U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

CENTERS FOR DISEASE CONTROL
NATIONAL INSTITUTE FOR OCCUPATIONAL
SAFETY AND HEALTH

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ADVISORY BOARD ON RADIATION AND
WORKER HEALTH

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WORK GROUP ON BROOKHAVEN NATIONAL LAB

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TUESDAY
FEBRUARY 21, 2012

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The Work Group convened telephonically at 11:00 a.m., Eastern Standard Time, Josie Beach, Chair, presiding.

PRESENT:

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

ALSO PRESENT:

TED KATZ, Designated Federal Official
TIM ADLER, ORAU Team
STEPHANIE BOGART
RON BUCHANAN, SC&A
GRADY CALHOUN, DCAS
JASON DAVIS, DCAS
NORA DETWEILER
JOE FALCO
JOE FITZGERALD, SC&A
JIM GREEN
JENNY LIN, HHS
JOHN MAURO, SC&A
PAUL RUHTER, ORAU Team
JOHN STIVER, SC&A
DENNIS STRENGE, ORAU Team

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

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

(11:01 a.m.)

MR. KATZ: Let's get started, beginning with roll call. We're speaking about a specific site so please speak to conflict of interest, as well, and we'll begin roll call with Board Members.

(Roll call.)

Okay, very good. That does it for roll call.

Let me mention for everybody, there is an agenda for this meeting. It's on the NIOSH website under the Board section, the OCAS part of the NIOSH website under the Board section, under Meetings.

And there's also a couple documents associated with the meeting that should be there, too.

One of them is an Evaluation Report from NIOSH and the other is an issues matrix related to Site Profile issues from SC&A.

And otherwise, let's get started. Let me remind everyone on the line, please mute your phone except when you're addressing the group.

If you don't have a mute button, if you press * and then 6, that'll mute your phone for this call, and then you press * and then 6 again to take your phone off of mute.

And please do not put this call on hold at any point, but hang up and dial back in if you need to do that. And, Josie, it's your agenda.

CHAIR BEACH: Thanks, Ted. The agenda is posted as Ted said, but I'm just going to go through it very briefly for anyone that may not have it.

The main purpose of the call today is to go over the 83.14 Evaluation Report that was issued on January 6. And I think that NIOSH will take the lead on that.

Then we're going to go ahead and have public questions and comments, along with

Work Group recommendations.

When we're finished with that, I would like to go into just a brief discussion on the ER matrix to make sure that we've actually covered everything that we came up with at our last Work Group meeting. I believe it was January 21 of last year, or February, no, January.

Okay, and then the matrix for the TBD, cover those items, and then look at a path forward for the issues and possibly some tasking for SC&A. So NIOSH, Grady, if you're ready?

MR. CALHOUN: Sure. Basically what had happened is, after we had presented the previous Evaluation Report, we started into the task of evaluating where we were and looking at how firm the previously established end date of 1980 was.

And as you may or may not know, we've had some difficulty and it was just a timeliness issue of getting responses back

from Brookhaven, but they've since fixed that problem.

But during the course of getting those responses back, I started doing a, you know, I guess a little further comparison to try to find out the, to make myself feel better really about the end date.

And basically what I did is I went through and I kind of selectively took cases that had filed for our program and I looked at cases with employment only after 1980.

I went through and looked at their CATI interview to see if they said that they had been monitored for urinalysis and whatnot.

And then I went back and looked at the response that we received from Brookhaven and any other dosimetry data that was in their files.

And what really kind of gave me pause was that I initially had found a case, I want to say it was from 1989, and what happened is Brookhaven reported that the

individual wasn't monitored.

But we had captured monitoring data for that individual, so that gave me a little bit of a reason to look into this a little bit deeper.

From this smaller subset of individuals who worked after 1980, I found at least two more cases that were pretty much the same, that Brookhaven reported that the individual wasn't monitored but we had data.

You know, you might initially think that, well, we have data so that's all good, but there's no way that we can claim that we've captured every bit of data on that site. As a matter of fact, we know we haven't.

So we had to go back and look through, really it was just a complete re-look again and try to find some indication as to when we felt that we were getting adequate dosimetry records back.

This has never been a problem with

external records, external dosimetry. This has only been a problem with internal dosimetry results.

So basically we went back through, looked at some of the programmatic issues or documents that were in place and we came up with, I haven't found anything post-1989 where that type of discrepancy exists.

But I had to find something that was indicative of a change that was made or some kind of vote of confidence in the program documentation or documentation program at Brookhaven, so we found that there were some additional documents out there.

As a matter of fact, there was an audit that was done in December of '93, at least published in December of '93, that stated that Brookhaven was in compliance with their internal and external dosimetry program as well as their records retention program so that really is one of the primary drivers for the end date of 1993.

Now one thing I'll just mention is we've never really thought that Brookhaven had a poor RadCon program.

It seems that they've always had monitoring there and it was done at a high level. Some of it was incident-driven. Some of it was routine.

But our issue is that we're not getting the records, and it appears that they've had a difficult time in finding the records, as well, until what we believe is about 1993.

CHAIR BEACH: Okay, thank you.

MR. CALHOUN: Just as a side note, are you hearing a terrible echo, because I hear an echo when I speak.

CHAIR BEACH: I do not. This is Josie.

MR. CALHOUN: Okay, good, all right.

MEMBER MUNN: I hear a little bit of an echo from him but it's not bad --

MR. CALHOUN: All right.

MEMBER MUNN: -- where I'm receiving.

CHAIR BEACH: Okay, SC&A, do you have any comments on the 83.14?

MR. FITZGERALD: Not particularly. I think this certainly parallels one of, certainly two of our key findings in the Site Profile review we did in 2009.

And, of course, in our evaluation we had raised questions about, on 1980 there were certainly some questions about the availability of records up through the early '90s.

So at least so far as, you know, what Grady has just discussed, that pretty much is in agreement with what we've seen as well.

CHAIR BEACH: Okay, thank you, Joe. Work Group Members, any comments, questions?

MEMBER MUNN: Josie, this is Wanda

and I guess I can't help but comment. I understand all of the bases for this 83.14.

But it is very, almost tragic to me that a group of such outstanding scientists who have contributed so much to the science and to the medical knowledge, especially of the nuclear science field, has to be placed in an SEC category because of what appears to me to be more of clerical shortcomings than anything else.

We are such a science-based activity in what we are purporting to do in the Board that it just seems overwhelmingly sad that people who probably know more about the health effects of radiation than any similar-sized group of people, possibly on the planet, and who certainly would have taken every logical precaution in real life to see that they and their coworkers were not unreasonably exposed to high doses of radiation, that we cannot now discover that because, as I categorized it earlier, what

appears to be from the outside clerical shortcomings.

And that, of course, does not affect what we have to do here, but it seems very unfortunate.

MEMBER ROESSLER: Josie, this is Gen.

CHAIR BEACH: Hi, Gen.

MEMBER ROESSLER: I have a question and I know we've talked about this site for a long time.

But just to kind of refresh my memory, and Grady can probably answer this, can you summarize for me the fundamental difference, the programmatic difference, between the records-keeping for the internal, the in vivo and in vitro measurements, and the external?

You've said you have really no questions about accessibility of records for the external. Certainly there are a lot of questions about internal. What was the

difference between the two?

MR. CALHOUN: Well, basically the issue is that from the beginning of time, basically, we have seen that the external dosimetry records were kept in one location. The internal dosimetry records were not. And I'm not being flippant here, but literally we have found boxes under people's desks of internal dosimetry records.

And they seem to have been kept on a project-by-project basis and there were little stashes of these throughout the site and they were never really centralized.

We know that in 1980 we had actually seen, or just before that, we'd actually seen a memo that had gone out that formed part of our basis for picking that date where they stressed the need for centralizing internal dosimetry and whole body count, specifically, records.

But that doesn't seem to have been done until closer to the late '80s and early

1990s.

MEMBER ROESSLER: Yes, thanks, Grady. And I think as a Work Group, we have offered, well, first of all, I want to say I agree with what Wanda has said, totally.

And from that perspective, I think what we were trying to do as a Work Group is offer many opportunities for the Brookhaven personnel, particularly the ones who were involved in the era in question, to give us a document or to give us some indication that there were some changes following the identification of the need for centralization.

And we had teleconferences with workers. We've looked at many records. I have not seen that.

And I think that's a key point here, that until, as you identified, somewhere into the early '90s that sort of thing didn't seem to happen for the internal dosimetry records.

CHAIR BEACH: Gen, that's a good

point. Thank you for bringing that up. I was going to ask Grady if you could just go into a little more detail of why you chose the December 31, 1993 as the cutoff?

MR. CALHOUN: Well, basically we have found, you know, at least some correspondence where they have talked about the centralization.

But I think the main one was an external audit that was done and they looked at the internal and external dosimetry programs.

And they specifically mentioned that Brookhaven was in compliance with the radiological records requirements of the DOE RadCon Manual or 10 CFR, not 10 CFR 835 at that point I don't think, but all of the applicable requirements.

So that one assessment stated that they were in compliance with internal and external monitoring as well as the records program. So that was pretty much it, and that

was actually published in December of '93.

CHAIR BEACH: Who did that assessment, Grady? It's Josie again. Do you know?

MR. CALHOUN: I'll have to look that one up.

CHAIR BEACH: Okay.

MR. CALHOUN: I don't know. If any of the ORAU guys got that on the tip of your tongue out there, spit it out. I'm looking. I'll find it before the end of our conversation here.

CHAIR BEACH: Well, and my other question is have you done any dose reconstructions for after '93 and are able to complete those?

MR. CALHOUN: Well, as part of the look that I did at incoming records, I looked at all, I only looked at employees that had employment just after 1980. I didn't look at any prior to that. And I've not found any discrepancies in the records after 1989.

But the three or so that I have found have been in the late '80s and 1989, where Brookhaven reported that the individual wasn't monitored and I have, you know, whole body counts of that individual that were done in that 1989 period.

I have not found any similar discrepancies after 1989. So the 1993, when that assessment was done, that seemed like a pretty good date for us.

CHAIR BEACH: Okay thanks, Grady. Any other comments or questions?

DR. MAURO: Josie, this is John Mauro.

CHAIR BEACH: Hi, John.

DR. MAURO: Is it okay for me to ask a question?

CHAIR BEACH: Sure.

DR. MAURO: Yes, this is an interesting dilemma that I see you find yourself in, in that you go back to your dose reconstructions and you find that, in fact,

there are data when DOE claims there wasn't.

So in theory the people who had their dose reconstruction done, you know, when apparently DOE did not believe or there was not records for it was based on some coworker model.

And now you're finding, well, there really was no need to, I'm sort of speculating now. I'm presuming that for the internal exposure, in order to do that person's dose reconstruction and come to some decision regarding a recommendation for compensation or denial, you needed to rely on some type of coworker approach. Is that true?

MR. CALHOUN: No, actually after 1980, we assumed that the records were there because that's what we were thinking and so ambient internal was assigned if there was no internal monitoring records.

DR. MAURO: Right, but what I'm saying is though, nevertheless, so did you assume that the person did not experience then

any internal exposure because there was no records?

MR. CALHOUN: Yes, we did and that is actually, if you look back, we do have a lot of information about the site and it is a very, very low-dose site.

And the internal exposure potential, especially from the, you know, after the reactor was shut down, at least the pile, is very, very small.

But because there was such a variety of different types of radionuclides there and you really couldn't put a finger on who was exposed to what when, I couldn't in good conscience just assume that anymore, based on the findings of those, you know, three cases at a pretty small set that I searched because we can't say for sure that we've got the records.

Now, if those individuals, we did a dose reconstruction and we captured data regardless of what Brookhaven told us, we

would use that internal data.

But, you know, like I said, that kind of gave me a little bit of a reason to look deeper. And I can't say that -- I know for sure we haven't captured every piece of paper from that site. So I can't say that we've got the data even when Brookhaven doesn't.

DR. MAURO: All right, thank you.

MEMBER ROESSLER: Grady, this is Gen. So we're talking about doing dose reconstructions for individuals where data is missing. Why not develop some sort of a bounding approach to doing the internal doses?

MR. CALHOUN: Are you talking prior to 1993?

MEMBER ROESSLER: Yes, yes, definitely. During this period of time, the 1979 to '93, the period that we're talking about.

MR. CALHOUN: Well, because right now we know that people were monitored. In

the past, sometimes we've come up with at least justifications for coworker models by saying, well, the people we don't have records for probably weren't as likely to have been exposed and, you know, that holds true basically.

But in this case, these people were monitored and we don't have the dosimetry records and there's also a fairly wide range of radionuclides there at that site.

You know, you've got the shorter-lived items that were generated as a result of the reactors. You've got some medical isotopes that were generated at the site.

So it would be pretty difficult to come up with a suite of radionuclides and, I guess, bounding doses that could be, I'll say, sufficiently accurate to not grant an SEC.

MEMBER ROESSLER: I see. Yes, that's a very good point, that in addition to apparently not being able to tell our localized people at any point in time.

MR. CALHOUN: Yes.

MEMBER MUNN: Well, but that, of course, gets us back into what is, from a technical point of view, the truest of all dichotomies that we face in this entire program because of the way the law is written and the way we have to interpret it.

This, again, gets back into the having to prove a negative thing and, of course, no one is going to be able to prove that everybody on the site did not go everywhere on the site.

MEMBER ANDERSON: You have to speak up. It's hard to hear you.

MEMBER MUNN: Oh, I'm sorry. I thought I was speaking directly into the microphone.

I was just complaining about having to prove a negative again, that's all, trying to prove that everybody on site was not everywhere on site. That's an impossibility and we all understand that.

It's another one of the unfortunate things that we have to say that all of the potential exposures have not been accounted for when there are such an enormous variety of truly, in any case, this is unique, isotopes and even elements that we will see in other places.

But, of course, that was part and parcel of the remarkable amount of work and research that has been done at that site and that's been of such great value to all others who are involved in the science.

CHAIR BEACH: Okay, any other Work Group Members have any comments or questions?

(No response.)

CHAIR BEACH: I just have one quick comment.

It's been a year since our Work Group met. I believe we met last January 2011 and I was pleased with the dates.

Grady, I know that this was a date that we threw around in our Work Group

meetings on several occasions, so I have to admit that I was happy that you chose to go up through '93.

At this time, if there's no other comments or questions, I'd like to give the public a chance to speak, if you have any comments or questions of the Work Group or NIOSH.

MR. CALHOUN: This is Grady. I just wanted to tell you that I found the assessment.

It said an assessment performed by the DOE Chicago Operations Office in December of '93 found the BNL HP program in compliance with applicable DOE standards, acceptable professional practices.

And it talked about contamination survey program, personnel radiological records program as well. So it was ultimately done by the DOE Chicago's Operation Office.

CHAIR BEACH: Okay and, Grady, this is Josie again. Is that posted on the O:

drive?

MR. CALHOUN: Yes, I'm sure it's in there but, yes, I just read from the ER and we can make sure that that's on the O: drive.

CHAIR BEACH: Okay, I don't know if we'll want to look at that. We will have some more work to do for this Work Group or BNL later so it may come in handy. Thank you.

So at this time, is there anybody from Brookhaven that would like to speak or ask questions?

MS. DETWEILER: No, thank you.

CHAIR BEACH: Thank you. So if we're ready, I'd like to go ahead and talk to the Work Group about recommendations. And should we take a vote, Ted? What do you think?

MR. KATZ: This is Ted. Yes, I mean, you should certainly register your opinions as to whether you support this or not individually and formulate then what it is you want to say to the full Board.

CHAIR BEACH: So do we need to formulate it today or just --

MR. KATZ: Well, I mean, I think this is pretty straightforward. I mean, you either support the NIOSH position or you don't, but that's the most of it. But, yes, I think you should have a Work Group vote.

CHAIR BEACH: Okay. So would you like to take that, Ted?

MR. KATZ: Sure, I mean, if you'll all just speak individually, one at a time, then we'll capture that.

CHAIR BEACH: Well, I'll start. Yes, I support this.

MEMBER ROESSLER: Do we need a motion?

CHAIR BEACH: No, I don't believe so.

MR. KATZ: I mean, you know, formally you have a motion and someone seconds it, so I don't think it's a bad idea, Josie. I mean, normally the Chair doesn't put forward

the motion if we want to be formal about this.

MEMBER ANDERSON: No, this is Andy. I will. I'll make the motion that we accept NIOSH's recommendations.

CHAIR BEACH: Thank you.

MEMBER CLAWSON: This is Brad. I second it.

MR. KATZ: Okay. And then the next step is is there any more discussion on the motion? Not hearing any, then let's go ahead with the vote. So Josie Beach.

CHAIR BEACH: Josie, I say yes.

MR. KATZ: Andy.

MEMBER ANDERSON: Yes.

MR. KATZ: Brad.

MEMBER CLAWSON: Yes.

MR. KATZ: Gen.

MEMBER ROESSLER: Yes.

MR. KATZ: And Wanda.

MEMBER MUNN: I hate to have to say it, but given the wording of the law that we have to operate under, I don't see that we

have any option and it is an 83.14. If NIOSH can't do it, then no one can. Yes.

MR. KATZ: Yes, okay. And then that's all in favor. None opposed. It passes unanimously and that is a recommendation to support NIOSH's position to add a Class for this period. Okay, Josie.

CHAIR BEACH: Thank you, Ted. So at this point, I'd like to go back. We do have an Evaluation Report Matrix that we were working to. There was two items on it. One covered internal and the other external.

The last meeting there was several action items on the table that we have never actually gone back to, so there will be some more work that needs to be done there.

And then NIOSH, or I'm sorry, SC&A, sent out a updated version of the Site Profile matrix. So, Joe, I'm going to turn it over to you and Ron, if you would go through and just walk us through where we're at.

MR. FITZGERALD: Yes, thank you.

I'm going to have Ron go through that list in some detail because it's been a while.

I mean, we've been on the ER matrix now for a year and a half and really haven't gone back to look at the Site Profile issues.

But just as a backdrop, as you were saying on the SEC matrix, clearly there are some outstanding issues on the external side, particularly on neutrons, and we'll outline that.

But, you know, from the January meeting of last year there were certainly a lot of discussion on several of those issues and certainly we've been working that this past year.

I think some of that was deferred because of the 83.14, but certainly we need to get back to that. Josie, you touched on this question of the 1993 breakpoint on the 83.14.

So in terms of the two items on the ER matrix, those would be two pertinent

subjects for follow-up.

Now, on the Site Profile side, this is going back to the original Site Profile matrix from the Site Profile review we did back in 2009, just to remind the Work Group, this was sort of a team effort.

Kathy Robertson-DeMers and myself did the on-site work. We did the interviews and the data capture.

Ron Buchanan was performing the reviews on the external dosimetry side and in the end, actually developed the final report, so certainly we've been involved with this now for several years.

So I'm going to have Ron just walk through the status of the Site Profile issues and we'll also touch upon some of these loose ends from the ER matrix that we've been discussing this past year.

Some of these, for example on the neutron side, I think, and based on the discussions within the Work Group, are

trending towards Site Profile resolution.

That's the way we left it and there were some items, I think, that Grady and his team were going to come back with.

But certainly that was the sense that we had, that these were not intractable issues, but ones that certainly could be addressed and resolved, but we haven't resolved them yet.

But in any case, Josie or Work Group, any questions sort of on that backdrop before I turn it over to Ron?

(No response.)

MR. FITZGERALD: We're going to just walk through just to familiarize everybody with the Site Profile and some of the issues that were sort of, they weren't addressed in the ER discussion because we clearly saw these as more in the Site Profile context.

CHAIR BEACH: Joe, this is Josie. No questions from here.

MR. FITZGERALD: Okay. But in terms of time frame, this Site Profile review was conducted in 2009.

The ER came out in 2010 so we kind of walked right into the ER discussion of the two central issues that we touched on, so this is going back to that 2009 review. Ron?

DR. BUCHANAN: Okay, this is Ron Buchanan with SC&A. I know when I started looking at this, this had been sitting and gathering dust here for about a year and I had to dust it off and see where we was at.

So I'd like to go back and look at where we've been and where we left it last January when we had our last meeting.

And to bring everybody up to date, I just want to briefly discuss the fact that the Site Profile for BNL was issued in August of '06.

SC&A performed a review on that in September of '09. We weren't assigned that task until later. And so we came out with 13

primary findings in that review for the Site Profile.

Same month, September of '09, NIOSH issued their ER of the first SEC 113 that covered the years 1947 through 1979.

Now, in April of 2010, NIOSH issued a Revision 1 to the TBD, which incorporated this first SEC dates and a few changes to Section 6.

We did not do a Site Profile review on the revision because we were tied up in the SEC because we issued that evaluation for the first SEC in July of 2010.

And then we had our first Work Group meeting in July 28 of 2010 and then we had some action items from that.

Then we had our second Work Group meeting in the 21st of January of 2011, so that was a little over a year ago.

And then we had a list of action items, received a response or two from NIOSH, and then we did not receive any further

information until the January of 2012 ER, Evaluation Report of SEC 196.

And so, what we wanted to do was go back and say, okay, SC&A and has had a brief time to look at the current status of this, and where do we stand now and where do we need to go?

Okay, where we stand now is that SC&A sees the recent SEC, through '93, as covering the biological issues for the SEC and some of the TBD issues through '93, not after '93 necessarily but up through '93, and none of the external issues because the SEC was not based on external issues.

And so all of the external issues, both SEC and Site Profile, still stands to be addressed.

And where we stand on that is that from the January 2011 meeting, there was a list of action items issued.

And Grady sent out a memo on the 2nd of February of 2011 with 13 action items

from the SEC meeting.

Now, there happens to be 13 action items and these aren't necessarily related to the 13 TBD findings. And about half of those had to do with external. Half of them had to do with internal, and so those items.

Now, additionally Grady had sent out a memo on the 22nd of February giving some reference numbers that he had promised during the meeting.

And then on the 16th of March of '11, Grady sent out, well it was the 21st actually, sent out a memo he had received back from Brookhaven National Lab inquiring about the problems with the neutron dosimetry between 1985 and 1995.

And I wanted to bring just a quick summary here. We had two major SEC issues, was the biological records in the dosimetry for internal intake and then we had the external neutron dosimetry.

The records for external, like

Grady said, seems to be there. The photons and beta was reasonably accurate. They measured.

What we had problems with was the neutron measurements and there was two major issues there, was that the facility had a lot of different accelerators with different neutron energy fields and those had not been very well characterized. And secondly the dosimetry system changed. It wasn't necessarily capturing all the neutron energies and they changed from NTA film to a combination of the NTA and TLDs and CR-39 and Lexan in the '85 to 95 range.

And so we had what was a potential SEC issue there with several facets to it, fading, response and how the records were recorded, problems with development, the dosimeters and such.

And so those were some of the issues that we had been ironing out from July to the January meeting, during the January of

2011 meeting. And then that's where the 13 items to be addressed by Grady from the January 2011 meeting.

Like I said, gave some reference on the 22nd and then a copy of a memo on March 16. And then we haven't really done anything, received any, we haven't done anything since then.

And so those are where we stand, SC&A stands on the SEC issues, is the remaining commitments made at the January 2011 meeting for SEC.

Now, I'd like to go now into the TBD issues but to ask for any questions or clarifications that we have with SEC standing.

CHAIR BEACH: Ron, this is Josie. Can you just give us a real brief -- are some of the items from the Evaluation matrix, are those going to be overlapping into the Site Profile?

DR. BUCHANAN: Yes, in fact, some of them do cover the same bases. The Site

Profile issues are just ones that wouldn't necessarily, that can be fixed so to speak. You know, there's probably solutions to them.

The SEC issues, especially with the neutrons, there might be ways to approach those but we haven't found satisfactory ways yet, haven't seen them documented.

CHAIR BEACH: Okay, and I also want to ask the Work Group and you, Ron, does it make sense to take care of the Evaluation Report matrix and then go into the TBD?

DR. BUCHANAN: Well, yes, we can, however you'd like to do it. You mean today or in the future?

CHAIR BEACH: No, today.

DR. BUCHANAN: Today, all right.

CHAIR BEACH: If we need to task anything or update that list of 13 items.

DR. BUCHANAN: Yes, that would be fine. I have them in front of me. I don't know. Does Grady, does he have those available? Are you familiar with what I'm

talking about?

MR. CALHOUN: The 13 items?

DR. BUCHANAN: Right, on the --

MR. CALHOUN: I got them called up in front of me right now.

DR. BUCHANAN: Yes, the 2nd of February '11 was action items from our January meeting, yes. So, Josie, do you want to discuss those at this time?

CHAIR BEACH: Yes. Grady, what do you think? Would you like to go through those before we get into the TBD items?

MR. CALHOUN: Sure, we can talk about them. But like Ron said, there's not a whole lot that's been done on them.

I did look back and I think that I actually have a document on fading and angular dependence that I may not have forwarded.

This one was done in February of 2011 and I can't find a record of me having sent it to you, but that certainly will be coming if I haven't, so that'll hopefully

answer that.

And I've also got a response back on one of the other items relative to how we used correction factors for neutrons and dose reconstructions.

DR. MAURO: And, Josie, this is John. I see an interesting situation. What we have here is a recommendation that will be coming from the Work Group regarding granting an SEC from 1980 through '93 and the basis being inability to reconstruct internal doses.

But I presume, and based on all of our experience, usually that sort of recommendation and any vote that comes out of the full Board usually also makes a statement regarding what doses can be reconstructed.

And it sounds to me that we are in a situation where there's agreement that the internal doses are problematic, but I'm hearing that there are also some problems regarding external.

And my question, I guess, to the

Work Group is: to what degree is it necessary to resolve, let's say, this neutron issue that we're talking about, external issue, before you can fully go forward to the full Board with a recommendation regarding an SEC Class?

MEMBER MUNN: This is Wanda. It would certainly behoove us to make certain that, if we are basing our position on lack of internal dosimetry, that we certainly have the issue of neutron dosimetry resolved, outstanding and of record.

MR. KATZ: John, this is Ted.

DR. MAURO: Yes, it's really a process question, yes.

MR. KATZ: Here's what I would suggest. I do not think, it doesn't sound like the external can be resolved in a heartbeat and it shouldn't hold up the process for the 83.14.

I think all it does is put in sort of reservation what the Board can say about the feasibility of estimating doses for

external.

And at this point, before the Board is able to conclude anything, I think it would just be balance on it.

DR. MAURO: Very good. No, I just wanted to get clarification on that. Thank you.

MR. KATZ: Yes, but so I would not recommend that the Work Group refrain from making its recommendation, nor that the Board refrain from taking action on an 83.14 based on an outstanding, you know, question with respect to other doses, feasibility of reconstructing other doses.

DR. MAURO: Okay, thanks for that, yes.

CHAIR BEACH: Thank you, Ted. This is Josie again. And I do not want to hold up the 83.14 in any way.

I just wanted to make sure, there is still an SEC issue with the external. We haven't taken that off the table. And I just

want to be able to move forward and make sure that the work that the Work Group has set out to do gets done.

And I just -- mine was mostly a process of how to handle it with Grady and SC&A on the list of 13 items because we will have another list with the TBD shortly.

MR. FITZGERALD: Yes, Josie, this is Joe. I think your sense of maybe two tiers here, the first tier being the remaining ER issues, which the neutron questions were probably the most prominent.

We had those two central questions, the internal and then the neutron. And clearly there's actions ongoing, so completing those actions and just coming to terms with that would be certainly a priority.

Maybe a second priority would be to again validate for the Work Group the December '93 date.

Certainly there was an audit. We haven't had a chance to look at the

documentation. It sounds very plausible, but that would be another item that we haven't had before.

But those would be probably the only two primary SEC-related issues and that would be the first tier.

And then we have what would be maybe eight or nine TBD issues which Ron outlined, which would be the second tier, which certainly once these issues are addressed would be available for the Work Group to disposition.

DR. BUCHANAN: Josie, this is Ron. I would suggest, rather than take up time today on these 13 action items from the January meeting and for everybody's benefit if Grady could do a formal reply to those 13 items that are listed there on the action items.

And if some of them are covered by the recent SEC, then he could note that for that time period.

If there's a time period outside the SEC that this item needs to be addressed, such as MDAs or something, then that should be addressed.

If he could provide a one-paper written formal response to those 13 action items from the January 2011 meeting to SC&A and the Work Group, we could evaluate that then and see where we stand and move forward on the SEC issues.

Rather than have it just piecemeal, well, you sent some last year, he has a few here, it could be all in one paper. We could evaluate these.

MR. FITZGERALD: This is Joe again. Grady, am I right to say, though, that you kind of moved from trying to disposition of those issues to preparing the 83.14 and that, you know, there's still quite a bit of action on those or --

MR. CALHOUN: Yes, we did but I'd be happy to do that though, still. You know,

if there's something that we still need to do a little bit more work on over here, I'll say that.

But I believe that I can go back and just respond to everything, like Ron said. It may be a bit redundant but it'll all be in one package.

And I believe that there's actually some documents that I haven't forwarded you that are directly in response to a couple of these 13 issues. So I'd be glad to do that. I think that's an okay approach.

MEMBER MUNN: It certainly would be helpful for people like me to get all of the refreshing in one lump. That would be really helpful if you're willing to do that, Grady.

MR. CALHOUN: Certainly.

CHAIR BEACH: Yes, Grady, this is Josie. I also agree with that. And, Joe, under your first tier, you talked about validating the 1993 date. Is that something

that Grady will do for us?

MR. FITZGERALD: No, I think that would be something SC&A would prefer to do. I mean, you know, clearly we've been waiting for NIOSH's response.

We now have that in the 83.14 and we understand what the basis of that date is now.

And I think it would be useful to go back, look at the documentation, maybe also look at some of the -- you know, some of the actual monitoring data, you know, sort of the manifest results and just validate that we're all on board, and we certainly would concur with that particular breakpoint time-wise.

Of course, the precedent for this is something that we've addressed elsewhere at other SEC sites where, you know, a certain specific turning point was chosen and I think it's useful to validate that and, you know, have a final discussion on it.

MEMBER ROESSLER: This is Gen. I

need some clarification on that. We have taken a Work Group vote here on, I assume, a motion that we're going to present to the Board with regard to this SEC period.

And now you have brought up validating this '93 date. Are you talking about the end point date in this SEC period that we're still looking for validation from SC&A on?

MR. FITZGERALD: Well, I think this is a question of whether December '93 is, in fact, the latest date or whether, in fact, there's any basis for having it later.

You know, I don't think we've had any opportunity to review the audit that was mentioned and looking at any other available documentation that would support what the turning point might have been.

I think we're in agreement that certainly it went through '93. That's almost to the DOELAP era, so I don't think we're talking about anything more than a year or

two.

But just simply to, for the Work Group, say, to look at the documentation upon which that date was based and to convey back to the Work Group that, you know, we would see no reason that date wouldn't stand as the latest date for the 83.14.

MEMBER ROESSLER: Okay, thank you.

CHAIR BEACH: Okay, any other questions or comments?

MR. KATZ: This is Ted. Joe, just a suggestion then. Again, I don't know what time would be required to do this, but if it's possible to button that up before the Board meeting, that would be great.

I can understand why it might not, in which case that's okay too. But in case this is a question then that also arises at the Board level, it'd be nice if you'd already completed that homework and could speak to it.

MR. FITZGERALD: Yes, my only misgiving, and I agree with you, that would be

useful, is, you know, a field office audit report on the conformance of a program in terms of record keeping with, you know, the standing orders or regulations, you know, that's someone's judgment.

And it's something that, you know, in terms of actually looking at the results, I mean, we're spending a lot of time at some other sites doing the same thing, going beyond the programmatic findings and trying to establish, based on the actual dosimetry records, that, in fact, something has changed for the better.

I think for Brookhaven it's going to be a little easier because what we're talking about is the completeness of a centralized record database.

And, you know, hopefully we can, you know, validate that rather quickly. Within five or six days, I don't know about that. But I think we could certainly do it rather quickly.

I don't think, Ted, we're saying that it would be earlier, but certainly whether or not the corner was turned at that point in time we'd want to validate.

MR. KATZ: Right, right. I understand, Joe, and I understand your caveat as well. Thanks.

CHAIR BEACH: Okay, thanks, Joe. Any other Work Group Members, questions, comments? Hearing none, I'll turn it back over to you, Ron, if you're ready to go into the TBD issues.

DR. BUCHANAN: Okay, thank you, Josie. This is Ron Buchanan, SC&A. I did have one comment, though, before we get off the action items.

Grady, when you do a formal reply to the 13 action items, if you could indicate, okay, first of all, is there any plans, you know, anything that you would present there that is going to be in a revised TBD?

Or is the last one the one dose

reconstructions are going to use for the foreseeable future?

MR. CALHOUN: Yes, I'll add that in there. Certainly we're going to have to make some changes to the TBD to, if nothing else, address the SEC period.

So we haven't started revising the TBD and we usually don't until we get our path forward on the SEC and get that approved but, you know, I could always -- I think this is going to be changed in the TBD.

And also there were some things that were changed in the revision since you guys last looked at it, but I can't tell you if they were any of these off the top of my head.

DR. BUCHANAN: Okay. And another request, it'll save a lot of back and forth papers if, when you do write this up, if you're going to incorporate something into the TBD revision then give how the dose reconstructor will use it.

For example, in, say, NTA fading, please don't just quote a reference. And please say, you know, what number that the dose reconstructor will actually see in the revised TBD, so we know what number he'll be using. That would shorten this exchange of information time.

MR. CALHOUN: All right.

DR. BUCHANAN: Okay? Okay, thank you. So that's where we stand on the SEC. Then SC&A will look at the 1993 date and try to verify whether that's correct or if there'll be anything later and as soon as possible to do that.

And then Grady will give us a formal report on the 13 action items from the SEC meeting in January 2011.

And then we'll move on to the Site Profile issues. Now the Site Profile issues were of course drawn up a number of years ago, in fact, about three years ago.

And so some of these have been,

well, hinge on the SEC. Some of them hinge on developments that have occurred.

Like I say, the revision to the TBD came out in April of 2010 but SC&A wasn't tasked to review it and we didn't really do too much with it because we were involved in the SEC issues.

And so the 13 Site Profile issues, what I'll do is cover those and what I think needs to be done and NIOSH can have their input here as we go through them to resolve the Site Profile issues.

Finding number 1 was bioassay monitoring not adequately established. And so this was the fact that we did not find that everyone that needed to be monitored apparently was monitored.

Now, of course, the SEC has taken that up through 1993. And so since the release of the ER report, we have not had a chance to completely evaluate that.

And so what we need to do is to,

just like Joe was saying, is establish the fact that after 1993, whether or not it looked like the program was up to date and necessary to catch anyone that had internal intake.

And this is the same way with Finding number 2, which is records of bioassay monitoring not centralized or completely known.

And so, again, the SEC goes up through 1993 and we need to look to see if this is true for after 1993, whether the records were centralized or not.

So those are both action items for SC&A to look at, if the Work Group so tasks us with these.

Now, minimum detectable activity uncertainty. Now, this is an area I would like for NIOSH to address. This is the fact that the TBD gives some MDAs and uncertainties for certain periods in the TBD and the revised TBD.

But there is a blank in there.

There's a gap between 1994 and 1998, the period after the SEC. There's information for MDAs before 1994 and 1999 and after, but there's a gap right there in the mid 1990s.

And so this is an area that we'd like to know, you know, what can be done for the dose reconstructor if a person needs a dose reconstructed during this period and they need a minimum detectable activity for a certain isotope?

What can be used for that period in 1994 and 1998 that doesn't appear in the TBD? Grady, you want to speak to that? Do you have any new information on that or what do we want to do about that?

MR. CALHOUN: What I can tell you is that generally speaking we haven't touched any of the items that were TBD.

Like Joe said earlier, we were kind of stuck in the SEC world and trying to deal with those 13 issues and then the 83.14 came along.

So chances are we're going to have to look at any of these that are open still, especially after 1993. So I cannot comment on this and I would bet that my compadres at ORAU report the same there.

So that's kind of where we're going to end up standing on any of these issues that are TBD-related.

DR. BUCHANAN: Okay, so I'll leave that as an open issue for NIOSH to address.

MR. CALHOUN: Right.

DR. BUCHANAN: Okay, and the same way on Finding 4, which is radionuclide characterization not sufficiently known. This is solubility, particle size, activity fraction and such.

Table 5-5 lists some of these from the stack, however, that's not necessarily representative of what the worker was breathing.

And some of the interviewees say that Table 2-2 and 2-3 does not reflect the

isotopes used at some of the facilities.

And so what we would like to see, again after 1993, is an action item there for NIOSH to try to complete that information in some form after 1993 for internal intakes, characterization of radionuclides on Finding 4.

MR. CALHOUN: Yes, that's basically the same response as the previous. I think we're going to have to just respond to all of these that are still a concern after 1993.

DR. BUCHANAN: Okay. I'll go through and say which ones I think SC&A has in their court and which ones I believe that's in NIOSH's court and just move through these then.

Finding 5 was no internal coworker dose data available. Now, of course, that was a point.

It was that mainly SC&A found that there was lack of data to even create a co-

worker model for the earlier periods because you didn't know if the most exposed was monitored or whether the records would be available to create a coworker model.

And so what we, this is kind of a two-prong approach here on number 5, is what we need to do is to, SC&A needs to look at the data after 1993 and see if there is sufficient data to create a coworker model.

And then I'd like to ask a question of Grady: do you have any plans? Do you have a need? What's your plans on internal coworker model?

MR. CALHOUN: Right now, we do not plan on making a coworker model for post-1993. Same goes with external.

DR. BUCHANAN: Okay, I'm making a note here.

MR. KATZ: Can I interject then, Ron, a question related to the Work Group? I'm not sure whether it makes sense to task SC&A with this before you know what NIOSH's

plan is as to whether they determine that they need a coworker model. So this is a question for the Work Group.

DR. BUCHANAN: Yes.

CHAIR BEACH: Yes, this is Josie. I agree that that maybe should be left open and then maybe we can get something formal from NIOSH, unless you know right now, Grady, that you are not going to do a coworker model at all.

MR. CALHOUN: Since it's in the matrix here, I'd rather just respond to them all like that but I'm pretty sure that's --

CHAIR BEACH: Okay.

DR. BUCHANAN: Okay, so SC&A will not spend any resources looking at that and let NIOSH reply in their response that they do not plan to have one. And then the Work Group can decide if that's acceptable or not.

MEMBER MUNN: Yes, this is Wanda. I think --

DR. MAURO: This is John. We're

in a bit of a dilemma. I know, Josie, that you'd very much like to hear from SC&A regarding this date of 1993 as best we can, that that's a good place to stop.

Clearly, though, it's going to be difficult for us to make a statement on our sensibility regarding that date, if there are still very much open issues regarding the need for a coworker model or not post-1993.

You see where I'm headed with this. Without really addressing that to some degree, it puts us in a difficult position to make a statement in support of, or not, of the 1993 date.

MR. FITZGERALD: Well, with all due respect, you know, we're going through this same protocol issue, process issue with Los Alamos and in some of the other sites where you have a breakpoint date-wise.

A judgment's been made that there was a turning point. And I don't think the initial SEC has foreclosed trying to address

these issues, you know, for a later time period.

And certainly Ted or somebody can jump in, but process-wise I think one can address the initial SEC period and still have open issues in this later period.

MEMBER MUNN: Well, that's probably true but, this is Wanda, it seems to me Ted's point was we have all of these items which, if I read the current status literally, all require NIOSH response before it's reasonable to be describing a task for SC&A.

It just seems to me we have to let that next step take place. NIOSH has to respond to what we have here before we go on.

CHAIR BEACH: Wanda, this is Josie. I disagree somewhat because I believe SC&A, based on the 83.14, the new SEC, they need to go back and determine if these findings are, indeed, still findings. I mean, it's SC&A's report to begin with.

MR. FITZGERALD: And the context

is post-'93 for a lot of them. I mean, I think the issue is we're not going to spend a lot of research time establishing issues before '93, obviously.

But as far as the relevance beyond '93, and whether these are still legitimate questions, I think that's what we're talking about.

And, you know, some of these have an SEC context because they were actions from the January meeting.

And some of them are clearly TBD questions, which obviously none of us have addressed at the Work Group level. So these are essentially loose ends that we're now getting to.

But separating the two, you know, we did have remaining SEC questions that the Work Group and NIOSH and SC&A were working on that are quite separate from this 83.14 per se, so they still are on the table.

MEMBER MUNN: Yes, but when you

say "they," was there more than one, two -- just looking at the comments that you provided on the update of the issues this month there are only, what, three that I see that you've indicated were pertinent -- no, four, yes.

MR. FITZGERALD: Well, yes, Wanda --

MEMBER MUNN: All of the others essentially are --

MR. FITZGERALD: Yes, there were two central SEC questions that we brought before the Work Group and the Work Group supported, one of which was the availability and adequacy and completeness of internal dosimetry records.

MEMBER MUNN: Right.

MR. FITZGERALD: That was one big issue. And the other issue was some discrepancy and questions surrounding neutron dosimetry.

MEMBER MUNN: But as I say, neutrons --

MR. FITZGERALD: Those are the two ER questions that we have brought before the Work Group.

And I think NIOSH has gone a long ways to satisfying, if not most of the way, satisfying our concerns with the completeness of bioassay records up to the early '90s. Clearly there's been a closure achieved, an agreement.

And what's left is what would normally just be simply a validation since we haven't had that final piece of information. But we don't have any disagreement with the substance of what NIOSH has brought forward.

However, we do still have the neutron questions, which were sort of batted around in the January meeting of last year, from which there were some actions and follow-up.

And what we're talking about is completing that follow-up so that there's no remaining questions on that.

As I said when I started the conversation, I felt those were trending toward a Site Profile context because these are very familiar issues. NTA fading, angular dependence, we've addressed this almost at every single SEC site.

So there certainly is a pretty good record of how one can go about addressing those kinds of issues so they're not dose reconstruction questions, feasibility questions.

So that's kind of where things were left and I think all we're talking about is, you know, can we tie those up and complete what we started last January?

And then secondary to that, certainly the Work Group was given some Site Profile questions back when the original Site Profile was done, but we never got to those because of the SEC evaluation process.

So, you know, if you can look at it that way, those Site Profile questions,

whether it's, you know, a coworker model or what have you, weren't judged by SC&A to have a strong SEC context.

They were judged to be Site Profile in nature and ones that we felt NIOSH could address outside of the SEC process.

So I think we made that distinction from the get go, so that's still the distinction I think we would bring to the table.

MEMBER MUNN: I understand that, Joe. Certainly I understand the issue of overarching issues like AP geometry.

But I was trying to simplify things by making a direct point that the responses that we have from you on the document that was prepared this month very clearly defined, if I am reading your statement correctly, they defined that four of these you consider still pertinent as of 1993 and --

CHAIR BEACH: Actually I think,

Wanda, I think there's actually six.

MEMBER MUNN: Well, I did not, my count could certainly be off. I'm just looking at the ones that specifically say after 1993.

I'm just, the point I'm trying to make here is a very simple one. Don't we already have the information about which ones need to be pursued by SC&A in their response?

And if the answer is no and the response is not adequate to identify exactly what we want to do, then by all means I'm sorry I interrupted. Go back to, I suppose we were talking about Finding 5 at the time I --

CHAIR BEACH: And, Wanda, I think you make some good points. I think what we need to do here is we'd never tasked SC&A to actually go through and review the current TBD and these findings, so --

MEMBER MUNN: I understand that.

CHAIR BEACH: Okay.

MEMBER MUNN: But it seems to me

that their responses are, we're going over their responses one by one and it seemed to me that they were self-explanatory, but apparently not. I withdraw my question, sorry. Go ahead.

MR. KATZ: So, Josie, this is Ted.

CHAIR BEACH: Yes.

MR. KATZ: For clarity, to reiterate, for Finding 5, all I was saying is that since DCAS hasn't addressed yet whether they would need a coworker model, it seems like the Work Group will want to see what response DCAS has to that issue as to whether one's needed before it tasks SC&A to evaluate the adequacy of data for creating a coworker model, because if the question's a little bit different, if DCAS finds that there's no need for a coworker model.

CHAIR BEACH: Right. Ted, I do agree with you and I did put that one under NIOSH's actions.

MR. KATZ: Okay, thanks.

CHAIR BEACH: So, thank you. Ron, are you ready to move on to 6?

DR. BUCHANAN: Okay. Yes, so just to summarize on Finding 5, we will not do any action on that and we will let NIOSH justify the need or plans for coworker model or not.

So Finding 6, now this is a NIOSH action item. Now, I wrote this matrix update in January and since I've went back and read through some of the revision and so most all of these are still in NIOSH's action items.

And so number 6 was, as far as a Site Profile issue, is that the NTA film response has not been covered in the TBD and so that is actually a NIOSH action item.

Even though in my update I said we need to determine a quick look at it, I can tell that it's not been addressed. So I recommend that Finding 6 still be a NIOSH action item.

MR. CALHOUN: That's okay with me.

DR. BUCHANAN: And the same way

with 7 and 8. These neutron responses, we need to have an official response to them and what is going to be in the Revision 2 of the TBD to address these.

And number 9 is also that way. These are all neutron issues and characterizing the neutron field and the dosimetry response to those fields and the problems, especially with neutron dosimetry reading in '85 to 1995.

That brings us to Finding 10 on external dose model. And, now, NIOSH said that they will respond and justify not needing a external coworker model for external dose. Is that correct, Grady?

MR. CALHOUN: Yes.

DR. BUCHANAN: Okay. Now, number 11 is incidents and accidents, unanticipated events. This issue is still prevalent and I would say that we'd like to see a formal response to the Finding 11.

Yes, and this is kind of a related

one is Finding 12, which is a potential environmental exposure from the igloo area.

Just a little background on that, the way I understand this, this was a shielded area in a storage facility that they kept their high sources at. They had a fence around it.

And the problem SC&A has is if you had people unmonitored that passed this area on a regular basis, they could pick up a higher dose because the dose was greater at the fence line than it was at the perimeter.

And so if you use TLDs or badges or instruments located at the perimeter of the site for environmental dose, that wouldn't be reflective of this igloo storage area and that would be an action item for NIOSH on Finding 12.

And Finding 13 is a SC&A action item, because the Section 3 on X-ray medical exposures in the revised TBD was fairly extensive.

And we did not put a high priority on going back and looking over that and comparing it to our earlier findings and objections from the first TBD.

And so that's something that we need to look at and make a judgment call on whether that set aside the prior finding. And that's the 13 Site Profile findings.

CHAIR BEACH: Okay, so just to recap, Ron. This is Josie. I have for SC&A 1, 2 and 13. And for NIOSH, I won't go through the list, but all others.

DR. BUCHANAN: That's correct.

CHAIR BEACH: Okay. Ted, could you help -- well, any comments or, Grady, anything there?

MR. CALHOUN: Well, basically I think that we're going to start out with the 13 -- it's odd that we have 13 on both sides, isn't it?

I'm going to start out with the 13 SEC issues that we've at least got partial

responses to and I'll give a response as far as where we stand and I may be able to provide a couple more documents to you.

The other 13 we'll have to get into our project plan and schedule out dates as to when those are going to be addressed.

CHAIR BEACH: Okay, so we'll hear from you on the time frame because you knew I was going to ask you that.

MR. CALHOUN: Sure.

CHAIR BEACH: Thank you. Ted, help me out here. Do we need to do any formal tasking for SC&A to review the current TBD and these three items?

MR. KATZ: No, I think we've done it, actually, in the course of this meeting.

CHAIR BEACH: Okay, thank you.

DR. MAURO: Josie, this is John. I have one question and it might be because I'm not exactly following.

But I heard a statement made that post-1993 NIOSH feels that it does not need an

external coworker model.

In other words, the argument being that after '93 there's sufficient data to reconstruct everyone's external doses because they have a complete record.

Now, I also heard during this conversation that you would like SC&A to make a statement regarding the degree to which we agree that the 1993 is a pretty good date and that, you know, that there are not, you know, what the, and/or what the SEC issues might be that still remain for the post-1993 date.

Now, the thing that struck me is that I'm not sure this is an action item or not.

Is it an action item for SC&A to confirm that there's no need for an external dosimetry model post-1993 because there is a complete external dosimetry record?

Is that an action item and, Joe, has that already been resolved to the satisfaction of SC&A?

MR. FITZGERALD: We have not, frankly, raised the external dosimetry issue per se. We did, in the TBD, question why there was no coworker model and I think we're going to await NIOSH's response. We've heard some of it already.

And, you know, I don't think, again, we judged that to be a SEC question for the Work Group.

So, again, we'll look at what the response is, look at the completeness, but we judged the completeness to be adequate at the time.

But there was a question of how one could manage without a coworker model. We want to validate that for the period '93 forward. But, again, certainly NIOSH can provide its assessment and we can look at that.

DR. MAURO: Okay, because I just heard NIOSH's position was they do not need one. And I guess there's enough information

on the record right now that we can look at that?

See, what I'm listening to is where the action items lie for SC&A and this pivotal date of 1993.

You know, what is it that SC&A needs to do between now and the meeting in order to be able to say, take a position on where we believe all issues have been resolved with regard to the SEC date and where the issues have not been resolved with regard to the SEC date of 1993?

MR. FITZGERALD: Well, first, I don't think there's an external issue that we have to grapple with.

We're quite ready to wait for Grady to come back with his answer and we've heard his answer informally on the adequacy, but we judge the adequacy to be there.

We just raised a question in the Site Profile review as to whether or not they felt the adequacy was complete enough that a

coworker model would not be necessary. I don't think that's a key issue for the meeting that's coming up.

Now, respecting the '93 date on the internal side, as I said earlier, there's a lot of precedents, and I think of Los Alamos because we're spending a lot of time just trying to balance 1975 as the natural breakpoint for that SEC.

There's a lot of precedent for looking at whether or not the date is, in fact, the appropriate breakpoint without holding up an earlier SEC.

So I don't see that as a deal breaker as far as going forward from a technical standpoint. I think it'd be useful to go beyond the one audit milestone that Grady mentioned.

And I think what he was saying was that from an empirical standpoint, from his dose reconstructions, he did not see anything that was an aberration beyond 1989.

So he was looking for a breakpoint beyond '89 that would be a natural place to highlight a programmatic turnaround in terms of record keeping, and this audit was the most obvious one since they did an evaluation of the program.

We, I think, for the Work Group just need to look at that and make sure that that's not the latest one.

In other words, that, in fact, the program did, in fact, turn around in '93 and that there wasn't something that would keep it prolonged beyond '93.

But that's something we can do separate from this decision point the Board's up to in 83.14, so I don't see this as posing a problem for the 83.14 determination.

DR. MAURO: Okay.

MR. FITZGERALD: Was that clear?

DR. MAURO: I think so. This lack of a coworker model post-1993 for some reason, and the fact that NIOSH believes there's no

need for one, is sort of sticking with me and I'm having a hard time shaking it.

I guess it comes down to, Grady, are you going to be putting something out explaining why you feel there's no need for an external coworker model post-1993?

MR. CALHOUN: Yes, I'll have to do that, and internal.

DR. MAURO: Okay, and there really is no action for SC&A until we see that.

MR. CALHOUN: That's right.

DR. MAURO: Okay, I just wanted to make sure I was clear on that. Okay.

MR. FITZGERALD: Yes, I think we're pretty clear.

DR. MAURO: Thank you.

CHAIR BEACH: Okay. That is the end of our agenda. Path forward, I think we've covered that unless somebody has any comments or questions.

I would say we need a time line, but Grady already said he would get that to

us.

Does anybody need me to go over the action items or are we all clear, Grady and Ron?

MEMBER ANDERSON: I think we got it.

CHAIR BEACH: Okay.

MEMBER ANDERSON: Just send it out.

CHAIR BEACH: Okay. Ted.

MR. KATZ: I'm sorry, I was on mute. This is Ted. So, I'm good. I mean, it's good to get a little email from the parties just to reaffirm what their action items are. But otherwise, I think this is good.

CHAIR BEACH: Okay, so we'll look for emails from both the SC&A side and NIOSH's side. And we'll look forward to a future meeting.

That's all I have. I'm ready to adjourn the meeting if everybody else is in

agreement.

MEMBER MUNN: Do we have any clue how long it's going to be before we need to address what NIOSH and SC&A are going to get to us, what their time line is?

CHAIR BEACH: I think that's a question for Grady and he --

MR. CALHOUN: Well, what I'm going to do is, knowing that there's not going to be a whole lot that gets accomplished between now and the Board meeting, is I'm going to try to get out responses to, or at least where we stand on the 13 SEC items.

Like I said, a lot of that's going to be a rehash of where we were last time this went out.

But I believe I actually have a couple other documents I can send out regarding neutrons. Actually, some of those might bleed over into the TBD issues as well.

I'm not going to -- let's see, today's Tuesday, Wednesday, Thursday. I'm

probably not going to be able to get that out until Friday. So you're not going to have a whole lot of time to look at that prior to the Board meeting.

But I kind of agree with what Joe was saying there, that things like this usually don't preclude approval of the SEC. There's just a time period to review when the end date is, so that's what I plan on doing.

And then the next part of my task, as I see it, is to get the other items for the 13 TBD issues into our project plan, given all the other things that our group works on, and get those resource loaded and put into a schedule.

MEMBER MUNN: No, I wasn't asking whether, how much you were going to get done before next week, Grady.

What I was really asking was, given the scope of work, which is better defined now than it was when we came in to this meeting, whether both SC&A and NIOSH

could give us a feel as to how long it was going to take to accomplish those tasks they now know are ahead of them so that we could be looking how far out in our calendar we need to be looking for the next Work Group meeting.

That was the intent of my question. Are we looking at being able to meet in late April or early May or are we talking perhaps further out than that?

MR. CALHOUN: My gut reaction is further out than that, just because the same people that are working on Brookhaven are working on other TBDs and whatnot, you know, Savannah River, Mound, things like that.

So I'd have to actually look at the resources and schedule this before I can give you a date on the TBD issues.

MEMBER MUNN: Okay. I was just wondering whether May or June.

MR. CALHOUN: The action is further out than that, so.

MEMBER MUNN: So we're looking at

another six months, you think. Okay, thanks.

CHAIR BEACH: Okay, thank you for clarifying that, Wanda. Anything else? All right. Thank you, everyone, for your work this morning and I will close the meeting.

(Whereupon, the meeting in the above-entitled matter was concluded at 12:30 p.m.)