U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

CENTERS FOR DISEASE CONTROL

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NATIONAL INSTITUTE FOR
OCCUPATIONAL SAFETY AND HEALTH

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ADVISORY BOARD ON
RADIATION AND WORKER HEALTH

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TBD-6000 WORK GROUP

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WEDNESDAY,
APRIL 23, 2014

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The Work Group convened telephonically at 10:30 a.m., Eastern Daylight Time, Paul L. Ziemer, Chairman, presiding.

MEMBERS PRESENT:

PAUL L. ZIEMER, Chairman
JOSIE BEACH
WANDA I. MUNN
JOHN W. POSTON, SR.

ALSO PRESENT:

TED KATZ, Designated Federal Official
BOB BARTON, SC&A
SAM GLOVER, DCAS
MONICA HARRISON-MAPLES, ORAU Team
DeKEELY HARTSFIELD, HHS
JOSH KINMAN, DCAS
JOHN MAURO, SC&A
JAMES NETON, DCAS
LaVON RUTHERFORD, DCAS
MUTTY SHARFI, ORAU Team
JOHN STIVER, SC&A

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

(10:31 a.m.)

MR. KATZ: Let's get started. It's time.

This is the Advisory Board on Radiation and Worker Health, TBD-6000 Work Group, we're here today to talk about the Joslyn SEC and some Site Profile issues as well.

And the agenda for the meeting is posted on the NIOSH website under the Board section, today's date for a meeting, as well as the papers that are going to be discussed today. They should be all posted there, too. And all of the Board Members and staff should have all of those papers as well.

So let's begin with roll call. I already know I have all of my Board Members, but we're speaking about a specific site -- Joslyn -- so please speak to conflict of interest and let's just run down the Board roll call please.

(Roll call.)

MR. KATZ: Okay. Then that's it. Just remember, everyone, when you're not speaking to mute your phones. It will improve the audio.

Paul, it's your meeting.

CHAIRMAN ZIEMER: Okay. Thank you very much. Welcome, everyone.

As was already indicated, our focus today is on Joslyn Manufacturing & Supply. We are going to begin -- well, we will go down through the agenda. The first item, of course, is going to deal with the surrogate data issue report issue. And I think on this one we need to be prepared to make a recommendation to the Board at the upcoming meeting.

Then, we have the -- also the White Papers, two White Papers, from NIOSH, and I think everyone is aware that we don't have official comments back from SC&A on those White Papers, although we just received some preliminary comments from John Mauro, and John

can discuss those. And I think it's fairly clear that SC&A would like a little more time to evaluate those White Papers, just to confirm some things. But we'll go ahead and have an opportunity to discuss them to the extent we're able today.

So let's begin with the surrogate data report, and that report was prepared by Jim Neton and Dave Allen. And which of you is going to give us the overview on that?

DR. NETON: Actually, Paul, I think it was Sam -- Sam Glover is the lead author on that. I think --

CHAIRMAN ZIEMER: Okay. Yes. Sorry, Sam. I'm hearing a lot of beeps here for some reason. That's right. Sam, looking at it again, I see the three of you were on there. Sam, your name is first, so --

DR. GLOVER: You never know, first or last, right? Which one of them you --

CHAIRMAN ZIEMER: I'm used to being

last. Okay.

DR. GLOVER: Exactly.

CHAIRMAN ZIEMER: Yes. Thanks, Sam. Please proceed.

DR. GLOVER: It depends on how much -- you know, I didn't prepare a specific presentation. We certainly can walk through the main points. As you know, an SEC was -- two SECs were essentially done for this site, and it goes through 1943 up through mid-1948. And those were because of the types of machining and the location of the rolling mills and the thorium use at Joslyn.

Beginning in 1948, August 1st of 1948, we believe that at that point in time the facility is -- we had data in '52. We believe that the data can be used to show that TBD-6000 approaches are bounding. So that's what -- we have prepared a report on surrogate data. We did use the Advisory Board format for this.

Let's see. I probably should have

-- I figured that Bill would be online and would be kind of giving us the details. But let's go through this and hit some of the high points and see what we can do. So, in '43, up until July 31st, 1948, that whole beginning of '48, they were Hanford's main production. Simonds Saw and Steel did not come into play until after July 31st, 1948, as a serious production facility.

And so Joslyn actually rolled most of their uranium in that first half of '48. They did a substantial amount early in '43/'44 for the Hanford reactors, and then they did machining and some rolling operations in the '44/'45/'46 timeframe. In '48, they had a large, very high capacity, and they did a lot of stuff on the finish mill. And so they will finish rolling as well as using other mills, and they were doing these simultaneously; in some cases, three mills at the same time. They had three mills co-located.

A nine-inch finishing mill was shown to be the very highest exposure point that was measured at Joslyn, even in the '43/'44 studies. We didn't believe that the data was of good enough quality to really use for dose reconstruction. It was an electrostatic precipitation method. But even then, that nine-inch mill showed itself to be the bad actor.

And so we looked very carefully at the conditions that were detailed in all of the post-1948 data, August '48 data -- what kind of mills they were doing, what kind of work they were doing, what kind of measurements they had.

They continued throughout its entire history to do machining and rolling operations, and we detail that in the White Paper. We get into the surrogate data. We have no bioassay monitoring at the facility; we have only a handful of their samples on hand. But we have a significant study in '52. But up

until 1952, we really don't have a lot of analytical data, and that is a HASL study that was done in the beginning of 1952, the time-weighted average studies.

So would you like me to walk through each of the different criteria, Paul? Would that be the best way to sort of walk through this? And then you guys can ask questions as we go or ask questions when we get to the end?

CHAIRMAN ZIEMER: We all have copies of the paper, and I think -- I don't know that you have to read in detail the criteria, but you can just go by title, such as hierarchy of data and give your bottom line. And then I think we want to also hear back from SC&A when you finish and after we have taken questions from the Work Group to see if SC&A agrees with your conclusions.

I don't know specific --

MR. KATZ: Paul, we just lost you. It's your magical cell phone I think.

CHAIRMAN ZIEMER: Okay. I am back.

MR. KATZ: Go ahead.

CHAIRMAN ZIEMER: I was just saying that I think all we need to do is identify the issue, like hierarchy of data, and then briefly discuss your bottom line there. I also want SC&A to have a chance to comment on these. I don't know that they've formally reviewed it, but we need to make sure that there is no issues that -- where there is disagreement.

So go ahead, Sam.

DR. GLOVER: Very good. We did certainly review the document that SC&A produced. They did have a -- sort of an evaluation of surrogate data, and so we did carefully look at that and the concerns that they still had, and made sure that did address everything.

So for hierarchy of data, as we discussed, there is no individual monitoring data for uranium, either external or internal,

at Joslyn. We do have two -- after this 1948 date, we have two data sets that were collected by HASL, a 1951 that is focused on machining operations, which is a fairly small study, and then in January of 1952 they had a substantial time-weighted average study where they really looked at a lot of machining and rolling operations.

And so we looked at that and decided that what we felt for a hierarchy of data, while we do have some air monitoring data, it would be more appropriate to use and evaluate where the TBD-6000 data can be extended back. Is it claimant-favorable? Is it -- does it provide the right range? And all of the other pieces. So that we want to make sure that we provide a reasonable but claimant-favorable intake assessment for the employees back to August 1st, 1948.

So I think that summarizes where we left hierarchy of data.

CHAIRMAN ZIEMER: Okay. Any questions from the Board on that, or the Work Group?

(No response.)

SC&A?

DR. MAURO: Yes. Hi. It's John. Yes. We agree, in fact, that this -- the date of I guess it was August/September '48 forward; it is your classic TBD-6000 surrogate data approach. And we in our report that we put out -- I believe it was December of last year -- found favorably regarding that aspect of the surrogate data work. So, yes, we are supportive of that. We certainly will be getting to the question of the January 1st to I guess August '48 as being probably the heart of the matter that -- you know, to listen more about.

And before I -- there is a bit of a housekeeping question that maybe Ted or you folks could help me with. We put out a matrix

a while ago with just our listing of our findings and our original review, but that's where it stopped. SC&A -- I don't believe NIOSH responded. So there was some question about having a matrix at this meeting, and all we really had was the original -- what I call the original matrix where only SC&A's original findings are listed.

Am I correct that -- Sam, that the matrix itself was not filled out by NIOSH to sort of add in your comments on our comments? Or did I miss something?

DR. GLOVER: It became a bit, I believe, confusing in that we had a discussion in January where we -- we had some discussion back and forth and where pieces were and what was left. So I guess from our side it wasn't clear what things were still open when we had the Board meeting. Go ahead.

CHAIRMAN ZIEMER: We closed Issues 6 through 10 previously. Eight and 11 I

believe were also closed.

MR. KATZ: Right. I mean -- this is Ted -- we don't need to really discuss this right now, the matrix bit. But we did have -- made a lot of progress at that last meeting, and that was what was asked to be updated for the matrix.

DR. MAURO: Okay. Yes, my apologies. I did not do that. We will certainly catch up now and get all that straightened out. But I just want to -- because I was a little uncertain about where we stood there, and I know there was an expectation that we would have a matrix for today. Perhaps all for the best because so much has occurred with the amendment to the TBD and the two White Papers. That probably has a bearing on the matrix also. So in any event --

MR. KATZ: Yes, of course. We can just carry on. It's not a --

DR. MAURO: Very good. Now, I just

-- I'm really doing it for myself, so I can get my bearings. But as far as where we are right now, yes, we agree with NIOSH's position regarding the August 1948 and forward as being able to be reconstructed appropriately using surrogate data from TBD-6000.

MEMBER BEACH: Paul, this is Josie. I have a quick question.

CHAIRMAN ZIEMER: Go ahead, Josie.

MEMBER BEACH: For Sam, I guess. The surrogate data, how much did you guys utilize the Christafo -- I'm not saying that right -- and Harris, 1960 study?

DR. GLOVER: That is exactly what -- so that is the basis of the TBD-6000. I was a little less nonspecific than I should have been. We used the roller and machining operator categories, the operator -- specifically, the operator from each of those, to look at -- there are days where they only rolled. There are some days where they only

machined. There's days where they did both.

MEMBER BEACH: Right.

DR. GLOVER: Used the most favorable. But those -- as we will discuss here shortly, this was in the exclusivity constraints. Those are from the Christifano and Harris study in 1960, which looked at more than 60 complete surveys at over seven different AEC facilities, more than 20,000 dust samples, including operator breathing zone samples, and those go back all the way to the Simonds Saw, 1948. The very highest measurements for the rolling mill were from that.

As we discussed with Bill and everyone last time, we did validate that those measurements -- the average -- the daily weighted averages are from the Simonds Saw and Steel, uncoated uranium directly from a -- basically, a heat -- a furnace, which is, you know, unlike some of the others that started

using lead.

MEMBER BEACH: Right.

DR. MAURO: Sam, this is John. Again, you may be able to help me out a little bit here. Christifano and Harris, the 1960 document has always been a document that we went to when you were dealing with uranium refining. And we always went to Harris and Kingsley, 1959, for when you are doing machining -- and I have to say that I thought -- in fact, one of our comments in our original report was we thought you may have misstated the reference you used.

So it may turn out there is more than one. I mean, so I just want to -- help me out a little bit. When you say you use Christifano and Harris, when I hear that I hear refining, not machining.

DR. GLOVER: It's the machining document. If I made a mistake, then that was my fault, grabbing the reference that was -- it was -- carry-on.

DR. MAURO: Okay.

DR. GLOVER: So it may -- it very well could be a mistake on my part. We certainly used the Kingsley document.

DR. MAURO: Yes. I think you may want to just confirm that I think it is Harris and Kingsley. Unless there is -- you know, there is a lot more to the Christifano and Harris, but I always thought of Christifano and Harris as the refining, you know, study. It might be worth checking that out.

CHAIRMAN ZIEMER: Yes. Christifano and Harris, the reference itself says uranium refining.

DR. MAURO: Right. That's right, that's right. And that does not apply to this circumstance. Joslyn is machining, which is Harris and Kingsley.

DR. GLOVER: That is correct, and I apologize for that mistake. That is certainly my -- my error as I pulled a reference from a

separate document. So that is certainly my error, because TBD-6000 is based on a specific reference. That was a summary from the HASL studies, not the refining base. That is correct.

CHAIRMAN ZIEMER: So, Sam, in the exclusivity constraints, which you kind of moved into anyway where you're citing Christifano and Harris, what you're saying is that that reference on page 4 should actually be Kingsley. Is that correct?

DR. GLOVER: Harris and Kingsley, yes.

MEMBER BEACH: Yes. It's actually on page 3 in the fourth paragraph, where I had a question.

DR. GLOVER: There was a change on -- the document that was posted to the website has a front page. The document that was provided to the Advisory Board does not. And so if you pull it from what we provided you,

there could be a slight shift in page numbers. So I do apologize for any confusion that might be caused by that.

CHAIRMAN ZIEMER: Yes. Josie, I think the paragraph -- we may be looking at the same paragraph.

MEMBER BEACH: Probably.

CHAIRMAN ZIEMER: In any event, what that -- the paragraph starts, As discussed above --

MEMBER BEACH: Yes.

CHAIRMAN ZIEMER: -- A HASL -- yes, that's the same -- yes, right. So that's the reference that should be changed.

DR. GLOVER: It was unfortunate. What I -- there was a format, and I have -- this was -- you know, you're trying to follow some pieces that Dave Allen had used, and I grabbed from his piece. He actually used the refining discussion, which is from Electro Met, which he used the appropriate reference. This is my --

unfortunately, I was very sick last week, and I missed this error and --

CHAIRMAN ZIEMER: Okay.

DR. GLOVER: So this is certainly my -- that was certainly my mistake in what the appropriate reference is. That is -- and TBD-6000 is certainly based on a particular document set, and that is really -- this certainly uses more than seven different facilities. They have Joslyn and many others, which now I recognize as I read that carefully. That was an extraction error on my part, though, when I was doing a formatting piece.

CHAIRMAN ZIEMER: Okay. Regardless, it's --

DR. GLOVER: TBD-6000 basis for all of the studies that we have discussed over the last four or five years in TBD-6000, and the -- you know, the many, many thousands and thousands of dust samples and breathing zone samples that was part of that. We did confirm

that that data set, the appropriate data set, the Kingsley study, doesn't go back -- does go back to the Simonds Saw measurements of 1948.

CHAIRMAN ZIEMER: Okay. Thanks, Sam.

Well, let me ask you if there is any other questions on -- or, Sam, do you have any other comments on this second criteria, exclusivity constraints?

DR. GLOVER: Just a couple of points. You know, because it is a -- a range of data where there is actually a geometric mean and a distribution, so it's not a singular number, but actually if you look at the -- the breadth of the -- you know, the 5th through the 95th percentile, it ranges all the way up to 35,000 picocuries per meter cubed, which vary. If you look at some of the other graphs that we had in the Evaluation Report, and even in the White Paper, you'll see that the range of data covers all of the measurements that were

conducted at Joslyn.

The time-weighted average for the nine-inch mill is higher than the geometric mean. And so -- but only for the nine-inch mill, and we discussed later that the finishing mill, this nine-inch mill, really saw a lot less use based on the type of work that they did in this post-August 1st, 1948, timeframe.

We believe that the range is well covered. However, between that -- the range covering, as well as the lesser usage, helps to provide that feeling that it is an appropriate process. And all of the other data matches up very well and is bounded by these operator categories.

CHAIRMAN ZIEMER: Okay. John Mauro, do you have any other comment on this issue?

DR. MAURO: Well, yes. Now we are in the one area where you may have noticed in my little -- that was actually -- the email that

I distributed to everyone was actually an internal think piece by me to John Stiver and to Bill Thurber letting them know that I read the two papers, and I did have some places where I thought we needed to do a little homework.

This time period, January 1st through I guess the end of August '48, clearly was -- it sounds like it was an unusual time period, and right now I can't say with confidence that there was -- as was just described, I would like to look at the data from TBD-6000, which I would be the first to admit, our experience with TBD-6000 is that it has always been high end. In other words, we have always found that, you know, whenever you have some real data from a real facility doing this kind of work, and you compare it to TBD-6000, TBD-6000 is always way above, at the high end, always claimant-favorable, deliberately.

But this sounds like a little bit of an unusual circumstance, and with regard to the

level of intensity of the rolling and perhaps machining operations that took place in that six-month, seven-month period, that I'd like to take a closer look at, because we never really got our magnifying glass out and looked at that pretty closely. That was one of our comments in fact in our original report. When we originally wrote it, we said, you know, we're not too sure about, you know, whether TBD-6000 really will do the trick for that time period.

So right now, where we are right now is that we would like to get a little closer look at that.

CHAIRMAN ZIEMER: Okay. So from your point of view -- I'm trying to separate out the other White Papers from a surrogate data paper per se. And you're saying that you still are -- you have some concerns about Criteria 2 and whether it meets surrogate data criteria for that time period.

DR. MAURO: Yes. There's an

overlap of course between the White Papers and the surrogate data. So, I mean, we're really killing two birds with one stone. In my mind, out of all of the things that we're talking about whether it's surrogate data or the White Paper, there is that window of time from January to I guess August 1948 where originally, as you recall, there was a sense that that should be covered in the SEC. But now, with the new material that we have, the White Paper, it says, well, when you take a real close look at it, it looks like that, no, the TBD-6000 data, coupled up with the 19 -- I guess some of the data that was collected from Joslyn, and you take a real close look at it, and your -- some is a time-weighted average, some is breathing zone. In other words, there is a richness here. I would hate to just walk away and say that that window is adequately covered, that time period, by TBD-6000.

So right now, based on my review, as

you saw in my little memo, that's one area that I think SC&A needs to take a little closer look at. And that goes for the surrogate data issue, and of course when we talk about the White Papers.

DR. GLOVER: Can I make a brief clarification in that?

CHAIRMAN ZIEMER: Sure.

DR. GLOVER: We added -- the Advisory Board added -- it will become official -- up through July 31st, 1948, for the exact reasons that you just mentioned, the very high rolling that happened, the very large production, and the multiple use of rolling mills. And also, still not properly changing over to AEC oversight. We still had Hanford oversight.

That entire high production period, up through July 31st, 1948, has been added to the SEC, which will become official in a few days. So August 1st, 1948, begins an entire

new period where we do not have any of this very high rolling. The largest annual production was 30 tons, and those were associated with the Canadian rolling processes that only used the 18-inch mill specifically. I certainly appreciate your need to review those documents and look at those.

DR. NETON: John, this is Jim. I think you're somewhat confused.

DR. MAURO: I am. I am confused, because I thought that you were reversing your position on that.

DR. NETON: No, no, no. We can't. We already added the SEC -- we are specifically talking about after August 1948 now.

DR. MAURO: Oh. You know, I saw -- help me out a little bit here. In reading through the sequence of events, you know, the original SEC PER, and then there was this addendum, now it was my understanding that your latest White Paper, the one that just came out

I guess on the 14th, was saying that you thought you could reconstruct the doses from January through August of 1948. Did I misunderstand that?

DR. NETON: Yes, definitely.

DR. MAURO: Okay.

DR. NETON: What we really need to accomplish here today is, after 1948, the Board specifically asked us to justify the use of surrogate data for the period after ‘48, after August of ‘48. That’s all we really need to focus on to put this issue to rest.

DR. MAURO: And I could tell you that we looked at that, even the original, and we felt that you had a strong position. It was the time period before August that we were questioning. And I have to say, you know, I read -- I read the addendum, and I read those White Papers. I’ve got to say, take another look at that, because it sure sounded to me that you were recommending that the -- that you not

grant the SEC from the 1st of January through the -- through August of --

CHAIRMAN ZIEMER: John, the Board already did that, though. The Board already granted that at the last meeting.

DR. MAURO: Okay.

DR. GLOVER: I would clarify what -- in the White Paper --

DR. MAURO: Okay. I --

DR. GLOVER: -- you could see the entire dose reconstruction process, including the period we added as an SEC. So that way you could see how we were using the thorium dose. Bill and you guys had expressed at the last discussion in January to see how we did business the whole time.

So what we provided you in the White Paper is dose reconstruction beginning in 1943 with -- as best as we can. We are doing external dose. We're doing the thorium external dose. But we are not doing any

internal dose for uranium until August 1st, 1948.

DR. MAURO: Oh, okay. Yes. I did not -- when I read this over the weekend, I did not get it right.

DR. NETON: I was concerned that might happen. What you have here is a justification for surrogate data after ‘48. The other papers are Site Profile issue papers. They have nothing to do with the SEC at all.

DR. MAURO: Oh. I see where you’re going. I see. So are you saying that where you feel that, though the SEC has been granted up through August of ‘48, you still feel that, you know, when you do have to do a dose reconstruction, because the person isn’t covered -- skin cancer, et cetera -- you’re saying that the method -- that you do plan to assign the doses using TBD-6000.

DR. NETON: Well, external doses.

DR. MAURO: But not internal, for

uranium.

DR. NETON: No. It can't be uranium. You can't do it.

DR. MAURO: Okay. Because I got that from thorium, but I did not get that message for uranium.

DR. NETON: I don't think we ever talked about reconstructing uranium in the SEC period, unless we have bioassay data, which we don't.

DR. GLOVER: We specifically said it was only if we had specific records would we reconstruct internal dose.

DR. MAURO: Okay.

DR. GLOVER: If we happen to find a worker with bioassay records, which we don't believe ever occurred at Joslyn. Otherwise, we would not be allowed to.

DR. MAURO: So those White Papers which I read, I guess I'd better take another look at it, are -- in fact, what I thought I

read, I got it wrong you're saying. I thought I read that you felt that you could reconstruct internal doses from uranium now -- not thorium, from uranium, you know, for January through August. You're saying that I misread it.

DR. NETON: Absolutely.

DR. MAURO: Okay. Thank you.

DR. GLOVER: And I will tell you where you can just real quickly see the summary, John. If you look at the dose summary from the example DR, it talks about the internal dose and none is assigned up until you get to 1948.

DR. MAURO: Okay.

MR. RUTHERFORD: So, you know, that was really to provide a couple of things. I basically -- Jim told me I took 20 pages to say we are using the machining operator category for everybody, and to make sure that we were very clear that -- on how we were going to dose reconstruction the whole time.

DR. MAURO: And that begins in

August of ‘48.

MR. RUTHERFORD: For internal dose, yes.

DR. MAURO: For internal dose. Oh, okay. Good. I’m sorry for any confusion I caused.

CHAIRMAN ZIEMER: No, I understand in the memo that you sent out that was distributed this morning, in your third paragraph now I understand that you -- you refreshed my memory what that was about. Okay. Got you.

DR. MAURO: Okay.

CHAIRMAN ZIEMER: Okay. Now, so let me rephrase then. So returning to the hierarchy of data criterion, did that change what you’re saying then? Because you were focusing on this seven-month period I think.

DR. MAURO: Yes. No, no, everything changes now. I mean, we are -- right now we are very supportive of the

surrogate data, TBD-6000, beginning in August and going forward. The only time I brought up the issue was earlier than that, but obviously that's a non-issue.

We are not going to be -- so that is not an issue that is on the table. So, you know, my concerns in my email there just please disregard that.

CHAIRMAN ZIEMER: Okay. Well, let me see if I can streamline things. Let me ask about the other three criteria, then. Is there already agreement then on the other two criteria, or do we need to go through them in detail, and do Board B Work Group Members have questions on them?

MEMBER BEACH: Paul, this is Josie. I'm just --

CHAIRMAN ZIEMER: Yes.

MEMBER BEACH: -- because I reread that paper twice trying to find out the dates John was talking about, so I feel much better

now.

CHAIRMAN ZIEMER: Yes. Right. Okay. The other three criteria are the site and process similarities that are under consideration, and plausibility. SC&A, did you have any issues with any of those?

DR. MAURO: No. No. Quite frankly, we are only left with one matter that probably needs to be looked at, and that has to do with external dose from thorium and the MCNP runs.

CHAIRMAN ZIEMER: Okay.

DR. MAURO: And things reduce down to something very simple now.

CHAIRMAN ZIEMER: Okay.

DR. NETON: John, we're not doing external -- that's not part of the SEC determination.

DR. GLOVER: We only did thorium in 1946 and '47. So it's already covered in the SEC --

DR. NETON: That's a Site Profile issue, John.

DR. MAURO: Oh, okay. So, I thought we were covering the full -- you know, the full --

DR. NETON: Well, I would like to focus first on getting this SEC determination closed, if we could. And then we can move on to the Site Profile, as to whether or not to --

DR. MAURO: No problem. I covered the full territory. I'm fine with that. I see where you are right now regarding these matters, and it's only SEC. And as far as I understand it, you have agreed that the SEC goes up through I believe August 1948 and the reasons have to do with inability to reconstruct internal doses, both from thorium and uranium, up to that time period. Is that a correct statement?

DR. GLOVER: Yes, certainly up to -- you know, there is only two operations that used

thorium, and we have stated at those times that we cannot reconstruct those doses for internal dose.

DR. MAURO: One issue -- we are okay there. One issue -- bear in mind that I got this on Friday, and I did the best I could. Obviously, it wasn't good enough, but it -- I do have a question on thorium residual.

Now, thorium operations that took place in '47 was an AWE operation, covered by the SEC of course, because it covered that period. It was thorium and AWE operation, and, therefore, would not you have to also reconstruct the thorium residual period? I believe your White Papers are silent on that.

DR. GLOVER: I believe we mention -- and I have to -- first, there was only two operations; they used like five bars each, about 200 pounds, versus the 600 tons of uranium that went through this facility.

There is no measured thorium at the

site in the residual contamination stuff. They have done isotopics. You don't see anything compared to uranium.

DR. MAURO: Okay.

DR. GLOVER: But there is very little dose or very little uranium either. But it was also they were done in a centerless grinder, which is a wet process. And so it just really doesn't produce that kind of contamination, John.

DR. MAURO: Okay. So your position is that from a residual period -- I understand that there are these in-between time periods when there is no rolling that you have -- that you have exposures during operations, you have exposures when -- when there are no rolling going on. And as I understand it, you used a classic OTIB-70 approach.

The only question I guess I had is, because I think you were silent on this, is that there were -- the thorium operation ceased in

'47. Therefore, there -- you know, and it's your position that there really is no residual thorium subsequent to that based on the argument you just made.

As best I can tell from reading the White Papers, I did not notice -- I didn't see where that argument was made. I may have missed it. But your position is --

CHAIRMAN ZIEMER: It's in there, John. The argument -- those were wet operations. I think it's in the report.

DR. MAURO: Okay. And they were small operations, and there was nothing residual. In other words, there was no need to reconstruct internal thorium post-1948.

DR. GLOVER: That is our position, yes.

DR. MAURO: Okay.

CHAIRMAN ZIEMER: Let me get back now to this surrogate data report. Are we all in agreement that we have met the criteria on

the surrogate data?

MEMBER BEACH: Paul, this is Josie. I just want to say that the -- in my opinion, the report was very detailed and it did meet all of the criteria, and so I have no questions on it.

CHAIRMAN ZIEMER: Well, I want to make sure SC&A -- I think I heard you say, John, you're fine with that.

DR. MAURO: I'm fine with that. Right. It was my misunderstanding regarding that early time period in '48 that caused the confusion.

CHAIRMAN ZIEMER: Okay. Wanda or John Poston, do either of you have any concerns or questions on the surrogate data issues? Remember, if you're both on mute, I'm not hearing anything.

MEMBER MUNN: Can you hear me now?

CHAIRMAN ZIEMER: There you are.

MEMBER MUNN: Hello?

CHAIRMAN ZIEMER: Yes.

MEMBER MUNN: I'm sorry.

Yes. I have no questions at all. In my view, these papers, as well as the previous discussions three days ago, cover the issue very thoroughly, and there is no question in my mind that TBD-6000 certainly is claimant-friendly, almost to a fault. And by taking the position that every individual that is going to be reconstructed is going to be considered to be an operator is extremely claimant-favorable. I think it has been well done, and, yes, I have no -- no problems with the positions that have been taken.

MEMBER POSTON: I'm fine, Paul. I have nothing to contribute. What's been done is great.

CHAIRMAN ZIEMER: Okay. Then, I believe we have consensus. We can go on record to the full Board indicating that the Work Group, in conjunction with NIOSH and SC&A,

believe that the surrogate data criteria have been met in this case.

Let me ask, Ted, do we need to get formal Board action, or simply report that?

MR. KATZ: So, Paul, I'm just thinking -- I mean, Sam is going to make -- right, Sam is going to make a presentation to the Board about the surrogate data analysis. And it seems to me you don't -- Paul, you don't need a formal presentation in this case, because it's --

CHAIRMAN ZIEMER: No. I'm just asking if we have to make a recommendation.

MR. KATZ: Oh, you absolutely do. Yes, please.

CHAIRMAN ZIEMER: So after Sam's presentation, it will simply suffice if I say that it has been reviewed also by SC&A and the Work Group, and we agree that the criteria have been met and we recommend that the Board approve that.

MR. KATZ: Yes. Absolutely. And then the Board will have a motion before it. Right.

CHAIRMAN ZIEMER: Okay. That's what we will do.

Okay. We're ready to go on to the Site Profile and the White Papers. I believe we are, unless there is any further questions on that. We have had two White Papers. We'll start with the first one on external dose from thorium metal machining. Sam, are you doing that one as well? Or is Dave going to do that for you?

DR. GLOVER: Dave and I sort of -- if Dave Allen is on, he certainly can talk about what was done. He actually started this process, so --

CHAIRMAN ZIEMER: Well, you guys --

DR. NETON: Sam, I think you ought to take charge on that one. I don't know if Dave is available right now.

DR. GLOVER: Very good. So what Dave did, you know, we said that as part of our TBD-6000 approach to doing dose construction during the SEC, that we could do the external dose for thorium. I believe we could do the internal as part of the SEC.

So what Dave -- he looked at the record, what kind of thorium rods that were used. There's only two instances. And looked at those actual measurements, which turned out to be -- shows a -- you know, there's a couple of different variations. A 50-inch rod with a radius of 1-7/8 inch, thorium metal has a known density of about 11.7 grams. And then you have to make a decision on equilibrium and so Dave chose to use 100 percent equilibrium with all of the progeny. So that's all the way through thorium-228, radium-228, all those things in complete equilibrium, which obviously takes, realistically, 50 years to happen. But because you don't know the chemistry, what

might have went through the system, it's not going to get any worse than 100 percent equilibrium.

So this is full equilibrium with all of the progeny, and we used essentially a TBD-6000 external dose approach where you have the rod and you model that at the different dose -- you know, the doses from electrons and bremsstrahlung and photon dose from those -- from all of those different progeny and thorium-232, and determine what the various dose categories are.

And so we used the latest and greatest, MCNP-6, to do that, so that was actually just redone recently. And we have provided all of the input files and output files.

And one of our assumptions was part of the issue they -- they -- when they did this was it was difficult to exactly tell how many days they were onsite. They were sort of

learning how to deal with this. It wasn't as straight as they were hoping. They were making these for I believe Hanford, and so they -- they straightened and centerless-ground these things repeatedly to get the -- basically the dimensions and the straightness they were looking for.

And so the other consideration is we chose to use two and a half days of being onsite, so they did take a lot of time working through this to try to figure out exactly, you know, how to handle it. So we were -- for these six rods, even though they were done multiple times, we chose to do it for two and a half days. Again, this is only 1946 and 1947, just one instance in each year, so very limited campaigns.

It turned out to be about -- if you look at the whole body dose, on Table 3, and so about 52 millirem in a 24-hour period. It turns out that two and a half days at the number of work hours per day from those time periods

equates to 24 hours of actual operations. So that's why you will see that 24-hour dose rate.

So in that time for each -- for both 1946 and 1947, there are 52 millirem dose whole body, beta whole body was 16 millirem, and beta hands and forearms was 120.

CHAIRMAN ZIEMER: Okay. Let me see if -- let's focus on just this particular paper. John Mauro, to what extent do you feel like you are okay on this one, or have -- do you need to confirm any of the runs, or where do you guys stand on this?

DR. MAURO: You know, the situation we're in is we haven't run thorium. So I guess my reaction is that we'd like to check the numbers. On two levels, one, that we get the same flux and, you know, exposure rate for beta and gamma as a function of distance from these different geometries, and also the assumptions you've made regarding exposure duration.

You know, we really are not in a

position where we could -- certainly what I'm hearing is you ran MCNP and that is exactly what we would do. But it's up to certainly the Work Group whether you would like us to check those numbers to see if we get the same values.

CHAIRMAN ZIEMER: Well, there is two parts to this. One is very mechanical, you know, so did they plug them in right. That can always be checked. I would be more concerned if you had issues on any of the assumptions that are made in terms of the distances, or certainly, worst case, on the equilibrium have been taken, but, you know, any of the underlying assumptions raise concerns.

DR. MAURO: I can't say they do, but I have to also admit that, you know, as I said, I just read through them and I see what was done. I cannot speak to whether or not the distances and durations of exposures -- and also MCNP is not that straightforward. I know that our folks are very specialized that do those runs,

and, you know, so I'm afraid I really cannot say that, you know, oh, we could agree that, yes, that's a reasonable analysis without actually checking it.

CHAIRMAN ZIEMER: Okay.

MEMBER BEACH: Hey, Paul, this is Josie. A question for John Mauro. Does the dust loading play into this also, or is that strictly on the other -- the other White Paper?

DR. MAURO: The dust loading related to thorium would be part of the SEC period. What -- so, in other words, right now there is an SEC granted up through the time period where the thorium was being machined and handled.

MEMBER BEACH: Right.

DR. MAURO: So it's covered by the SEC. In fact, I believe it's one of the reasons an SEC was granted. As far as now we're talking external exposure, that is a completely different problem, a much simpler problem,

which is very amenable to classic physics calculations of the type MCNP does.

So to answer your question, I don't think dust loading is an issue, because it's covered by the SEC. And the plan from a Site Profile point of view is there is a protocol being put forth for doing external exposure from the thorium rods. And we'd have to check that. I mean, I just cannot say here that we agree with those numbers.

I would say that it is -- the actual mechanics of running MCNP, we'd have our specialists run it, but the bigger question of course would be, do we agree with the duration of exposures and the distances from the various I guess rods or whatever was being handled? And that's something we normally would check out in a typical review of this type.

CHAIRMAN ZIEMER: That is really what I was asking. I think the bottom line here right at the moment is you guys haven't had

really a chance to look at this in any detail yet, since you just got it a couple --

DR. MAURO: That's correct. We just received this.

CHAIRMAN ZIEMER: Yes. But at least you are seeing the approach here, and we're going to have the same thing on the other one but we'll go through it. I'm just kind of looking ahead here. I think, Ted, in terms of reporting to the Board, we are -- it is clear we are going to have to report that we have -- SC&A hasn't had a chance to fully review these White Papers. So we can't take any specific action at this point, or it's going to have to be delayed.

MR. KATZ: Right. And I don't think the Board is even expecting the Site Profile work to be finished.

CHAIRMAN ZIEMER: Right. Yes.

MR. KATZ: Yes.

CHAIRMAN ZIEMER: So right now it's

a matter of making us aware of what the issues are and much more detailed on how everybody is going to look at the other paper, which is the dose reconstruction methods.

Is Mutty on the line? I didn't catch whether he was. Or who is going to present this one?

DR. GLOVER: I'll walk through it, Paul.

CHAIRMAN ZIEMER: Okay.

DR. GLOVER: So it's -- you know, it's a pretty classic TBD-6000 approach. We -- you know, basically using the rolling -- or it's probably easiest to look at -- I'm going to revert back to for you guys -- let's see, it will just take a second while I go back to the right tables.

If you look at Table B.2, which would be on page 16, I think that summarizes things fairly well. I'll give you guys a second to get to that. And just let me know, Paul, when you

might --

CHAIRMAN ZIEMER: I have it. Let's see if the others have it.

MEMBER MUNN: Yes.

MEMBER BEACH: Yes.

CHAIRMAN ZIEMER: You're not putting it up on the --

DR. GLOVER: No. Unfortunately, we are not in a Live Meeting. At least --

CHAIRMAN ZIEMER: Oh.

DR. GLOVER: So I'm just going to walk through this, but I think it's pretty -- if you look at the inhalation and ingestion rates from '43 through July 31st, 1948, you can see that there is no intakes. There is no -- this is certainly in the SEC period.

The nice thing about this table, there is a lot of information in this White Paper that describes what days we chose and, you know, how many days, different this and that. This sort of summarizes when we have -- or how

many rolling days are there that are rolling days, how many machining days, and how many days are paired? So like in 1945, there were 54 days. They were rolling and machining in all of those.

And so for those we would choose a machining operator category. Obviously, there is no internal dose and so both the machining and rolling operator, if you go to TBD-6000, have the same external dose.

CHAIRMAN ZIEMER: Right.

DR. GLOVER: So this is -- we are using the surrogate data from TBD-6000 to assign intake. So if you have a rolling day, and only rolling happened, we would assign a rolling day, because you would have had to have been in a rolling mill to get exposed. That would have had to have been part of that.

If there is only machining going on -- this is after August 1st, 1948 -- if there is only machining on those days, well, then you

had it in a machine shop to get exposed. And if both are going on, then we would have used the higher of the two internal -- internal estimates, which would be machining. Machining operator gets a higher dose than a rolling operator in TBD-6000.

We would also -- from a consistency standpoint, they have the same external dose. You then have to calculate how many non-operational days occurred during that timeframe. And based on the values from, you know, the generation of dust from the -- because you have to be consistent. It becomes awkward to go back and forth between the machining and rolling operations. You have to generate dust, which contaminates the facility.

The residual is not the correct term, but between rolling days, we certainly account for those, and we can talk about what those numbers are. But that is -- in general, we assign dose for both the -- between rolling

and machining days, as well as, you know, ingestion, inhalation, and external dose from the contamination at the facility in addition to the operating days.

So I think Table B.2 gives you a nice summary of the flavor of things. And subsequent to that, you can see -- let's go to -- let's just walk through some of the different pieces. Let's go back to the beginning, after we sort of talked about things backwards. Let's kind of go through internal dose at Joslyn. I'm going to start with page -- I think everybody has the same copy of this. Page 2. So we have, you know, used, as we discussed, the operating -- the operator as the dose reconstruction category for both rolling and machining.

We haven't chosen to subcategorize because we had back-extrapolated that we are able to do dose reconstruction, and then we sort of discussed that in the surrogate data. We

make sure that we emphasize that there, so that there is no question on how we are going to do dose reconstruction. Obviously, we do not do internal dose until August 1st, 1948.

On page 3, we summarize the method of dose reconstruction. You can see in Table B.6 what the rolling and machining operations -- they are based on a single shift per day. And based on all of our reading, there are some long days where they did 16 hours' straight operations, but they were in multiple shifts.

So we certainly do recognize that, but the employee was also only present during that time. And TBD-6000 contamination is essentially at I think 30 days, 24 hours a day, they take the air concentration, and so it accounts for even those long days that happen at Joslyn.

As we discussed, the employment period, we look at the number of days that was rolled and machined, and we assign then the

intake rates from TBD-6000, Table 7.8 and 7.9. And though they have to be converted -- you guys are very familiar with this -- from 365 to 251 work days per year, so -- and then they have to be assigned as intakes. We are assuming operator -- go ahead.

CHAIRMAN ZIEMER: I have a question on that particular one. So where you have the intake rates based on a 365-day year, and maybe I'm understanding this incorrectly, but it looks like the conversion factor should be the other way around. Am I missing --

DR. GLOVER: You have to convert it twice to make it complicated. But it isn't 365-and -- it's per day for 365 days right now. But because we have to account for operating days versus -- machining and operating days versus non-operating days, you have to be in the 250-day period, and then you have to convert it back to a per 365-day intake. But we do need to come back to a --

CHAIRMAN ZIEMER: Well, wait a minute.

DR. GLOVER: -- how much --

CHAIRMAN ZIEMER: So --

DR. GLOVER: -- on an operating day, which is per 250 work days.

CHAIRMAN ZIEMER: So you're taking -- well, you're taking the intake rate and you're increasing it by a factor of one point something. Is that correct? In the 365 over 250 --

DR. GLOVER: That is correct. You know, in the actual days when an intake occurred on that operating day, they actually -- that's when they got that intake.

CHAIRMAN ZIEMER: Right.

DR. GLOVER: The actual work day. And then you say, A-Okay. Let's say he only worked 50 days in that timeframe. At almost 50 days, his exposure rate was whatever TBD-6000 says times 365 divided by 250. So that would

give us this 50-day intake.

CHAIRMAN ZIEMER: Oh, I --

DR. GLOVER: And then we would then have to divide that over a 365-day period, so we could apply that to IMBA.

CHAIRMAN ZIEMER: Okay.

DR. GLOVER: So you are basically converting it twice just to get it --

CHAIRMAN ZIEMER: I gotcha.

DR. GLOVER: -- in the right units.

CHAIRMAN ZIEMER: Gotcha. Okay.

DR. GLOVER: Yes. I'm sorry. That's -- it's an area that actually -- you've got to be very careful with it. It's an easy thing to flip when you're trying to go through an Excel sheet.

CHAIRMAN ZIEMER: Right.

DR. GLOVER: Which, of course, we did provide. So SC&A has access to all of that in the --

CHAIRMAN ZIEMER: We'll double

check that. It wasn't obvious when we looked at that originally.

MEMBER MUNN: It is really confusing.

DR. GLOVER: It absolutely is. Absolutely.

I did want to make sure we point out that we -- we did use the resuspension factor of one times 10 to the minus fifth. I know that was a -- sort of a change to the historic TBD-6000 approach, and so we have used a more conservative value for resuspension.

It results, for Joslyn, in an intake rate for inhalation of 558 picocuries per non-operational work day based on the contamination of the facility, calculated -- the calculated contamination of a facility.

Now, for each non-operational day, the ingestion rates are equal to the ingestion rates for machining during the operational period. I guess this is also a TBD-6000 change

that has occurred. So this results in an intake of 588 picocuries per non-operational work day prior to '51 and 539 from ‘51 forward.

Obviously, there is a change in TBD-6000 in the assumptions on the number of hours that are worked, as you break into 1951.

MR. SHARFI: Sam, this is Mutty. I just wanted to correct -- that’s a change to OCAS TIB-9.

DR. GLOVER: Okay.

MR. SHARFI: Not 6000. This is Mutty Sharfi.

DR. GLOVER: Thanks, Mutty.

MEMBER MUNN: It certainly ought to be bounding.

DR. MAURO: This is John. I do have an observation here that -- I noticed that you are developing this application of TBD-6000 at a level of granularity that I haven’t seen before. Let me explain.

TBD-6000, as you all know, is this

matrix that allows you to identify job category, whether he's an operator or a supervisor or a clerk, and the kind of operation, whether we're talking rolling operations or machining operations. So you have this matrix. And there is also I think a time element in there also, when was it done.

Now, our experience in reviewing many, many AWE applications where TBD-6000 is used, I noticed that whenever there was any question you always went to centerless grinding operator. In other words, the worst possible case. You get the highest dust loading and the highest potential for inhalation exposure when you assume it's a centerless grinder, which is the machining -- it's called machining, but what Harris and Kingsley does is it -- in the end, they say, AWell, there's a lot of different kinds of machining. We're going to use the centerless grinding machining, which is 5,000 dpm, per cubic meter,@ on that order. It's a

very high number. That represents what you could say is a plausible bounding associated with machining operation, because it's actually dealing with centerless grinding machining, which is limiting.

Now, in the past, SC&A has always found very favorably with the way in which you have been applying TBD-6000 to the myriad of AWE operations, because you have always -- you know, unless it was an unusual circumstance, you have always defaulted to that bounding circumstance, and we felt that was always claimant-favorable, quite claimant-favorable.

But here we have a circumstance where you are developing a level of granularity, as I understand what you just described, where you start to parse people and time periods between, let's say, rolling operation versus cutting operation versus machining or centerless grinding operations and saying, you know, who is going to get what

when.

It seems to be -- now, you may very well have good reason to be able to feel that you could parse it at that level of granularity, and that's fine, if you can. But I'm just surprised to hear that you are taking it to that level. You usually keep it fairly simple, without trying to, you know, gild the lily so to speak.

DR. GLOVER: I think, John, part of it is, you know, if you go after '48, if you go back to that Table B.2, you'll note that we do have very -- it's very specific on what days we're machining. You know, they only machined on those days. After 8/1/48, you have not a lot of machining going on. They were doing very specific rolling operations mostly for the joint stability program with the AEC and AEC Canada.

And so it was very specific, and it seemed appropriate to -- you know, that they are

rolling -- that they are doing both. We assumed, worst case, go ahead, yes, absolutely use -- this is the machining operation and -- but if we know it's only rolling contractually, and they describe it very clearly that's all they did, it seems appropriate to use the rolling mill.

DR. MAURO: But there was always cutting going on. And I noticed cutting operation was worse than rolling, but not as bad as centerless grinding. And I presume cutting was always going on, you know, cutting the ends.

So did you factor that in, or do you just go strictly rolling versus machining?

DR. GLOVER: You know, none of the operations, from cutting or any other, were even close at Joslyn to what the rolling mill produced. The centerless grinders were wet. We sort of back-extrapolated and said, A-Okay. We're going to take that claimant-favorable approach and use the machining operation as a

bounding.@

DR. MAURO: Yes.

DR. GLOVER: And so when we considered it, it didn't really -- I don't think any of those operations met with the centerless grinding -- met our straightener kind of numbers.

DR. MAURO: And I agree with you. In looking at your material, for those on the phone, you know, when you look at Harris and Kingsley, and they talk about machining and centerless grinding and rolling, they have always picked the worst-case circumstances where you had very little controls over ventilation, over cooling. In other words, they drove it to a position where it certainly couldn't be much worse.

And, clearly, the kinds of descriptive material of both your rolling and your machining operations at Joslyn did have a degree of coolant, ventilation, so you -- so I'm

trying to, you know, be fair-handed here. I agree with what you're saying. That is, even when you did assume, let's say, centerless grinding, machining, and you did use the default values in TBD-6000, that probably is quite claimant-favorable, given that there was quite a bit of controls implemented, which would have reduced the dust loading as compared to what TBD-6000 defaults to.

All I would say is -- from SC&A's perspective is, again, after reading it, and the way in which you parse things, it would be, I feel more comfortable saying let's take a look at that, you know, the story that's being told, how the parsing is done with regard to operations and the different kinds of operations.

And I also -- when you dealt with the accumulation on the time periods when there were no operations, this in-between time, where you have the accumulation of dust. I realize

that that contribution is generally small compared to the actual operation, did you assume the dust loading in the air that's responsible for the deposition and accumulation on surfaces, did you assume that that dust loading -- did you parse that, too?

That is, okay, this time period for, let's say, inactivity, the dust loading we have there would be due to a rolling operation, while there might be another one that might be due to machining operations. So it would be -- was the residual resuspension scenarios also parsed at that level of granularity?

DR. GLOVER: I'm going to let Mutty -- because I -- we wore him out. I think he did these calculations three times in the last week after we went through some minor changes. So, Mutty, do you want to go ahead and respond to our residual --

MR. SHARFI: Sure. The non-operational period is all based on

machining, since the machining is the most claimant-favorable. And because you're going back and forth, it would be hard for us to say which area of non-operational period that that worker would have been in. So all of the non-operational period is based on machining.

And on top of that we didn't even take in account for any kind of OTIB-70 depletion of the material, so it's all assumed to be -- once it's there, it's the constant over time.

DR. MAURO: And you hold that, and you let it accumulate for 30 days.

MR. SHARFI: Yes. We'll building it up over 30 days, and then holding it constant for the rest of the time period. We're --

DR. MAURO: I like it a lot. Thank you for answering the question. And it is the way to do this to keep it simple and claimant-favorable. So that part of parsing you didn't -- you went with the limiting

scenario, which I -- I can say right now that, you know, we -- I think we should probably check the numbers, you know, make sure the arithmetic is right and that it does follow OTIB-70 philosophy. But that sounds like the right -- you know, I would agree that that's the right way to go.

MR. SHARFI: We didn't use OTIB-70. No depletion was applied in here.

DR. MAURO: Oh, no. I'm just talking about the .00075 meters per second accumulating for 30 days.

MR. SHARFI: Okay. Yes, that's more 6000 than OTIB-70.

DR. MAURO: Okay. I may have crossed the wires there. Okay?

DR. GLOVER: They are both interrelated so much, John, that there is a lot of crossover there.

DR. MAURO: So on that respect, I guess just to react from SC&A's perspective, I

really like what I'm hearing regarding residual. I also like what I hear regarding the operations post-, you know, 1948, August.

I would -- but I do think we have an obligation, due diligence, to take a look at how you did break it up, because you did go to a level of granularity that we haven't seen before, and certainly if the evidence is there, the records are there, that -- as you pointed out, you have good information on when it was rolling, when it was machining, et cetera. On that basis, you know, we could confirm that and walk away.

CHAIRMAN ZIEMER: John, I think one of the reasons they can go to this level of granularity on this particular facility is the specific information that you are going -- you have on the facility where in this case we have specific days on each of these particular -- I don't know if you'd call them jobs, but we don't often have that in the other facilities. We

just know they have been working over a period of time with different materials. This is a very specific case, and I think it allows more granularity than we are used to seeing.

DR. MAURO: I completely agree. And, really, it's up to you folks there. If you'd like us to go check that, we could check that.

CHAIRMAN ZIEMER: Well, I think we still need a chance to review this. I think -- I assume the Work Group Members would be comfortable having SC&A have a chance to review the document in more detail. I'll leave that up to other comments. I certainly think it's appropriate to have it reviewed.

Are there other comments or questions on the document at this point, either from SC&A -- anything that you need clarified before we leave the document? Or Work Group Members?

MEMBER MUNN: No. We're good.

MEMBER BEACH: Paul, this is Josie. I agree that it should be reviewed by SC&A, but I have no questions.

CHAIRMAN ZIEMER: Okay.

MEMBER POSTON: No questions.

CHAIRMAN ZIEMER: I'm going to take it by consent that we all agree that both the White Papers should be reviewed by SC&A and then report back to the Work Group and we can reach a final decision on them.

MR. KATZ: Right. Paul, and I actually -- I formally tasked them with reviewing them anyway before we proceed, so --

CHAIRMAN ZIEMER: Yes, I knew we had. I just wanted to make sure the Work Group was on the record with --

MR. KATZ: That's good. Thank you.

CHAIRMAN ZIEMER: Yes. Well, let's --

DR. GLOVER: Would that still be specific to -- would that still be an SEC or a

TBD consideration? I just want to make sure.

MR. KATZ: TBD.

CHAIRMAN ZIEMER: Yes, TBD, because the SEC actions have been taken, right?

DR. GLOVER: I just want to make sure we -- that it came out clear to everybody this was a TBD, that we were making sure the TBD approach is correct and appropriate --

CHAIRMAN ZIEMER: Right. Exactly.

DR. GLOVER: -- to SEC.

MEMBER BEACH: Yes.

CHAIRMAN ZIEMER: All right. The other thing on -- I don't know if we specifically have it on the agenda, but is the -- the matrix. I know that SC&A distributed their copy of their latest matrix maybe this morning or last night. I'm not sure, but --

DR. MAURO: Yes. I just sent out what I had. I wasn't sure if that was the latest. I just -- it --

MR. KATZ: This is Ted. It's the

old version. It's not updated. But they'll update it for the Work Group for the next time it meets, right?

DR. MAURO: Is that something that -- how do we do that? Is that something that NIOSH will fill in each one and their response, and then we will fill in? How do we go about this?

CHAIRMAN ZIEMER: Well, let me just -- again, I'll give you a quick update of at least from my records -- eight of the 11 matrix issues have been closed. And the only ones remaining are -- according to my records, are Issues 6, 10, and 11. And those are --

MEMBER BEACH: Paul, this is Josie. I think what we talked about in January was that the matrix would be updated to show what was done --

CHAIRMAN ZIEMER: Right.

MEMBER BEACH: -- for a record.

CHAIRMAN ZIEMER: Right.

MR. KATZ: Right. Right. But so at this point, you know, John, just -- well, bring it completely up to date with what has transpired in this meeting as well.

DR. MAURO: Okay. So you'd like me to take care of that.

MR. KATZ: Yes. And if you need information or inputs from NIOSH, absolutely. Just ask Sam for them, and I'm sure he'll provide.

DR. MAURO: That would be great. And having access to the transcripts, I guess -- of course, the previous one I have. I haven't done it, as you could tell. I will certainly do my best to flesh out the matrix, get it up to date, including everything we have talked about today.

And my guess is it would be a good idea for me to, you know, pass it by Sam, make sure I got it right, and -- before we reissue it.

MR. KATZ: Yes, that sounds perfect. Thank you.

DR. MAURO: Okay.

CHAIRMAN ZIEMER: Yes. And, John, just as a reference point, I'm just looking here, I sent an email to Sam on February 26th, with a copy to you, which summarized, at least from my notes, where we were on the matrix in terms of what has been closed, those three open issues, and some related comments. So you might take a look at that as well.

DR. MAURO: Will do.

CHAIRMAN ZIEMER: Okay. Let's see. Are there any other issues relating to Joslyn that we need to discuss today?

MR. KATZ: I don't think so, Paul.

CHAIRMAN ZIEMER: Apparently not. In which case we will adjourn and look forward to seeing a number of you next week.

Wanda, I assume that you won't be able to travel, and we wish you well as you try

to recover from that knee problem.

MEMBER MUNN: Thank you. No, they don't want me on airplanes. And that's too bad, because airplanes and I get along very well ordinarily. But no, enjoy Augusta.

CHAIRMAN ZIEMER: Okay. Well, thank you. We are adjourned.

MR. KATZ: Thank you, everybody.

(Whereupon, at 11:47 a.m., the meeting was adjourned.)