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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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WORK GROUP ON PANTEX

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WEDNESDAY
SEPTEMBER 4, 2014

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The Work Group convened in the Toronto Room, Cincinnati Airport Marriot, 2395 Progress Drive, Hebron, Kentucky, at 9:00 a.m., Eastern Daylight Time, Bradley P. Clawson, Chairman, presiding.

PRESENT:

BRADLEY P. CLAWSON, Chairman
JOSIE BEACH, Member
PHILLIP SCHOFIELD, Member*

ALSO PRESENT:

TED KATZ, Designated Federal Official
RON BUCHANAN, SC&A*
MARK FISHBURN, ORAU*
JOE FITZGERALD, SC&A
DEKEELY HARTSFIELD, HHS*
STU HINNEFELD, DCAS
JIM NETON, DCAS
MARK ROLFES, DCAS
MATTHEW SMITH, ORAU*
JOHN STIVER, SC&A
TIM TAULBEE, DCAS*
DALE THOMAS, ORAU*

* present via telephone

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

(9:00 a.m.)

MR. KATZ: Good morning, everyone. Advisory Board on Radiation and Worker Health, Pantex Work Group and we are ready to go.

Let's get started. We have about 14 people on the phone or another just joined, 15, so, hopefully, we have everyone we need.

Let's start with roll call. We're speaking about a specific site, so please, everybody, address conflict of interest as well as you respond to roll call.

So, Board Members first in the room?

(Roll Call.)

MR. KATZ: The materials that are available for this meeting, the agenda, I'm not sure actually what other materials we have, are posted on the NIOSH website, the Board Meeting, today's date, so you can follow along with the agenda there.

And, Brad, it's your meeting.

CHAIRMAN CLAWSON: All right. I'd like to thank everybody for coming. As you know, our last meeting was quite a while ago. I think it was in June last year.

But, we've just got a few items to be able to clean up and they're mainly all Site Profile issues.

With that, I'll turn the time over to Joe and let him start out.

MR. FITZGERALD: Yes, Joe Fitzgerald.

Just to recap a little bit, we did have the last Work Group meeting on June 18, 2013 and following some discussions on remaining SEC issues, we did have, I think, a fair amount of time to begin looking at the remaining Site Profile issues and were able in the Work Group to actually disposition a fair number of them.

And I think all that is in an updated matrix that we circulated. I think it was

issued October 8, 2013, which I think is also online. And that provides pretty much the most recent update on that discussion and pretty much what was left from that discussion.

And, generally, there were a number of clarifications and further discussions that were warranted, some by I think the Work Group and I think it was some issues that both SC&A and NIOSH were going to follow up on.

So, that's kind of where it was left. I think there's a half dozen, maybe a bit more, issues that need to be clarified or dispositioned on that matrix and that will pretty much be it for now.

We did send out last month, just because it's been about a year, a bit of a clarification on some of those issues just to refresh everybody's memory on some of the ones that I think had a little bit more substance in terms of inquiry to and so that's where we are right now.

So, we're going to be working off the October 2013 matrix and pretty much the last status update which really is the -- it says 10/8/13 pretty much is our synopsis of where things are at this point and then we're going to pick up from there.

And the first five issues were pretty much closed out in that discussion last year, so I'm not necessarily, unless Brad wants to, we can recap each of those issues or just go right to the open ones.

CHAIRMAN CLAWSON: Let's just go to the open ones.

MR. FITZGERALD: Okay. Issue 6, I'm just going to go ahead and just read the status since that's pretty much the summary of where things stand.

But Issue 6 was a question of data adequacy and completeness for external dosimetry and it was a report that was issued in 2011 that we had developed and from which

NIOSH had responded, I think it was August of 2011.

It dealt with a number of issues that on internal and external dosimetry at Pantex and a number of these questions revolved around the completeness of the data that backed up the dose reconstruction methods that were identified and a number of the items dealt with whether the accuracy of the estimates were sufficient and whether the adjustment factors in the assumptions made were, in our view, sound.

And we've actually worked through that document in some detail over the last couple two or three years and on this Item 6, what we have is a remaining issue that deals with the question of how and what interprets what would be a blank entry in the original dose record and how that would be interpreted in terms of the value used in dose reconstruction whether that blank would be interpreted as a

zero or an unmonitored dose.

And there was certainly a lot of discussion in the data accuracy report as well as the response from NIOSH on how that would be done using the original records from pre-1976. Certainly, there were paper records that could be referenced and one could actually see what was recorded by the individual recording the dose and whether that was a blank, whether it was the zero. So, there certainly was some way to substantiate that and make that determination.

Post-'76, our question, and this is where the clarification comes in, is to how that would be done, how one would interpret if you have a zero entry whether it might have been likewise a blank or an actual zero. The implication being, in one case, that would be, you know, given a -- treat it as an actual zero, no dose received, but monitoring was done.

In the other case, if it was a blank

then possibly it was a case where the individual was unmonitored and assigning a zero would be, perhaps, giving less dose than one would get if it was part of a coworker assignment.

So, it was a clarification that we had remaining on that dialogue that we had many moons ago, it seems, that we felt was a bit of a loose end that we'd like to get some clarification on. And that's pretty much it, which is saying a lot because it's a fairly detailed assessment in 2011, so if we're down to that, that makes me feel a little more positive that, you know, we're getting down to the end.

MR. ROLFES: This is Mark Rolfes. And I spoke with the dosimetry technical person probably a couple of weeks back down at Pantex and just to check on this issue.

He did say that if an individual had a zero entered into the DoRMS database, which is basically a compilation of all their

external dosimetry data and tritium bioassay results.

He said that if there's a zero entered, it indicates that the individual was monitored and that they didn't receive any dose greater than the limit of detection for the badge. So, we would treat a zero recorded in an individual's dosimetry records as being monitored and then assign a missed dose based upon LOD over two times the number of zeros for the number of dosimetry exchange cycles.

MR. FITZGERALD: Now, is there any way to -- I mean in know pre-'76 you can validate by looking at the actual original record but, post-'76, my understanding is that's not feasible because those records aren't maintained.

MR. ROLFES: Yes, I believe it was all done electronically because of the dosimetry system switchover to TLDs.

MR. FITZGERALD: Any way to

validate just at that point?

MR. ROLFES: Not that I'm aware of other than I mean we've got the electronic records and that's what we're using.

MR. FITZGERALD: Pretty much it. And then that also, that assertion that that's how it was treated. The only reason I'm raising that is just pre-'76 looking at this and how the issue arose looking at the original handwritten records, it was clear that you had sort of both cases show up. You had blanks and you had zeros and in trying to differentiate that wasn't -- having the paper records was possible to differentiate but after '76, it wouldn't be.

MR. ROLFES: There could be, well, I know that they were able to calculate the doses for us using a different algorithm, using the Stanford algorithm for the more recent era.

Sort of a separate issue, but they do have information, the readouts from the

chips, so I mean there's another piece of information that could be plugged into a different algorithm to, you know, see that information's telling this to this, the interest.

MR. FITZGERALD: Yes, because why I'm cautious, I'm not sure the individual even knows back in the mid-'70s, you know, what the actual practice might have been and you have that certain comfort zone because before that, you had the actual handwritten records, but after that, you don't, so you wouldn't be able to validate that.

So, I'll just leave that for the Work Group. That was the source of that concern and I'm not sure what you want to do with that. It's just that certainly, you had blanks and you had dashes, you had actual zeros. You had a variety of things which is not unusual, it's just that it may be difficult to know what would be appropriate to assign.

You can make an assumption, I think, in this case that if they had a zero, if everybody was a monitored worker, but because of Pantex's history, we're not as comfortable with that, particularly in the earlier days in the '70s.

CHAIRMAN CLAWSON: Well, and I understand that and that's one of the things that I'm wondering how is NIOSH going to look at this because, you know, where this is a Site Profile issue -- this is Brad speaking -- how are we going to do the zeros? And I guess, Mark, I just -- are we going to look at it?

Because in the earlier years, you know, there was hit and miss with who was going to be monitored, who wasn't and, you know, we found paperwork over the time even down there that they had badges but the people weren't wearing them and they were all rad workers.

So, I'm just wondering how we're going to -- how you guys look at it and how it's

going to be handled.

MR. HINNEFELD: The question is how to deal with a blank.

DR. NETON: Yes, I was going to say, not wearing badges is a totally different issue.

CHAIRMAN CLAWSON: Okay, but how does it show up?

MR. HINNEFELD: Well, I guess --

CHAIRMAN CLAWSON: If you're saying a zero and that's meaning that you're a rad worker, okay. But, if you have a blank there, you can still --

MR. HINNEFELD: You know, the question is the blank. There are two possible interpretations, either the person wasn't monitored or the person was monitored and the result was less than MDA.

So, those were the two possible interpretations. And it would seem that there's probably a pattern in a person's record

of when a blank appears. If it appears by itself and there are readings on both exchanges on either side, I think there's a reasonable conclusion you can reach that that person was probably monitored that month and there's no -- and it didn't get in there.

But if the person is monitored and it stops and then there are blanks for the remainder of the year, for instance, on a monthly exchange, I think there's a reasonable conclusion that he was removed from the monitoring program.

I mean --

MEMBER BEACH: I guess I wonder if you're going to read the zeros, the blanks and the dashes all the same?

MR. HINNEFELD: Well, the zeros are definitely a red --

MEMBER BEACH: Someone put in --

MR. HINNEFELD: -- badge left to tackle. That's how we intend to intend to

interpret it.

MEMBER BEACH: That seems fair.

MR. HINNEFELD: Okay. The blanks and the dashes are what I just described. I think there's probably -- Mark, am I off base?

MR. ROLFES: I was going to say, the dashes I only recall seeing in the earlier time period during the handwritten records. If you look, there's like an annual summary sheet with four quarters and I recall seeing dashes.

MR. HINNEFELD: Yes, it would be odd to have a database with a dash.

MR. ROLFES: Right.

MR. HINNEFELD: So, it's probably either a zero or empty if you're getting the result off the database.

MR. FITZGERALD: Yes, and where this came from is we did -- this is really going back, so bear with me -- we did a sampling of 24 workers and picked three of them to look at the question of they were, you know, just for

validating the handwritten records versus the electronic. And that's where we found that we were picking up these dashes that were being interpreted as zeros, for example, and this was pre-'76.

And there wasn't any rhyme or reason but all three that we picked out had the dashes in it and in some cases, they were carried over as zeros.

It wasn't a systemic thing where all the dashes became zeros, some of them became zeros. So, it was pretty clear there wasn't a real system in place where they interpreted the dashes one way or the other, it just seemed like, you know, whoever was doing the reporting would make some judgment call.

There was definitely at least one worker who was a rad worker who had a dash and it was interpreted as a zero and that's what kind of raised this concern that, well, that's kind of hard to believe and we were wondering,

you know, whether or not the monitoring was done or not.

And, you're right, I mean you had two options, either monitoring wasn't done or it was truly a zero and it was just checked off that way.

DR. NETON: Absent any definitive way to determine that, I don't know if -- we would either assign missed dose or a coworker would. I don't know why, maybe we wouldn't just do it both ways. We couldn't actually determine to any degree of certainty which it was and pick the higher dose and assign it.

MR. HINNEFELD: I don't know of any particular reason why not to do that.

DR. NETON: I mean it would have to be pretty certain and we would have no idea which it was and, you know, stick with the one that produces the higher dose for that time period.

MR. HINNEFELD: The only other

thing that might shed some light on the issue, I recall in the late '80s, the Delphi Group came down to Pantex because of problems with the dosimetry records from the earlier years and not getting all the dosimetry records in one consolidated location.

This might be something that they looked into, I don't know, we could ask about it. But, I know that they went through all the individuals' historic radiation exposure records and tried to consolidate them and take care of any discrepancies in the records and such.

So, it could be that they might have looked into the issue of, you know, a zero versus a dash or, you know, gaps in the monitoring data. But we'd have to check on that.

MR. FITZGERALD: I don't sense there's any disagreement on sort of the issue, but, you know, how one can best approach that,

there might be several different ways that would be easy. I, you know, I think it's just that --

DR. NETON: I don't know how many cases we're talking about that have this issue.

MR. FITZGERALD: It may be tagged to what would be considered the work categories that are rad workers that if you, you know, you couldn't tell and it was a zero, maybe you would do the coworker dose as the conservative approach. I don't know, it just seems like --

DR. NETON: That would seem to be the way. I mean I can't imagine there's that many. I mean these are all non-presumptive, remember. And if there's not that many and to spend a huge amount of effort to ferret out this --

MR. FITZGERALD: A lot of these issues today are efficiency issues.

DR. NETON: It's going to be efficiency issues.

MR. FITZGERALD: So, bringing that up in that context, I think.

DR. NETON: I guess we can go back and look and see how many this might affect.

MR. HINNEFELD: Well, what if we just commit to doing what Jim suggested that any instance where you have a blank, because that's what the question is. When there's a blank in a person's record, we'll either interpret that as a missed dose, you know, a red zero or a coworker based in, I guess, their job title and determine whether it's 50 or 95$^{th}$ percent, coworker, right?

DR. NETON: The coworkers always get full distribution.

MR. HINNEFELD: They get full distribution? Okay.

DR. NETON: For external.

MR. FITZGERALD: But, maybe I'm misunderstanding, I think after '76, you wouldn't have a blank in the electronic, you'd

just have a zero, wouldn't you?

MR. ROLFES: If a person was monitored after 1976, they would have a zero entered, if they received no reported dose above the minimum detectable level.

MR. FITZGERALD: But, it could potentially be a blank which is what we're kind of concerned about.

MR. ROLFES: If there's a blank, that would indicate that the person wasn't monitored.

MR. FITZGERALD: But we don't -- see, that's the part --

MR. HINNEFELD: And that's the question --

MR. FITZGERALD: We saw some discrepancy before in '76 on that issue.

DR. NETON: Some of them resulted from zeros even though they were blanks and some of them -- that's the issue that --

MR. FITZGERALD: That some were

zeros even though they were blanks?

MR. ROLFES: Yes. Well, we did a sampling of the actual original records and looked at the assigned dose pre-'76 and we had the benefit of having the original records so you could see what was reported versus what was actually --

MR. FITZGERALD: This was prior to '76 and we did determine that because we have the original records?

MEMBER BEACH: Well, that's in your data adequacy.

MR. FITZGERALD: That's determinable?

MR. ROLFES: Yes, that's determinable before '76, it's not after '76.

MR. FITZGERALD: After '76, though we have --

MR. HINNEFELD: Just electronic printouts.

DR. NETON: Electronic records and

the rad -- who ever you spoke to said that --

MR. ROLFES: Yes.

DR. NETON: -- it was their practice that zeros indicated a monitored worker?

MR. ROLFES: Correct.

DR. NETON: And that's what we've got to go on there.

MR. FITZGERALD: Yes, we have -- again, that's a contemporary assessment going back, so it's kind of hard to -- that's why I'm saying if we could get a Delphi Group or somebody that's maybe more in tune with maybe practices that was brought in 20 years ago, look at practices going backwards, that might be a little bit more definitive than somebody today.

MR. ROLFES: The person I spoke with was there I know in --

MR. FITZGERALD: Does he go back --

MR. ROLFES: -- 1983 at least, so.

MR. FITZGERALD: Okay, that's not

too bad.

MR. ROLFES: But not all the way back to '76. Well, on the same job.

MR. HINNEFELD: But thinking about what we would get, we get a person's exposure history and we're just talking about post-'76, we're talking only the most recent period.

And we will -- maybe we get nothing on the external question and, you know, when we make a -- I mean in that case, we'd probably say the person probably wasn't monitored, he had nothing, we can probably conclude they were not monitored, none of their employment years were searchable in the record. We would probably conclude they were not monitored.

If we had a person who was intermittently, you know, had some readings and then had some periods when we don't get anything, employment when maybe we don't get anything, couldn't we just judge on like job? Like if the person's in a job that would be a

radiation worker, we'd say, well, even though we don't have a reading, we could -- let's, you know, let's assume they were monitored and the zeros just didn't get recorded.

I mean, to me, I would like to finish it. You know, I would like to answer the question today instead of going back to Delphi Group and going back to Pantex and trying to get anything out of Pantex, I'd rather finish it. I mean can't we just make a decision like that today?

DR. NETON: The only thing is on whether or not we believe this latest information from the site that says zero meant you were monitored.

MR. HINNEFELD: I understand that but we don't have to believe that. We could say that we could make judgments based on job title about whether a person should have been monitored or not. And if we feel like they're in a job that should have been monitored, you

could -- because it's not going to be that different, probably.

DR. NETON: Probably won't be.

MR. HINNEFELD: You know? The coworker in this are probably not going to be that different. You could just make a judgment and today, you can make a decision today and say that after '76, well, before '76 I guess we were just going -- or this may apply to all times, because before '76 we were not sure what the zero or the blank mean.

We could just say that if a person's in a job category that was monitored, then we're going to figure they were monitored and give them a missed dose for that year. And if they're not in a job category that was monitored or if you get their entire history, they had a long employment and you get their entire employment history and there's nothing there, we're going to assume they're not monitored.

MR. ROLFES: I mean, we essentially

do this already in dose reconstruction. I mean --

MR. HINNEFELD: I think -- I've read that, what we've written in the Site Profile it's sort of -- and our response kind of comes -- our Site Profile's kind of nonspecific in this instance.

So, we could put something -- you know, we could write something in there or somewhere that says this is how to interpret a blank in the record and just be done. You know, I don't -- I really don't want to string this out over doses that aren't going to matter. It's not going to be that different.

CHAIRMAN CLAWSON: No, and neither do I. I just want to be able to understand how it's going to be handled.

MR. HINNEFELD: What about what I just said? If it's blank and the person was never -- they had no exposure record, we're just going to assume they're not monitored.

If they have intermittent monitoring, then we're going to, you know, probably they're going to be in a job title if, you know, I don't know if we're going to have their entire history of job titles, but they're probably going to have a job title that's going to have them monitored -- being monitored, so we're going to assume those blanks are zeros.

You know? And if we've got an intermittent and we see that their job changed from a production supervisor to --

CHAIRMAN CLAWSON: I think what I look at is like quality assurance. You may have some that so much of the year they were monitored but then the rest might have been clean work, you know, and --

MR. HINNEFELD: Yes --

CHAIRMAN CLAWSON: -- they're off their --

MR. HINNEFELD: Then we'll assume it wasn't. If they're in a job title that they

were probably monitored part of it and they stayed in that job title and they stayed in that job title and the monitoring disappears and we just say, well, but he's still in that job title, we don't character it being work, we're going to consider him as monitored and give missed dose because the coworker wouldn't be much different.

I mean, I think we can handle this.

CHAIRMAN CLAWSON: Right, and so do I, it's just coming down to how we're going to do it and what you just said sounds --

MR. HINNEFELD: We owe you a written description of what I said, but I think we can just distribute that to the Work Group and then we don't have to actually to get together on this unless there's some objections or a need to discuss it. Right?

CHAIRMAN CLAWSON: Everybody?

MEMBER BEACH: I agree.

MR. HINNEFELD: Okay. Now, I've

probably over-simplified this and there are going to be a lot people telling me why we can't do this, but I think we should be able to do something like this.

CHAIRMAN CLAWSON: I think we can, it's just making sure that it's going to work for everybody. We have a lot of people outside of us that have influences into --

MR. HINNEFELD: Well, the people that really know how things are done, you know, I'm not the person for this.

CHAIRMAN CLAWSON: Yes, and nor are we, but as the Work Group, we've got to make the decision.

MR. HINNEFELD: Well, I think this is a conservative, bounding approach. I mean we're giving the benefit of the doubt to people who are not -- who we don't have a record on who were monitored at some point during their career and have the same job title and they go, well, you know, we'll just say they were

monitored. I mean that's a pretty good benefit of the doubt to those people.

MR. FITZGERALD: Yes, this is not too different than the sampling we did pre-'76 that's in the original response in 2011 which was -- and we looked at a record of somebody who presumably was a rad worker who should have had something but he got a blank and then got a zero in his dose.

MEMBER BEACH: Yes, I actually have it pulled up here.

MR. FITZGERALD: And that was something that gave us pause although, you know, it was hard to verify exactly, you know, what his peers were doing, but, you know, that concerned us less because you could actually do a dose reconstruction and look at that and make adjustment.

You're talking about in post-'76, you wouldn't be in that position because you wouldn't have any original records to show

whether it a blank in the first place.

MR. HINNEFELD: Now, the original records derived with the person who's exposure is in the claimant file?

MR. ROLFES: Yes, they're handwritten files that we received from --

MR. HINNEFELD: So, for pre-'76 then, we'll start there for now.

MR. ROLFES: Pre-'76, we're current.

DR. NETON: I agree with what you were saying earlier, if we don't know what it was we can almost just assume that we didn't get any exposure record for that particular time period and then we treat it as we would normally do like look at the guy's job and say, did this person need to be monitored, if he did, it's unmonitored exposure, in my opinion.

If he didn't need to be monitored, then we give him whatever we normally do like those, you know, a person who had almost no

potential for external exposure.

MR. HINNEFELD: Yes, as I think about this, we'll need to write up how we would address various categories of claims and submit it to the Work Group. But I think we don't need to do any more research. I think we can finish this.

CHAIRMAN CLAWSON: So do I. The only fly in the ointment that I see is, as we've seen throughout all of these sites, the last job the person did is usually what you see and you don't see what he was before that.

You know, we've seen this so many times --

MR. HINNEFELD: Well, I understand that --

CHAIRMAN CLAWSON: That's my only concern on this of being able to do that because his job title could have changed seven, eight times through his process.

MR. HINNEFELD: Well, I understand

that, but I think a dose reconstructor would figure it out given the information in front of him and if he can't, he'd make a claimant-favorable judgment along those lines.

I mean I think this can be done. I don't think we -- I don't think that additional research is going to provide us a more definitive answer than we have right now. I think we just need this almost like a policy decision.

MEMBER BEACH: Well, the agenda says, NIOSH to provide clarification of zero-entries question. So that stands.

MR. HINNEFELD: That's what we're going to --

MEMBER BEACH: That's you're --

MR. HINNEFELD: Yes, and we actually wrote some internal responses but all it does is refer you to the Site Profile and the Site Profile just says if somebody's not monitored, you give them coworker and this is

how you do a missed dose calculation.

So, it's not specific about how to interpret a blank in the record.

CHAIRMAN CLAWSON: Well, that sounds --

MR. HINNEFELD: Okay. So, somebody take a note that we need to reopen some of these.

MEMBER BEACH: A timely response maybe?

MR. HINNEFELD: That's asking a lot. Now you're asking a lot.

MEMBER BEACH: I am asking a lot.

DR. NETON: We're going to have a few responses.

MR. ROLFES: Just to point out, there is a practice that they did at Pantex where people, you know, working for the first part of the year, say the first few months, were working on a particularly high radiation exposure job, those people were frequently

moved out to other programs to other jobs at the end of the year when they were approaching administrative limits or, you know, a site's limit.

So, if they were working on a hot program, we know they'd be moved to a lower radiation exposure job.

CHAIRMAN CLAWSON: Burn and burn, it's everywhere and that's why their job classification may change and, you know, you may see it for two or three months and then nothing the rest of the year and this is where the issue comes up is they are still rad workers, but they hit limits or whatever else.

MR. ROLFES: And then also on the opposite aspect of that, I guess, people that were routinely working lower exposure jobs might have had low amounts of radiation exposure and the year was coming to an end they would take the people that had approvals to work on other programs that had higher neutron dose

exposure potential, so those people might have gone into an area like the volatile inventories, for example.

CHAIRMAN CLAWSON: So --

PHONE PARTICIPANT: No, no, no.

MR. KATZ: Someone was whispering on the phone. Hello?

CHAIRMAN CLAWSON: That wasn't us. Okay.

So, anyway, yes, and this is our concern as a Work Group, you know, how are we going to be able to handle this and go from there. So, we'll expect a response back on that. We'll be able to take care of that. Okay?

MR. FITZGERALD: Okay. Moving on to Issue 7, this is the many-storied neutron-to-photon ratio saga and actually, the context discussion mirrored similar discussions for other sites, particularly Mound, as Josie may recall.

And I think the thinking evolved as we went through the discussions at both sites actually and we started the neutron-photon ratios and talked about NCI adjustment factors and I think finally ended up with a different approach in applying the MCNP model for the coworker model.

Ron tends to be our go-to person for neutrons. Ron, do you want to just give a bit of a synopsis since this has a pretty long history and just sort of bring us up to date and kind of where we left it?

I know we did provide a short briefing paper on what issues remained. I think that was about a year ago, just to sort of as a placeholder on this since there was a number of different nooks and crannies in it.

DR. BUCHANAN: Well, yes, this goes back quite a ways. We originally were going to use the N/P values but did not feel that they were binding, did not bound the neutron dose in

some operations at Pantex.

And so, then as I recall the last time we left it, NIOSH was going to look in using the MCNP similar to, this is around the time we were working on this as Mound, was just said.

And so, we had left it where our last goal post was that NIOSH was going to provide the new information to SC&A on this and we had not heard further. And so this was kind of opened at the last meeting and so I guess we are waiting to see what NIOSH plans are on neutron dose reconstruction at Pantex or what direction they wish to go.

MR. FITZGERALD: And as I recall, too, and this was part of the paper that we provided, a lot of it came down to, you know, not so much an issue with MCNP as an overall approach. But given the fact that, you know, Pantex went through a number of weapons systems with different neutron signatures over time whether or not MCNP and the assumptions and

parameters that were in that model could be applied and be appropriate across the board for all those different systems.

You know, it's sort of like a question of does the one-size-fits-all, given the range of these signatures at Pantex. That was one key issue as I recall. Is that right?

DR. BUCHANAN: Mound had an MCNP. If you had a little more controlled conditions on what the source term was at Pantex that it could vary and the geometry could vary whether it was AP or PA or what.

And so, we kind of questioned the use of MCNP more at Mound but I don't think we really got a final answer of what NIOSH proposed there.

MR. FITZGERALD: And on the positive side at Pantex, they have something called intrinsic radiation measurements. So, in a sense, you also had the advantage of having some pretty good measurements for each system

so that, in a sense, we knew that, you know, you had a divergency or you had a variety of energies and whatnot.

But they were measured pretty precisely so you did have that input. But again, whether the model could accommodate that and how it would accommodate that, I think, was where we left it.

DR. NETON: This is Jim. I think I can start this one off.

This has had a pretty long history, but there are three distinct periods of neutron monitoring that we need to deal with at Pantex, before '75 with the NTA film, which is where we had proposed the MCNP model at one point and we received your response and your criticisms of that model.

Then there's the '75 to '94 time period where it was TLD that was used but there were some issues with it. The site actually went back and revised those TLD readings based

on what they call the Stanford algorithm. They went back and corrected them.

In fact, we're using those values for dose reconstruction now for anybody that was monitored in that period.

After '94, they switched to a TLD that was adequate to measure both neutrons and photons and so we're using those at face value.

There's three distinct periods here. We had proposed neutron-photon ratios for some of these periods and Tim Taulbee's on the line, he'll flesh out the details here. But we've come to the conclusion that it's just not a viable method to use at Pantex for a number of reasons and Tim will talk to that.

And we feel the most appropriate way to go now is to just use the full distribution neutrons as measured and assign that to the worker during the -- for the non-presumptive cancers during the SEC period which is the entire site's history where neutrons were

measured.

So, Tim, are you on the phone still?

DR. TAULBEE: Yes, I am.

DR. NETON: Yes, I just sort of set the stage. Do you want to elaborate a little more on what we're doing?

DR. TAULBEE: Sure. The main reason that I guess we're deviating here from the N/P ratio that we had proposed in the past was when we started to get into the details of the dosimetry that we started seeing some anomalies that just don't make physical sense that were some extremely high ratios, you know, on the order of 30 to 1 and 40 to 1. And that's really just not physically possible.

And the reason for this, at least what we suspect, is that people were wearing lead aprons. And so what was ending up happening was the photon dose was being stripped out, the neutron dose was coming through and so you end up with these bizarre

ratios.

And then on top of that -- let me further clarify here. You end up with a bizarre ratio but the neutron dose is still fairly low. And to give an example, you've got a neutron dose of 300 millirem for a month or a quarter and you have a ten millirem photon dose. So, that's what's resulting in this really high ratio.

The neutron doses are all still, you know, well below regulatory type limits as well as -- and more of what you would expect in the workplace of these workers that were intermittently or continuously kind of handling these fissile materials.

So, this is why we've kind of changed and gone to the kind of an annual dose distribution of a coworker type of model to estimate what these neutron doses are. This is more realistic from what people could be receiving. And then we don't have the

messiness of trying to figure out who was wearing an apron, when they were wearing an apron, when they weren't wearing an apron, which weapon they were working on when they were wearing an apron, et cetera.

So, because Pantex being pretty unique from all of the shielding, neutron shielding they were trying to do in addition, I think the overall approach of using the measured neutron doses is the most scientifically defensible and the most reasonable from a dose reconstruction standpoint.

Does that help?

DR. NETON: Yes, Tim, thanks.

I would add also, though, that early period, we're no longer relying on the MCNP model, we're going to correct the NTA film for its shortcomings in measuring the energy spectra neutrons that we believe were present at Pantex.

So, we will owe you essentially a White Paper on this that describes how we've gone about this neutron bounding.

And I guess the thing to discuss really is we're going to assign the full distribution. This is a non-presumptive cancers during the SEC period. The person who should have been -- who has no neutron monitoring will receive the 50-percentile value of the monitored workers along with the uncertainty distribution about that as far as the dose goes.

We feel that's the most reasonable way to go during this period. It's different that will be done in other places, but we think it's the best we're going to be able to do.

MR. FITZGERALD: I'm just trying to recall the, maybe Ron, you can too, going back that far in terms of the adequacy, you know, having enough neutron data itself, monitoring data, do you remember, Ron? I haven't looked

at that.

DR. BUCHANAN: Well, I think the the question was not necessarily the amount of data, it was the accuracy of the data. So, what, you know, of course, the old common problem with the NTA film is stating the lower energy detection.

And so, what I understand you saying is that you're going to use NTA film, the questionable TLD and the good TLD information to create a coworker model and then assign that to everyone that should have been badged for neutrons for all periods.

And now, you feel apparently that you can use the NTA and the first batch of TLD data and make correction factors for it, is you're going to do an annual type tally?

DR. NETON: Yes, these will be annual doses. What you call the questionable TLD period has already been handled by the site. They went and re-analyzed all the data and

provided it to us and we're using those -- Stanford, which I think is a consulting company, went back and revised the doses based on the shortcomings of the measurement properties of that badge.

So, those have already been redone and we will redo the NTA measurements based on just what you talk about, the fading and the energy response, dependence, those sort of things.

MR. FITZGERALD: And that was pre-'74 or?

DR. NETON: Pre-'75.

MR. FITZGERALD: Pre-'75.

MR. ROLFES: '77.

DR. NETON: '77, I'm sorry, I always get my dates mixed up. You get the idea: the early period -- I thought the early period, the middle period, then late period.

MR. FITZGERALD: And actually, we did spend a fair amount of time identifying some

of the NTA issues. I mean, of course, they've been identified other sites as well, so I think all that's a matter of record, our comments on that, so I'm not sure we need to -- is there any more we need to say on that, Ron? I think there was quite a bit on NTA.

DR. BUCHANAN: No, at this point, I would have to, you know, have a White Paper and review it and to see our position on it.

MR. FITZGERALD: Right.

MR. HINNEFELD: Now, the other thing to recall, if we're really unable to interpret the NTA neutron data, you know, if you feel like the methods, you know, it's not interpretable, then there is really nothing left to the neutrons in the early period.

So, it kind of relies, you know, providing neutron doses in early periods relies on, in some fashion, on being able to reinterpret the NTA readings based, you know, given its known deficiencies.

So, you know, that's kind of where we're at. Now here's something we can do. There might, you know, so that kind of work around.

DR. BUCHANAN: In other words, that would fall under the SEC period. So if you can't redo -- it's kind of for non-SEC cancers, trying to assign some neutron dose here in this NTA period.

MR. HINNEFELD: Correct.

MR. FITZGERALD: So, I guess, see when the White Paper comes back?

CHAIRMAN CLAWSON: That's all we can do is when we get that. It sounds good, we just need to be able to take a look at that and see what we've got.

DR. NETON: This realization to use the full distribution just came about not too long ago. I mean there are those in the background who've been working pretty hard trying to figure out how to do these N/P ratios

and when these apron issues came up with these implausibly strange ratios and stuff, we figured this is the way to go, at least salvage some sort of neutron assignments during the SEC period.

CHAIRMAN CLAWSON: Okay. All right. So, we'll be waiting for that paper and then Ron will be the one to evaluate that?

MR. FITZGERALD: Ron's been doing, I guess, both the Mound and the Pantex.

DR. BUCHANAN: Yes, I will take care of that when it's available.

CHAIRMAN CLAWSON: Okay, thanks, Ron.

MR. FITZGERALD: Okay, Issue 8, I guess this would be in the sort of category of loose end. It's something we raised way back when on the Site Profile Review that, you know, we were aware that, historically, Pantex supported not only the Nevada Test Site, but as we learned when we went to Clarksville, Medina,

they did a lot of work supporting those sites when they were opened and so there's a lot of, I wouldn't call it work for others, but they did a lot of the support at other installations.

And the Site Profile was relatively silent on that activity and even though we have no problems with the response, the original response was that -- and this probably is across the board -- that if an individual does do work at other sites and gets dosimetry, then those records do exist, they will be included and that's sort of the policy.

However, practically speaking, it would be helpful, we believe, to the Site Profile to, since this is essentially a roadmap for dose reconstructors, to just make it make it very clear to the dose reconstructor that, you know, this was a routine occurrence where a number of workers would go off to these other sites and that just to cue them in to the fact that they should be sensitive to looking at the

interview and looking at other things to identify potential exposures elsewhere.

Because even though at Pantex it was relatively low, I think at some of these other sites I think not be the case not to miss that dose even if the dose is recorded at the other sites or might have been dosimetry, to point the dose reconstructor in that direction.

This is more of a qualitative thing that we felt the Site Profile could be helpful if it did emphasize that there was these activities going on and I could the name of the sites. I think it was pretty clear what those sites were.

MR. ROLFES: Easy enough to add a statement in the TBDs --

MR. FITZGERALD: Well, I'd say it's one of these things that we had raised in 2007 and sort of one of these lingering loose ends that we felt would improve the Site Profile.

And I think the same thing would go

for some of these broken arrows. There was a number of things that Pantex did that sure was supportive --

MR. FITZGERALD: I was going to say, the only issue with the broken arrows, if they're responding to an incident like Thule, for example, that's not a covered site that they're responding to, so, or to a military installation that's not part of the site.

Now, saying that, we do have bioassay results from some individuals who responded to Thule. So, yes, it's a potpourri. I guess I wasn't quite as sensitive to this until I was doing, was it Clarksville, Clarksburg? I guess it's Clarksville.

CHAIRMAN CLAWSON: Clarksville.

MR. FITZGERALD: Looking at that and seeing, you know, the Pantex people showing up, which makes sense, they were standing up the installation in the same area in Medina. But, it just struck me that there was a fair amount

of activity. Of course, they had a number of folks that would go out to the test sites.

MR. ROLFES: Things that occurred at Clarksville, also once again, that's a little bit separate kind of issue. It's a military installation with a DOE facility inside of it, so, there were things that were done on the military portion of the base that weren't that --

MR. FITZGERALD: They could keep that clean, right.

MR. ROLFES: -- that weren't included in --

MR. FITZGERALD: Anyway, without belaboring it, I think that was just something that we felt would be useful to emphasize that's easy enough to --

MR. ROLFES: Okay.

MEMBER BEACH: So, just a paragraph?

MR. FITZGERALD: Yes, just to

identify the fact that there was ongoing activity and maybe identify the sites and just sort of indicate that one should be particularly conscious of this in terms of the interviews and what have you in terms of picking up the fact that these worked for other sites.

Is that easy enough?

CHAIRMAN CLAWSON: Yes.

MR. FITZGERALD: Let's see. Okay, Number 9 actually dealt with an issue that we've raised at a number of sites as to whether or not, particularly going back in time, whether incidents were addressed adequately in the Site Profile and whether or not there was a good rendering of incidents in terms of whether bioassays were taken, what have you.

This went back and forth over a couple of years and essentially, I think, the discussion got around to the point whether there's no way to prove a negative. It looked like there was something on the order of a

hundred events that were reported. There was no evidence that they were neglecting to identify, it was an awareness that, in the early days, their criteria for what constituted an event was a lot different than what it ended up being in the '80s, no question about that.

So, some of the examples I think that we culled back in 2006 and '07 on the Site Profile where these may not have been identified and captured as an event.

I guess we've come around to thinking that's not surprising since the criteria had changed from the '60s up through the '80s. And in any case, this has all been subsumed by the SEC.

And so I think, generally, we left this to the Work Group that we don't think it is a real sticking problem as far as the Site Profile. I think it's one of these judgment issues and I don't think Pantex differed dramatically from the other sites in terms of

its historic policy on incident reviews and so we wouldn't necessarily stand that as a continuing problem.

It was highlighted, I think, in the data adequacy piece. So we want to make sure that, you know, we do treat it since it was raised.

But at this point, we think it's been sufficiently discussed, addressed and, in any case, it falls within the SEC period. So, and in a lot of respects we think this is an issue that the Work Group can talk about but we wouldn't contend that it's a problem that should be addressed in the Site Profile.

MR. ROLFES: This is Mark.

And since that finding, Joe, I mean that's from quite a while back, we've made multiple data captures and we've got quite a number of records. I think we've got everything that we can get on incidents.

And everything that we received

when we received a claimant's file and with all the incident records and all the dosimetry records that we have, any time an individual's name appears in a record, it's been SPEDELite-linked into NOCTS and into that claimant's file so if there was an incident that shows up where the dose reconstructors would see it along with their dosimetry records.

MR. FITZGERALD: Yes, and we -- on the site visit, I think that was actually one that Stu was along, we wanted to make one last stab at this thing, see if in fact further searches might identify any incidents that were missed and we did not find any. So, I think that was another driver behind recommending closure on this thing.

MEMBER BEACH: Sounds like it's been fairly well covered.

MR. FITZGERALD: Yes, we took one last stab at it. But again, I think we've done -- it sounds like NIOSH has too -- we've done

enough due diligence to believe that there's nothing that stands out as a problem at this point. So I'll leave it to you.

CHAIRMAN CLAWSON: Well, I guess I just -- what do you think, Joe?

MEMBER BEACH: I'm comfortable with that it's been covered and I'm comfortable with closing it.

CHAIRMAN CLAWSON: Okay. Phil?

MEMBER SCHOFIELD: Oh shoot.

CHAIRMAN CLAWSON: You're on, Phil.

MR. KATZ: Phil, are you okay?

CHAIRMAN CLAWSON: Hey, Phil.

MR. KATZ: Okay, I think he's indisposed or something right now.

CHAIRMAN CLAWSON: Okay. I don't see any problem with it. Other Work Group Members?

MEMBER SCHOFIELD: Brad, I don't have a problem with that.

CHAIRMAN CLAWSON: Okay, thank you, Phil, appreciate it. We'll go ahead and --

MEMBER SCHOFIELD: Sorry.

CHAIRMAN CLAWSON: No problem.

MR. FITZGERALD: Okay, so we'll go ahead and close that one.

Okay, moving right along.

MR. KATZ: We should have a bell to ring when we close an issue. Ding, that would be nice.

MR. FITZGERALD: Something dramatic.

MR. HINNEFELD: Should have a sound effect of a beer tab.

MEMBER BEACH: Little early for that.

MR. HINNEFELD: I guess.

MR. FITZGERALD: Anyway, we're up to Issue 10 which deals with a question that was raised originally way back on the Site Profile

Review which is the air sampling data for the firing sites and how conservative -- I guess this is the issue that we're raising -- how conservative does one need to be in interpreting those air sample results, assigning a dose estimate for the workers.

And these are dryers and operators at the hydroshots, the firing sites at Pantex where they would essentially pressure test the basic mock warhead units to see -- there's a number of different applications would and I'll get into this and to determine how they would stand up to pressure.

And the depleted uranium was involved so we're not talking about anything like HEU or Pu but that it's essentially DU. And the question we had was not so much -- I had to go back and actually refresh my memory because this is pretty old, but the issue wasn't so much what the estimates were for the individuals that were sitting in the bunker.

We had several inside assessment and outside assessment.

The inside assessment, we matched up the monitoring records with the -- actually the tables in the TBD with the records of doses for the individuals in the bunkers and they lined up pretty good.

The issue we had was more with the outside measurements. These were the individuals that went back to the firing site afterwards and went to, I don't want to use the word ground zero, but, you know, the point of detonation and collected up the pieces and who were essentially exposed outside the --

MEMBER BEACH: So it's the dust, the residual dust that's left over?

MR. FITZGERALD: Right. And so, you know, there was -- and I'll go ahead and read this because, again, this goes back -- this is actually the original Site Profile Review, that's how far back it goes, back to 2008.

The interpretation and verification of outside the bunker air sampling data was considerably more difficult than the inside. For a large number of outside air samples, it was uncertain which number represented the total air volume drawn to the meters where the activity in the sampled air, which was dpm per cubic meter.

And overall, the many questions that remain unanswered about the conditions to which the filters used for the operators and the drivers that were moving the workers around makes it difficult to form a dose reconstruction with the information provided.

For example, one, it is not known whether the operators or drivers were wearing respiratory protection, we knew the ones in the bunkers were.

Two, whether the operators wore any other protective clothing while going to ground zero to collect what remained.

And the location of the outside the bunker air monitors isn't known. So, we're not really clear where the air samplers were located from which the measurements were taken.

MR. KATZ: Phil, I don't know -- I think your phone's not muted.

MR. HINNEFELD: Sounds like it is now.

MR. FITZGERALD: Thank you, thank you. I was getting a lot of bells and whistles.

In any case, this is on Page 78 for reference of the SC&A Site Profile Review dated July 2008.

And so, there's a number of these questions that we had and the fact that we didn't really have any clear answers at that stage nor hereafter, we really weren't comfortable that the 24 picocuries per cubic meter, which was the value -- the bounding value that was going to be used as far as the DU exposure, the 95th percentile of that was

necessarily conservative enough.

And, you know, granted, that's kind of a judgment call. I mean 95th, 99th, who could count? How do you know that? But we're thinking that there's enough uncertainties that we don't believe that has been really answered.

I went back to see, you know, because of the timing of this, I was wondering if there had been some assessment of that but I couldn't find any NIOSH assessment of that particular issue. The one response that we had on the 2011 paper sort of says, well, that's answered in a previous issue and named the issue. I went back and it didn't answer it.

So, it's one of these where I don't think it actually got answered. So that's why it's here just sort of a question of not to say there isn't a value, there is a value, 24 picocuries, but whether that's conservative enough, that's based on 95th percentile of the

DU air sample distributions.

We still think there's some uncertainties and those are the ones we just named and I'd like to get some kind of response or clarification. Granted, this goes back a ways, but I don't think that's ever been answered specifically.

MR. ROLFES: This is Mark.

And since the SEC was designated for Pantex for depleted uranium exposures from 1958 through 1983, excuse me, and then once again from '84 through '90 for DU and then I think thorium in '91, that encompasses the entire time of the hydroshot testing period, I believe. I don't believe there were any done after the SEC time period.

And since we said we can't reconstruct uranium intakes using the coworker model, we --

MR. FITZGERALD: So to just --

MR. ROLFES: -- no longer be

calculating uranium intakes for the firing site workers due to the SEC.

MR. FITZGERALD: I have October '59 starting, so I guess that does capture it.

MR. HINNEFELD: It does, right.

MR. ROLFES: So, if we have a bioassay result that we deem is usable for an individual working at the firing sites, we would use that bioassay to reconstruct their uranium intake. However, if we do not have one for an individual, we would not assign uranium intake.

DR. NETON: Yes, this is Jim.

Just to be sure, I went back and looked at the Secretary's designation on the Class and it says, the Board and the NIOSH Director have determined that reconstruction of uranium intakes is not feasible for all Pantex workers.

(Simultaneous speaking.)

MR. FITZGERALD: That would make

this moot.

MEMBER BEACH: Yes, exactly.

CHAIRMAN CLAWSON: Okay.

MR. FITZGERALD: That's the easiest solution.

CHAIRMAN CLAWSON: Yes, that's the easiest solution to it. So that'll take of 10. Is it 11?

MR. FITZGERALD: That was 10.

MEMBER BEACH: That was 10; 11 is closed already.

MR. FITZGERALD: Everybody okay? We'll just plow ahead?

MEMBER BEACH: Now on to 13.

MR. KATZ: Twelve is closed already?

MEMBER BEACH: Yes.

MR. FITZGERALD: All right. Okay, we're on Issue 13 and as I recall, this was a petitioner issue that we wanted to get clarification on.

This was the one where in the petition, there was an issue of concern of that too few workers were monitored for valid dose reconstruction and the actual petition concern that was included was one, and I'm just quoting from the petition, one argument we make is that too few workers were monitored for statistical purposes for generalizations to the rest of the workforce to be valid. Until '79, a majority of Pantex workforce went completely unmonitored. The assumptions that the most-exposed workers were monitored was not found to be valid in IAAP and is not likely as valid at Pantex.

And there wasn't a clear response in the ER for some of the earlier discussions that I think the Work Group had so we maintained this as an open item. But, again, as you'll note in our assessment here, and I'm going to read this, this is the status update.

NIOSH -- and this is from October of

last year -- NIOSH revised the response to SC&A's data completeness and adequacy paper and it's assessment, which we got on August 5th of 2011, SC&A's review of NIOSH's response finds agreement that limited monitoring existed prior to the arrival of the sealed plutonium pits in '58 and that relatively small variations in historic badging can, in fact, be linked to weapons production dismantlement rates and changing DOE policies.

So, I think there was agreement that, although I think some of the concerns the petitioner raises were quite valid, that NIOSH had gone back and we had gone back and looked at the statistical treatments that were provided, not just in the ER but in some of the reference documents, in particular ORAU 13-6, which is the TBD and the Carr which is a 1992 assessment looks at the statistical treatment of external monitoring data.

Last year the Work Group asked us to

revisit this material and take a look at it again, and we went back and looked at the references as well as the exchanges of White Papers in 2011, and we think it's been adequately addressed and we'd recommend closure for it.

CHAIRMAN CLAWSON: Thank you. Josie?

MEMBER BEACH: I don't have any problem with that.

CHAIRMAN CLAWSON: Phil, we're recommending closing; do you have a problem with it?

MEMBER SCHOFIELD: Yes, I'm here, Brad. I don't have a problem with that.

CHAIRMAN CLAWSON: Okay, thank you.

MR. FITZGERALD: Okay, let's see, where is the agenda?

MR. ROLFES: Can we take a quick break before we discuss this one? It might go

a little bit longer than --

CHAIRMAN CLAWSON: Did you want to take a break?

MR. FITZGERALD: This would be the best time.

MR. HINNEFELD: This would be the best time for a break.

DR. NETON: This one could take a little while. This is more involved.

MEMBER BEACH: Perfect time for more coffee.

CHAIRMAN CLAWSON: Could we take a 15 minute break?

MR. KATZ: Yes, sure.

CHAIRMAN CLAWSON: Okay.

MR. KATZ: So, it's 10:06 to 10:20, we'll resume and I'm not cutting off the phone, I'm just putting it on mute and we'll rejoin you at 10:20. Thanks.

(Whereupon, the above-entitled matter went off the record at 10:06 a.m. and

resumed at 10:21 a.m.)

MR. KATZ: Let me check and see -- Phil, do we have you back on the line?

MEMBER SCHOFIELD: Yes, you do, Ted.

MR. KATZ: Great, and Ron Buchanan, are you back on?

DR. BUCHANAN: Yes, I am.

MR. KATZ: Okay, super.

MR. FITZGERALD: Okay, yes, Joe Fitzgerald, we're back on the issue matrix. We're up to Issue 15 which deals with tritium exposure.

And this was another early Site Profile question that we raised in the review. The approach in the Site Profile that was framed was using essentially job categories, three in this case, to assign a bounding tritium dose to Pantex workers.

And we had originally raised some reservations about the manner in which tritium

air samples were taken and how workers were, in fact, monitored.

It was certainly somewhat, or should I say, relatively primitive in the earlier days and, you know, it was unclear to us whether -- how representative the sampling was and these are questions that were discussed early on.

We didn't really reach a resolution even though I think we laid out some of the concerns over that approach, primarily because we got into the DU issue, the uranium issue and thorium issues. And so this sort of got left behind.

Now, clearly, this falls within the time period of the SEC, so we're talking about partial dose reconstructions. But, you know, nonetheless, we think there's some remaining issues.

And I wanted to go back because this does have some history and we wanted to, in

response to Brad's note of a couple months ago laid that out and clarify, you know, where things stood and go back and sort of draw from those original comments.

And so we laid this out in a clarification piece on Issue 15 that we circulated last month and Ron authored that particular piece and I'm going to defer to him. If you want to, for the sake of this discussion, just lay out, I guess it was like two, two and a half pages of just clarifying our concerns on the categories and how that was done, Ron.

MR. KATZ: Ron, are you on mute?

MR. FITZGERALD: Ron?

MR. KATZ: Maybe he lost his connection.

MR. FITZGERALD: Okay, well let's -- I'll wait for Ron Buchanan to get back but the -- I'm just going to, again, just go over our clarifying comments because essentially it lays it out.

On Page 17 and 18 of our 2011 report, we note that Category 2 workers are assigned an environmental dose for the period of '56 to the present. So, essentially, Category 1 workers were assigned the bounding doses that were listed in a separate table, Table 5-2.

DR. BUCHANAN: I'm here now, wrong button.

MR. FITZGERALD: Wrong button, okay.

DR. BUCHANAN: Go ahead.

MR. FITZGERALD: Okay. But, again, our concerns were that the six millirem per year value which was essentially in the table wasn't sufficiently backed up and that it was a lot of reliance on what was an assumed one]-year value.

You know, we had a monitoring bioassay value that was once a year and the concern was that, even though that if you used that value and extrapolated for the entire

year, it'd give you a fairly large value, you know, undeniably it would be bounding.

But our concerns were whether, in fact, it would be reasonable and technically accurate and the only exchange we had on this issue, I think there was agreement that that was a large number even though it was bounding, that it would not have necessarily reflected actual exposure conditions.

And I think that's kind of where we left it that even though this does get to an efficiency issue and maybe a bit of a philosophical question of when you don't have a lot of good data, but you do have some data and it allows you to set the bounds for tritium exposure and certainly tritium, we're talking millirems, we're not talking a lot of exposure. It's like how many angels can dance on a pin? I mean, it's the data we have.

However, you know, we think the annual bioassay results are not reasonably

usable for dose reconstruction purposes and would not normally be used that way. But in the context of a partial dose reconstruction in an SEC period, I guess we would pose it to a Work Group and this is why we wanted to sort of tee this up as a Work Group discussion issue.

It's the only horse you can ride. This is something that would be reasonable to do even though there was certainly, from our standpoint, and I'll let Ron have the ball back on this, some technical reservations about how you would apply so little data for what would normally not be a valid dose reconstruction purpose.

But for, in this context, you know, it may be something that the Work Group might consider as it's better than not having any value even though there are some, you know, reservations and some shortcomings with it.

And, Ron, do you want to go over some of the specifics? But that's kind of the

overarching thought that we had, I think.

DR. BUCHANAN: Okay, Ron Buchanan here with SC&A.

Our main concern was that there was I think three major issues here in that there was some data available but the MDA values -- well, I think the main issue was that the data in the TBD was presented as being taken from bioassay data whereas it was kind of misleading. These were actually -- most of these were derived from MDA values, the minimum detectable activity, quoted at that time as opposed to actual measured values.

And so we felt that the table in the TBD somewhat was misleading in that in a majority of the years. This is from MDA values as opposed to actual measurement.

One question was that the table was also not labeled as whether it for annual. We assumed that these were annual intakes but that needs to be clarified.

Also, the issue of should it be reworded or re-emphasized that a lot of this data was from MDA as opposed to actual measured values.

And then we actually had some question on the MDA value. The MDA value actually was not taken from what I could find records of, bioassays performed at intakes, rather it was taken from this document, Referenced ID 12549, a document which was done in 1991 which actually was an appraisal of the Pantex HP program and the MDA value is actually taken from a figure given in that appraisal saying that it should be able to measure this amount. A good health physics program should be able to measure this amount.

It did not really tie it directly to Pantex in that context saying that this is what Pantex presently measured or was measured in the past.

So, it appeared that this number

came out and then was used as an MDA value and then this was applied to quite a bit of calculations in the tables. And so, we feel that this was kind of shaky ground in normal circumstances.

And then also the six millirem per year, it states that the minimum average value, however, we see that in the table, there most of them are not six millirem per year, they're more or less than that.

And so, our question was kind of, in summary, we didn't feel that the objections brought up previously were really answered. And so what I did in this paper that we recently constructed, the summary, was to point out some of the inconsistencies in this and on the one hand and on the other hand, if it's all we have to work with, if it's the best we can do and a reasonable amount of resources allotted to it since it is an SEC period.

And so, we're kind of at that point

now, does the Work Group want to require NIOSH to clarify some of these issues that I brought up recently or just set aside this as reasonable for a partial dose reconstruction situation?

DR. NETON: Well, this is Jim. I'll ask Mark on it, if he wants it.

MR. ROLFES: I can take the easy one.

There was a question about whether the intake values that were listed were for a period of a year, and yes, they are in fact annual results. It just didn't state that in the table and the TBD.

As far as the current dose values in the TBD, I don't know if we want to discuss that. I know there's been some work to go back and look at MDAs and to try to recalculate the tritium intake values.

DR. NETON: I think we would agree that the doses were based on -- inappropriately based on detection limit to cover all time

periods and we agreed to go back and use more representative MDAs for the time period in which the samples were taken for which a bioassay program was in existence.

That's going to increase the doses somewhat but even with that, I think the mode of the annual undetected dose is going to be around 20 millirem.

So, we're in a situation where we're not talking about large doses. And traditionally, it seems to me that the Board has been willing to accept more uncertainty in situations where the doses are very small. Sufficient accuracy is not as critical when you have 20 millirem doses and you're talking about two to three millirem type doses.

So I would support the position that it's as good as we're going to get with the tritium doses and let it go at that. I mean I don't know what else we could do.

CHAIRMAN CLAWSON: So, this would

be about 20 millirem per year?

DR. NETON: Twenty millirems -- it's a distribution. The mode is going to be 21, I think the maximum is around -- depending on the year. In the earlier years, 42 would be the high and the lower bound would be zero. Of course, there's a triangular distribution so that the best estimate would be 21 through 1990. Once you get into 1991, it drops to 6 which is presumably just based on the improvement in the detection.

CHAIRMAN CLAWSON: Josie, do you have any problems with that?

MEMBER BEACH: Well, I mean I think it's -- so NIOSH would have to go back in and clean up the table.

DR. NETON: Table 5-3 when we revise it.

MEMBER BEACH: Clean up the table so it's more understandable. That takes care of the two items. I was looking for the third

one.

MR. ROLFES: Was the third --

DR. BUCHANAN: Whether there's annual recorded versus throughout the actual MDA value.

MEMBER BEACH: Yes.

DR. BUCHANAN: And then while this was really kind of forward, the annual was kind of --

MEMBER BEACH: The annual was taken care of. It is annual.

DR. BUCHANAN: And the six millirem per year, a lot of the values in the table are less than six, so Page 17 states six millirems a year but the table has like 2.9. And so, you know, there seems to be an inconsistency there.

DR. NETON: Yes and the new table will have nothing less than six millirem per year.

MEMBER BEACH: So, that's part of that cleaning up the table, okay. And then on

other hand, if you don't agree to this, then where does that leave us? It leaves us with --

CHAIRMAN CLAWSON: We've got -- we're in one of those commitments.

MEMBER BEACH: Yes, we are.

CHAIRMAN CLAWSON: We've discussed this and I just -- my personal feeling is that I agree with it. It's the only thing we can do and it's where we're at especially in this place in the process. So, I feel that we ought to accept that on those conditions and go from there. Any problem with that, Josie?

MEMBER BEACH: No, I don't have a problem that.

CHAIRMAN CLAWSON: Phil, do you have a problem with what we're going to do?

MEMBER SCHOFIELD: We're kind of in the ranger where I don't think it's going to make much difference in a lot of these.

CHAIRMAN CLAWSON: Okay, just wanted to make sure.

MR. FITZGERALD: So, the table will be fixed and, yes, the MDA values will be switched from detection to, I guess, to fit the historic bioassay practice.

DR. NETON: Yes.

MR. FITZGERALD: Okay.

MR. KATZ: That wasn't so long.

DR. NETON: No. I can never predict.

CHAIRMAN CLAWSON: Yes, it was a two cup day today, he was ready for it.

MR. ROLFES: That's just the coffee.

MR. FITZGERALD: Okay, I think that leaves us with just one which is 16 and that one gets down to the geometric positioning of the pit more than anything else and whether or not OTIB-10 applies which is the glovebox geometry, would apply, in fact, to the direct handling by the worker.

I guess I'll go back to the worst

case example which is the worker with the pit in his lap type of thing, you know, that kind of -- probably more earlier days than later days as far as geometry.

And I think the way that was left, this goes back a couple of years, but I think you all were going to go back and look at OTIB-10 and see whether or not that could be applied.

MR. ROLFES: That's also recently changed as well. So, the geometric correction factor's changed from roughly, what was it, I don't even recall.

DR. NETON: It's now up to 3.5 I think. What happened was TIB-10 had been revised since this Site Profile was written. If you remember, TIB-10, we assigned a distribution of the possible doses and in responding to comments on TIB-10, we agreed to use the 95th percentile value because there were certain organs that would affect that and if we use the 95th percentile, the correction

factor is 3.5 and we believe that would account for the geometry of exposure to the pit.

MR. FITZGERALD: Has OTIB-10 been reissued or --

DR. NETON: I think it's been revised to have the 3.5 in it if I'm not mistaken. It's going to be revised again for other reasons, but --

CHAIRMAN CLAWSON: What else?

DR. NETON: Well, the ICRP 116 implementation of the new dose conversion factors, but that's a long-term issue. It has nothing to do with really, it's an overarching issue not related to Pantex.

I'm pretty sure, let me just see if I can find --

MEMBER BEACH: While you're looking at that, just for a process question, 15, are we closing that or are we putting it in abeyance or what are we doing there? Do we know how that process works when NIOSH is going to

do some changes to the TBD or is it just closed?

MR. STIVER: I think it'd be abeyance if we agree on the --

MEMBER BEACH: I think it's in abeyance.

MR. STIVER: -- correction then it just has to go in to the TBD.

MR. KATZ: It's in abeyance if it has to come out in a new document. I mean it's effectually the same thing.

MEMBER BEACH: Yes. It just gives you --

MR. STIVER: We've reached agreement there.

CHAIRMAN CLAWSON: And when that comes out, SC&A will review the --

MR. STIVER: Just do a quick review and make sure that everything is as agreed.

MEMBER BEACH: I think that just cues you to do it if it's in abeyance rather than not closed.

MR. KATZ: I want to go over that list just to get that right. Let's look at the scorecard here. What are we on?

MR. FITZGERALD: We're on the last one.

DR. NETON: I don't see TIB-10 as actually changed to -- we've agreed to do that in practice, but we're not -- we may have been waiting on the TIB-10 change in response to the ICRP 116 changes, now that I think about it.

MR. HINNEFELD: Well, if that's the case, I think we should -- you know, we have a change to make, I think we should go ahead with it, issue it as, you know --

DR. NETON: As a three --

MR. HINNEFELD: -- and not wait for the 116 changes and then we change it again when 116 comes out because that's a long time.

DR. NETON: It's going to be a while and we're better off, we're better served.

MR. FITZGERALD: So, it would be a

95th percentile which would be enough --

DR. NETON: It's 3.5.

MR. HINNEFELD: Here's another part of my thought on this is that, yes, it's true that for certain years for some portions, the guys have put pits in their laps for a piece of the work.

But for other parts of the work, they're not going to have it in their lap for a fair amount of the exposure geometry, they're going to be in the proximity of a weapon and really not even particularly working, you know, with their hands on in a kind of orientation that changes the irradiation.

So, the fact that we have a procedure for making this geometry adjustment that we would like to use because we've kind of been vetted through Procedures Subcommittee and so we'd kind of like to have that vetted one be used.

We don't have another better

alternative and the fact that you're looking at sort of an average exposure situation averaging in your lap to just being in proximity, we think that it's a reasonable way to bound the adjustment that you have to make from the badge reading.

So that's -- those are the kind of reasons that go in to it as wanting to stick with the TIB-10 approach on this.

MR. FITZGERALD: And just apply it to the percentile?

MR. HINNEFELD: Yes, instead of the 95th percentile.

DR. NETON: That would have been agreed to a while ago, but it's sort of obviously an issue for us balancing PERs versus, you know, how often if your PERs --

MR. HINNEFELD: How often your PERs -- I mean the 116's going to be the next mother of all PERs. You know, we keep talking about having the mother of all PERs.

DR. NETON: It would effectively change every non-compensated dose --

MR. HINNEFELD: Every non-compensated case that we've looked at, yes.

DR. NETON: Or --

MR. HINNEFELD: Probably, probably, some of the PERs actually go down, so there would be some target --

DR. NETON: But I mean, it's going to have to be redone to determine it, which effect. But you're right.

MR. HINNEFELD: Some of these, yes, actually go down so those are the periods.

DR. NETON: Prostates.

MR HINNEFELD: But skeptically, are you just looking at these skeptically or are you just tired?

CHAIRMAN CLAWSON: No, I'm --

MR. HINNEFELD: Not you.

CHAIRMAN CLAWSON: I'm just looking at this. And so, you're going to go

ahead and make this change to 10?

MR. HINNEFELD: Yes, TIB-10, yes. We'll issue 10 with the 3.5, we'll use that adjustment factor then as the geometry adjustment factor.

MR. STIVER: You're saying that as a result of this, most of the partials are going to have to be redone on at least for most of these, except for a few organs?

MR. HINNEFELD: I guess.

MR. STIVER: So, I mean the PER would be --

MR. HINNEFELD: Well, I mean to the extent, yes, we're going to have changes to the Site Profile as a result of these discussions and so, we'll have to do some sort of evaluation and previously completed comments.

DR. NETON: That's going to be true whether or not we need to --

MR. HINNEFELD: Whether we --

DR. NETON: -- I mean a number of

these changes like the new coworker model, neutrons, it's all going to --

MR. HINNEFELD: The neutron thing, yes.

CHAIRMAN CLAWSON: And the second part of this OTIB-10, the 16 or whatever that you're talking about, that too will affect this but that's going to be down the road.

MR. KATZ: Yes, that'll affect it.

MR. FITZGERALD: Everywhere.

MR. HINNEFELD: That'll affect everything.

CHAIRMAN CLAWSON: Everywhere. Okay, that's why I was looking at you in this phased look of --

MR. KATZ: Well, everybody was a glovebox worker.

MR. FITZGERALD: Right.

DR. NETON: Right.

MR. KATZ: Okay, so a lot of places.

MR. HINNEFELD: Well ICRP 116 would

affect everywhere.

DR. NETON: ICRP's doing that to the glovebox, so it'll affect all dose conversion factors for like 32 different organs and now you have a male and female model.

MR. HINNEFELD: Yes, if we issue TIB-10 now like we say we're going to do, that's going to throw in a PER for this TIB-10 change that we were thinking we could avoid if we waited on the OTIB revision until we got 116, but 116 is too far downstream.

DR. NETON: With ICRP 116, you can actually model all of the dose conversion factors for the organs individually and come up with individual organ dose conversion factors then you don't have to rely on these sort of bounding calculations.

It's going to be very nice, but it'll change our world upside down.

CHAIRMAN CLAWSON: I just want to make sure I know that we've got a lot of cases

that are sitting on the shelf until we get this done and I just want to make sure that we've got this put in place.

MR. HINNEFELD: Yes.

CHAIRMAN CLAWSON: And so, that's why I wanted to make sure that we got this table changed, the TBD changed.

But I'll just try and understand the 116 and but that's, I understand, that's the bigger picture. I want to get these cases taken care of when we can.

MR. KATZ: Does this one really need to be in abeyance or can it be closed because it's a simple -- I mean it's not complex what they're doing.

DR. NETON: No.

CHAIRMAN CLAWSON: No, but we still have to just --

MEMBER BEACH: Just go back and check it.

MR. KATZ: Well, I mean, yes. I

mean in abeyance, we really mostly use the abeyance for matters where you really have to see how it plays out to say, okay, that's good.

At least with procedures, for things that are just very simple changes and you've agreed upon them and you know they're going to be done, we don't have another SC&A review of the simple change.

Because they're going to review the PER when the PER comes out anyway.

CHAIRMAN CLAWSON: Okay, I don't know, I have no problem with that.

MR. KATZ: So I think you can just close this one because everybody knows what the solution is and it's --

CHAIRMAN CLAWSON: Any problem with that, Joe or John?

MR. FITZGERALD: No.

CHAIRMAN CLAWSON: They're going to be --

MR. STIVER: That's fine with me,

the record will be transcribed.

CHAIRMAN CLAWSON: Okay, that's fine.

MR. FITZGERALD: Okay, that's all the issues. We'll go ahead and recap since we're talking abeyance versus closed on that.

Going through the list using the agenda, Item A which is Issue 6, that's the one with the zero entries, I think there will be a note to the Work Group.

MR. HINNEFELD: We're going to write up how we intend to --

MR. FITZGERALD: Right, a note to the Work Group and then perhaps revisions to the TBD.

Issue 7, neutron-to-photon ratios, that's a new approach that's going to be, I think it sounded like it would be a small White Paper or something. A brief paper and then a revision to the TBD once accepted by the Work Group.

Issue 8, that was a small paragraph or some admonition to the dose reconstructor that will be added to the TBD, that's in abeyance. These first three would be abeyances.

Issue 9 which is incidents is closed without any action.

Issue 10 on the firing sites is rendered moot by the SEC; that's closed.

Issue 13 which is the petitioner issue is closed.

Issue 15 would be held in abeyance, that's the tritium issue with the two actions that were discussed and that would be actions to revise the TBD, think.

And then the final one we just talked about would be -- it would be closed with the issuance of the OTIB revision and SC&A would be able to look at that through the PER process.

MR. KATZ: That's right.

MR. FITZGERALD: So, that's it.

MR. KATZ: That's right. Good, 10:45.

CHAIRMAN CLAWSON: Well, we time frame --

MR. HINNEFELD: I'll have to ask the --

CHAIRMAN CLAWSON: You know, and I guess the only thing I want to say out there is that my understanding is that we do have several cases sitting up on the shelf that we need to get this. It's been a long time, so any idea?

MR. ROLFES: My opinion is it shouldn't be too long. It sounds to me like the majority of the work, I think this issue I think on our part was the neutron dose reconstruction coworker model and I think if we provide a write-up here in the next, you know, four to six weeks, I think --

MR. HINNEFELD: I would say something like that.

DR. NETON: I'm sorry, when are we

going to do this?

CHAIRMAN CLAWSON: He said it's definitely next week.

(Laughter.)

DR. NETON: That was a four to six weeks for the coworker model, is that what?

MR. ROLFES: I think four to six weeks for a write-up on our new approach on neutron and coworker model.

DR. NETON: For the approach or the completed model?

MR. ROLFES: Well, I mean --

DR. NETON: If it's not four to six, we'll let you know. I can't speak for --

MR. HINNEFELD: Let's go with six and if it's not going to be that -- because again, you know --

DR. NETON: It's hard to get in private office.

MR. HINNEFELD: We've got to fit it into the project schedule. So, and we're

trying to -- we want to be ready for SFFL in December or November when we go out to Los Angeles.

CHAIRMAN CLAWSON: But, for the tritium for this one, it's just the approach of how we're going to do it?

MR. HINNEFELD: Well, I mean we have to, you know, developing a coworker model is a fair amount of data manipulation and we do have the data, but we have to kind of build it out, describe it and so there's a fair amount of data manipulation and there is a lot of tasks that require data manipulation and only a certain few number of people who are capable of doing that. So we have to fit it into the project schedule is what we're saying.

DR. NETON: And I think Tim -- Tim, are you still on the phone?

DR. TAULBEE: I just joined back.

DR. NETON: Did you hear the discussion about time frame for the coworker

model?

DR. TAULBEE: Yes.

DR. NETON: Do you think six weeks is reasonable?

DR. TAULBEE: Four to six weeks is reasonable as long as they don't have anything else going on. So, you're absolutely right on the project plan and seeing what other tasks that they've got that we've committed to in other Work Group meetings, et cetera needs to be evaluated.

DR. NETON: So, we'll shoot for six weeks and then if it's not going to be that for good reason, we'll let you know.

MR. KATZ: And everything else seems pretty trivial.

MR. FITZGERALD: Yes, I was going to say if there's partials that are pending, it's probably this issue, the neutron more than anything else.

DR. NETON: Yes, I think so.

MR. FITZGERALD: The rest of it seems to be easy.

MR. HINNEFELD: Yes, I think that's true.

CHAIRMAN CLAWSON: Okay. And then -- now we've -- during this whole process, we made a lot of changes to the TBD and a lot of them have been held back until we do the final TBD review. So, once all these are put in there, then is SC&A group --

MR. FITZGERALD: Yes, that's kind of the standard thing. I mean we'll --

CHAIRMAN CLAWSON: Standard process?

MR. FITZGERALD: You know, when that gets into the schedule for revision we would certainly --

MR. KATZ: Well, SC&A will look at the items in abeyance. The things that are closed they don't have to look at again.

CHAIRMAN CLAWSON: Right.

MR. HINNEFELD: You're talking about other findings there are going to be closed immediately that are through --

CHAIRMAN CLAWSON: Through the Work Group process, I mean this long period has been, yes, when we do a TBD update, we're going to, you know, we'll change -- I just wanted to do a follow-up of --

MR. HINNEFELD: Well, I think we've issued some revisions.

MR. ROLFES: Yes, the only thing that hasn't been revised at this point is the external dose TBD. The internal dose TBD was issued I think in February of this year. We're going to need to revise that just to update the tritium missed dose values that we discussed today.

MR. HINNEFELD: So, if there are any findings on any of the other sections besides internal and external that we feel like need to be checked to see that they get

incorporated --

CHAIRMAN CLAWSON: Well, that I --

MR. FITZGERALD: We've reviewed the existing revisions and didn't see any issues that stood out, so we would have brought those to the table today.

MR. HINNEFELD: Okay.

CHAIRMAN CLAWSON: These are just to follow up to the close then because I'd really like to put this in the bed, that we're done and go from there.

DR. NETON: I think we're really close.

CHAIRMAN CLAWSON: Yes, so do I, so we'll just leave it at that.

Phil, do you have any questions before we close?

MEMBER SCHOFIELD: Not really.

CHAIRMAN CLAWSON: Okay. I just wanted to make sure. Josie --

MEMBER BEACH: Yes.

CHAIRMAN CLAWSON: So, with that, we're done.

MR. KATZ: Very good, we're adjourned.

(Whereupon, the above-entitled matter went off the record at 10:53 a.m.)