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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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CARBORUNDUM WORK GROUP

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THURSDAY
AUGUST 18, 2016

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The Work Group convened by telephone at 9:00 a.m., Genevieve Roessler, Chair, presiding.

PRESENT:

GENEVIEVE S. ROESSLER, Chair
BRADLEY P. CLAWSON, Member
R. WILLIAM FIELD, Member

ALSO PRESENT:

TED KATZ, Designated Federal Official
NANCY ADAMS, NIOSH Contractor
BOB ANIGSTEIN, SC&A
KARIN JESSEN, ORAU Team
JENNY LIN, HHS
JOHN MAURO, SC&A
JIM NETON, DCAS
MUTTY SHARFI, ORAU Team
TOM TOMES, DCAS

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P R O C E E D I N G S

(10:02 a.m.)

Welcome and Roll Call

MR. KATZ: Welcome, everyone, to the Advisory Board on Radiation and Worker Health Carborundum Work Group. And this is the first meeting of the Work Group.

For folks who, other than Agency folks, might want to access the materials, the agenda for today's meeting and all of the materials that are being discussed, all the papers that have been traded back and forth on various issues, are all posted on the NIOSH website under the Advisory Board section, schedule of meetings, today's date.

So, if you go there, today's date, you can -- all the documents are attached there. You can open them up and follow along with any document that's being discussed. And open up the agenda, by all means, and see what the order of business is.

There will be an opportunity for petitioners to comment after the Agency has gone back and forth, and we welcome that. So, roll call.

(Roll call.)

MR. KATZ: I'd just remind everyone to mute your phones, except when you are speaking. Press *6 to mute your phone, *6 to come off of mute.

And, Gen, it's your meeting.

CHAIR ROESSLER: Thank you, Ted. I want to comment: I'm handicapped hearing-wise sometimes but I can hear everybody really well today. I'm actually real plussed.

So, everyone has the agenda. We will be starting with Tom Tomes presenting a brief summary of the DCAS Evaluation Report. Tom presented this to the Board in July 2015, a very detailed report, but I thought it would be good if you could do a short summary today. So we'll start with that.

And after he finishes, then we'll do SC&A's review of the findings and NIOSH's response to their review. And I think we will do it like we usually do, one finding at a time.

So, Tom's slides are on Live Meeting, in case anyone wants to look at them. We also got them in the attachment to Ted's email that he sent, I think, on the 16th, maybe.

Okay, Tom, if you are ready, let's go.

Brief Summary of DCAS Evaluation Report

MR. TOMES: Thank you, Dr. Roessler. I'll start out here with the Carborundum facility description from the DOE website. Right off, I should point out that, during the presentation in July 2015, we discussed the fact that the Department of Labor was in the process of redefining the first AWE period, and that's reflected here on this slide but I'll flag what it was changed to. And the ER that we prepared was prepared and assessed based on the period listed

here on the slide.

Carborundum is an AWE from June to September 1943 and then again from '59 to '67. And there's a residual period in between those two periods, as well as after.

The Carborundum facility, in June 1943, did centerless grinding for the Manhattan Engineer District. And from 1959 through 1967, they manufactured plutonium carbide pellets for AEC research programs.

The June 1943 work consisted of experimental centerless grinding. At that time, the AEC was interested in finding a way to do the finish grinding on slugs and they sent 10 slugs to Carborundum to test different abrasives that might work.

And the 1959 through 1967 work consisted of methods to fabricate pellets.

NIOSH received the petition in November 2014. The requested Class was for any workers from

the Buffalo Avenue facility in Niagara Falls from 1943 through 1976. And I should point out that Carborundum had another location in Niagara Falls which is not part of this particular petition.

For the 1943 work, we have no records to indicate what particular building or area of Carborundum that work took place. We don't know if it was Buffalo Avenue or the Hyde Park facility. So we did an evaluation of the particular work that was going on and then the location.

The work was limited to the experimental grinding that I mentioned earlier. We have records that Carborundum, and I think it was June 1st of 1943, received 30 pounds of slugs. They reported the results back to the Manhattan Engineer District approximately a month later, shortly over a month later, which basically detailed the different abrasives they tried, ones that worked, ones that didn't. And their experimentation with different settings for

grinding. The slugs were shipped back to the Manhattan Engineer District in the end of September.

For evaluating doses, DCAS is using TBD-6000 for exposure to metal and centerless grinding for internal exposures.

For the residual period immediately after that, we are using the residual radioactive period OTIB for methods to assess resuspension of contamination. That's based on a method that we used in many different sites and using the airborne estimates from that TBD-6000.

The external dose during the residual period is based on contamination levels and dose coefficients in Federal Guidance Report No. 12.

In 1959, Carborundum was a contractor and a subcontractor both through the AEC and to the United Nuclear Corporation in the Reactor Fuel Development Program. They did work initially with uranium and then shortly thereafter they started

the uranium/plutonium research, which was done in a facility designed for plutonium. This work was done in Building 53, which was -- excuse me. The building they did it in was opened in 1953, so it was a modern facility at that time.

The work consisted of developing methods to synthesize the fuels, and also they experimented with different techniques and they did testing of the pellets for the physical properties.

The plutonium laboratory, the contract for the plutonium work was signed in 1959. They received their first shipments of plutonium in 1960 and plutonium was introduced into the laboratory in early 1961.

The laboratory was a fairly small area. There's a lot of details on the construction of it and how it was designed, with the work area was approximately a 555 square foot area. It had six glove boxes and other equipment for processing the

materials.

The uranium laboratory, that uranium work that was done initially, was done in the same area of the same building. However, it was not in the plutonium facility. The first floor of this particular building had a uranium laboratory and then they had the plutonium laboratory adjacent to that.

The uranium work, since there were small batches of monocarbide, mononitride, and uranium silicide, they, similar to the pellet work for plutonium, that work consisted of experimental methods to fabricate those compounds into pellets.

The plutonium laboratory primarily produced uranium and plutonium monocarbide that was used in the Fermi fast breeder reactor for experimentation purposes. That work studied the physical properties and the use of X-ray diffraction.

The work in the second AWE period, you

have air samples from the uranium work -- excuse me. We have air samples from 1959 to 1961. We do not have any external dosimetry for that work.

The general area air dust were taken November 1959 and April 1961. Nine of the results are legible and positive. Plutonium air samples are available from June and April 1961, April 1961 being shortly after the facility introduced plutonium in March. Those results include both general area and breathing zone samples. And nine of sixteen of those samples were positive.

The air sample data we have on those, on both the uranium work and plutonium work, are used to estimate intakes to workers. For the uranium, the general area air samples were evaluated and we used the 95th percentile to be applicable to support workers. And for operators who have been more closely involved with the material, we are doubling that intake.

And for plutonium, the air samples are

identified as both general area and breathing zones. And based on the layout of the facility and where the samples were taken, we have a somewhat different approach there doing a favorable interpretation of that data. All the samples were considered to derive an intake.

And I should point out the plutonium work, we have gross alpha air sample results, and those results are a mixture of plutonium and uranium.

For the external doses, we are using the initial uranium work. We have no dosimetry data. We are using TBD-6000 dose rates to estimate the intake -- excuse me, a dose rate.

The plutonium work was started shortly thereafter. We used MCNP to model external doses based on the material that was in process. We have information on the quantities that they had in process at any one time.

And we also evaluated X-ray diffraction

that was used to analyze the compounds being formed. And that was done from -- those X-ray diffraction dose rates are based on measurements from Pennsylvania in 1966.

The residual period started in 1959. We used a similar approach as we did for the 1943 work, using the OTIB-70 air sample results and resuspension. And, likewise, on the external dose, using Federal Guidance Report No. 12 to estimate an external dose.

There are a lot more details and I just tried to give a quick overview here of this. So, I'd be glad to answer any questions before we proceed.

CHAIR ROESSLER: Thanks, Tom. I think that this is ready to hear from SC&A. But the one thing that I think we should have, and I don't see a slide on it, it was the last slide in your original presentation. Maybe you can verbally discuss NIOSH's summary regarding the ability to do dose

reconstructions.

MR. TOMES: Yes, I meant to do that and I didn't have a slide on it.

Yes, we've concluded that, based on the information we have on the work that went on and the amount of materials that were handled that these methods are sufficient to estimate doses. So we are recommending no SEC Class for this facility.

DR. MAURO: Tom, this is John Mauro. Just a quick question. I'm always interested in the differences between the general air samples and the breathing zone air samples. And I see you have some data on the plutonium values. I haven't looked for it or anything, but is that data available? I sort of keep a record of that kind of information because we run into that very often where internal doses are being reconstructed, and sometimes all you have is general air samples and I'm always interested in seeing the difference

between the two. Are there data available?

MR. TOMES: Are you talking about the plutonium data?

DR. MAURO: Plutonium data, yes.

MR. TOMES: Yes, they're in SRDB Reference 11452.

DR. MAURO: Okay, thank you.

DR. ANIGSTEIN: John, this is Bob. I can get you that data.

DR. MAURO: I appreciate that. Thank you.

CHAIR ROESSLER: Okay, any other questions at this time?

MEMBER FIELD: Yes, this is Bill. I had the same question about the air sampling data. The other question I have is, how many workers are we talking about here?

MR. TOMES: The 1943 work was experimental using a grinder. So, they obviously -- and ten total slugs were handled. So,

obviously, it was a very small number of workers involved with that.

The 1959 through '60, early '60s uranium work, that was an unknown amount, but it was a fairly small amount of material involved.

For the 1961 through 1967 plutonium work, all that work was done in a small plutonium laboratory and interviews indicated that they operated one shift per day, five days per week. And we have interviewed someone who said he was the one who was -- he was the only one working there fulltime. So, obviously, there would be other people involved in certain activities but we're talking about maybe a handful of people.

MEMBER FIELD: Okay, thanks.

MEMBER CLAWSON: This is Brad. I was kind of wondering the same thing. Was this plutonium facility, was it under any kind of lock and key or was there any way of not allowing any of the other workforce in there? Do we have any

information on that?

MR. TOMES: We have information from multiple interviews and references that it was secured and tightly controlled. And other workers who worked in the laboratory on the fourth floor outside of the plutonium facility said they were not allowed into it and had never entered it because they had it secured. And that seems to be a consistent theme through everybody we interviewed.

MEMBER CLAWSON: And on the uranium part, in the early years when they were bringing that in, how long did this work go on, this checking for grinding and different processes? How long are we looking at?

(Simultaneous speaking)

MR. TOMES: Well, we have shipping records. This was part of a project. DuPont handled a bunch of subcontractors who did various phases of work with the uranium slug process. And part of that involved using lathes to finish grind

the materials, and they were trying to find a method to speed up that process. And centerless grinding was one of the ideas they had.

So they sent ten slugs in June, I think it was actually June 1st, in 1943. And they reported back approximately one month later the results of those tests. And we have records that the slugs were shipped back, I believe it was September the 27th. So they were there from basically June through September. And we know of work going on only in June as far as the experiments themselves.

MEMBER CLAWSON: Okay, thank you.

DR. MAURO: This is John. One question. It might be a silly question. But the X-ray diffraction activities, they had a special room for that. It wasn't in the same area or room where other workers were involved, or let's say working with glove boxes or anything like that?

MR. TOMES: That was a different floor.

I believe it was the second floor, but it wasn't on the same floor. There was a separate area in a separate room.

DR. MAURO: Okay.

CHAIR ROESSLER: I think what John is leading up to -- and I wanted to ask, too -- did any other workers have access to the X-ray diffraction units or was it just the people who were actually doing the work?

MR. TOMES: Our interview with -- we went back -- SC&A interviewed one of the workers who operated the equipment. And then as a follow-up a couple of months ago, we also interviewed him for additional information. And he told us that there were three pieces of equipment in the room where the X-ray diffraction unit sat. And he said other people may have entered but no one else worked there. And so basically there were three people, typically, that would be in there. That's approximate, but it was not a routine launch

pad area by the people. I'm not sure there was a positive control on that facility.

CHAIR ROESSLER: Okay, any other questions? Then I think we are ready for Bob Anigstein's review. And he has a lengthy paper that came out earlier. And then in April, he presented a very nice Issue Resolution Matrix with his findings and issues, and that's probably a good thing to following along with. Along with the summary of the issues, he has indicated the level of importance of each one of them.

So, if everyone can find that, I think, Bob, we are ready to go.

Review of ER and Findings by SC&A, NIOSH's Response to SC&A Findings; and Work Group Discussion

DR. ANIGSTEIN: Yeah. Yeah, that is exactly what I had planned to do. Thank you.

So I'm going to start. I mean, we have the 50-page report, so I'm not about to read that out loud or go through it in complete detail, but I will refer to it. But I will start off with the

issues matrix.

Alright, Issue Number 1. I'll just read it, so if any of the Board Members have it handy on their computers or on paper, it might make it easier to follow. Issue Number 1 is -- now, we're referring to the original ER. "NIOSH failed to prescribe a methodology to assess doses to skin of hands and forearms from X-ray diffraction apparatus."

I would like to then simply jump to the conclusion that, in the report that Tom Tomes issued on June 8th, he did in fact prescribe a methodology. And that is that the XRD operators/technicians would be assigned the rad support dose for the glove box workers. Basically, the glove box workers' dose, assuming 50 percent exposure.

And we find that to be quite bounding, and, therefore, the issue is resolved. The 10.8, I believe, to the skin of the whole body, and 115

to the skin of the hands and forearms seems to be quite bounding for the XRD operators.

I don't entirely agree -- there was a separate report that was attached by Elyse Thomas from ORAU which gave a much, much lower dose. We don't entirely agree with that methodology, however, that becomes a moot question because of the doses that NIOSH plans to assign to these workers or to anybody that might have been such a worker.

The second issue is NIOSH failed to address thorium as a possible radiation source. So, one worker that was interviewed by NIOSH, and also I interviewed him on behalf of SC&A, did say that somewhere around 1955, in that era, he was doing experimental work with making pellets. The AEC-related work in '59 through '67 was making pellets for experimental use in reactors. They were very small, a couple of centimeters long, about a centimeter in diameter in rough numbers.

And they were both doing uranium and then later they were doing a uranium-plutonium carbide, and that was the nature of the pellet work.

Well, this man apparently did something very similar in '55 using thorium. We first said, well, perhaps that thorium was related to weapons work, because at one time there was some experimental work done with mixed thorium-uranium. I believe it was at Fernald. It was the basis of some other work that was with SC&A some years ago. And we felt that perhaps this could be weapons-related.

The response that NIOSH had to furnish to that was that it seems -- we can't rule it out totally, but it seems unlikely. There were copious records on uranium and plutonium being shipped to the Carborundum. There were no records of thorium and no evidence of thorium, except this one man's account.

However, he seemed to be very clear

about this. And I looked at the interview notes from the ORAU interview and he was very -- and several months later, I interviewed him and it was entirely consistent. That is one way you can -- that I judge the veracity of the workers that we are interviewing. In other words, I'm not always perfect after 50 years, and neither is a lot of us, but when they give a very consistent story several times, I tend to say, gee, this person really does seem to have a good recollection.

However, he could not say. I asked him if he knew who the client was, and he could not remember who it was being shipped to. So we are willing to accept that it's most likely not weapons-related.

However, these facilities at question, that this worker did say the thorium was received as a powder and he said that spills were likely. So if there were spills of thorium and there is no record of thorough decontamination of the

facility, and since thorium and uranium were handled in the same facility, as a matter of fact, NIOSH pointed out in its response that there is a biographical sketch of one of the managers, one of the key people, [identifying information redacted], that's whose name appeared on many of the Carborundum progress reports. And he set up two facilities. He set up a plutonium facility and he set up a facility for uranium and thorium. So it was the same facility that was being used.

And consequently, there is definitely a likelihood that there would have been thorium contamination, and that should be accounted for as a source term during the second operational period.

Since it was not weapons-related, or rather we are assuming it is not weapons-related, there would not be doses during the second residual period which -- I mean the first residual period, because that would only be the weapons-related work.

However, during the operational period, those thorium residues would come into play. Now, the response, Tom Tomes' response was that this would have been picked up when they did the uranium gross alpha samples. And we agree with that. However, the problem is that the dose conversion, just looking at the effective dose, just using that as a surrogate for the individual organ doses, the effective dose from inhaling thorium Class N, five microns, is about over three times as great as that from U-234, which is used to characterize uranium.

So, consequently, even for the alpha, the intake in terms of gross alpha might be based on the air samples. It does not account for the thorium, for the possibility. Yet, some of those alphas are actually from thorium. It should be assigned a higher DCF.

So, we don't have an answer to that, but we believe that NIOSH should address that in their

final amended report or whatever document comes out of this review. So, that's Issue Number 2.

CHAIR ROESSLER: Bob?

DR. ANIGSTEIN: Yes.

CHAIR ROESSLER: This is Gen. I'm wondering if it might be better, rather than to go through all of them, just to take each issue one at a time. And I'd actually like to go back to Issue 1, which is X-ray diffraction.

I think you said that you gave both your evaluation and then you mentioned NIOSH's response.

DR. ANIGSTEIN: Okay.

CHAIR ROESSLER: And I think you said that you and SC&A were okay with NIOSH's response. So, for Issue 1 or Finding 1, is that one, do you considered that closed, then?

DR. ANIGSTEIN: Say again?

CHAIR ROESSLER: Would you consider Issue 1 closed on the X-ray diffraction?

DR. ANIGSTEIN: Yes, Issue 1 is closed. We don't -- I mean, they can make a response but we accept their solution to Issue 1.

CHAIR ROESSLER: Okay.

MR. KATZ: Okay, this is Ted. I'm sorry. I just want to say, SC&A doesn't close issues. Only the Work Group can close issues. So, their recommendation is to close that issue, but then the Work Group can discuss that.

DR. ANIGSTEIN: I stand corrected.

CHAIR ROESSLER: But I think in order to do that, we need to follow that through and ask if there is any response then from NIOSH on Issue 1 or Finding 1.

MR. TOMES: This is Tom. As Dr. Anigstein indicated, we evaluated X-ray diffraction based on comments he made on how we assessed that, and he did come up with the dose values and that is explained in the paper that Elyse Thomas wrote. As indicated, that indicates the

support personnel external doses that we were proposing to use is significantly higher. So that would be our response, to use the higher doses to bound those workers.

CHAIR ROESSLER: Are there any questions from the Work Group on that one?

MEMBER CLAWSON: Gen, this is Brad. I've got a couple but I'm going to hold off until I get a better taste on what we're doing right here.

CHAIR ROESSLER: Okay, so as far as you're concerned, we are still open on that one. Do you need more discussion on Finding 1 right now, Brad? Would this be the time to bring it up?

MEMBER CLAWSON: No, I'm just -- you know, I understand what they are doing there but I don't want to also be just throwing a bunch of dose at it. You know, if this is the best that we can do -- I need to think about this a little bit.

CHAIR ROESSLER: Okay.

MEMBER CLAWSON: We'll go ahead and

keep going.

DR. NETON: Brad, this is Jim. Maybe I can give you a little more clarity on this, because I get a little confused when we talk about this as well.

What happened here was we came up with a dose that was pretty small for the X-ray diffraction operators, something less than 200 millirem per year. And SC&A said, well, there are some issues and parameters and stuff that we could use. And that happens when you do these type of modeling doses. But when we looked at the doses that we're assigning to the people that actually worked with uranium during this period, the skin doses are very large. They are approximating, I think, 11 roentgen per year.

And it's been our policy that we would assign -- we can't differentiate who did what, when, when and where. So we would just assume that everybody that had a claim worked with uranium

during that period. And you can't be two places at once. So the uranium dose is going to bound anybody's exposure, even if they worked with X-ray diffraction units.

That's the gist of what happened here.

DR. ANIGSTEIN: Excuse me, Jim.

DR. NETON: Yes.

DR. ANIGSTEIN: I think, if my recollection is correct, that the limiting dose, external doses for the glove box workers, are from plutonium, not uranium.

DR. NETON: I'm sorry. Whatever it was, it was a larger bounding dose that we would assign.

DR. ANIGSTEIN: Yes.

DR. NETON: And it far exceeded any reasonable estimate that you could come up with for an X-ray diffraction operator, at least in our opinion. Thanks for the correction, Bob.

MEMBER CLAWSON: So, Jim, what you are

telling me is that so you are figuring that by doing this it was going to bound the X-ray diffraction.

DR. NETON: Yes. Yes.

MEMBER CLAWSON: Okay, that's all I needed, Jim. Thank you. And thanks, Jim. I appreciate that.

CHAIR ROESSLER: Okay, so then it sounds to me like --

MEMBER FIELD: I had a question. Is NIOSH's response written somewhere or are we just capturing it through discussions?

DR. NETON: No, that's reported in our --

MEMBER FIELD: In your documents.

DR. NETON: Yes.

MEMBER FIELD: Okay. So, I guess it is closed based on the response that's in the documents.

DR. NETON: No, we responded and SC&A just formally or orally came back and agreed with

our response.

MEMBER FIELD: Right.

DR. ANIGSTEIN: We did not formally respond to the June 8th report. I'm responding to it now.

MEMBER FIELD: Okay.

MR. KATZ: Right, that's fine.

CHAIR ROESSLER: So we don't -- do we have John Poston on the line yet?

MR. KATZ: You don't have John, but you have a quorum. You don't have to wait and get John for this.

CHAIR ROESSLER: Thank you. So it sounds like on Issue 1, then, the Work Group concludes that that one is closed. And hearing no objections to that, then I think we can go on to -- I just thought it would be better to take these one at a time, Bob.

And then I think we can go on to your discussion on thorium. And I think you had

finished talking. So I think the Work Group then needs to talk about your conclusions on that.

MR. KATZ: Well, I think you want to hear back from Tom Tomes first, right?

CHAIR ROESSLER: Right. Yeah, Bob has already said what NIOSH concluded in their follow-up report, but, yes, let's hear from Tom.

MR. TOMES: Okay, as indicated, Bob did explain the gist of our response, is that we have gone through every available information we have and interviews with workers. And there was indication in multiple accounts that they did some thorium work in 1955. Didn't see anything specifically, other than 1955, and it was in reference to the uranium-thorium laboratory area. And there is no specific information on quantities or whatever. And I speculated in my response that it could have been for the GE -- they had a subcontract with GE. And I do not know if thorium was involved but I could speculate that perhaps it

was from that.

They listed a -- Carborundum had issued a report listing all the research work, and that was the one that of the ones that I thought were listed that it could possibly be. And that particular report at that time had the scope of work classified. But we do know that it was possible they could have had some thorium work there for that particular program.

So, our assumption is that this was not weapons-related work that should be covered. And I would have to agree with Dr. Anigstein that perhaps we need to look at the interpretation of the uranium air samples of 1959 to see what is the best way to interpret those and whether or not we need to consider thorium.

But other than that, I agree with his response that we did not specifically assess those air samples as being thorium.

CHAIR ROESSLER: So, your statement

that you would use an effective dose three times as great as the one you proposed, is that something you still need to look at?

DR. NETON: Gen, this is Jim. I think I'd like to take maybe a look at the broader picture here, though. I'm kind of reluctant to say that we are going to make up or assume that contamination happened with commercial activities four years later that we are assessing dose for. I think that's kind of a place where we typically don't go.

We have no indication of any contamination. So we would just be sort of making up, speculating that there was some. And I'm not sure that's what we really want to do here. We sort of, we acknowledge that it was likely commercial activity, if it did occur. But to come up and assume that all the uranium that's measured in the air sample, the smear, the 1959, are thorium, I think, is not a good place to go.

DR. ANIGSTEIN: But there needs to be

some.

DR. NETON: Well, no, Bob, because there's no indication there was any. If the people who worked --

DR. ANIGSTEIN: We have the worker. The worker who said --

DR. NETON: If he said he worked with it and it was residual contamination there, then, I'd say sure. But there is no indication how much they did, how much they spread.

DR. ANIGSTEIN: I agree. But unless you ignore that worker's testimony, he says he worked with thorium powder and he told me that spills were likely.

DR. NETON: Okay, but he didn't say that they left residual contamination all over the place.

DR. ANIGSTEIN: No, of course he didn't, and you wouldn't expect him to.

DR. NETON: Right. But I mean, just

because there were spills doesn't mean there was contamination there four years later.

DR. ANIGSTEIN: I agree, but we don't know that there wasn't.

DR. NETON: Well, we can't prove a negative here, but I don't think -- we don't make up source terms like this, usually. I mean, if somebody worked with something ten years before and it was commercial, we have no indication that there was any activity there at all.

DR. ANIGSTEIN: But nobody looks for it.

DR. NETON: We don't know that. You don't know that.

DR. ANIGSTEIN: No, no, no. There is no report of cleanup. There's no report of somebody saying let's check the thorium.

So, generally, the general procedure is you make the -- when in doubt, you make it a claimant-favorable assumption. If you don't know

what the source term is, you assign a source term that's plausible and favorable to the claimant.

DR. NETON: I think it's unreasonable, though, to assume that all activity measured --

DR. ANIGSTEIN: I wouldn't say -- I agree with you. I agree with you.

DR. NETON: And you don't know the original source term. So, what fraction would you take? See, that's the problem.

DR. ANIGSTEIN: But to dismiss it entirely doesn't seem reasonable either.

MR. TOMES: This is Tom. I would like to point out that we do know that, during the same period, they handled quantities of uranium. And we have information on that. And we even know that when the GE contract was closed out, they transferred some uranium to the AEC contract for the uranium carbide work. There was no mention of thorium at all in those transactions I read about.

DR. ANIGSTEIN: It could also -- I

would like to speculate it could also be that the same worker that was interviewed by both parties didn't even realize. He said, at the time he didn't even know thorium was radioactive. So they were not even treating it as radioactive material.

He knew uranium was radioactive, but he was -- now he knows thorium was radioactive, but he said at the time he didn't know that. So there may have been differences in the handling. And certainly, if he was the one who was personally manufacturing those pellets, he was the first one who would have been told this is radioactive material, that you have to take the following precautions.

So, it's possible that they were just negligent on that score, and, therefore, it would not have been entered into the records. I'm just speculating.

MEMBER FIELD: This is Bill. So, as far as you know, this is the individual who has the

most knowledge about these potential activities?

DR. ANIGSTEIN: I'm sorry, say again?

MEMBER FIELD: Since you only interviewed one person, it sounds like there weren't a whole lot of people that worked in these areas to begin with. Is there someone else that could be interviewed to get more clarity or to see if there's agreement or disagreement on this thorium?

DR. ANIGSTEIN: Well, there were only three, from what I could -- my review of the interviews conducted by NIOSH -- there were seven interviews conducted, actually. One was a survivor, so he wouldn't have that much information. And of the remaining six, only three have any knowledge of work with radioactive materials. So, this person was one of three. You might say it's a 33 percent sample.

CHAIR ROESSLER: But if he didn't even know thorium was radioactive, to me, it doesn't

seem like he had --

DR. ANIGSTEIN: I'm sorry?

CHAIR ROESSLER: The worker said didn't realize back then that thorium was radioactive. To me, that means he doesn't know much about thorium and maybe his information was not that reliable.

DR. ANIGSTEIN: Well, he was clear that it was thorium. He repeated thorium to both the ORAU interviewer and to myself. So, he was very firm about that. He was very clear about the date. In both cases, he said 1955 or mid-1950s. He was very consistent on that score.

And besides, we do have the documentation that this -- I don't know if I'm supposed to mention these names, so I won't -- the [identifying information redacted] engineer whose resume was identified by Tom Tomes in his response, specifically said he set up a facility for handling plutonium and he set up a facility for handling

uranium and thorium. So, clearly, thorium was handled.

MEMBER CLAWSON: This is Brad. This isn't unusual. We have run into this at so many facilities and they looked at thorium as really kind of an no-nevermind. So, this isn't anything new, I'm sure we can get our hands around that if we're going to do this. But I don't think we can also dismiss it either.

CHAIR ROESSLER: Do we have any precedent in other situations where we have one interviewee with information that perhaps is not supported in any other way? Or does NIOSH have a follow-up that we could do to verify this?

MR. TOMES: This is Tom. We have asked several people. We've searched through CATIs for claimants and we've summarized the information we have. And we do not know where else we can find more information. At least, I do not know of any.

I would like to point out that whatever

thorium that could've been present would have been relatively low. I'm looking at the air sample results. The 1959 gross alpha air sample results, I'm looking at five of the -- excuse me, six of the seven reported results. One is a control. Five of the six reported results were negative. And then the results in the next series of air sample results for uranium did detect some activity, which was later.

So, I mean, there's no indication in the records that, in 1959, that they had a significant airborne hazard.

DR. ANIGSTEIN: Would it then be reasonable, despite -- I understand Jim's position about setting a precedent, but if this is a relatively small dose, would it be, for the sake of settling it, would it be reasonable to say perhaps half of it was thorium? And it's not going to give anyone a dose that's off the charts. It's probably going to make a minor contribution, and

yet it will be a plausible, claimant-favorable solution. I'm just suggesting.

DR. NETON: This is Jim. I guess we have no basis of why to say half is the right number.

DR. ANIGSTEIN: Since thorium and uranium were handled in the same facility, it's just a middle ground. It could 100 percent, it could be zero percent, but 50 percent sounds like a reasonable, an average of the probabilities. This is done in probabilistic work all the time.

DR. NETON: Yeah, I understand that we've done this before. I think that this is something that we probably need to think about a little more. This is sort of precedent-setting in my mind. I think we can agree that the answer is somewhere between zero and what the air samples measured. So, in essence, I think that does, in my opinion, kind of qualify for a Site Profile issue and not an SEC issue.

DR. ANIGSTEIN: Definitely.

DR. NETON: And for purposes of this discussion, I think we could just agree with a path forward on this and move forward. I'm not comfortable agreeing right now to start adding thorium. I'm not saying we won't but I think we need to think about a little more.

CHAIR ROESSLER: Well, are we saying then, that it does not affect the SEC decision but it is a Site Profile issue?

DR. NETON: That is what it seems to me to be. That is my belief.

CHAIR ROESSLER: And what about SC&A's response on that?

DR. ANIGSTEIN: Well, we agree that it is a Site Profile issue.

DR. MAURO: Yes, this is John. I agree also.

CHAIR ROESSLER: So, the question to the Work Group would be, is this issue closed with regard to the SEC decision.

MEMBER CLAWSON: This is Brad, Gen. I would say that it is, the one that we just captured. You know, make sure that we capture it in the Site Profile and go from there.

CHAIR ROESSLER: Okay. Bill?

MEMBER FIELD: Yes, the only thing I am looking at is one of the other arguments was the use of thorium needs to be further investigated. It sounds to me, from what I am hearing, is that there is little information to investigate it. Is that NIOSH's view?

DR. NETON: This is Jim. I think that is what Tom was indicating. But for the use of thorium, I think we have agreed that it is not AEC-derived, at least we can't determine it is AEC-derived. If it does come up later that it was AEC-derived, then the Department of Labor would have to amend the time period anyway.

MEMBER FIELD: Right.

DR. NETON: So, the whole point is it

is commercial -- if it did occur, it was commercial activity in the mid-1950s and the whole question right now is whether or not we need to reconstruct that commercial activity during the covered period in '59. And I'm still not 100 percent convinced that that is the way to go but I am open to -- we are open to thinking about that.

DR. ANIGSTEIN: Not to be redundant but even regardless of where this came from, if there was a radiation source during the covered period, all radiation sources, regardless of their origin, need to be addressed.

DR. NETON: Oh, I agree, Bob. The question in my mind is is it a radiation source that needs to be addressed.

DR. ANIGSTEIN: I wasn't sure you were saying that.

DR. NETON: Yes, that is what I was saying.

CHAIR ROESSLER: Okay, so we are going

to stand on this, then. It appears to me that we can move on because this is not an SEC issue. Am I correct on that?

MEMBER CLAWSON: Gen, this is Brad. In my mind, yes, this is not an SEC issue. So, we can resolve it. To me, it is kind of resolved and we will bring it up as a Site Profile issue.

CHAIR ROESSLER: Okay. Bill?

MEMBER FIELD: I think that is fine. It is kind of weird, though. You are talking about air sampling. If there were spills that took place, you know, we don't know if there was air sampling that took place during the alleged spills or not.

So, yes, I am fine with Site Profile.

CHAIR ROESSLER: I'm thinking, unless somebody objects, we can move on to Item 3.

MEMBER CLAWSON: Gen, this is Brad one more time. Jim made a very good point. If we find out any more information on this, you know we will

work through it and stuff like that.

You know, I guess I am just sitting here looking at the sites that I have dealt with and it seems like every one of them we have thorium popping up, especially in the '50s and the '60s era and at Fernald it's popping up a lot more.

I just want to make sure that we don't overlook this. I feel good that if we can address this by the Site Profile issue, then I think we can do it. But we will leave this to NIOSH and it can maybe come back to it with us.

CHAIR ROESSLER: Okay, I think we can allow a little more thinking time on this. And I think we will just move on to the next issue and we can come back to this later in the discussion today if somebody wants to.

MR. KATZ: Are you closing it? I think I heard closing and then you are saying come back to it. But Gen, there is no more information for today.

CHAIR ROESSLER: Yes, I think as far as we are concerned today, as far as an SEC issue, it is closed.

MR. KATZ: Okay. Okay, so over to you, Bob.

DR. ANIGSTEIN: Okay, Issue number 3, is background radiation, Issue number 3, the strontium-90, I went into the New York Times archives for Carborundum and I found that in 1952 they simply said "the Carborundum company in Niagara Falls, New York, had acquired --" this was a press release they had given, "they had acquired five thickness gauges containing strontium-90 to use in their Coated Products Division," basically, better known as sandpaper, at least in this example. And the focus on the gauge was you have the strontium source sitting on one side of the paper and it is processed as it is being coated, and then the detector on the other side. And if the coating got too thick, the signal would go down.

If the coating got too thin, the signal went up. It was an automated feedback loop to control this coating and they were very proud of it. It was a big innovation.

So, the finding was this was not mentioned by NIOSH and, therefore, it needs to be addressed. Even though this is not AEC-related but, again, if continued -- it was acquired in '52 and if it continued to be in use during the next covered period starting in '59, it would have to be addressed.

And NIOSH, in their response, did further research and they found that the Coated Products Division had been moved to a nearby town, Wheatfield, New York, which I think is somewhere near Niagara Falls but it is a different facility.

And I confirmed that actually by finding a Niagara Falls Gazette article, which confirmed that the Carborundum Company had several divisions and the Coated Products Division was in

Wheatfield.

So, therefore, this seemed like a reasonable issue at the time we brought it up but we agree that NIOSH's response to it, that it was not at a covered facility. And therefore, we would recommend that this issue be closed.

CHAIR ROESSLER: Okay, NIOSH? Am I off mute?

MR. KATZ: Yes, you are, Gen.

CHAIR ROESSLER: Okay, I couldn't remember.

Tom or Jim, do you have any comments on that?

MR. TOMES: This is Tom. Dr. Anigstein summarized our response fairly well. My conclusion was that it was at the -- I believe it is Wheatfield, New York, plant and that appears to be there was no indication that it was in the Buffalo Avenue location at all.

CHAIR ROESSLER: Okay and this is in

the NIOSH report and I guess the Work Group has looked at that. Are we willing to accept this as an item that is closed?

MEMBER FIELD: This is Bill. I think it is closed.

CHAIR ROESSLER: Brad?

MEMBER CLAWSON: It takes me a while to get off mute. Yes, that is closed to me, too.

CHAIR ROESSLER: Okay, any other questions, then on Finding 3?

Alright, well then, Bob, let's move on to your Issue 4 on medical.

DR. ANIGSTEIN: Issue 4 is that NIOSH had -- the ER had not assigned medical X-rays during the first operational period. Based on a statement made by DuPont or the prime contractor that there were no medical issues involved with the uranium grinding. However, according to the NIOSH policy, it didn't have to be medical X-rays as a result of the work. It was simply normal

pre-employment physical, post-employment physical sometimes, and certainly the annual physical.

And so the response of Tom Tomes was they will include the medical. They agreed -- NIOSH agreed that medical X-rays should be included. And that being the case, there is no more issue.

CHAIR ROESSLER: Okay, any comments from NIOSH on that one?

MR. TOMES: No, we agree that we should include the X-rays for the first residual period.

CHAIR ROESSLER: Okay, Work Group?

MEMBER FIELD: Sounds closed.

CHAIR ROESSLER: Who was that, Bill?

MEMBER FIELD: Yes, it's Bill.

CHAIR ROESSLER: Okay, Brad?

MEMBER CLAWSON: Yes, I'm in. Yes, that's good.

CHAIR ROESSLER: Alright. Then a similar finding for the second operational period.

Bob, would you like to discuss that?

DR. ANIGSTEIN: I'm sorry, could you say it again?

CHAIR ROESSLER: Okay, so we all agree to close Issue 4, which was the issue about medical X-rays during the first operational period. So, then, let's go on to Issue 5.

DR. ANIGSTEIN: Yes, okay. Issue 5 is similar, that the -- well, it is a little more convoluted in that the ER, as I said, they would assume that the medical X-rays would be, we will assume, pre-employment, annual and termination chest screenings. However, in the example DR, the medical X-rays were not included. And again, Tom Tomes' response is that they should be.

So, that is satisfactory as far as we are concerned.

CHAIR ROESSLER: Okay, Tom, do you want to comment on that?

MR. TOMES: Yes, in the example DR

there is not a full best estimate dose and that is all that amounts to that. It was not real clear in the write-up that that is what the case was. That is the case that we intend to include X-rays.

CHAIR ROESSLER: Okay, Work Group, any questions or comments, Bill or Brad?

MEMBER FIELD: This is Bill. I'm okay with closing.

CHAIR ROESSLER: Okay.

MEMBER CLAWSON: This is Brad. I'm okay with closing.

CHAIR ROESSLER: Okay, we will move on, then, to Issue 6, Bob, which deals with FGR 12.

DR. ANIGSTEIN: Right. Okay, in several places, the ER refers to -- they describe scenarios that are based on the job descriptions and source terms in the TBD-6000. However, the prescription for the actual dose conversion factors for external doses are based on the Federal Guidance Report number 12, which is a 1993

documented prepared by ORNL for EPA. And this has been consistent with NIOSH policy to use TBD-6000 when applicable. And also, in some cases, it is claimant-unfavorable.

Just as background, the FGR 12 calculates -- the doses they calculate are in terms of a quantity called effective dose equivalent, which is based on ICRP 30 that is no longer being used and besides, even aside from that, it can't be used. It is already an average, a weighted average of individual organs. So, therefore, it cannot be applied to calculating individual organ doses which the dose reconstructors are required to do.

So, consequently, we believe that it should be using the tables in TBD-6000 which specifically address these scenarios. So, we believe that that is what should be used. And again, jumping to the conclusion, Tom Tomes' response is to agree that NIOSH will use TBD-6000,

in which case the issue becomes moot.

CHAIR ROESSLER: Okay, Tom, any comments?

MR. TOMES: Yes, that is correct. We are saying we need to revise our methods to incorporate the comment.

CHAIR ROESSLER: Okay, so basically, you are going to be using TBD-6000 tables that he mentions here instead of FGR 12?

MR. TOMES: Yes, ma'am.

CHAIR ROESSLER: Okay, Work Group, any comments on that?

MEMBER FIELD: This is Bill. No comments.

CHAIR ROESSLER: Brad? Brad, you are on mute.

MEMBER CLAWSON: Sorry, it takes me a little while to get off mute. I have no issue with this.

CHAIR ROESSLER: Okay, any other

comments from anyone else on that? Otherwise, that one is also closed.

So, let's move then to the last of the findings, Issue 7.

DR. ANIGSTEIN: Okay, Issue number 7 is that normally when we are doing a review, we look at individual cases and we check how NIOSH has reconstructed the dose. Really, we do the case audits. Here, there were no cases to audit because we did audit one case two years ago and it turns out that case is the basis of the SEC. It is the survivors of that deceased worker who filed the SEC petition and, at that time, there were a number of issues, which were largely addressed in the ER. So, that is not really relevant.

And therefore, the only other thing was this example DR, which was furnished as a supplement to the ER. And I took four -- there were five organs that were addressed. I looked at four of them. And in each case, we actually found that

the doses we calculated were significantly lower than the doses calculated by NIOSH by maybe differences on the order of 50 percent -- I mean maximum differences, external dose/internal dose.

And the response was that, for internal dose, which came from uranium, they had mistakenly used Class F, as in fast, which is not one of the compounds that would be found in this facility and consequently, there were errors in the doses, and the other response was that they used efficiency methods. So, therefore, the dose calculations were approximate, not exact.

And our response, my response to that is that may very well be alright in an individual case to use, let's say, if the case clearly not compensable, they can overestimate. They can do a quick DR that deliberately overestimates the dose to show that even with this overestimate, the case is not compensable and, therefore, they don't need to the time doing a very detailed dose

reconstruction.

However, this is an example that is to be used for all future dose reconstructions. We believe that it should be done in the more exact, precise manner. And therefore, we cannot verify that this is correct.

In each and every case it is claimant-favorable but clearly, for instance, one example of dose to the kidney, for instance, our calculation comes out to a dose of 35 rem and -- I'm sorry, 36 rem for the kidney; whereas, the NIOSH dose is 74.7 rem. So, we are talking about over a factor of two discrepancy.

So, we would like to see a more detailed exact calculation that we can verify before we sign off on that.

MR. KATZ: Bob, could I just make one comment with respect to the purpose of DR examples with Evaluation Reports, the purpose of those is proof of principle, just to be clear. It is really

to show that in fact the doses can be feasibly reconstructed.

DR. ANIGSTEIN: Very good. I understand that.

MR. KATZ: Okay.

DR. ANIGSTEIN: I mean I accept that.

See here, we, speaking for SC&A, John Mauro can correct me if I am misspeaking, this is our one opportunity to review both the feasibility of dose reconstruction and also the methodology of dose reconstruction.

So, unless we were to have scheduled two separate reviews, one for SEC issues and one for Site Profile issues, I thought it would be appropriate to address it.

MR. KATZ: Yes, no harm done, Bob. I am just saying SC&A separately does get tasked to review Site Profiles and TBD matters. So, that does happen independently. But I am just explaining the purpose of these example DRs is

really pretty narrow.

DR. ANIGSTEIN: I understand.

MR. KATZ: That's all.

DR. ANIGSTEIN: Yes, I hear you.

MR. KATZ: Okay.

DR. ANIGSTEIN: And by the same token, I guess I was saying this is our one opportunity. But by the same token, there was a number of issues -- of items -- well, I guess perhaps I should stop talking because I will allow the Work Group to discuss Finding 7.

CHAIR ROESSLER: Well, I think we should also hear from Tom but I mean really the same point, this is not -- although you say until you can verify the results in the sample DR, you cannot conclude that NIOSH can reconstruct doses. To me, that seems like that statement is not pertinent. And I think we should hear from some others on that.

MR. TOMES: This is Tom. I would like to add a little bit to the comment on the numbers

difference we had.

The external doses, Table 2 of the SC&A report has the numbers by the NIOSH examples and the numbers by SC&A. The external doses are relatively consistent. There are just small differences and I believe some of that can be explained by the appropriate DCF that is being used and some adjustments that need to be made on our part, possibly. And the difference really is the internal doses. The large difference in the kidney is accountable for assuming Type F for the 1943 work. And so we overestimated that and that accounts for the large difference.

The methods used were not exactly precise, as indicated. And I also want to point out that SC&A, I believe, used DCAL to estimate the internal doses and we used factors from IMBA. So, there are some differences in what we used there. And I assume that these differences in the methods used to estimate the doses account for these minor

fluctuations in the totals. I acknowledge that these numbers are not precise.

DR. ANIGSTEIN: I would like to respond to that. I happened to be very much involved in this during the other projects.

DCAL is the basis of deriving the ICRP dose conversion factors. And IMBA who uses the identical model used by DCAL, it is just in a more convenient package. And so we go back to the source. Rather than to be duplicating the IMBA run, obviously if you run IMBA with the same parameters, you are going to get the same answers, unless your computer is broken. Whereas, I have compared the DCAL and IMBA results in other cases and I come in within a fraction of a percent.

So, I think usually it's explained on the basis on -- DCAL assumes, for instance, the uptake is throughout the year, even if it really isn't and the DCAL model, we haven't adopted DCAL but it actually is more exactly in terms of the

intake. That accounts for like fractions of a percent. So, I don't agree that that is due to that.

And the external, specifically the lung, there was a major discrepancy which I cannot explain. We used the -- first we did the lung using the HP10 dose conversion factor, which should have been used, you know OCAS-1, IG-001. And then just to see if we could match the higher number, repeated it using the dose conversion factor that NIOSH indicated they were using and we still didn't get the same number, differences between 17.3 and 19.3.

So, there is some discrepancy there. And that is for, I forget what the source was. I don't have the calculation in front of me.

And similarly, certainly using Type F, which we didn't know, it then occurred to me that they would have been using Type F, I simply used the Type M, Type S, whichever gave the higher results. Invariably, Type S gives you the higher

result for the lung and Type M will give you the higher dose for other organs because that depends on absorption and circulation.

And you get differences. Some of them are small; some of them are -- I call anything over two or three percent to be meaningful different, pointing out there is a problem with the methodology. It doesn't mean that it is going to make a difference in any one individual case, but sometimes it does. Sometimes you get 49.9 percent probability or 50.1 percent probability, then a small difference can make a difference.

But as I've pointed out, until we can verify the results, we can't be convinced that the method works. I'm sure NIOSH can find the error and make that correction but at the moment, we have this position that we need to be able to confirm what NIOSH did.

CHAIR ROESSLER: And like I said, I don't think I completely understand this. Is this

an SEC issue?

MR. TOMES: This is Tom. I didn't fully prepare to go into this, to all the calculations of these doses. I know the source of some of these differences but not every one of them.

I think the main topic here on these organ doses is the factors we used, how accurate we calculate them and I do not believe that the particular issues there are SEC issues, which is one of the reasons I did not go into those in great detail to prepare for this meeting.

The only thing I would like to say about DCAL, what Dr. Anigstein said about DCAL, I am not sure DCAL estimates factors for a chronic intake. I thought these were modeled in --

DR. ANIGSTEIN: Exactly. That's exactly what DCAL does. It has an option of averaging the doses, integrating over time. So, deliberately trying to find an alternate methodology which, in other cases, has worked

exactly.

DR. NETON: Yes, this is Jim. I think we are talking about a non-SEC issue here. I mean the whole point that Ted talked about earlier, the example dose reconstructions, using the methodology we described, can you come up with plausibly bounding dose reconstructions.

It seems to me that what we used here, we talked about all this, IG-001, TIB-70, TBD-6000, intakes based on air sample data. There is nothing really unusual about these dose reconstructions. They are not based on surrogate data or something like that where we pulled a number out of the air and then tried to apply it.

So, I think the discrepancies here can be worked out but I don't think there is any indication that the methodologies we proposed here are not appropriate for the circumstance.

There was something else I had in mind here but it slipped my mind. But I think -- oh,

the other issue, SC&A also had a number of observations that can sort of weigh in on the refinement of the dose reconstructions, on how you interpret the air sample data and stuff like that. So, they will be tweaked over time, based on our discussions. So, I don't think that the ultimate dose reconstructions here are the bottom line as they will be tweaked based on some of the other issues that were raised by SC&A. Or possibly tweaked.

DR. ANIGSTEIN: So, Jim, do I understand that you are making a commitment that the observations will be addressed?

DR. NETON: Oh, absolutely. We can't just let them go. I mean we have to look at the observations and such.

DR. ANIGSTEIN: Okay.

DR. NETON: So, like I say, that could ultimately end up with slightly different values as well. But I think the bottom line is that the

methodology that we proposed here that we discussed this afternoon are pretty standard techniques. I don't think that they are unusual techniques that need to be questioned, based on are they plausibly bounding.

DR. ANIGSTEIN: Okay, I would agree with that.

CHAIR ROESSLER: Do we have any comments from John Mauro. Are you still on?

DR. MAURO: Oh, yes, I have been listening very carefully and I completely agree with Jim. Sometimes it is so easy to lose sight of whether it is clear that we are dealing with Site Profile issues that can be worked out and there is nothing about the problem that prevents you from performing the dose with sufficient accuracy. I mean to get right to the bottom line, this conversation we are having, there is no doubt that these doses could be performed with sufficient accuracy. However, we find ourselves really

talking about let's make sure we have a document that is tractable, that we understand, that all the assumptions are there. And we are finding differences, as we just discussed, but none of that really affects the SEC aspect of this conversation. But at the same time, we don't want to lose sight of the fact that we do need to mop this up. But that should not interfere with the ability of the Work Group to close out issues as they pertain to an SEC.

CHAIR ROESSLER: Okay, I think that would be my conclusion, too. With regard to the SECs and close the issue, I think it has been a productive discussion though. And I think Ted is supporting that conclusion also.

Are there any other questions or comments, especially from the Work Group?

MEMBER FIELD: Yes, this is Bill. I agree with you, Gen.

MEMBER CLAWSON: This is Brad. I

agree.

CHAIR ROESSLER: And I think this discussion also includes the observations that SC&A had. Am I correct on that, Bob?

DR. ANIGSTEIN: Well, I did not quite follow that. So, we don't need to go into the observations, because some of the observations have not been mentioned yet.

DR. MAURO: This is John. Bob, are any of the observations, and your judgment of course is the final judgment to be made by the Work Group, but do any of them seem to have SEC implications or are they all more Site Profile?

DR. ANIGSTEIN: No, they are basic -- that is why I didn't make them findings because they are all soluble things like, again, use the dose conversion factor for exposure versus the dose conversion factor for HP10. Those are calculational differences, which can certainly -- are easily tractable. In other

words, NIOSH has dose conversion factors in IG-001 for exposure in HP10. The prescription in the ER sometimes is mistaken in prescribing the wrong dose conversion factor but that can be converted. That can be fixed with a few key strokes.

MR. KATZ: So, Gen, what I would just suggest with the observations is, if the Work Group -- obviously, if the Work Group wants Bob to go do them, that is fine. Otherwise -- or if the NIOSH folks need clarification on any of the observations, that would be another reason to discuss them now.

Otherwise, it seems like NIOSH is going to ultimately have to sort of revise and put out their TBD, their, in effect, TBD procedure methods for dose reconstruction, taking into account these things. I mean we would be addressing these observations then. And so we could have another meeting of the Work Group to make sure that all that got buttoned up correctly. But you can do it

however you want here.

CHAIR ROESSLER: Okay, well I think if everybody on the Work Group and SC&A and NIOSH has all the written material on the observations, I would think for the purposes of coming to the Board with a recommendation on this SEC, we have completed our work to do. Am I correct on that? I think we have closed every issue and I think all Board Members present have agreed that they are closed.

MR. KATZ: Yes, I think then the other thing to do, though, for buttoning up, I don't know whether the petitioners joined this Work Group meeting or not. But if they have and they want to speak to the Evaluation Report or the SC&A reports and so on, now would be an opportunity for them to do that. They would also have an opportunity to speak at the Board meeting when the Work Group presents its results.

CHAIR ROESSLER: Okay, are there any

petitioners on the line who would like to speak?

MR. KATZ: Okay, they weren't on the line at the beginning of this call and we never heard back from Josh, who handles these matters with petitioners, saying that they would be joining us.

CHAIR ROESSLER: So, what I would like to do is include John Poston. Even though you said we have a quorum, I think I would like to include him on this discussion and then I can write up something to present to the Board at the next meeting. I will clearly need some help in doing that and I will probably call on Tom and Bob to get some help and then I will pass it by the Work Group.

MR. KATZ: Yes, that sounds good. I mean I think Tom's summary presentation is one piece of that already that I think is very nice. And then you would need a summary of the SC&A review and the resolution of each of these.

I mean normally, we would have SC&A sort

of draft up that summary presentation for you and then you could review it. Gen, if that works for you I think they are happy to do that.

CHAIR ROESSLER: That works for me. If SC&A could do that, that would be fine.

DR. ANIGSTEIN: Okay, so you would like us to prepare a draft presentation for the Board?

MR. KATZ: Well, yes, Bob, taking into account Tom's presentation, which is a nice summary of the ER, of the petition and the ER. And then if you do a summary, Bob, of the review by SC&A and the resolution by the Work Group and get it to Gen, she review them but that would be a great start for her.

DR. ANIGSTEIN: May I suggest a solution to this? We have the matrix and the matrix has room for expansion of each issue. So, what if I simply continue in the matrix what was discussed and what was decided?

MR. KATZ: That's fine, Bob, but

actually, we want a PowerPoint presentation. So, if you can convert that. I mean it is good to keep a record in the matrix, so I agree with updating that. But also -- I mean here is what you need to do Bob, or someone else at SC&A can do it for you or however, but we need a draft PowerPoint presentation.

DR. ANIGSTEIN: You want like a PowerPoint presentation?

MR. KATZ: Yes.

DR. ANIGSTEIN: Oh, okay.

MR. KATZ: There are plenty of examples from others at SC&A who have done this. John Stiver does this all the time. So, he can sort of set you up the template for that. We do this all the time.

DR. ANIGSTEIN: Okay, again, I'm sorry to keep asking the same question. So, you would like both an update of the matrix and a PowerPoint or do you want a summary report?

MR. KATZ: Correct. No, correct. Just an update of the matrix is fine and then a PowerPoint presentation. That covers it. And again, Bob, it doesn't have to be you. You can be involved without having to do the whole presentation.

DR. ANIGSTEIN: I'm the lead on this. So, I would be the one doing it.

CHAIR ROESSLER: And then we should talk about timing on this --

MR. KATZ: The Board meeting is not until November. And this is really not appropriate, I think, for the teleconference because the Board hasn't dealt with this site in a long time and is not sort of mostly ready to deal with this one. So, November.

Getting a presentation done, you know, we have quite a bit of time but I would just suggest, while it is fresh, it is not a bad thing to get it done in the next month and a half or so.

DR. MAURO: Ted, this is John. Just a quick question. For the slide presentation now, to what degree would you like us to present those Site Profile issues that are still in play or do we just limit it to the conversations and the resolutions of the matters that we have discussed today?

MR. KATZ: Yes, normally, we just do the SEC issues and then we can have a slide just identifying that there are X number of matters that are being addressed in TBD revision.

DR. NETON: Ted, this is Jim. I do think, based on our experience at the last Board meeting, though, we need to put some flesh around the Site Profile issues, why they were decided to be Site Profile issues.

MR. KATZ: Yes, right. But I mean you have -- all these findings -- you know, we didn't go into the observations but all the other stuff you will have a robust discussion at the Board

meeting. So, that will be covered.

I am just talking about with the remaining observations.

DR. NETON: Oh, okay. Yes.

MR. KATZ: I would think you can summarize that pretty briefly, just that there are a number of observations and capture them however you want but you don't need to spend much time with the Board on that.

DR. ANIGSTEIN: Now, in the slide show, do you want all seven issues listed, even the ones that have been closed?

MR. KATZ: Oh, yes. I mean for the presentation, you want to go finding by finding. Here is the finding and here is how it was closed.

DR. ANIGSTEIN: Understood.

MR. KATZ: Yes, absolutely. Thanks, Bob.

CHAIR ROESSLER: And then we can also maybe say that the Work Group will meet again to

discuss the other issues.

MR. KATZ: Yes, I think that if NIOSH tells us that they are ready and that they have finished the revision of the Site Profile, in effect, the DR methods, then we will have a Work Group meeting to button that up.

CHAIR ROESSLER: So, when we get the rough draft PowerPoint presentation, then the whole Work Group will take a look at that.

MR. KATZ: Yes, we will circulate that to the whole Work Group, exactly.

CHAIR ROESSLER: Okay. Well, okay, is there anything else on the table today or have we completed our task?

MR. TOMES: This is Tom. Dr. Roessler, on the slide presentation, would you like me to edit that to include the final slide that you mentioned? I can do a revision to that to include the table that you --

CHAIR ROESSLER: I think that would be

helpful for the record to have that in there.

MR. KATZ: Yes, and Tom, that is pretty standard for NIOSH SEC presentations. I know this was already presented to the Board but then it has been quite a while. So, that is helpful.

MR. TOMES: So, I will send you an updated presentation.

MR. KATZ: Right and, Tom, that is your presentation. So, the way we would work this at the Board meeting, is you would give your presentation. It would just be briefer than the first time around because it would be this version and then the Work Group would go into theirs.

MR. TOMES: Alright.

DR. ANIGSTEIN: Ted? I have a question for Ted, as well as for the Work Group.

So to what extent would SC&A be participating in that November Board meeting?

MR. KATZ: So, you would be there on the phone or however to answer questions. I think Gen

would present.

DR. ANIGSTEIN: So, we usually have our usual representation, John Stiver, of course.

MR. KATZ: Yes, you always have John and Joe and sometimes Ron and Bob are there, too. But then people can be on the phone, too.

DR. ANIGSTEIN: Right. We would not be needed in person.

MR. KATZ: No, you don't have to go in person, Bob.

DR. ANIGSTEIN: Right, okay.

CHAIR ROESSLER: Well, isn't the next Board meeting -- let me see.

MR. KATZ: It is November. It is the end of November and then the first day of December.

CHAIR ROESSLER: Is there a teleconference in between?

MR. KATZ: Yes, the teleconference but we won't deal with this at the teleconference. It is just a report. Usually, you'll just say that

the Work Group met and then at the November meeting.

CHAIR ROESSLER: Okay. So, this will be the November meeting in Santa Fe, if that is what we decide.

MR. KATZ: Yes.

CHAIR ROESSLER: Okay. Alright, anything else?

MEMBER CLAWSON: Gen, this is Brad. I am just going to tell Bob that he could always start out with John Mauro's famous line "let me paint you a picture," and that would help us all.

(Laughter.)

John, that was done with love, by the way.

DR. MAURO: I know that. I felt it.

Adjourn

MR. KATZ: Okay, so I think we can adjourn, Gen.

CHAIR ROESSLER: Okay, I think so, too. Thanks.

MR. KATZ: And thanks to everybody for a very orderly and clear meeting.

CHAIR ROESSLER: Thank you, Bob, for your matrix. That was very helpful.

MEMBER FIELD: Very good.

CHAIR ROESSLER: Okay.

MR. KATZ: Bye-bye, everyone.

(Whereupon, the above-entitled matter went off the record at 11:33 a.m.)