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ADVISORY BOARD ON RADIATION AND
WORKER HEALTH

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SAVANNAH RIVER SITE (SRS) WORK GROUP

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FRIDAY
FEBRUARY 9, 2018

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The Work Group convened telephonically at 10:30 a.m., Eastern Time, Bradley P. Clawson, Chair, presiding.

PRESENT:

BRADLEY P. CLAWSON, Chair
JAMES E. LOCKEY, Member
PHILLIP SCHOFIELD, Member

ALSO PRESENT:

TED KATZ, Designated Federal Official
NANCY ADAMS, NIOSH Contractor
BOB BARTON, SC&A
RON BUCHANAN, SC&A
JOSHUA FESTER
JOE FITZGERALD, SC&A
JENNY LIN, HHS
MICHAEL MAHATHY, ORAU Team
JIM NETON, DCAS
JOHN STIVER, SC&A
TIM TAULBEE, DCAS
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Welcome and Roll Call

MR. KATZ: Welcome, everybody. This is the Advisory Board on Radiation and Worker Health. It's the Savannah River Site Work Group. And this teleconference is primarily an update and to get some direction about future work. Which we had planned to hold at the last Board meeting, but we're going to hold it soon, and this is it.

The agenda for today and the documents being presented today are all posted on the NIOSH. At the NIOSH website for this program. A portion of the website blurb, schedule the meeting, today's date. You go there and you can pull up the background documents.

You will not pull up the presentation but you'll be able to listen to it. And most of the background documents at least should be there. And what isn't there yet, which I think the documents for NIOSH, will eventually show up
there.

And this presentation that Tim is giving will also eventually show up there but it's not there right now. It hasn't been cleared I don't think.

So, and the other thing just to note up front, anyone who is not participating or speaking please mute your phones. And you press *6 to mute your phone. Please *6 again to take your phone off of mute.

Okay, let's move to roll call. We're speaking about a specific site so please read the conflict of interest.

(Roll call.)

MR. KATZ: Okay, without further ado, Brad, it's your meeting.

CHAIR CLAWSON: Well great. If I get off mute this will probably work even better.

(Laughter.)

CHAIR CLAWSON: Lockey, I'm glad that you came as fashionably late as always, but you know. It's great to have everybody here.
So, I'm going to start this off because I'm going to be right honest, we just received all of this from Tim yesterday and I really haven't had a chance to be able to digest it yet.

But we'll turn it over to Tim and let him tell us what he's got. And unless you have anything you need to say, Joe?

MR. FITZGERALD: No. Actually, I think we're going to be listening carefully at this point. Thanks.

CHAIR CLAWSON: Okay, sounds good. So, Tim we'll turn it over to you.

Update on SRS safe work permits record

DR. TAULBEE: Okay, thanks, Brad. This is Tim Taulbee. And really, this presentation has a lot of slides but I'm not sure we're going to need to go through all of them, it depends upon what information you all want.

And so kind of the general thought here is I wanted to give you guys an update of what we learned from the Savannah River Site. As
I indicated during the December Board meeting, that we had recently come across a finding made from DOE OpenNet's Human Radiation Experiments section.

And you'll see that here, the finding made, that indicated Special Work Permits, SWP log sheets from 1952 through 1976 and 1979 to 1987 and then 1992.

And this was 383 cubic feet of records. What this came out to was about 852 boxes of records.

So when I found this, these were identified as being at the Atlanta Federal Records Center and were of interest in the 1970's and '80's, which is the time period that we were looking at.

So we, following the Board meeting we got with the Site and asked them about these records. To see what they could do.

So, December '18 we contacted the Site, we sent them the weblink with information which indicated 852 boxes of Special Work
Permits.

The end of the month, shortly after the Christmas break, SRS reported that approximately 800 of the boxes have been identified and do contain SWPs, RWPs and/or DPSOPs. I'm not sure why they included DPSOPs with that, but they did.

They also indicated that the QHCs of record began in 1991 and was used until 1997. And so what we did with this, we requested a breakdown of the boxes that contained the SWPs, the RWPs and the DPSOPs.

So that we could see which one in which year. Because the previous time period, '52 to '76, is a very large time period. And then '79 to '87 is another almost decade. And then 1992.

We sent a follow-up request the following week, first week of January. And then a second follow-up.

Because the Site did actually ask us some questions of what we were looking for, which
was based on the boxes. And what we were looking for was the year and area, primarily.

On the 16th of January, the Site came back to us and said that this was a large request and they were evaluating their resources in order to provide the information.

We offered to develop the box index as far as the areas and the years, through EDWS, if the Site can provide a box number and listing for the SWPs and RWPs.

Let's see, a couple weeks ago, January 25th, they indicated they were working on generating a box listing. And then we kept asking them, about every other day, when are we going to get this box list and so we can get this information in order to present to you.

As of last week, which would be last Friday, SRS indicated they didn't know when they can provide the box list and they'll get back to us this week. Well, on the 6th, just Tuesday of this week, they provided the box list and they indicated there were 113 boxes between 1972 and
On, let's see, on Wednesday of this week we reviewed that box list, February when they released this. They just put it on the T drive. Savannah River, they didn't actually have an ADC review when they sent it to us.

Mike Mahathy was able to jump on to their network and look up the date in EDWS and found that most of the boxes were the 1990's.

Well, as of last week, when we weren't hearing anything back from the Site, I asked Mike to go into EDWS and search for SWPs and RWPs and he found 127 boxes of records between 1972 and 1998, with the following breakdown.

There is a DDREF to them, currently, in the 1972 to 1989 time period that you can see in the boxes, from the other years. So 1990 through 1998. It looks like about an average of around 12 to 15 boxes per year type of scenario.

So this is all new information. And, Brad, I apologize for the lateness in getting this information to you, but as you can see by
these dates, we've been working on this for a
month and a half trying to get information out of
the Site. They just came through, really, on
Wednesday of this week. Any information, Tuesday
of this week, any information that we had.

So the bulk of this information was
actually generated before we got this information
from the Site. We are anticipating to get many
more boxes between '72 and '89.

Now, we've already found more boxes of
SWPs and RWPs than SRS in the initial review.
And we believe we may be able to locate more in
the 1980's.

We began to do some search, Mike did,
on Wednesday and there are others out there. But
we haven't found kind of the treasure trove yet.

We contacted SRS and provided some
additional boxes that ORAU had located and the
Site wasn't sure why they didn't show up in their
search. And they preferred for us to send
additional keywords.

So I'm not sure why the initial
records inventory, from '52 to '76, didn't identify any boxes from '75 and '76 at all. The Sites when they did their search.

In addition, the records inventory missed 1979 through 1987. In which from the Site only provided boxes of 1981 and 1986. So, something really seems amiss here. It doesn't sound quite right.

We suspect the Site only searched EDWS. We do not feel that they looked at the index, the box numbers of all 800 boxes to get those dates.

So depending upon this meeting, we can investigate more or go with the current listing that we have. There is things we can do with the current listing from the 1990's, but we can investigate this more. Depending upon whether you all want us to or not.

And again, I apologize for the lateness, but as you see from the dates, we've been frantically working on this for the past, well, definitely the last couple of weeks kind of
frantically. In the previous month we've been in constant contact with the Site trying to get this information.

So, are there any questions at this point?

CHAIR CLAWSON: Yes. So, Tim, where are these boxes supposed to be?

DR. TAULBEE: The boxes are physically onsite. Well, actually not all of them are. Most of the boxes were pulled back from the federal records center in Atlanta.

The bulk of them, from our understanding, are physically on the Site. However, there are some that are offsite in Augusta. At a holding facility that they have there. That's where they're physically located. Does that make sense?

CHAIR CLAWSON: Yes. I'm going to sum this up. So, we haven't laid hands to even know what's even in these boxes still?

We haven't been able to, I know what the paperwork says, but you know as well as I do,
a lot of places we've gone and they've said one thing and we don't have anything like that in there.

I was just, I thought for some reason you guys were able to physically put hands on a few of these boxes, make sure what we were looking for. That's --

DR. TAULBEE: No, we were looking for a listing of boxes from the Site that would have all of that information in it that we could provide to you. The Site did indicate that, did indicate, that they know where these boxes are and they do have them.

So, I mean, we could physically go and inventory them ourselves, that is a possibility. And it might clear up some of these eight year discrepancies that we're seeing.

CHAIR CLAWSON: Or, we may end up with nothing again. So, okay, go ahead.

DR. TAULBEE: Actually, I'm not sure why you said we'd end up with nothing again, I mean --
CHAIR CLAWSON: Well, okay, let's say for example, we went up to Hanford and we pulled 197 boxes and we physically went through every one of those boxes because they were saying that they had these certain things in them, we did end up with stuff. We ended up with about 18 pages of other stuff that we may have needed.

What I'm saying is, a lot of these data searches end up kind of a little bit shy. But we'll look at this as we go through and figure out where we're at.

I just, you know as well as I do that we have pulled an awful lot of boxes with no results.

DR. TAULBEE: Right.

CHAIR CLAWSON: -- don't tell till we get there.

DR. TAULBEE: I will say that I do know that a large, or a number of these boxes do contain the SWPs. In past record searches, we have pulled some boxes that were in that listing, from the best we could tell. And we did inventory
some of them.

Now, they were all SWPs in the 1960's and some in the 1950's, because the initial part of this SEC we, was the time period we were looking. We never really looked in the late 1970's.

So, I do know that some of the boxes that say SWP do contain SWPs. Now, do all 852, that I don't know.

So, I do understand now what you're saying about the Hanford data capture. That very well could be for many --

CHAIR CLAWSON: Well, it's not just Hanford it's everywhere that we have gone. But we'll talk about it and go from there. So, go ahead.

DR. Taulbee: Okay.

MR. MAHATHY: Dr. Clawson, this is Mike. I just want to say, a lot of these boxes are all EDWS and we've already looked at some of them. So, we know what's in them.

DR. Taulbee: Okay, thanks, Mike.
CHAIR CLAWSON: So you've already got them and we never got this information? Is that what you're telling me?

DR. TAULBEE: Well, that is true, Brad, because at the time period, when we were looking for, say thorium or for neutron exposures early on in this SEC evaluation, we didn't capture the whole boxes, we just tagged, yes, there is SWPs in here.

The issue with the subcontractors has come up in the last few years. It's not something that was a major issue back when we started this whole SEC evaluation.

CHAIR CLAWSON: Okay.

SRS Response Regarding Facility Evaluation Board Permits

DR. TAULBEE: So that's the one bit of news that I wanted to communicate to the Work Group.

The second news was the issue, the open issue that we're trying to resolve. And to remind everyone, Issue 1, this was from SC&A, their concern was, workers who perform work in
SRS under RWP require job-specific bioassays, have substantial and incomplete monitoring data, intakes may have occurred and missed for transient subcontractors. And may have been missed for transient subcontractors.

NIOSH was to evaluate to determine if a subset of the SRS workforce operation, Westinghouse construction, subcontractor construction, whether there was a group that predominately drops specific bioassay. And our potential needs were the Facility Evaluation Board reports. The FEB reports.

And at the time of the work, of the Advisory Board meeting in December, SRS was working on locating reports. We made the request in September of 2017 and there was initial funding issues that needed to be resolved in October. So they haven't finished this yet.

SRS has finished the search and, they conducted the search for the request for the FEB reports, they did indicate five indexes were
located in EDWS.

EDWS records indicate that the records are beyond the records retention life and have therefore been destroyed. Keep in mind the audits are not personally identified, personal exposure information, as SWPs are.

The records retention life for SWPs is 75 years whereas audit reports are typically ten years or less. So the reports that, these audit reports from the Facility Evaluation Board, as I indicated, they found them in a EDWS but the only thing that's in EDWS now is that the records have been destroyed. So those are not available.

So all of the issues where we said we would look at these Board reports that we requested and we would provide follow-up to this, we're not able to do that.

Now, there are options for us to evaluate this still. The raw records are available. From the SWPs and RWPs.

So we could use those to determine if there is a sub-population who was primarily
monitored doing job-specific bioassay. For example, identify operations, workers, construction workers and subcontractors.

Then we can review the bioassay, I can determine if the samples were missing, whether they're routine, whether they're special for cause or other job-specific. The records are available, as we indicated above, for 1990 through 1998.

So, the time period that those FEB reports cover, we do have the RWPs available just so we can go and do this. But the question is, do you want us to go and do that?

There is another option, this would be Option 2, would be for us to evaluate the transient subcontractor bioassay data and NOCTS dataset and compare that to a routine subcontractor bioassay data for a potential bias.

Now, our initial evaluation focused on 1991 to 1997 as the electronic bioassay records were available. My question to you, the Work Group, is, will this limited study be sufficient
to address the Work Group's concerns or do we need to expand back to 1972 and look at all claimant subcontractor construction trades worker data?

It would be kind of an Option 3. There is a potential issue with doing that and the issue is, the limited subcontractor work in the DuPont era, especially pre-1980, with some years having no positive bioassay for said contractors.

This packet I'm showing you here is an illustration of the number of subcontractor construction trades workers with plutonium bioassay in NOCTS. And you can see that the number of subcontractors, from 1980 through 1990, is reasonable to where we can do an evaluation.

But prior to 1990 there is very little subcontractor data. Now, the second part are the problem here is there is very little positive data.

So while we can begin to address Issue 1, associated with the monitoring, to try and do a comparison, there is just not much positive
data in order to do a comparison. So that poses
a separate problem.

All right, let me get back up here.
So I'll pause here to take any questions.

MR. BARTON: Well, Tim, this is Bob.
Do you have a sense on how many, in the NOCTS
population, would fall into the category of a
transient subcontractor versus just a regular, or
I guess more routine, working subcontractor?

And also, what would be the criteria
to determine what a transient subcontractor is
versus other subcontractors?

DR. TAULBEE: Well, my thought for
the, I don't have a feel for how many, for one
thing, Bob. I can come up with rough ideas based
upon the number of people that had employment and
then the break in employment.

That could be used to identify as a
transient subcontractor. Somebody who the
employment record has a break of a year or more
in there.

So that would be one way that we could
identify them. But I don't have a feel for how many that is. That is something that we can research and figure out.

I think I'm relatively, I think it's relatively easy to do. By just simply, because of the claimants, we have the DOL employment verification process for employment verification. So we can look to those breaks of employment.

And was there a second question in there that I forgot already? Sorry.

MR. BARTON: It was really, I think you answered both questions with that. It was really just, I mean, would it be, you're onsite for three months and then a break or is it that you have a multiple employment period?

I guess, that would have to be kind of hashed out. I didn't know if you had a certain framework in mind as to what would be a transient versus a more consistent worker at the Site.

But that might be down the road. So, that's fine.
DR. TAULBEE: Okay.

MR. KATZ: Tim, I just have one clarification. You said prior to, I thought you said prior to 1990 very little data, did you mean 1980?

DR. TAULBEE: Prior to 1980 there is very little --

MR. KATZ: Yes, okay.

DR. TAULBEE: -- subcontractors, CTWs.

MR. KATZ: Okay, I thought I heard that you actually said prior to 1990 but I could be --

MR. FITZGERALD: Yes, he said 1990, I think he meant 1980.

MR. KATZ: Okay. I just wanted that to be straight for the record. Thanks.

DR. TAULBEE: Yes, thank you. Sorry. Now, keep in mind that we don't have the SWP for that 1980 to 1990 time period.

So, all that we have at this time, we would have each individual claimant's bioassay data in that time period but we don't have any
way of getting additional people other than the claimants.

So, I guess at this point, Brad, is there a preference or thoughts on how you want us to proceed here?

MR. FITZGERALD: Tim, Joe. Just a quick question again. I thought that clarification was helpful.

So, you're saying 1980 to 1990 you really have to rely on the, what has been called the NOCTS comparison and after 1990 one could rely on the RWP, SWP, is that a fair distinction?

DR. TAULBEE: That is correct at this time, yes.

MR. FITZGERALD: Okay.

DR. TAULBEE: I do think that if we were to look at all 852 boxes and go through and then do some other variations, say work permits in EDWS, they might be able to find some additional SWP boxes. But we have not done --

MR. FITZGERALD: Particularly, I was going to say particularly for the late '80's
perhaps, when DuPont even started reaching out
and using their stuff. So you might have some
there.

DR. TAULBEE: Right.

MR. FITZGERALD: And the user NOCTS,
that's predicated on the, I guess the
clarification you were going to provide, and I
guess that's later in the presentation on the
questions that I think Bob was raising about the,
how the subs, when being compared with the
general population, something like that.

DR. TAULBEE: Right. Okay.

MR. FITZGERALD: Right.

DR. TAULBEE: I think --

MR. FITZGERALD: So there is
clarification that I think you're working on as
well.

DR. TAULBEE: Okay. Did you want me
to --

MR. FITZGERALD: Okay, thank --

DR. TAULBEE: -- Brad and come back?

CHAIR CLAWSON: Yes. Well, you know
what, I'm going to tell you something point blank, and you know I'm kind of shy, so I am not going to commit, today, until we have time to be able to evaluate and digest all that has been said to us on this.

Because, do you realize I'm a little bit wound up because we've been excited for the last four years, and I'm not casting any kind of blame or anything else like that, I know that we've had numerous battles to go through, but this is the way I'm looking at this.

This is our last-ditch effort to try to be able to take care of this and I want to make sure, if we decide on a path forward, that it is going to accomplish and it is going to do what we need to do.

So, Tim, I really just truthfully just want to tell you it will probably take a little bit for us to be able to digest this, to be able to understand what our path forward is on this. And we may have to give you our decision in a little advance because right now I just don't
want a knee-jerk reaction and spend another year out there gathering stuff and not get what we really need.

Do you understand that? I'm not trying to be rude or mean in any way but there is a lot here and we've been at this a long time.

DR. TAULBEE: I totally understand.

Would it be okay with you, at this time, if we pursue getting more information about those 852 boxes?

CHAIR CLAWSON: Yes, that's fine. We've got to be able to do that.

DR. TAULBEE: Okay.

CHAIR CLAWSON: Our thought, that's kind of what we were going to get at this, and I thought we were going to kind of have a sample of it but I see that it's the same thing, we're fighting different issues to be able to get it. So, yes, that's fine.

DR. TAULBEE: Okay. That will be within our next step to try and gather more information about those and then we'll, I totally
understand why you want to digest this more and
that is perfectly fine. And reasonable. I mean,
I know this is a lot we're throwing at you here
at this last minute here.

Okay, so moving on. Is that okay if
I go on then, Brad?

CHAIR CLAWSON: Yes.

DR. TAULBEE: Okay. And this is just
more of a recap about the coworker and why this
is so important.

In using the NOCTS data, when we
looked from '91 to '97 we found 371
subcontractors and 339 had monitoring data. Only
32 had no internal monitoring data. And of those,
only four had external monitoring data indicating
some radiological work.

So, as I've indicated during the
presentation in December, we believe the
monitoring data from these 339 workers can be
used to bound the dose for the unmonitored
workers. And again, I refer you to this
particular graphic as far as the Excel
spreadsheet showing who was monitored, who wasn't.

And say, this is where we would be trying to do it if we were doing something with the NOCTS data. Although we'd go into more details than what was presented here.

Which brings us to Issue 2, that SC&A raised. And this one is currently in abeyance to be discussed further.

And it was, RWP jobs often differed by source terms and potential exposure from routine work. Routine monitoring data should not be used as a surrogate for making RWP data.

And this is something that Bob brought up during his Board meeting, or during his presentation.

But there is a couple of things that I want to point out to the worker. It's the purpose of the job-specific bioassay sampling program, is to collect bioassay samples from workers whose routine bioassay program does not include some or all of the radionuclides present
at the work site or who were not on a routine program.

An example given by SRS was, for example, a mechanic who may routinely be sampled for plutonium enriched uranium may be assigned to work on a neptunium system. A job-specific bioassay sample for neptunium would be required to be submitted at the end of the task.

Following the Board presentations in Albuquerque, Bob and I and Joe discussed the job-specific versus routine monitoring issue. Bob indicated that he would need to see examples of routinely monitored subcontractor workers on the same RWP as those missing bioassays and presumably on job-specific monitoring.

Which leads me to this example here that I wanted to show you all. From an RWP that was collected by SC&A, and this is 1992.

The work was an upgrade to Section F for installation of frames. The location of the Hot Canyon, I believe SA stands for service area, Section F.
Adhering to the radiological protection requirements, where they wore plastic suits, coveralls, boots, gloves, shoes, covers, hood and then the dosimetry.

Now, I believe the plastic suits may be actually kind of a bubble suit. I'm not sure of that. The HP coverage was continuous and they did an, HP coverage was continuous.

The section to the right is the sign in. Section 3 for the sign in. And this one here is where the asterisk and the fine print there says, initialing pre-form verifies the worker has reviewed RWP, personal information is correct, worker is aware of radiation hazards presence and he or she understands and we're complying with radiological protection requirements set forth in the RWP.

The first person listed is the HP providing continuous coverage. The second person is the pipe fitter. This is designated in SC&A's report as Worker 100. And then the second person down is Worker 101.
These are two that SC&A has used in their evaluation. Worker 100 had bioassay, Worker 101 did not have bioassay within a year. They did several years later. In fact, I believe in 1995.

Worker designated as New-1 here was not included in the SC&A analysis, by the way, you guys did the sampling, but had bioassay within a year, and worked with both Worker 1 and Worker 2.

And that is, if you look at the sign in, sign out time periods, you can match up that in the first entry Worker 100 and New-1 went into the area from, it looks like 5 o'clock to 7:20, and then there was a break. And then Worker 2, or Worker 101 and New-1, went back into the area and worked from 8:30 to, it looks like about 10:45.

So here is an example that you were asking for, of workers working on the same RWP, some with bioassay, some without bioassay. To give you just one of limited examples we can show
at this time.

If the Work Group builds more examples like this, Option 1, that I talked about above, was a method that could provide assurance that these workers conducted work side-by-side in the same radiological environment and therefore a coworker model would be sufficient and accurate.

So, even though we don't have RWPs currently going all the way back to 1972, we do from 1990 forward, to where we could view this evaluation and provide assurance. Or if there is an issue, then we go a different direction.

So, I'll pause here. Is there any questions?

CHAIR CLAWSON: Not at this time, Tim.

DR. TAULBEE: Okay, thanks. And it was also a break for me to wet my throat here. Okay. All right.

And so, the third issue that we were to work on was based on NIOSH's comparison with the maximum possible 95th percentile dose distribution, the SRS plutonium bioassay for
DuPont construction trades workers and subcontractors.

They've helped indicate a number of years for subcontractor bioassay of two to five times higher than DuPont CTW. This corresponds with interviews from subcontractors who indicate they were called in for more contaminated work with same exposure on onsite CTWs.

And we said that we would put together a more comprehensive analysis of these data, which will include consideration of how we developed inhalation intake models under EEOICPA.

Now, one thing I want to emphasize that I really misspoke in my email, or my, in talking about contaminated work. If they were brought in to save on exposure, but that was external exposure, which was easily measured.

And once somebody hit an external dose limit, they were restricted from the area. Both internal and external.

SRS had a policy of not internally exposing anyone, to anything, other than tritium.
So, I should not have said contaminated work, I should have said high-level work, to save on external exposure. That's a more accurate statement and I apologize for that.

Regardless of that, the issue that we got, that we ran into here, for one, the two to five times higher was due to a coding effort in the 1970's. As I indicated, in correspondence in November of 2017.

We've gone back and we started looking at this in more detail, but we're having difficulty comparing DuPont construction trades workers to subcontractor trades workers because the majority of the data is below the reporting level of .1 DPA per day. These are basically non-detects. And they're censored within the individual records.

We went back to the log books and extracted raw data from the plutonium bioassay log books to get more uncensored data, which is actually below the reporting level, in order to conduct the comparison.
We went back and coded all of the subcontractor data from '74, '77, '83, '86 on a three year intervals here. 1980 actually had sufficient data for us to do a fit.

And of the 367 subcontractor bioassays that we looked at, only 28, or four percent, were above the reporting level. Basically, there is not much positive data here indicating internal exposures.

Extracting the raw data to determine their values below the reporting level enables us to fit regression models. However, statistical comparison is difficult due to the large uncertainty. And basically, what I can see so far is this is going to tend to show you no difference.

If you look at the box plots of all of these years, the 30, we selected individual years on a three year interval. What you'll see is at the top of the large box is basically the 75th percentile. The bottom of the box would be the 25th to 35th percentile with a central 50th
percent of the data.

The error bar line, looking at 1974, which is right on point one for both the DuPont construction trades and the subcontractor construction trades, that's the 95th percentile.

The circles are individual points that may be, that are configured, these are all of the data points combined. Is what we've got on here. You can see there is lots of them that are overlapping here.

So for '74 you can see they're very similar. For 1977 you can see the 95th percentile for subcontractors is lower than the DuPont construction trades workers.

The DuPont construction trades workers had a few individuals, five, that are above the 95th percentile. And for the subcontractors in '77, you got two that are above the reporting level, three that are above the 95th percentile were around .05.

In 1980 you've got a few individuals, subcontractors, four that are above the 95th
percentile, as one would expect here. With the 95th percentile is .15 versus .1 for the DuPont construction trades workers.

1983, again, you've got the 95th percentile which is .11 for DuPont construction trades workers and .1 for subcontractor construction trades workers. And that's a larger sample of the subcontractors of about 208.

1986 you got, again, about the same 95th percentile of about .12 but now you've got more individuals that are higher for the subcontractors. But again, this is a much larger sample size, 228 versus 46.

And it looks like you have one, two, three, four, five, six, seven, eight subcontractors that are higher than the 95th percentile, which is around .12.

So, this is the data that we've dealt with in trying to do this comparison. There is just not much data. There is not much exposure here in order to evaluate. To do any type of comparison.
I mean, based upon this data we can assign everybody a missed dose of really .1, which is around the 95th percentile, and both groups would be covered with that.

So, are there any thoughts or comments or questions about this?

CHAIR CLAWSON: Not at this time for me, Tim.

DR. TAULBEE: Okay. This is another one where we're not sure kind of where to go or what else to do about this, so if you all can ponder that and get back to us I would appreciate that. Thank you.

Issue 4 I believe we resolved. And so this gets us to Issue 5, and I think at this point I should turn it over to Joe. Is that acceptable?

CHAIR CLAWSON: Sure.

DR. TAULBEE: Okay.

MR. FITZGERALD: Okay. We have the two items. Ron Buchanan, are you on for the OTIB-75?

DR. BUCHANAN: Yes, I am.
MR. FITZGERALD: Do you want to just go ahead and outline that quickly?

Use of Claimant Datasets for Coworker Modeling
(OTIB 75) - SC&A memo

DR. BUCHANAN: Okay, I can do that. Okay, I didn't have any presentation because I sent this memo out, email, to everyone appropriate on January 31st.

And I'll just give you a little background. I'll just go over this briefly because you've all received it email.

So what this consisted of, OTIB-75 was the use of claimant datasets for co-worker modeling. And this was comparing the claimant data on the NOCTS to the complete dataset available at several of the Sites.

And the reason this gets involved with SRS is, and I'll explain it a little later, why this gets involved with this Work Group here. Back in 19, 2009, NIOSH issued OTIB-75 Rev. 0 and SC&A evaluated that in 2010 and they issued a review report.

I was not involved in that particular
endeavor, and they identified 13 findings. And a lot of it had to deal with Section 7, OTIB-75 concerning Savannah River Site.

And so in 2016, NIOSH issued Rev. 1 of OTIB-75 and SC&A issued a revised report of that evaluating the new Rev. in 2017 last fall. And I was involved in that SC&A's evaluation in last fall.

And what we did there was compare the new data that was presented in the Revised OTIB-75 to the old findings and see if it resolved any of them. And then the ones that didn't, passed it on.

And it was brought up at the 14th of November 2017 SR, S4 Group Meeting, that this really, OTIB-75 really wasn't intended to address stratification of SRS data in its original purpose. And this was discussed at the meeting. And so what I did is I went back and looked at this, and technically that's correct. It was not addressing SRS in particular.

And so what I did was evaluate that
situation and suggested a path forward. And so this briefed out here. And this involved the SRS Work Group, the Procedure Subcommittee and the SEC Issue Work Group.

And so I sent this email to all three of those groups at the end of January suggesting what we could do with these findings.

And I'd like to point out that finding, the essence of OTIB-75 was to look at the Y-12 uranium for, bioassays, for a certain period of time. Which they had complete datasets and then they went to a claimant data and compared it to the complete dataset to determine whether it was representative or not so to be used a claimant dataset for coworker modeling.

And they compared some uranium data for certain period of Y-12, some plutonium at Mound and some tritium data at SRS.

And what we found was, initially in 2010 we agreed with the Y-12 data statistically matched and was representative, Mound did not, and the SRS tritium data did with a caution that
it only applies to tritium who had a limited amount of time.

Now, since that time, okay, then in addition to Section 7, SC&A went into some, quite a bit of research and did some stratification, according to radionuclide job types and dates and location and such, at Savannah River Site mainly, and presented that data in our review in 2010.

Now, when we looked at the revision in 2017, we found that Mound Lab did, the Mound data did supply enough data points that did statistically represent the total database from the claimant data. And so we agreed with that.

And so where it stands at this point is that finding one had to do with Y-12, is that information was representative. We agreed with that initially.

So I guess at this, in today's criteria we would have called it an observation rather than a finding, because we agreed with it. And so we'd recommend closing that.

And then Finding 2 was Mound Lab.
Since we have the new data it does show that it is statistically valid and so we would recommend closing that.

And Finding 3, again, back in 2010, we agreed with that for the tritium data at SRS and so we, at that time, we was, agreed with NIOSH. And so that would be considered more of an observation in today's criteria.

Now, Finding 6 was really, that's just a request for more information because the brief, the Y-12 data had more but we could not find where they gave us the total number in the claimant dataset, so Finding 6 we're just asking NIOSH for that value. That one number of the total claimants in that dataset so we can evaluate that, see if that finding has been satisfied and resolved with the then dataset.

Now, that leads us to the other findings, which mainly concern the SRS. Now, Finding 7 and 8 was Y-12 and Mound Lab had concern about stratification according to radionuclide work area job title.
Which SC&A was trying to illustrate that there was some stratification. And at that
time SRS was coming to the forefront and so they
honored mainly on it.

Finding 7 and 8, 7 was with the Y-12, 8 was the Mound Lab. And these were used as
illustrative examples of stratification so we
just recommend those be closed.

And Finding 4, 5, 9, 10, 11, 12 and
13, which I was concerned with SRS, we recommend
that those be transferred to the SRS Work Group
and used, if necessary, and appropriate.

Now, these were concerned with
construction versus non-construction workers. And had looked at, was there a difference in
coworker, possible coworker data. Because of
different locations and different nuclides and
different job types.

So at this point, what we would
suggest as a path forward, is that we close
Finding 1, 2, 3, 7 and 8. And so we sent that to
the Procedures Subcommittee and we'll discuss
that the next time we meet.

And we request Finding 6 data from NIOSH and see if we can close that finding or not. And that we transfer Finding 4, 5, 9, 10, 11, 12 and 13 to the SRS Work Group and consider, there's quite a vast amount of data that SC&A did quite a bit of work up on looking at contractors and primes.

And so we would suggest that we consider that, use that information as useful. And so, that's where we're at at this time.

MR. FITZGERALD: And, Tim, you had a slide with some questions, you want to raise those? Or does that clarify that.

DR. TAULBEE: It clarifies some but I'm not sure what it is you want us to do with the data.

I mean, it seems that you're proposing to use the data in findings 4, 5, 9, 10, 11, 12, 13, that data, that evaluation predates the current coworker models. And the current coworker model has already stratified operations,
dose of construction trade.

DR. BUCHANAN: Yes, we agree. Remember, this was done almost ten years ago so, and that's why I say, if it's useful and applicable we can use it, if we don't, then we don't need those, that information and we can close out those findings.

We have, you know, whatever the correct procedure is. I'm not saying that necessarily we got to use this data, I'm just saying that I think the data that SC&A generated eight or ten years ago is more applicable to SRS then it is to OTIB-75. If needed.

DR. TAULBEE: Okay.

MR. KATZ: Okay. Then let me just throw this out, I hope. So, from a procedural standpoint I think what's to do, I think it actually may be comfortable with these assignments, that's all good in terms of work dose and procedures and long-term with SRS.

As far as these SRS items are concerned, I think Tim, you don't have to do this
right now but having heard what Jim had to say about the coworker model and Preference 1, just give this configuration and then it would be up to SC&A, I think, to make a recommendation as to whether these are ready for closure, or whether they have some applications in any of the discussions that we're having.

But that's nothing we have to settle right here on the spot.

MR. FITZGERALD: Yes. And I think this was really in response to one of the action items that came out of our last Work Group meeting which was to reconcile the discussion, OTIB-75 with 81 and trying to make some heads or tails. Because the one was a pretty early one, 2010.

So I think what Ron was trying to do is just describe where the issues came from and how relevant are they to the current SRS discussion. So, you're right, I think if there is any issue that derives from that analysis, we owe the Work Group a review and recommendation. So I think the action still stays with us.
I think this was really to clarify the discussion because we went back and forth between 75 and 81. I felt there was some confusion at the last Work Group meeting. That's where the reaction, I think, came from.

MR. KATZ: I know --

MR. FITZGERALD: So I think Ron tried to clarify that.

MR. KATZ: And I think that's excellent. I think that we --

MR. FITZGERALD: Yes.

MR. KATZ: -- and that's great. And that's a good path forward then. Yes.

MR. FITZGERALD: Yes. Yes. I think there was some confusion. And I think this was meant to at least clarify where SC&A was coming from. But that doesn't mean there's the actual finding or action for Work Group consideration.

That respond, Tim?

DR. TAULBEE: Let me get off mute.

Yes. That will be fine.

MR. FITZGERALD: Oh, okay. I'm
getting a little echo on my line, are you hearing that? It's just probably my line.

MR. KATZ: No.

MR. FITZGERALD: Okay.

MR. KATZ: No, you sound good. You sound clear.

**Missing or Incomplete Radiological Source Terms - SC&A memo**

MR. FITZGERALD: Okay, it's just on my side then. The next item that was satisfactory was the americium-241, the radiological source term issue.

And this, to me, is kind of a routine issue. We were looking at documentation related to the RWP issue. In particularly the late 1990's in terms of Westinghouse Savannah River.

And just came across documentation that identified some concern over certain source terms such as americium-241. Particularly in waste management context that were not being identified for use in the RWP.

So, we just wanted to flag that. And we mentioned that in the Work Group, and I think
the action was to clarify that more and provide
some references going back to the SRDB, which we
have done.

And I don't want to really put too
much more on that. It's just on these, and this
comes up almost every SEC we do that if you come
up with other items, you usually bring them
forward to the Work Group and to NIOSH and just
indicate that there seems to be an issue that
might have some implications for the SEC that
needs to be pursued further.

In this case, I think the most
appropriate description, there is one that Tom
LaBone gave in his interview actually. And it's
the fact that Savannah River, like other DOE
sites, were transitioning from a relatively more
static operational configuration where you're
making tritium in the reactors, you're managing
the base, you're running the canyons, to
situations where you're doing more, relatively
more D&D and waste management activities. And
that transition I think was clear at almost all
the DOE sites.

And in those cases where you may have had a pre-established procedure where source terms involved with particular operations and facilities, you get into a much more dynamic situation where the source term is grasped more complex. In some cases, not familiar to some of the operators.

And I think as we went through into the '90's, it appears that that was recognized internally in Westinghouse and there was a effort to get a hold of that. To look more comprehensively at the, what was being handled, to rely on that spec and some more analytic means in addition to professional judgment and experience to make sure that it was a accurate description.

And to come up with a, perhaps a enhanced procedure to ensure that the RWPs were in fact complete and representative to all of the facilities. Particularly the ones that were in these situations, such as D&D and waste
management.

So, that's kind of the issue that we surfaced. And I think our point was to forward this to the Work Group for NIOSH consideration in terms of whether this would have any implications for how, you know, the question of whether workers were being monitored for all the key nuclides that were of concern across the Site. Including these kinds of operations.

And again, that was at the hand off. And I know NIOSH has already looked at this to some extent based on Tim's slides.

And I think that's kind of what we were asking the Work Group to prompt, was a further look at this as to whether or not there was any implications for the complete monitor, the completeness of monitoring of workers in those operations.

That's pretty much, I think the rest of it is just simply identify the document trail that we looked at in '90, I think it was '97 through '99, that focused on this. And to make
sure that that was available to NIOSH.

Are there any questions on that?

That's pretty much it.

DR. TAULBEE: Okay. So, I guess then at this point it's up to us then to look at this further. Is that what I guess the direction is here?

MR. FITZGERALD: Yes. I mean, yes, we looked at the documentation and suggest a concern, an issue, but as far as the implications, I think we would certainly, workers would look to NIOSH to come back with an answer on that.

DR. TAULBEE: Okay. That is certainly something we can do. We do have some preliminary thoughts here but we don't really need to go through them if that is the current status. Is that acceptable, Brad, or would you like me to go through what our preliminary thoughts are on this?

CHAIR CLAWSON: No, I'd rather not just convolute everything right now. I think
that one of the biggest things is, if we do do this, I'd like to see it in writing coming back, Tim, so there is no confusion and I thought you said this. So, I'd just rather have you deal with it and send them a paper on it if you would.

DR. TAULBEE: Okay, we can do that.

MR. FITZGERALD: Yes, and I think Tim touched on this in one of his slides. One question I would have, and I'm sure NIOSH would look at it is, it looks like americium-241 was the source that was the root of some of this concern that led to some of the review.

And I guess my question would be is, is that pretty much it?

Is it pretty much isolated to that instance, that nuclide or would there be other sources that might be a problem given the sort of complexities of what was being handled in some of the operations?

In the mid to late '90's I guess. And that would be something to look at. And I think that as I look at one of the slides that seems to
be the direction that NIOSH is headed anyway.

    DR. TAULBEE: This is Tim. In our preliminary look at that, in the references that you sent over, which were helpful, the americium is the dominant one. There is the potential of cerium but in almost all instances when that's the case, americium is present as well.

That seems to be the only one that I see that's out there that is causing any concern in that standpoint.

    MR. FITZGERALD: I think that would be fine. Brad, I think that's pretty much what we wanted to do is just have that given to the Work Group and NIOSH and then get a NIOSH response as to if there is any implications for dose reconstruction.

    CHAIR CLAWSON: Okay, I understand. Thank you. Okay, it's back to you, Tim.

    DR. TAULBEE: Okay. We'll get Kevin here to pop up the pages. There's really only one more item here that I think we've got. Just a second here.
And this would be Issue 7. And this was the time frame of this monitoring gap that was then clear before 1997. And this worker cohort detected by the lack of job-specific bioassay.

And, again, due to the limited assessments in 1995 and 1997, we requested those Facility Evaluation Board reports, which I indicated earlier, have been destroyed. Or they're no longer available.

And so, in order to address this, we've got those options one, two and three again. That is, conduct the evaluation given the visual RFWPs and RWPs, try and look at those from the NOCTS data, or subcontractor NOCTS data from 1991 to 1997, or expand that to 1972.

So this one here is one that we really can't go forward unless we get some input from the Board as to which way you want to go. And I don't need to reiterate that part.

The options 1, 2 and 3. Or some other combination. If there is something else that...
SC&A sees or the Board Members here see as a way
for us to address some of these issues, we're
certainly willing to consider that and move that
direction as well. But that's kind of where we're
at with this.

In the interim here, as I indicated
before, we will track down more of the SWPs in a
full inventory of those 852 to see if there is
anything in that allotted time period. And we
will do the search in EDWS fully comprehensive so
that we can report back to the Work Group.

And then we will begin working on the
Issue 5, or I'm sorry, Issue 6, with regards to
the americium bioassay issue. And we will
provide a report to the Work Group, if that's
acceptable.

MR. BARTON: Well, this is Bob Barton,
I'll make a comment here. I guess first off,
I've never seen my name on a slide before, that
wasn't the title slide, so, you know, career
goals right.

But I think in looking over these, I
agree with Brad, we do need some time to digest them. And I think that the path going forward and seeing in what is in those 800 boxes is going to be very important.

And what we're talking about here, again, and I guess I kind of hark on this a little bit strongly when we last met up in Albuquerque, in a coworker model you want to make sure that the records for the monitor workers you have are representative of the people who you don't have records for. And that's really the question.

I mean, a coworker model at its most basic form, and you'll see this all the time in the actual records, if someone lost a badge and they were like, all right, well, what were you doing, you were working alongside this person so we're going to use that person's film badge dose and that's going to be your official dose of record.

So our concern here was, is there a group out there that was part of this job-specific program that might have been doing
something decidedly different than the monitor workforce. Whether that be the routinely monitored subcontractors, the DuPont construction trades workers or the operations.

All this data that we do have, and there is a lot of it, is it representative of those people who we don't have any monitoring data for. And that's where I think this comparison of RWPs and SWPs and looking, and let's look at them and say, to what extent do we have coverage of people who might be on an RWP, who didn't submit a job-specific bioassay but there was somebody right next to them who was monitored either routinely or they did submit their job-specific bioassay, whatever it might be.

And I think that would give us a level of confidence that we either do or do not have a group of workers out there who is not covered by the coworker model. Now, to some extent that's been done.

In Tim's latest report there was, it
came out on, I believe Tuesday, shows that. And the presentation before that, to some extent shows that too.

I think our main concern was that the state of the RWPs that we had to date was very limited. And that was kind of the status going into that Albuquerque meeting.

Now we know that there is a whole lot more data out there that we might be able to get a better level of confidence. That there is either a group of workers out there that is not monitored and we're doing something different or there is a group of workers out there that were not monitored, who are side-by-side, with the monitored workers.

So, as I look at this I think as far as whether you can construct a coworker model, it's that first option that I think it really, really clears the biggest hurdle in answering that question on whether you can reconstruct doses of those unmonitored workers.

And I think, as Tim said, it's
important to see what is actually in those 800 boxes before we start going and just capturing hundreds of thousands of pages.

So, I guess my question, after that rant is, how would we go about, besides actually physically looking in these boxes, Tim, are you saying there's a way that we can know that in Box 153 we have some RWPs from 1979 or something like that?

DR. TAULBEE: Yes, we should be able to do that. My thought here is that when we go through those boxes that we cannot identify an area or a time period, we will physically send some people to the Site to look at those boxes and index them before we would try and do any type of a sample along those lines.

One thing I wanted to emphasize here, so that everybody is clear, we can do this now for the 1990's. That the information of the 129 boxes we found in the EDWS, those can be tracked now and we can go through and look at the workforce, we can look at the job-specific and
the routine monitoring and look at those missing workers.

It's that time period of 1972 up through 1989, there is the one that we're not sure, what had been in those boxes and whether there are paperwork from that time period and the level of detail with it.

We do know, we know we can do this for the 1990's, it's that earlier time period is the problem.

MR. KATZ: I just want to ask a question of the Work Group Members. I mean, well, I guess and Tim too. But for the 1990's, Tim is saying they can already, they know they can do it, they have the boxes, they can do it.

Is there any reason to not have them go forward on that one if that's the sort of level of examination that Bob is recommending you take?

Or, I mean, I'm not trying to push this to have you decide prematurely, Brad and Work Group, I'm just saying --

CHAIR CLAWSON: Well, you know, I'm
going to be honest, Ted. We have gone so many
different directions, you know, you think over
the last seven years what we've done on this
coworker and back and forth on this, and I am
just, I'm going to be honest, I'm trying to digest
what the best route to be able to go because I
was under the understanding that the '90's, we
were still shy paperwork.

MR. KATZ: Right. But he's saying
that he actually has the paperwork to run this
evaluation for the '90's so, I mean, that part,
I mean it's questionable what comes before the
'90's but at this point he hasn't, it's just a
question of whether there's any reason for them
to sit and wait on that.

CHAIR CLAWSON: Well --

MR. KATZ: That's the question. I'm
not trying to push you to decide quickly, Brad,
but it's certainly --

CHAIR CLAWSON: I understand, but I
was just sitting there and now, now, this
information that you guys did on this last go
around, I thought it was from like '85 to '95, wasn't it? That you guys pulled for 771.

DR. Taulbee: No. We did a limited selection of 1980 to 1986. Or '81 through '86 in 773A only.

What I'm saying is, is that the RWPs are available from the 1990's forward. We have identified them, we know they are available, those can be sampled and we can go through and do everything that address Issues 1, 2 and 7.

Well actually, we can even look at Issue 6 by the way. The source term characterization issue that Joe brought up. Because there are certain areas that are dominant for americium and so those can be sampled specifically and looked into which bioassay those people were on. So that can be done at the same time.

Chair Clawson: And this is in these boxes that we're trying to recover? Or you already have --

DR. Taulbee: Yes.
CHAIR CLAWSON: -- this data all run up and everything clean?

DR. Taulbee: No, no. We had these, we have identified the boxes that contain the information. As far as a good portion of the data we do have in the 1990's in the HPAREH database.

So a lot of going through the individual records, as Joe and Ron had to do before, we don't necessarily have to do. So it's a combination of the two. But we do know the records are available.

Mr. Fitzgerald: Yes, Brad, Joe. Yes, if I can interject. I do think it does kind of bifurcate into a twofold strategy.

I do think the boxes lend themselves to resolving the issues we have in the Westinghouse era, '89 forward, where, again, the subcontractors figure more prominently.

The pre- '89 is still relevant but very clearly you're dealing with less subcontractors, fewer subcontractors in a DuPont management
system, which is a different system. They held themselves close and the operations were pretty coherent.

So I don't, I think the workers can consider this and maybe take a few days into next week, or next two weeks. But it seems like one could move ahead on the boxes and just ascertain what was there and whether this is in fact feasible and identify a little better what's in them.

And then the broader strategy could be discussed within the Work Group and maybe better guidance given over the next couple weeks or so. I mean, I think the real hard question is pre-'89. I think that one is tougher.

CHAIR CLAWSON: Also, I just, and I hate to harp on this, but what type of a time frame are we looking at, Tim? Just guesstimate. For the '90's, to be able to go pull up.

DR. TAULBEE: Well, to go capture and get the information, we can get started on it within the next few weeks I think.
But to actually combine and capture everything, I do think we are looking at about, well, the capture will probably take, will be very short. Once we get onsite I think it would be less than a month to get that information. If not quicker.

But, getting it then, I'm guessing six to nine months before we would have something out. But I think we could get it, that's my guess, I'm sorry.

CHAIR CLAWSON: So, and correct me, and any of the other Board Members chime in if you want to, like Joe is saying, the '90's isn't really the issue, I don't think that we shouldn't, we should continue on with that.

If we do have questions that come up into that era that we're able to address then to not have to go through another big data file, we're more worried, the '89 time period. So I don't see a problem with you proceeding on with that.

DR. TAULBEE: Okay, great. That helps
a lot.

CHAIR CLAWSON: Do any other Board Members have any issues or any input?

MEMBER LOCKEY: Brad, Jim Lockey. I wasn't quite clear with your statement. From what I heard Joe talk about earlier was that with D&D and the more recent years you're requesting about the coworker model and the limited RWPs.

Now, am I wrong about that, you reach out and let us know whether there are adequate number of RWPs and whether the coworker model is valid for the '90's forward. Is that correct, that's what you were saying?

MR. FITZGERALD: Yes. I think when we framed this up originally, the concern was the operations for transition from DuPont to Westinghouse and the method, the way of doing business was changing rapidly with chain reactor, restart and the influx of a lot of subcontractors, a lot of transient subcontractors. And that really was a 1990 phenomena, even though it began sort of in the
'89 time frame.

So, yes, I think this issue figures much more prominently in the '90's than it did in the DuPont era. So I think there is some basis for focusing on the RWPs to help answer that question.

MEMBER LOCKEY: Yes, I think that data from '89 on would determine whether you have adequate RWPs and whether the coworker model works or not.

MR. FITZGERALD: Yes.

MEMBER LOCKEY: And when it was given to D&D whether source terms are adequately reflected in the model. So, I think if you go, I acknowledge you go ahead and look at those boxes and answer that question.

MR. FITZGERALD: Okay.

CHAIR CLAWSON: Okay. Just so you understand, Lockey, that era from the '90's on is kind of a different one but we shouldn't be, in my eyes, we shouldn't be holding up NIOSH's continuation to assure that they have adequate
data.

Because, my problem --

MEMBER LOCKEY: Are you talking about '89 back, Brad?

CHAIR CLAWSON: Well, '89 back we still got to work but I'm talking about is the '90's forward so that they can justify that. Because we're kind of going up this side a little bit different and we should have verified our data a long time ago before we got into this.

But, do you know what it is, we're trying to work this. But, just because we've got the '90's forward being reviewed, we still have this era, this transition, the DuPont to Westinghouse era that we've still got to be able to figure out.

MEMBER LOCKEY: And that era is what, Brad, I'm on the same path as you are.

CHAIR CLAWSON: Okay, sounds good.

So, did that give you enough options there?

DR. TAULBEE: It did, Brad, thank you very much. This gives us a direction to move
forward and we will certainly get started right
away on it.

CHAIR CLAWSON: Okay. And by the way, Tim, I just wanted you to know that you've gained the John Stiver award for the most slides.

(Laughter.)

CHAIR CLAWSON: So, you're now the leader.

(Laughter.)

DR. TAULBEE: Thank you very much, I appreciate that.

CHAIR CLAWSON: Hey, it's something to try --

DR. TAULBEE: I thought it was the Tim Taulbee award?

(Laughter.)

CHAIR CLAWSON: Well, it's now going to Tim. It takes the name along with it, so --

MR. STIVER: Oh, okay.

CHAIR CLAWSON: -- so you can tell John he's off the hook.

MR. KATZ: I don't know. I don't know,
because John always goes through all his slides, Tim didn't.

(Laughter.)

CHAIR CLAWSON: Well, but the bottom line is, is there's still the capability to do it.

MR. KATZ: All right, Brad, I think we went through the agenda, Brad --

CHAIR CLAWSON: My --

(Simultaneous speaking.)

MR. KATZ: -- end of it.

Open Issues and Paths Forward

CHAIR CLAWSON: Well, I guess this is kind of a question for Joe and Bob and everything else like that. I'm going to be honest, I'm really baffled at what's available. And I know that Tim's trying to put this onto us as which way to be able to go.

So, could you review all this and could we just have kind of an email sent out and kind of, if we have to have just a technical call or something to be able to discuss our path
forward or whatever I don't have a problem with that. But I do not want to make a decision, a rash decision right now, on this path forward.

Because we're looking at a lot of time and a lot of money. And if it isn't going to buy us anything in the end, I don't want to do it.

You know, we've got a small time period here that we're looking at and if we don't, I will be honest, if we don't have the stuff we need to be able to do, I don't understand why we don't make it an SEC.

So this is what I would propose to Joe is to be able to, and Bob, to be able to review this and see if it's going to answer your questions too and go from there. Is that unreasonable?

MR. FITZGERALD: Yes. I guess I, there is one question for Tim. Would we be seeing a, maybe in a month or so, a sampling strategy or plan based on what you find in the boxes?

I mean, obviously you're going to have to figure out how best to sample what you got.
DR. Taulbee: Absolutely. I do have one quick question for you all. Of course it will get to, because it will help us in going in direction and developing a sampling plan for you all to review.

And this kind of goes up, actually let me show my desktop here so that everybody can see it. Just a second here. If it will let me. There we go.

Okay, let me --

MR. Katz: Hello?

DR. Taulbee: Yes, I'm here.

MR. Katz: Hello.

DR. Taulbee: Yes.

MR. Katz: Yes, it's there. It's there, Tim.

DR. Taulbee: Okay. And that is from a random sampling of the RWPs. From identifying areas. So we're going to identify all the areas for each of those boxes.

But do you want us to do a completely random sampling or do you want us to do more of
a selective sampling based upon, hold on, make
sure you guys can see me, sharing my pin there,
but thankfully numbers don't come up, in order to
address more of the Issue 6 group that Joe raised.

I mean, the reactors, we can sample
from there but I really don't see that there is
a big issue there with regards to tritium, that
we've already demonstrated is a very low dose.
So, would you like for us to focus the sampling
plan on fuel fabrication, separation, product
radionuclides or include the reactors?

MR. BARTON: Well, this is Bob. I
think have Joe weigh in here, but my feeling is
that I agree.

I think really the actinide areas are
going to be the areas of concern so I think maybe
not a truly random sample but I think maybe more
of a focus with, let's go ahead and look at the
actinide areas and pull, yes, we don't want to be
pulling RWPs that are clearly a job --

(Simultaneous speaking.)

CHAIR CLAWSON: Hey, Bob?
MR. BARTON: -- where --

CHAIR CLAWSON: Bob, hold on a minute.

MR. BARTON: Yes.

CHAIR CLAWSON: Somebody is on the phone.

MR. KATZ: Yes, sorry. There are some people on the phone, I think they joined fairly recently.

In any event, we can hear you and we shouldn't be, so can you please mute your phones. If you need to stay on this line then please mute your phones.

If you don't have a mute button, press *6, that will mute your phone. And then you won't be interrupting the discussion. Thank you. All right, go ahead.

MR. BARTON: Okay. Yes, this is Bob. What I was saying was I think, you know, I agree with Tim's sentiment there that it should be not a truly random sample but I think we should be focusing on really the actinide exposure areas. And clearly the americium areas I think is
important for that Item Number 6.

And also, we want to be looking at RWP. If we're going to be pulling these things, we want to look at RWPs that would have had the potential for some sort of intake. Not, you know, jobs that are clearly, that there is no potential.

Now, I don't know how specific the RWPs will be to let us delineate that. Obviously, there are things like, if there are bioassay requirements obviously that's one. If there is respiratory protection too, that's another one.

But in even things like, that are requiring like air sampling or swipe surveys, that sort of thing, might be an indicator that there's some potential.

So I think more of a focus approach rather than a truly random sample is going to be a lot more beneficial to us. Joe, I'll let you take over.

MR. FITZGERALD: Yes, I think the sampling plan would provide more targeting with
some justification why a certain operation
facility would be included. I think one of the
challenges we had was we had to live with the
very few RWPs that we actually found.

I mean, we found 13. So, clearly you
take what you get. And a lot of that was tritium.

But if we do in fact have 800 boxes,
I mean, I think that changes this by a great deal.
And certainly we can target facilities, target
operations, target time periods. I mean, this is
turning this whole thing upside down from what it
was last year.

So, certainly I would be interested in
seeing a sampling plan that would be focused on
time frame, operations and facilities where
subcontractors actually figured, during the
'90's, in a prominent way.

So this captures what those, what you
said earlier about, you have active D&D, you have
waste management operations, that kind of thing.
Maybe even a tank farm.

You're dealing with complex source
terms so you're certainly looking to see whether
or not the subs were included in the bioassay
program.

    DR. TAULBEE: Okay, this is Tim. Then
we will focus on the non-reactor areas that were
conducting D&D and other operations in that time
period. If that's acceptable? As far --

    MR. FITZGERALD: Yes.

    DR. TAULBEE: Okay. All right. That
was all the, that was the major question that I
had. Because it does affect our direction in
writing the sampling plan and so that was the, so
I appreciate that. Thank you.

    MR. FITZGERALD: And for the Work
Group's benefit, I think the analysis on the
historic tritium intake history in the '90's was
provided by, I think Tim in the Work Group meeting
I believe. So there is a background on that
subject.

    CHAIR CLAWSON: Okay.

    MR. KATZ: So, Tim, can I just
suggest, as part of this path forward, I mean,
so, Tim, I think at this point a brief memo after
the meeting on your understanding and general
path forward, whatever level you take and give
it, if you can run that by the Work Group and
SC&A.

And then it sounds like it would be
helpful, a month down the road or whatever, once
you've gotten to review the boxes and all, send
us an update at that point what you're actually
finding and so on. It seems like the Work Group
would like to know so that they have an early
sense of how productive this is likely to be
informed.

MR. FITZGERALD: Yes, Tim and Ted, in
terms of the workers, would it be useful to have
this group to get back together once Tim has had
a chance to physically review the boxes and get
some sense of what we're dealing with and going
forward what the sampling plan is likely to look
like?

I mean, that sounds like it would be
a good juncture about a month, month and a half
from now.

MR. FITZGERALD: Yes, I'm just thinking we can get an email, a paper report first, and then absolutely, there is no problem with having another Work Group meeting or however many you need. Absolutely.

MR. KATZ: So --

MR. FITZGERALD: I think --

(Simultaneous speaking.)

MR. FITZGERALD: Jim, how's that sound?

CHAIR CLAWSON: Yes, that's fine with me. I just want to make sure we have paper covering what we have discussed and what our path forward is. Because I don't want, we spent a lot of time on this and I don't want to spend a lot of resources if it wasn't what we really wanted.

MR. KATZ: Yes.

CHAIR CLAWSON: So, I agree, we need to --

MR. KATZ: That makes sense.

MEMBER LOCKEY: Joe, Jim Lockey. Can
I ask you a question, Joe?

MR. FITZGERALD: Shoot, Jim.

MEMBER LOCKEY: Yes. The 1989, pre-
1989 issue, what are, do you have any remaining
issues in that time frame that we have to address?

MR. KATZ: So, Joe, I don't know if
got it, can you hear Jim? He was asking, what
are the issues in the pre-'89, the '89 docs that
we need to address?

DR. TAULBEE: Are you asking me, Tim
or --

MR. KATZ: No, he's asking Joe.

MR. FITZGERALD: Oh, I'm sorry, I
couldn't hear very clearly on that. The issue is
one where the subcontractors did figure, before
'89, the DuPont regime.

But again, it was a different
management approach. DuPont handled the subs
pretty similar to how they handled the in-house
workers.

So, in that particular case it was a
situation of just confirming that there was not
an issue prior to the influx of subs in '89. And
I think that was the genesis of looking at 773A
the way NIOSH had done it. That was one data
point.

So, it's more confirmatory than
anything else. You have one data point that says
there is no issue. At least for 773A.

It might be an approach where we get
a couple more data points and basically write off
DuPont as having a real issue that we couldn't
handle with a coworker model, whatever data we do
have.

MEMBER LOCKEY: So, if there are boxes
pre-'89, is that something we should be
considering then, looking at that also to answer
that question?

MR. KATZ: Pretty much.

MEMBER LOCKEY: That's what I'm trying
to figure out.

MR. FITZGERALD: Yes, I think that's
one we want to discuss now that we have Tim's
proposals and options. I do think you treat the
pre-'89 DuPont era in terms of subcontractors differently than the Westinghouse post-'89. And I understand the proposal is to use the NOCTS data to do that. I just want to think about that, talk about it with my colleagues and maybe come back to the Work Group and NIOSH with either questions or a proposal or even a confirmation on the NOCTS approach.

But I think that's a little harder in terms of a path forward than the post-'89. I think post-'89 you had the RWPs and hopefully those will be able to answer the questions of a suitable sampling plan.

Pre-'89 I'm not as sure about. We certainly want to look at the NOCTS data again and decide.

And we were, this is a question for Tim, we were going to get the raw NOCTS data, I think that was something that was mentioned in the November meeting, I was wondering, will we be seeing that?

DR. TAULBEE: The raw NOCTS data for
MR. FITZGERALD: You had, you were presenting, yes, you were presenting the information that you had, the 300 data points, and I think at the meeting you were suggesting that you were going to make that available to SC&A.

DR. TAULBEE: Oh, okay, yes. Sorry, I forgot that. Yes, it's available. It's all in NOCTS.

We certainly --

MR. FITZGERALD: Yes. Well, I mean, I think your compilation.


MR. FITZGERALD: Yes. That might help us come to some kind of conclusion and recommendation as a Work Group, which is what I think Jim is indicating, can we reach closure on that pre-'89.

DR. TAULBEE: Yes. With the NOCTS data --
MEMBER LOCKEY: Joe, can you have that --

(Simultaneous speaking.)

MEMBER LOCKEY: -- can you have that to us in a month?

MR. FITZGERALD: I'm sorry, I think while NIOSH is proceeding to look at the RWPs we can look at this issue and try to get back to the Work Group in that same time frame.

MEMBER LOCKEY: I mean, I agree with Brad, it's gone on long enough. We need to identify the issues, get the plan in place and say, yes, we can solve this or no, we can't. And so I'd like to run those parallel.

MR. FITZGERALD: Yes, I think that would be a good idea.

MEMBER LOCKEY: Okay.

MR. FITZGERALD: Okay.

MEMBER LOCKEY: Is everybody good with this?

MR. BARTON: I think people might be conflating two issues here though because the
NOCTS analysis was really to show whether there was a discernable difference in the monitored worker populations. What we're talking about with the RWPs is to see if monitored workers were right besides unmonitored workers.

And I think the problem so far that we're looking at is that there just aren't that many boxes identified so far for that pre-'89 period. I think there were 11 for the '73 up through '89.

Now, I mean, 11 boxes sounds like something. And I think that it's not a lot compared to what you see in the 1990's, surely.

So, Tim, maybe you can clarify that. I think what you were saying is that there may very well be more RWPs in that earlier period to be able to do the same type of thing.

And I think what Joe is saying is, while we're not quite as concerned about that earlier period because of the different contractor, the '90's with Westinghouse is more of a concern certainly.
But that in so far as we go and get more data points beyond the 773 analyses, it sounds like there may be at least 11 boxes that could be used and possibly more.

So, I guess Tim, was that what you were saying when we were talking about the lack of data before 1989, there were only 11 or so boxes whereas we had many, many more in the '90's?

DR. TAULBEE: That is correct. I hand the question back down to Joe as far as, what data are you wanting, because the analysis we did for the NOCTS, and we presented to the Board, was '91 to '97. That had that grid of red and green with individual workers.

Are you wanting that data or are you wanting data prior to 1991?

MR. FITZGERALD: No, I think you were indicating that, that certainly the RWPs and whatnot provide a perspective for post-'90's but for pre-'89 as far as sticking to what you have. And the question is, is that good enough. And I think we just need to come to a resolution as to
what information can be used prior to the '90's and is that sufficient.

DR. TAULBEE: Right. But I'm asking, what did data did you just request from me so we can provide it.

MR. FITZGERALD: Well, I think that's part of what we got to figure out. I think what Jim is saying, we just need to reach closure on what the path is for both the '90's and pre-'90.

And I'm much more bothered by the pre-'90's because this is, you know, one hand there's less information, on the other hand there's fewer subcontractors involved and a different management system that DuPont is managing.

So, it was a much more static operational situation at Savannah River. So there is a lot of differences in the pre-'90's as opposed to '90's that I think we have to consider.

And I can see a different strategy frankly. It's just, there is just too many differences in the way things are being managed and in terms of the operations at the time. So
I can see a difference in how you approach that, this question, subcontractors, in those two time periods.

DR. TAULBEE: Okay. I understand that, but a few minutes ago you asked for me to provide data to you from the NOCTS evaluation that we did, and I'm trying to figure out which data are you asking for.

MR. FITZGERALD: Well, I think that's something we're going to have to clarify because, again, I need to go back and, all I have right now is what's been produced in the NOCTS analysis, which is the '90's, right?

DR. TAULBEE: That's correct.

MR. FITZGERALD: Yes. And we need to look at that and get back. To me that's probably the biggest question that we would have to work on for the next few weeks.

DR. TAULBEE: Okay.

MR. KATZ: So, Joe, you can just, I mean, he's asking, get your heads around this and write a number to --
MR. FITZGERALD: Yes, I think that's something that we owe. Yes.

DR. TAULBEE: Okay.

MEMBER LOCKEY: So, Joe, Jim Lockey again. So, Joe, you'll write a letter to this Work Group as well as to Tim and say, this is the data we need to look at for pre-'90's?

MR. KATZ: Or a path forward, of whatever it might be. I think they have to get their heads around this.

MR. FITZGERALD: Yes. And there may be some discussions with NIOSH. You know, I think this is not something that just surely comes out finished. It's something we need to have a discussion on too.

MR. KATZ: Yes.

MEMBER LOCKEY: Thank you.

MR. KATZ: Yes, and we can also, Joe, we can also arrange a technical call if you need to have a chat about those options with folks before you --

MR. FITZGERALD: Yes.
MR. KATZ: -- get back to the Work Group.

MR. FITZGERALD: That's kind of what I was thinking about. Yes.

MR. KATZ: Yes. And we can have Work Group Members on the technical phone too.

MR. FITZGERALD: Right.

MR. KATZ: Yes.

MEMBER LOCKEY: Ted, Jim Lockey. Where I'm trying to go with this is, I don't want, and I think Brad will agree, we want to be a little more down the line and say, oh, it's done now, we got to go get, we're pulling out other boxes pre-'90.

Is that something that you can decide in the next month that if you think your value is needed then that process could start right away rather than waiting another four or five, six months down the line. That's what I'm concerned about.

MR. FITZGERALD: Right.

DR. TAULBEE: It seems to me that it
might be appropriate to go back to the initial
issues matrix and go through, or have SC&A go
through those and highlight the ones that we need
to resolve completely for this, as a kind of
review.

And in light of all of the reports
that we put out over the past year, and kind of
look at it from that way. I think that's what
Dr. Lockey was asking for is --

MEMBER LOCKEY: Right.

DR. TAULBEE: -- what are all of the
issues, especially pre-1989, that are still out
there. Is that correct, sir?

MEMBER LOCKEY: That's correct. And
it seems like it's an easy target here, and I
don't want a moving target anymore, I want to
define, these are the issues we got to resolve
and let's get it done and put a timeline on it.
I mean, you cannot continue to move the targets
around.

DR. TAULBEE: So, Joe, are you going
to take on that task or --
MR. FITZGERALD: Yes. I think we need
to do that but I'm just saying, I'm holding open
the possibility of having some technical calls
with you and your staff just to make sure that
whatever is derived is, you know, is backed by
what information and data is available. You
know, that kind of thing.

MR. KATZ: Right.

DR. TAULBEE: I agree. That sounds
good.

MR. KATZ: Right.

DR. TAULBEE: Yes.

MR. KATZ: And Work Group members,
I'll, certainly I'll copy you if we have
technical calls and the Work Group members can
listen in too of course.

CHAIR CLAWSON: Okay, appreciate that.

MR. KATZ: Yes.

CHAIR CLAWSON: Is there any other
questions before we bring this meeting to a close
or any clarification?

We are going to kind of have a writeup
of this, correct, Joe --

MR. KATZ: Right.

CHAIR CLAWSON: -- and Jim?

MR. KATZ: Yes, you're going to get writeups both from Joe and from Tim. And Tim will run his through Joe too so we can kind of – –

MR. FITZGERALD: Right. Right, we've done it before, we'll exchange drafts and get this to a point where everyone agrees.

CHAIR CLAWSON: Okay. I just wanted to make sure. I know that sometimes we all think we understand, then until we get it in paper then we, I know we can kind of clarify that.

If there isn't anything else I believe this brings this to a close.

Adjourn

MR. KATZ: Okay, so we're adjourned and thank you everybody for all of this.

CHAIR CLAWSON: Thank you.

DR. Taulbee: Thank you everybody.

MR. KATZ: Take care.
(Whereupon, the above-entitled matter went off the record at 12:13 p.m.)