
21 actually not required by the EPA to follow DQOs.
22 What you're looking for with data quality and how

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1 the statistics come together is not applicable to
2 us.

3 MR. KNOX: No, I agree with that,
4 because you can't do it.

5 MR. DARNELL: Okay.

6 MR. KNOX: It completely -- you're
7 talking about completeness, which isn't their
8 quality objective.

9 MR. DARNELL: It doesn't matter
10 whether we can or cannot do it, it's not applicable.
11 Every time you bring up data quality objectives
12 you're not talking about this program, it's not
13 something that applies to this program.

14 MR. KNOX: Okay. I just want to get
15 through this one quick, because I spent a lot of
16 time doing it. I'll be over with it, about the
17 nuclear fleas here. Here is the indication of
18 nuclear fleas. Again, based upon experience, they
19 keep coming back out on you.

20 They said they were no big deal, but
21 even after you've deconned they will come back out.
22 I took that, those swipes right there, and did an

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1 analysis of them.

2 MR. DARNELL: What is this from?

3 MR. McCLOSKEY: Hanford.

4 MR. KNOX: No.

5 MR. McCLOSKEY: Oh, sorry.

6 MR. KNOX: No, that's from the
7 promethium spill that lasted over a 12-year period
8 at that plant. It was finally detected not by the
9 Kansas City people, it was detected at Sandia.
10 That material went to Mound lab and even to
11 Amersham, England.

12 MR. DARNELL: Okay. And as we
13 discussed in the last Work Group meeting with you,
14 it doesn't matter the other places it went to. The
15 only place that we are responsible for and can
16 answer to is the Kansas City Plant.

17 MR. KNOX: Okay. I agree.

18 MR. DARNELL: So you're wasting what
19 little time that you have talking about all the
20 other issues.

21 MR. KNOX: Okay. If you just take one
22 of the nuclear fleas that you identify here and do

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1 the analysis on it, based upon ICRP-68, you'll see
2 that it represents some sizeable doses.

3 One nuclear flea would produce large
4 radiation doses to the liver and other parts. And
5 it's not in -- look, if you were to just take that
6 smear that they have and do it as a technician,
7 analyze it as a technician, what I did was to
8 baseline the uranium with a Fiestaware cup. I
9 looked at the -- that was --

10 MR. DARNELL: Hey, Mr. Knox, you're
11 wasting your time talking about Fiestaware.

12 MR. KNOX: Okay.

13 MR. DARNELL: And I'm not trying to
14 interrupt you or be smart-alecky, I'm trying to
15 help you so you have more time.

16 MR. KNOX: The bottom line is that if
17 you analyze that smear it appears to be three
18 different types of alpha emitters. This is in this
19 bottom chart here.

20 One appears to be depleted uranium from
21 one. Another one, and I don't have, quite frankly,
22 a lot of confidence in the low count, but they did

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1 do it with a counter because you get odd numbers.
2 You got 121 percent alpha emitters on that shipping
3 can and we shipped plutonium in shipping cans here.

4 Now, on boxes, you see Box 7, for
5 example, it looks like that might have been a
6 combination of the promethium and samarium, its
7 daughter product, because samarium is a decay
8 product of promethium-147, but it is an alpha
9 emitter. And it suggests that you had this
10 contamination in the facility --

11 DR. NETON: What's the half-life of
12 samarium?

13 MR. KNOX: Huh?

14 DR. NETON: What's the half-life of a
15 samarium?

16 MR. KNOX: I've forgotten.

17 DR. NETON: Pretty long I think, isn't
18 it?

19 MR. KNOX: Yes, it's a long half-life.

20 DR. NETON: So it wouldn't grow in with
21 its own half-life.

22 MR. KNOX: Yes, well --

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1 DR. NETON: You'd have almost no
2 samarium there. It would be impossible.

3 MR. KNOX: Well, I don't know what it
4 is. I know that, based upon the preliminary
5 analysis, it appears as though there are three
6 different classes, if you will, of radioactive
7 material there in 1989 in this facility.

8 I know that the inhalation of one
9 nuclear flea represents some large doses, and it's
10 not to be ignored. And I know that you cannot come
11 in and clean it up. They went in and cleaned up
12 this lady's house in 45 minutes that tracked
13 promethium in there.

14 MR. DARNELL: Okay. Mr. Knox, excuse
15 me for interrupting, but we've sent you a letter
16 on this topic discussing promethium-147, what
17 NIOSH's point of view is and the dose consequence
18 from the daughter activity.

19 Again, I'm not trying to be a smart
20 aleck, I'm trying to help you get as much time for
21 your issues. This is one we've already covered,
22 so if you want to waste time on it, the answer is

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1 not going to change.

2 MR. KNOX: I'm through.

3 MR. DARNELL: Okay. Do you remember
4 receiving the letter?

5 MR. KNOX: Yes. I received it, it was
6 a lot of technical talk that I could've read out
7 of a textbook.

8 MR. DARNELL: Okay, as long as you
9 received the letter.

10 MR. KNOX: I received the letter, yes.

11 MR. DARNELL: All right. Just from
12 that point of view, this is the same data that
13 you've given us before, the same handouts that
14 you've given us before. Our comments are not going
15 to change.

16 MR. KNOX: You say that the promethium,
17 it was only promethium that was spilled. There
18 were several other leaking sources that --

19 MR. DARNELL: Again, we discussed that
20 in the letter, and you're wasting your time. If
21 you want to get to other issues -- the response to
22 this is not going to change, because there's

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1 nothing new that you've given us.

2 And, again, I'm trying to help you so
3 that you can get as many issues as you can in front
4 of Ms. Beach before she has to leave.

5 MR. KNOX: All right, okay. No, okay.

6 MR. DARNELL: Okay.

7 CHAIR BEACH: Okay, so the action at
8 this point is the list that Mr. Knox gave us, you're
9 going to go through it and send it out to the Work
10 Group and to Wayne for clarification, and what we
11 can address within the Work Group that's --

12 MR. DARNELL: Yes.

13 CHAIR BEACH: Okay, that we have not
14 addressed. Okay.

15 MR. KNOX: Okay.

16 MR. DARNELL: Was there something else
17 that you wanted to cover that was new?

18 MR. KNOX: I don't see where I'm
19 moving, so forget it.

20 MR. DARNELL: You don't see where
21 you're moving?

22 MR. KNOX: It's not worth it.

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1 MR. DARNELL: Okay.

2 MR. KNOX: The report misrepresents
3 the promethium-147 spill. It misrepresents
4 others. It ignores a lot of detailed, technical
5 data that is needed in order to properly assess the
6 exposures.

7 CHAIR BEACH: Can I make a suggestion?

8 MR. DARNELL: Go ahead.

9 CHAIR BEACH: I would like to close the
10 Work Group meeting. I know you guys are local and
11 can stay and if Wayne wants to continue maybe
12 clarifying some of his issues, that's up to you
13 guys.

14 MR. DARNELL: Sure. I would be glad to
15 discuss with you.

16 CHAIR BEACH: But if there's no
17 objection, I'd like to close the Work Group
18 meeting. Brad, are you okay with that?

19 MEMBER CLAWSON: Okay, fine.

20 CHAIR BEACH: Loretta?

21 MEMBER VALERIO: I'm fine.

22 CHAIR BEACH: Okay. Jim, you okay?

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1 MEMBER LOCKEY: Okay.

2 CHAIR BEACH: All right, so that at
3 this time we are closed. The next Work Group
4 meeting will be sometime maybe after the next Board
5 meeting. And we're going to look for some dates
6 the last of February for the site visit.

7 Okay. Thank you for all your hard work
8 in short time, again, for this rushed day. I
9 appreciate all your patience. So we'll go ahead
10 and close. Thank you.

11 (Whereupon, the above-entitled matter
12 went off the record at 2:38 p.m.)