U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
CENTERS FOR DISEASE CONTROL
NATIONAL INSTITUTE FOR OCCUPATIONAL
SAFETY AND HEALTH

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ADVISORY BOARD ON RADIATION AND
WORKER HEALTH

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WORK GROUP ON OAK RIDGE GASEOUS
DIFFUSION PLANT (K-25), PADUCAH
GASEOUS DIFFUSION PLANT, AND
PORTSMOUTH GASEOUS DIFFUSION PLANT

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FRIDAY
DECEMBER 7, 2012

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The Work Group convened telephonically at 1:00 p.m., Eastern Standard Time, Phillip Schofield, Chairman, presiding.

PRESENT:
PHILLIP SCHOFIELD, Chairman
JOSIE BEACH, Member

ALSO PRESENT:

TED KATZ, Designated Federal Official
ELIZABETH ALGUTIFAN, ORAU Team
JOE FITZGERALD, SC&A
JENNY LIN, HHS
CHUCK NELSON, DCAS
JIM NETON, DCAS
JODIE PHILLIPS, ORAU Team
MICHALENE RODRIGUEZ, ORAU Team
MATTHEW SMITH, ORAU Team
JOHN STIVER, SC&A

C O N T E N T S

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

(1:02 p.m.)

MR. KATZ: This is the Advisory Board of Radiation Worker Health. It's the Portsmouth, K-25, Paducah Work Group. We have an agenda that is posted on the NIOSH website under the Board section under the meeting section for today's date. And along with the agenda, we have issue matrices for all three sites also posted. So I just wanted to note that for everyone on the line.

And then let's start with roll call for Board Members to start with, beginning with the Chair. Since we are speaking about specific sites, please note your conflict of interest situation with respect to each site.

(Roll call)

MR. KATZ: Okay, let me just remind everyone else, mute your phones except when you are talking, to help with the audio quality and thank you.

CHAIRMAN SCHOFIELD: Okay. We are going to start off with the Paducah site. There are five items still open that after DCAS put out their update, their comments, their resolutions, SC&A has reviewed those and recommend that we close those five items.

So maybe we'll turn it over to SC&A and -- for their findings, what they found, so that they could -- these items could be closed.

MR. FITZGERALD: Okay, this is Joe. Just going to the matrix, I think everybody has a copy of this, it's dated July 2011, but the update is October of this year, October 2012.

Okay? And on item 5, issue 5, that was a contamination control and extremity dose issue. That Site Profile finding was a question of whether sufficient information and background was provided for the dose reconstructors in terms of the significance of skin exposure and whether and how to address

that.

I think the NIOSH action was to provide more references to tie it to specific documents and the -- I think there was agreement in the Work Group last time that that was certainly a good step forward and I think NIOSH at that point in time, however, acknowledged that they wanted to take a further look, particularly into the technetium 99 exposures at the gaseous diffusion plants, and you know, more elaboration abut the implications of technetium 99 in terms of exposure and how one ought to address any missed dose due to technetium 99.

Essentially, what DCAS provided, I think, in the spring, was a new procedure, ORAU RPRT-59, which was external exposure to technetium 99 at the gaseous diffusion plants dated February 7th which was submitted to the Work Group for review.

At the workers' request, we reviewed that and felt that was certainly

responsive to the concerns that we raised in our review, and that was part of the -- that was the basis for the recommendation that we forwarded to the Work Group, suggesting that that be closed.

So that's the -- that's kind of the background, and the recommendation to the Work Group. Are you still there?

MEMBER BEACH: Yes.

MR. FITZGERALD: Okay.

MEMBER BEACH: I was waiting for Phil.

CHAIRMAN SCHOFIELD: Sorry, I was on mute.

MR. FITZGERALD: Okay, I was saying that certainly was the -- where we came out on that and we felt the report was a good one and responsive to the biggest issue on the skin side, which is technetium 99.

CHAIRMAN SCHOFIELD: Okay. And I don't remember, has that White Paper been posted for the general public, the paper on

the --

MR. NELSON: I believe the report, report 59 for technetium, I think it's on the website.

CHAIRMAN SCHOFIELD: It's on the website now? Okay, because I think I have them.

MR. NELSON: I think I saw it just a couple of days ago. Maybe somebody could verify that. I don't have a computer in front of me.

CHAIRMAN SCHOFIELD: Okay, because the copy I have, I know isn't there. So --

MR. SMITH: This is Matt Smith, ORAU team. I can verify it's up there. At least I pulled it off under the Portsmouth section of the website. It's likely on all three.

CHAIRMAN SCHOFIELD: Okay. Thank you.

MR. FITZGERALD: Phil, it's up to you. I can go through all the open items from

the last time --

CHAIRMAN SCHOFIELD: Why don't you just go ahead and go through them there, so people can understand your findings.

MR. FITZGERALD: All right. Just moving along then to the next open item on the matrix, which is issue 10, that was a question of whether in fact there was empirical information for Paducah relative to the particle sizes involved, such that you wouldn't necessarily have to default to the standard 5 micron AMAD, and we felt there were some references that we found that indicated that there might be in fact some actual measurements that would be usable, that would -- would, you know, certainly move one to use a lower number, a lower figure.

And you know, we went back and forth on that, and I think that the action that resulted from the last Work Group meeting was, was DCAS agreeing to go back and just take another look at the references and try to

pin down this question a little better as to whether or not in fact it were -- it was documented measurements or any reports that would in fact be usable and would not necessarily lead to the use of the default measurement.

And to summarize, I think the response was an outline of what DCAS went through in terms of its research and it was a fairly good research and I think it -- I can't confirm that -- there were in fact some citations, but the citations themselves involved some inferred or assumed measurements, not actual measured particle sizes, and therefore it wasn't necessarily any real improvement over use of the 5 micron default.

So I think in the final analysis, it was validated that it was not in fact any real usable, empirical measurements that would move one to not use the default and it was felt that the 5 micron particle size was

claimant-favorable in that context.

So we accepted that and recommended to the Work Group that the follow-up that the Work Group had asked for had been done and we felt that the citations that we had found were explained pretty well as to where they stood relative to the application. We felt that this was a pretty good argument to remain with the 5 micron.

MEMBER BEACH: What about the aerosol size? That was mentioned in one of the bullets, too.

MR. FITZGERALD: Three to 3.5 micron?

MEMBER BEACH: Yes.

MR. FITZGERALD: Well, I think -- I could defer to NIOSH on this -- but their argument was in terms of ICRP 66, that modeling, that it was roughly equivalent to the 4 to 5 micron, you know, actual 5 micron measurement AMAD.

MEMBER BEACH: Okay. Okay.

MR. FITZGERALD: So I think even though that was found -- and this was part of the confusion. We did find some citations in our review that suggested smaller particle sizes. But I think there's some explanations as to why that would be either equivalent to or not necessarily usable in place of the 5 micron.

So that's kind of, you know, that's kind of where we came out. You can argue difference between 4 and 5, but it's pretty much equivalent to 5, based on that research. I don't know, Chuck, did you have anything to offer on that?

MR. NELSON: That's correct, Joe. What it was, it was a mass medium diameter of 3 to 3.5. If you go into ICRP 66, 1994, look at equation D5, we calculated that that number of 3 to 3.5 -- and it came out in the 4 to 5 AMAD. So --

MEMBER BEACH: So not much different then.

MR. NELSON: No, pretty much equivalent.

MR. FITZGERALD: And I think that was kind of the question we had, in seeing these other numbers crop up. We weren't sure if those had been fully reflected in the TBD, and I think it has been rationalized now.

MR. NELSON: Yes, the other reference was AMAD of 1, but they were referring to ICRP 30 recommendations which had been later superseded. So it was a number people threw out on occasion in some of those documents, and it's just because that was what the current default was at the time.

MR. FITZGERALD: Any more questions on issue 10? On particle size? If not, just moving to issue 17. That of course addresses the coworker model, and the question of whether or not there was sufficient site-specific information regarding job categories or buildings, and this is not an uncommon issue with coworker models, and we -- in

looking at the Site Profile, we do raise some questions as to whether or not the examples that were given in the listings of job categories in fact were -- were really a sufficient list.

And let me just see --

MR. NELSON: Hey Joe, I could pick that up for you.

MR. FITZGERALD: Maybe you could pick that up -- get them to think some of your analysis --

(Simultaneous speakers.)

MR. FITZGERALD: -- used is to use the 95th percentile distribution. I think what you are saying is you have sufficient -- sufficient information but just to be more conservative, guidance is going to be added that will point to the 95th percentile, just to make sure.

MR. NELSON: Yes, what we did, Joe, is -- this is Chuck Nelson -- we put some verbiage in there, basically for the first

part was, you know, can we identify some of these job categories and areas where there's higher potential for internal exposure, to give the dose reconstructionist an idea, you know, for that specific site, of where the higher category jobs are that -- where the potentials are higher.

So we put some nice tables in there and added some verbiage and including some work locations. Then on top of that we laid out how to assign dose, whether it be environmental dose, the full distribution of coworker dose or the 95th, and we gave specific instances or guidance for the dose reconstructor of when they could assign the 95th.

You know generally speaking you are going to assign the full distribution, the coworker dose. There are going to be possibly instances where there's going to be somebody that may get the 95th.

So we put some good guidance in the

procedure. It's found in Attachment B and Attachment C of Paducah internal TBD.

MR. FITZGERALD: Yes, and I think, just a little more background for the Work Group in reflecting on this a little bit, you know, part of this discussion was, there is an OTIB-14, which provides guidance about providing, you know, applying the environmental internal doses as a means to, you know, assign doses when you know, other doses aren't available and we questioned whether that would be sufficient if you didn't really have site-specific information. So a lot of it just stemmed from can you handle this in a generalized sense or do you need more specific information?

So I think what NIOSH is coming back with is that the information appears to be sufficient but reflecting the fact that there might be some variability's, because you don't have all the site-specific data that you would like, I think the 95th percentile

distribution is going to be suggested just as a means to make sure that we are on that side of the curve in terms of conservatism.

So, in a way I think that is probably a good solution to what is a difficult -- you know, there probably isn't that kind of site-specific data available that would enable you to have more -- a better idea on those dose assessments.

MEMBER BEACH: I guess the biggest thing -- this is Josie -- is to -- how it is written up in the TBD and how clear it is to the dose reconstructor of which one to use.

MR. NELSON: Well if you go -- it's actually, this procedure has been issued on 8/24/12.

MEMBER BEACH: Right.

MR. NELSON: So it's in the current -- if you want to look at it, it's in the current Paducah internal TBD. It's like attachment B and C

MEMBER BEACH: Okay. Joe, did you

get a chance to look at that?

MR. FITZGERALD: Yes.

MEMBER BEACH: Okay, so that's what you're looking at.

MR. FITZGERALD: Yes, and this is kind of not an uncommon Site Profile question, which is you know, not necessarily having the kind of facility-specific or job category-specific information that you would necessarily want to make a coworker model more precise or more accurate.

But what do you do to compensate, and I think we were looking for that -- we are looking for that approach to be reflected in the TBD.

DR. NETON: I might have a couple of points here. Joe is absolutely right that this issue comes up periodically as to what we are going to use, but it has been consistently our position that, in most cases that we are aware of, the workers that were more highly exposed were monitored, therefore we have

their data. The ones that weren't monitored were typically ancillary support workers, and that is why we feel justified using the 50th percentile with the full uncertainty distribution.

But what we also recognize -- and this is the issue that came up -- was that there are some cases where that might not be appropriate, and that's what we tried to correct or to amplify on in the procedure, that for instance a person may have been a chemical operator or something and with his -- flat out lost his monitoring record, well, we wouldn't use the 50th percentile in that case. We would of course use the 95th percentile.

So that's what this additional information -- tries to accommodate.

COURT REPORTER: This is the court reporter. Was that Dr. Neton just speaking?

DR. NETON: I'm sorry, this is Jim Neton, yes.

CHAIRMAN SCHOFIELD: All right,

Jim, this is Phil Schofield. I've got a quick question on that. How well does that data fit across the three facilities as far as the size, so that you would have that information that uses a coworker model?

DR. NETON: Well, I think we have individual coworker models for each site. I don't think we have used one size fits all. So that's not the case.

But if you are asking, do we know the job category of the workers, I think we have a pretty good handle in most cases on what positions people had and when we don't, we would assume a worst case scenario.

But again, this is an issue that we, you know, the application of the internal coworker model has come up at many sites. Again, we feel this default justification of 50th percentile is acceptable, but we acknowledge that that shouldn't be always the case. There are certain exceptions that we have to make, and we were careful to make sure

we don't inappropriately assign the 50th percentile.

CHAIRMAN SCHOFIELD: Okay, I guess that answered my question. I kind of asked it in an awkward way. But that did answer it, so thanks.

MR. FITZGERALD: Anything more on that particular issue?

(No response.)

MR. FITZGERALD: Okay. Moving to issue 24s, and the s is -- this was, as opposed to a finding, it was a secondary finding in the Site Profile, the only one that's sort of left in abeyance.

This was an issue of verification and validation, which is sort of a standard thing for the dose database, in this case the bioassay database being used, and just the issue that was raised in Site Profile was to what extent did NIOSH have an opportunity to look at the V&V of the internal bioassay database that was being used, and I think, at

that point in time there had not been a review on that basis, as I recall, and the Work Group felt that there -- you know, recognizing that this is a pretty extensive and open-ended issue when, you know, there's thousands of data points, but it was felt that there should be, and as we have done in other sites, some degree of a sampling process that would provide some confidence that the database in fact that was being used, the electronic database, was valid, and did not have too many discrepancies.

And this issue, and this is something the Work Group will have to consider, I mean, there's no, you know, magic number or statistical test in terms of sampling. At the other sites and other SECs we have gone through different sampling regimes to look at this very same question, the validity of the data.

And in this case, I think Chuck and his team looked at over 614 data lines -- I'm

not sure what the difference is, lines and pieces of data, it may be the same -- and found about five percent of discrepancies, and these discrepancies are not all created equal. I mean, some of them actually dealt with transcription issues and that's not uncommon, some incorrect dates, two incorrect bioassay results, which probably are more significant. But nonetheless, that was the result of that particular sampling.

Now, I think we -- we recommended closure but with certainly some discussion about how to, you know, how to address that particular sample size and that's something for the Work Group I think to consider.

I thought it was sufficient to get at least a sense of the significance of any discrepancies in the database and like I said, there's not any magic standard that one meets, but this seems to be relatively low. So I'll stop there, but that's pretty much where the sampling came out in terms of the V&V.

CHAIRMAN SCHOFIELD: In the errors and the sampling the stuff, what kind of spread are we talking about there? I mean, is this really very significant or not?

I mean, that's what I couldn't ascertain.

MR. FITZGERALD: Well, it compares with what we have found at other sites. We have found worse. We have found better. It's sort of, you know, it's not an outlier.

It's notable in terms of the discrepancies found. Certainly, the conclusion was it was the five percent rate was acceptably low.

Now, you know, I guess it's -- it really falls to the Work Group as to how one goes about determining what's acceptably low in terms of the finding. This one is -- this one I think, sort of compares well, but isn't necessarily a low finding in terms of number discrepancies.

CHAIRMAN SCHOFIELD: Okay.

MEMBER BEACH: Joe, the worst -- this is Josie again -- the worst part would have been the incorrect bioassay results entered. Is that correct?

MR. FITZGERALD: Yes. The dates would have implications, too.

MEMBER BEACH: Oh, the dates would too, you are right. So --

MR. FITZGERALD: You have four incorrect dates, two incorrect bioassay results. You know, what we have done in other reviews, Josie, and other sites, we have done additional sampling, for example, to see if in fact that's a representative finding.

But there's no other real good way to know if that's reflective or not, because you start getting into large numbers quickly so that that becomes the question.

MR. NELSON: Also, I don't know if anybody from ORAU can give us the number of man-hours or person-hours spent on this. There was quite a bit of effort involved in

this and just to give you an idea of what was done, they went to handwritten logbooks and they randomly selected all these different lines and they compared them directly against these databases, and there was quite a bit of effort involved, I mean, if you are going to want to do a large sample size, it's going to take actually a lot of man-hours. It's going to be a substantial effort and I mean, this wasn't a small effort by itself.

MR. FITZGERALD: What -- just more reflections -- what we have done at other sites, we have looked for missing years and I don't know if folks will recall, you know, we I think at one of the sites, we are missing two years of bioassay data as it turns out.

And that's the kind of major gaps that we have looked at. Other sites, we have looked at whether or not the transcription errors were acceptably low, not that there is a standard number but just looking at what we would find in terms of the transcription

errors, and we would always find a few percentage of the data being transcribed wrong.

As far as errors themselves, we have looked at that in the past and have found a certain percentage of just plain errors, where the bioassay or dose results were not entered correctly and things like dates.

So it's always a subjective thing as to, you know, as to whether or not the results are -- you know, with quotation marks, acceptably low or not, and what one does with the data when you get the feedback.

But I think the sampling itself is what the Work Group is looking for, as some means to get into this question of validating the database that was being used in coworker analyses and doing dose reconstruction.

I don't know if, Chuck or Jim, you can provide some perspective. This is not -- this is a, a standard issue that comes up at every site as far as the validity of the

database, and maybe how it compares with the kind of results we've seen, doing the same V&V for data such as Los Alamos. We did a V&V on Los Alamos, I think, not too long ago and I don't have it in front of me but I think that's the kind of comparison that maybe the Work Group needs.

DR. NETON: Yes, this is Jim, I might fill in a little more here. Out of the 30 -- we looked at something like 600 lines, and of the 30 that were -- the errors were identified, I believe it was like 24 that were actually in the logbook but not in the database.

So in my opinion, unless there was some differential bias, meaning you know, they threw away all the incident high samples or something like that and there's no indication of that, then that leaves us only with 6 errors out of the 600 lines, and some of those were dates and if they were the wrong date within the same year, it would have no effect

on the coworker model because those were pretty much done on an annual basis.

So I think it's significant to point out there was 24 out of the 30 errors that were identified, that constitutes that five percent where they just weren't in the logbook, I mean, in the database.

MEMBER BEACH: This is Josie. The data set was from 52 to 76, wasn't it? Is that -- what years did you guys pull that validation from? Do you remember?

MR. FITZGERALD: I don't have --

DR. NETON: We pulled them from every year.

MEMBER BEACH: Every -- so you just did a certain percentage from each year?

DR. NETON: Yes.

MEMBER BEACH: All the way back in -- all the way back?

MR. NELSON: And Jodi, correct me if I am wrong, but I think there was a couple of years that we didn't have a logbook, and in

those years we went directly to the NOCTS file and we compared the data in the NOCTS files against the logbook entries, and we were -- we didn't find any errors in that whatsoever.

MS. PHILLIPS: That's correct and we actually did it from 1962 all the way through 1988.

MR. NELSON: What was the last year?

MS. PHILLIPS: 1988.

MR. NELSON: Okay.

MS. PHILLIPS: And '75 and '76 were the two years that we had to use NOCTS files.

CHAIRMAN SCHOFIELD: This is Phil Schofield. I've got a question. Where did they get the data for the NOCTS files, since the logbooks seem to be missing?

MR. NELSON: I don't know if they were the hard copy ones that -- there was like a -- I don't know if it's 4x5 or 3x5 urine cards, and I don't know if it's photocopies of those or not. Jodi might now better.

MS. PHILLIPS: It's whatever is provided in the files that is the target to do the dose reconstruction. It would be whatever DOE provided for a specific claim, and we used actual claims.

CHAIRMAN SCHOFIELD: Okay.

MS. PHILLIPS: It could have been a copy of the written logbook. We don't actually have the logbooks. It could have been a 3x5 card or it could have been another method of their record-keeping because there are other methods.

MR. NELSON: And when we say we don't have the logbook, I believe that to mean that we didn't have it in our Site Research Database, correct?

MS. PHILLIPS: That's correct.

MR. NELSON: Okay, so there was only a couple of years that we didn't have, '75 and '76.

CHAIRMAN SCHOFIELD: Did anybody else have any questions?

MR. FITZGERALD: Phil, on this one, again, I think it's so subjective, if the Work Group finds it of value, perhaps some sense of how this compares with other V&Vs that have been conducted on facilities like this. I mean, I don't know how else to give you some perspective on this, because it is very subjective, you know, when you do a sampling analysis of this sort.

MEMBER BEACH: Well, I think that would be of value -- this is Josie again, Joe -- to do that comparison.

MR. FITZGERALD: Now, I don't know -- this is -- is this the same circumstance -- I know for Paducah we don't have a V&V because DOE didn't do one on Paducah.

I don't think that's necessarily the circumstance with the other two GDPs. Is that right, Chuck?

MR. NELSON: Can you say that again?

MR. FITZGERALD: I mean, in terms

of validating the actual database, the internal database that is being used, I know we don't have -- DOE did not do that for Paducah and I don't believe you all had done that either.

Is that the circumstance for the other two GDPs?

MR. NELSON: I am going to have to ask the ORAU subject matter experts on that because I am not sure on that, to be honest.

MS. ALGUTIFAN: This is Elizabeth Algutifan, Portsmouth subject matter expert. To my knowledge there has not been anything like that done for Portsmouth.

MR. FITZGERALD: Because you know, the real implications that we raised for Paducah, and that would certainly apply to all the GDPs, is if, if none of the internal dose data has been validated by DOE and, you know, certainly has not been reviewed by NIOSH except for this one sample for Paducah, then you know, there might be a broader issue of

just trying to establish you know, the condition of that data.

And I think this is a, this is a good first step, and a good step in itself. But I think that's probably the question for the Work Group, is to -- if it hasn't been done anywhere, then that may be something -- we recommended closure based on the fact that the Work Group wanted a sampling done, but I think that maybe the broader question for the Work Group is maybe -- whether it is satisfied that the data has been validated across the three GDPs, to the degree that you can rely on the internal database.

And that's a tough one, and I think that's got to be balanced against the question of resources and it has to be addressed from the standpoint of what's a reasonable measure of validity. I mean I think that's a very subjective thing, but that's maybe something you might want to think about.

DR. NETON: Well, this is Jim, one

thing we've got to keep in mind, is that these sites are already SECs. So if the database is somehow, I don't know how you determined it was invalid, and I don't know what we would do.

I mean, this is the data that we have to work with. We have demonstrated that there's a five percent or less error rate in this current one. There's a lot of money going to be spent to validate these databases, and I'm not sure to what end. That's my opinion, but again, they are already in the Special Exposure Cohort, so if it were invalid, then we just couldn't use it at all.

CHAIRMAN SCHOFIELD: So I've got a question. I mean, not being a mathematician or anything, is when you do a very simple statistical analysis, this five percent, how much would that have an impact on dose reconstruction, a dose reconstruction, someone did not qualify under an SEC and needed a partial dose reconstruction done?

DR. NETON: This is Jim again. As I tried to point out earlier, 24 of the 30 problems that were found were a data that were in the logbooks but did not make their way into the database.

Unless you have some knowledge that they intentionally threw away high results, then one would make the logical assumption that there was no differential bias in the numbers. In other words, the values that are missing would fall on either side of say the 50th percentile or could be just all null, null values.

So I don't think it would have much effect at all, if that were the case, on the 50th percentile and the ascribed uncertainty distribution that we used, because you are only talking about five percent of the samples.

If 95 percent of the samples are valid, then a 5 percent missing number of values is not going to affect substantially

the overall models unless they were like huge, huge sample results that would drive the 95th percentile much higher. But again, we have no knowledge that that was the case here.

CHAIR SCHOFIELD: I would like to put this out to the rest of the Work Group. It seems like most of it is covered in an SEC, that -- kind of let this go at this point, unless we have reason to come back to it and find something that would really throw this in question, just because of the time and cost and everything.

MR. FITZGERALD: Well, I think Jim makes a good point, that from a pragmatic standpoint, this is a legacy SEC site so that you know, who is in and who is not is not material, I think to the SEC standpoint anyway. So that's another factor obviously.

MEMBER BEACH: Yes, this is Josie and I agree with that, Phil.

CHAIRMAN SCHOFIELD: Okay, appreciate that, Josie. Well, I think that

closes up unless anybody else has anything they want to bring up at this point?

MR. FITZGERALD: No, I mean that's all the issues that were highlighted in the Paducah review, and what you got back. I think on 17, we have some commitment to include additional discussion. This is the question that you raised, Josie, and the Work Group won't see that discussion until the TBD is reissued, but you know, certainly it's the right approach, from our standpoint. So it's up to the Work Group on how you want to disposition these issues.

MEMBER BEACH: Well, they're all in abeyance right now, so I guess that would be up to you Phil to formally close them.

CHAIRMAN SCHOFIELD: I think we'll go ahead and formally close them, with the caveat that 17, we come back and take a look at it.

Otherwise I don't have a problem closing those. Anybody else have an opinion

here? I'd appreciate it.

MR. NELSON: What are you wanting to look at, I mean do you just want to look at the procedures, or -- I wasn't quite sure why you wanted to look at 17.

CHAIRMAN SCHOFIELD: Excuse me, did I talk over somebody here?

MR. NELSON: No, I mean, I can specifically read out the steps if that's helpful right now. I mean --

MEMBER BEACH: This is Josie again. Is that not going to change with the closure of these findings or these items?

MR. NELSON: No, this document is not going to change. It's issued.

CHAIRMAN SCHOFIELD: Okay, then I would recommend we just go ahead and close it at this point, unless somebody else has a valid reason for wanting to keep it open.

If there's no more discussion, why don't we move on to Portsmouth here? We have items open on one, three, seven, eight and

nine and I think we'll have Chuck take the lead on this one.

MR. NELSON: Okay, issue number 1 for Portsmouth. In issue number 1, SC&A felt that the technetium 99 intake values for coworker intakes were too low, and in our last Working Group meeting that we had, we agreed that we think there are some problems with those values, and we also said we'd like to look at the recycled uranium contaminants, the transuranics as well as, you know, the fission product technetium.

So what we did is we looked at the existing values in the TBD and we compared them against the maximum values in the Portsmouth recycled mass balance report, and we did a direct comparison as to what our -- our numbers -- how they compared.

And what we found out is that some of the default concentrations in the current TBD in some cases were in fact smaller than what we found the maximum concentrations to be

in the K-25 recycled uranium mass balance report.

So we felt the claimant-favorable thing to do, since we are making a lot of changes in this TBD and you know, it's -- we would just adopt these higher values out of the mass balance report, and put those in the TBD.

We also found a document, it's titled Control of Technetium 99 at Portsmouth, that had even some higher numbers for technetium and we adopted those values for technetium.

They were -- just like SC&A, we felt they were a couple of orders of magnitude higher than what we had in the current TBD.

So in effect we ended up adopting these higher values and we are going to incorporate those into the internal TBD. That's all I have on that unless you want me to expand on any of that.

CHAIRMAN SCHOFIELD: No, does SC&A

have any comments on that?

MR. FITZGERALD: No, I mean, clearly the issue was it was a CIP/CUP period where you had these evaluations, and you know we were looking for some treatment of that, and certainly this would provide very specific of the question of the elevation, the elevated dose. No, we're fine.

MR. NELSON: Anybody else on issue 1?

CHAIRMAN SCHOFIELD: Well, I guess we'll go on to the next one unless, Josie, do you have any comment?

MEMBER BEACH: No, I don't. I'm fine with that.

CHAIRMAN SCHOFIELD: Okay.

MR. NELSON: Okay, issue 3 was very similar to issue 1, except for SC&A stated we were using some of the 93 to 99 air sample data. They did some characterization data in a bunch of the buildings and they came up with some activity concentrations for the recycled

uranium contaminants.

And in the TBD, like I stated earlier, we had some values in there and we actually found higher values. So these two findings are related. They are basically the same results. We went with the uranium -- recycled uranium mass balance report, the highest values in that, and we adopted those higher numbers. So 3 and 1 are essentially one and the same, the results are anyways, what we did.

MR. FITZGERALD: And again, Phil, we are fine with that. It reflects the issues we were raising.

CHAIRMAN SCHOFIELD: Okay. Then let's go on to the next one. We are moving right along here.

MR. NELSON: Okay, number 7 is the next one I have open. It's marked as in abeyance. And in our last Work Group meeting there was -- the open issue was what is the LOD for the shallow dose component of the film

badge, and we had said 30 before, then I know our ORAU team, we had thought that they had a four-element dosimeter that they were using starting in I believe it was 1960, so we knew there were some concerns about that and we needed to go back and take a look at that to see if we needed to raise the LOD.

And upon further review, we found out that Portsmouth continued to use the two-element film badge all the way until 1980 and in 1980, then they went to the multi-element TLD.

We dug in our references, which was a gap film badge procedure, written in 1963, and it made reference to a limit of detection of 30 millirem.

We also went and looked at Oak Ridge National Labs, what they had in their procedures for the same type of two-element film badge, and our conclusion from that is that an LOD of 30 millirem as well.

So what we have in our references

shows an LOD of 30. We don't have anything to support anything greater than 30. We do know that there were some facilities like -- an example I was given the other day when I talked to one of our NIOSH experts on external dosimetry, he said there were times at which Nevada Test Site used a lead filter in their badges, and it was just to shield out some intermediate neutrons and it would lead to possibly higher LODs of 40 millirem.

But he was quite certain that the limit of detection for Portsmouth was 30 or less. So that is our position on the limit of detection issue.

MR. FITZGERALD: And we thought the comparison with the ORNL dosimeter, the same dosimeter with the same value, was helpful so that reconfirmed that 30 would work, and 30 has been used.

MR. NELSON: Okay. Anybody else?

MEMBER BEACH: This is Josie, so essentially this won't change. You just

reconfirmed your position. Did I get that right?

MR. NELSON: Yes, you're right. We kind of thought we were going to have to raise it, then I know when Matt Smith dug in a little further, he verified that they saved the two-element film badge and all this research turned up nothing greater than 30 millirem.

CHAIRMAN SCHOFIELD: Okay, then I think we can move on to the next item.

MR. NELSON: Okay, what I have on the next two items, 8 and 9, they are both -- the open item was technetium 99, and it's the same issue as what we had for Portsmouth, I mean, make that Paducah, where we felt like we needed to evaluate tech 99.

So we submitted that NIOSH report, 0059, titled External Exposure to Technetium 99 at the Gaseous Diffusion Plants. That was written in February 2012 and I think Matt Smith will verify that it's up on the website.

MR. SMITH: Yes, that's correct.

CHAIRMAN SCHOFIELD: Just one question. This is Phil Schofield here. What kind of exposures are we talking about to the extremity of the stuff? Would these be -- are we looking at very high exposures, or moderate or low exposures?

MR. NELSON: We're not talking very high exposures, Phil. Let me pull up my references here and I can kind of give you an idea. Going from -- I'm not good from memory, so here, I think I have found my cheat sheet.

If an individual -- what we are looking at is, the time when you can assign dose to an individual is based on where they worked, the potential to come into contact with technetium, so it's work location and job function.

But another criteria is you have to have an extremity cancer, a hand cancer. In other words, the technetium beta does not travel very far at all. It travels a maximum

of 24 inches due to its low energy.

So the one criteria is you have to have cancer on your hand, and if you do, then we are going to assign 8 millirem in one year. So it's not very high.

The other one is if you have a documented contamination incident to your bare skin, it will be 20 millirem per event.

CHAIRMAN SCHOFIELD: Yes, I just don't think 8 millirem is going to make much difference anyway, you know, PoC, unless I am wrong, and please correct me.

MR. NELSON: You're correct, but we do have a mechanism here and if you have somebody that had a really strange thing that happened, if you go into this report that we have written, it provides some direct correlation to contamination levels and you can correlate dose rates from that.

So if you had a really funky thing that this guy tore into a technetium trap and he got contaminated all over his face and we

had, you know the levels and the resident time that it sat on his skin, we could document the amount of exposure to his skin, and we have lots of tools for that and those are actually in the procedure, what tools to use. When I say procedure, I am talking about the external dose TBDs.

CHAIRMAN SCHOFIELD: Okay, Joe or Josie, do either one of you have any comments on that?

MR. FITZGERALD: No, I think we talked about this relative to Paducah, and it of course addresses all three plants. It does address the skin contamination issue we raised, which was you know, more information, more guidance, and in this case, something specific on technetium 99. So we are satisfied.

MEMBER BEACH: And I don't have anything either.

CHAIRMAN SCHOFIELD: Okay, so unless DCAS has anything, I'd say we'll close

out that issue too, and move on to K-25, consider that issue closed. Yes?

MEMBER BEACH: Well, if we close it, how soon will the new TBD be issued? Do you have a --

MR. NELSON: Right now, we -- and I'm going to get to this in a little while -- the open issue that we have for Portsmouth and K-25 is going to be neutrons for areas where you have hold-up of enriched uranium, and I'm going to talk about that when we get to K-25.

So the external TBD is being held up right now because of that, and so there's a lot of changes, but I'll tell you what we have been doing, is we have been drafting these procedures and getting them in pretty good shape and actually doing some internal review, you know, not -- they're not ready to go but they're getting there.

So we have been working this whole time, believe it or not, and making progress.

MR. FITZGERALD: Yes, I also might

add, Chuck circulated -- this goes back a ways -- but results of the meeting that ATL had with Portsmouth, United Steelworker members, and they had some pretty significant feedback, I think, on a number of issues, including contamination past a point in time that was reflected in a TBD, and I know that is all going to be addressed in this Site Profile review or revision, but I thought, you know, some of those were fairly important pieces of information or feedback that would certainly be addressed.

MR. NELSON: Yes, and you know, many of them parallel the issues that are in here, so those changes we were already making. Yes, in fact, based on that discussion, we talked with Herman Potter some, and we have actually been extracting a lot of documents out of Portsmouth. We've been working on neutrons for quite a while.

And what we are finding is that -- are finding some what they call rascal

readings where they did some dose rates, or some neutron exposure monitoring, I guess I should say, around these cascades, where there was some holdup material. But we are not finding paired gamma data with it so it's hard to come up with a neutron to photon ratio.

So we are finding data, but -- and it's a lot to pick through, but it's not resulting in a whole lot of good information, I should say.

It's helpful for our neutron to photon ratio, although we have a basis in this report and we are working through that right now, and we still have -- we just got another batch in that we are going to be collecting from Portsmouth as well.

So we are still actively working the neutron issue. But I can talk -- well, I've talked about it quite a bit, but I'll touch on that during the K-25 review because we actually capture it during that one.

MR. FITZGERALD: So you did find

some usable paired data for K-25?

MR. NELSON: No, to be honest with you, not really.

MR. FITZGERALD: Oh, okay, this might be a generic thing.

MR. NELSON: We have some references in the past -- you can correct me if I'm wrong Matt, I know Matt has been working on this quite a bit -- but it seems that's what we are kind of lacking, is a large volume. We have some and we have some theoretical numbers, and so that's what we are working through.

MR. SMITH: Yes, it is jumping ahead a little bit, but since this report wound up being used for both TBDs, the data captures that we have done since the meeting with Mr. Potter, have been useful.

We describe procedures that, again, we think of those as holdup measurements. Nondestructive assay, these are folks that have done that kind of work or been involved

in that type of work.

So in other words, it's operational measurements that were done, not necessarily measurements done by the health and safety team.

He describes some measurements they would take and we certainly have captured the documents that describe the procedure for how to do it, and even show the blank forms that are part of this survey work to be completed.

So what we have done is gone back for another data capture to get our hands on those forms that we think will give us paired neutron and gamma count rate data, and that's where we are at right now. We just, as Chuck mentioned, got a listing and an index turned in that we are going to right now to then go have them pull some more documents and hopefully within that capture, after we have defined these operational measurements that were taken, and once we have those count rates, we can then work on that data and

convert it to dose value that we can take a look at.

And again, this would be for worst case situations where products have actually accumulated in the cascade, you know, to a high degree.

COURT REPORTER: This is the court reporter. Who was just speaking?

MR. SMITH: For the court reporter, this was Matt Smith, ORAU team.

CHAIR SCHOFIELD: This is Phil Schofield. I've got a question. When we are talking about these neutron levels, are we talking a few millirem per hour, 100, 200, 300 millirem per hour? What kind of levels are we talking about here?

MR. SMITH: I would estimate it down in the millirem per hour range, as in likely -- nowhere near the 100 millirem per hour. The values that we have seen so far for highly enriched product, again, maybe top end of five millirem per hour, for the small 5A

cylinders.

CHAIR SCHOFIELD: So we are not looking at real significant doses for the majority of the people, as far as neutrons go?

MR. SMITH: Correct, and you know, that was kind of a historical, how do you want to say it, opinion of the health and safety team through the years. NIOSH actually did a visit in the mid-'90s and took a look at neutron exposures.

You know, at that time, and I am just pulling a number off the top of my head so if I quote it wrong, I apologize. But you know, maybe basically a total committed effective dose, they were estimating maybe 12 percent of it would have been from neutrons.

And that would be for workers that were in the process areas.

MR. NELSON: But what we intend on doing, Phil, is that -- you know, if an individual has a higher gamma dose and they are in an particular area where they should be

assigned neutrons, we will assign them a ratio. So the number is really going to be variable to what their deep gamma dose is.

DR. NETON: This is Jim again. Up until now, we have not assigned any neutron dose to people in the process areas, I don't think.

MR. NELSON: And for the most part it's just been in the depleted storage area.

DR. NETON: Storage area, so this would be, even though it's small, it's something that we had not included in the dose reconstruction prior to this latest data capture and review effort and discussion with Herman Potter.

MR. NELSON: But really we were going there before we talked to Herman Potter, because if you -- when we get the K-25, you'll see that we said -- I made the statement that I'm seeing some inconsistencies, and I think we need to dig further.

And this is a result of that, and

Herman Potter was really a side meeting, that he wanted to meet with us and he had this issue about slow cookers and it really just kind of dovetailed into what we were already doing. But it gave us a good avenue to tap into some references.

MS. ALGUTIFAN: This is Elizabeth Algutifan. I just wanted to add that we have selectively assigned neutron doses in the past based on a smaller neutron to photon ratio that's more in tune with Paducah numbers, value that they were already using.

So that's all being reevaluated as part of this report that Matt is working on.

MR. NELSON: And like I say, I guess when we get to that item, K-25, we are going to be pretty much done with it. But that's good, because this is pertinent to Portsmouth.

MR. FITZGERALD: Well, Phil this is -- these are issues 7, 9 and 11 that the Work Group consolidate as neutron, and the strategy

was to use the paired gamma neutron values and this all goes into the results of, I guess the Potter interviews and so that's still in process, and I guess, would there be some kind of either White Paper or guidance document, OTIB or something, on the subject?

MR. NELSON: Yes, there's going to be a report come out and it's going to -- when we get done, it's going to provide some neutron to photon ratios to be applied, likely, at Portsmouth and K-25.

I think we've got it. And that's still being determined. I think we have a pretty good basis right now for Paducah, but there may be some changes, but at this point, I won't commit to any at Paducah.

As you all know, they didn't handle the higher-enriched uranium at Paducah like they did at Portsmouth and K-25. Are you ready to move on to K-25?

CHAIRMAN SCHOFIELD: Everybody's ready.

MR. FITZGERALD: We're on K-25 and I was going to suggest we might as well finish up the neutron issue, the 7, 9 and 11.

Did Potter -- I know there were some questions about the locations of exposures. I think the cylinder yard came up as a source.

Was that -- was that defined a little better based on his feedback?

MR. NELSON: I'm not sure. Can you expand on the issue? What are you referring to?

MR. FITZGERALD: I think it was some question about where the -- if you want to call it bounding exposure, where these neutron -- the sources of neutron exposure be most significant.

MR. NELSON: Okay, well that's going to be around the highly enriched uranium and that's being worked on.

MR. FITZGERALD: Okay.

MR. NELSON: So yes, we certainly

are not ready to close out that issue, 7, 9 and 11, but that's essentially where we are. It's a work in progress, but I think you've got some good background of what we have done so far and where we are going.

CHAIRMAN SCHOFIELD: So this is an issue I think we are going to have to leave open for all three facilities until it's fleshed out to your guys' satisfaction.

MR. NELSON: Yes, I don't know that for Paducah, in my opinion, right now it's not for Paducah. But for Portsmouth and K-25, we are at the higher-enriched uranium, that's fair. I'm not saying that this report is going to define it all. It's going to -- you know we already issued -- and we have issue the procedures for Paducah.

MR. FITZGERALD: Yes, I guess I didn't quite understand and I -- excuse me, I just didn't recall the name of the individual talking about, maybe it was the K-25 lead for ORAU team.

But she was saying something about using the Paducah values for K-25 in terms of --

MR. NELSON: I think what she was saying is that in the past, we have used a neutron to photon ratio of what we used for Paducah at K-25 because they did a painting project at Paducah and it was quite detailed, the assessment they did on the neutrons and the photons, and they -- we were able to come up with a neutron to photon ratio that was pretty defendable.

And so in the past, we have used those numbers, I think is what she was saying, in some of the other cylinder yards.

MR. FITZGERALD: Okay, that's sort of a unique project, what you're saying. There's really no high-end enrichment situation at Paducah as there were at the other two sites and therefore, you know, it wouldn't be as much of a neutron exposure field issue.

But you are saying this was a specific painting?

MR. NELSON: Yes, it involved many, many cylinders and there was some data gathered from them. So that was really one of the better references we have had to come up with neutron to photon ratios.

And we are using that also, that information, to feed into this report.

MR. FITZGERALD: I guess I'm just trying to square what you were saying with no real, significant neutron dose issues at Paducah because of the lack of high-enriched, there certainly were cylinders.

MR. NELSON: No, we still have that value. There are neutron issues at Paducah and we do assign neutrons at Paducah.

So the issue of neutrons is at Paducah. Now the question that I heard was somebody wanted to open an item in Paducah. I don't know if that's necessary or not. That's up to the Work Group, I think.

That's the only thing I was getting at.

MEMBER BEACH: This is Josie. Does that go back to Phil's comment that all three are still open for neutrons? Is that where that question just came from?

MR. NELSON: The neutron issue for Paducah has been closed.

MEMBER BEACH: Right.

DR. NETON: So Chuck, what you are saying -- this is Jim -- is that you feel we have a bounding approach to reconstruction of neutron dosimetry?

MR. NELSON: Based on right now, now we may do further research and uncover something else, in which case we would certainly incorporate Paducah.

CHAIRMAN SCHOFIELD: So we can go ahead at this point, if I understand right, safely close it on Paducah but leave this question open on Portsmouth and K-25?

MR. NELSON: Yes.

CHAIRMAN SCHOFIELD: You have a problem with that, Josie?

MEMBER BEACH: No, no. Not at all.

CHAIRMAN SCHOFIELD: Okay. Then --

MR. NELSON: I guess what we could do though is create an issue in Paducah, and you guys can word it how you want, and we will when we're done --

DR. NETON: We're not going to --

MR. NELSON: Oh, you're not. Okay. I thought you said you wanted to have an issue. Jim was waving me off that I was misunderstanding you. Sorry. Sorry, Josie.

CHAIRMAN SCHOFIELD: No, we're just -- the global question really is, more than anything else, how it's going to be handled with the two facilities and based on my understanding, is that you'll probably have to come up with a procedure that quantifies both facilities, unless I'm --

MR. FITZGERALD: And I think he also indicated that if perchance, it does --

some issues do arise that have implications for Paducah, he'll come back to the Work Group. So I think, yes, I think that handles it.

MR. NELSON: Yes, definitely we are not going to ignore Paducah -- because we -- that is what we were looking for. I mean, I think we are all -- have the same goals here, we want to get consistency between these GDPs and we want them to be bounding, and that's been our focus, our honest focus.

MR. FITZGERALD: Phil that is 7, 9 and 11, we are sort of starting at the end. But I would propose that maybe we could go start the -- go back to item 3 or issue 3, and perhaps Chuck can walk us through, starting with 3.

CHAIRMAN SCHOFIELD: Okay. Unless somebody has objections, that's what we'll do, is we'll go back to number 3 on K-25, which is in abeyance, and let's talk about the isotopic distribution.

MR. NELSON: Okay, just like the issue we had in Portsmouth, there were questions about transuranics and fission products that reflect old uranium constituents.

And in the last Work Group meeting, just like for Portsmouth, we agreed we need to look at this closer. And similar to Portsmouth, when we dug into the K-25 mass balance report, we found that there were some higher concentrations in that mass balance report and therefore like Ports, we are adjusting those values in the TBD and then applying those max values to K-25 as well, so very similar to item 1 and 3 in Portsmouth.

CHAIRMAN SCHOFIELD: You got an input there, Joe?

MR. FITZGERALD: No, no, it's the same issue as we closed at the other site. So yes, we are on board on that one.

CHAIRMAN SCHOFIELD: The only question I have got, and this one, somebody

with a lot more knowledge than me, give an answer for me. We covered the, you know, different isotopic forms of plutonium. But given the in-growths, I would have thought americium would be in there somewhere.

MR. NELSON: Americium is.

CHAIRMAN SCHOFIELD: Oh, okay. I guess I missed that somewhere. So --

MR. NELSON: Yes, I was saying, I was saying transuranics. That implies neptunium, plutonium, americium.

CHAIRMAN SCHOFIELD: Okay. That was my only question. Then why don't we move on to question 4 unless somebody else has -- I mean item 4.

MR. NELSON: Okay. Item 4, SC&A had some issues with some of our tables being incomplete. They were in fact busy, we agree with that, and confusing.

So what we did is we went in and we modified some of the tables. Remember the table 5-4 in the current procedure, and it

went on for pages and pages, and it was facility by facility, part per billion, part per million concentrations of the different recycled uranium components, neptunium, technetium, plutonium, and that simply wasn't being used by the DRs.

So the comments that SC&A made on that because they felt some of the buildings were missing, we ended up pulling that table out because we actually use a different table in the TBD to assign dose.

And that TBD -- and that table that we do use is related to issue number 3 because we have upped those values in that table. So table 5-4 has been deleted.

The other table that SC&A made a comment on was table 5-2, and that was a list of principal radionuclides found at uranium facilities and gaseous diffusion plants.

So it was kind of a broad title. We re-titled it, "Principal radionuclides at K-25," because what somebody did is they took

at table from somewhere else, like maybe a -- I'm not sure where it was -- and they stuck it in the TBD and they included things like curium-242 and -244, which we talked about in the last Work Group. We couldn't find anything to substantiate its existence at K-25 at any level that would warrant any concern or listing in any table.

So we reworked that table, and deleted those out, curium-244 and -242.

And also, what we did is we added a table and it lists the buildings and support facilities that involve uranium operations, and it's been put in the internal TBD, that draft one that I told you guys we were working on. We have it drafted out, and it also has a more comprehensive list of buildings and support facilities being added to the site description TBD.

And realizing that K-25 had over 400 buildings, we obviously couldn't list them all, so we listed what we though were the most

important. But it was more comprehensive than what we have had in the past.

MEMBER BEACH: This is Josie. Sounds like you have done a lot of the work on the draft TBD. Can we get a look at that by any chance?

MR. NELSON: Yes, you can. I guess my question -- I'd have to ask Jim -- is if it had to be through our review cycle prior to you all looking at it, and that really depends on where we are with some of that. I know like the external TBD, that particular one we are still working on with the neutrons. But do you see any problems with that, Jim?

DR. NETON: No, but we normally don't release pretty, you know, unapproved documents like that. I mean, I guess we could do pieces and parts of it to show, you know, what we have done. But I'm kind of reluctant to release a draft document.

MR. NELSON: What I could do, Josie, if you want, is I can read some of this

stuff or however you would want to do it.

MEMBER BEACH: No, that's okay. I just -- I know there's the big picture and I understand if you would rather wait until it's done. I just wasn't sure if we could review some of it before the neutron, because it sounds like that may take a little while longer.

MR. NELSON: Okay.

MEMBER BEACH: But that's fine.

MR. NELSON: You know, I guess there's a possibility we could approve some of those other documents prior to the external TBD being done. I don't know if that's feasible or if they want to do them all at once.

MEMBER BEACH: Well, we'll just leave that to your best judgment. It would be nice to take a look at it, but --

MR. NELSON: Okay.

MEMBER BEACH: Understand if we can't, so.

CHAIRMAN SCHOFIELD: Anybody else have any comments on that? Then let's move on to item 5.

MR. NELSON: Okay, item 5, there were some issues -- let me see -- the crux of the conversation was a lack of information regarding incidents. And we had actually a pretty good discussion in our Work Group meeting last time. So what we did is, we made an attempt to get a more complete set of incidences. I don't know if I said that right. Incidents.

So we are adding basically a description of significant incidents with internal dose potential, and we are going to locate that in the K-25 site description, and also in an internal dose TBD.

And I think one of our best references was Chem. Res. 1999, which was titled: "Uranium Releases from Oak Ridge Restorations."

And so we used that document as one

of the primary sources of information. So we made an attempt to increase the discussion of incidents in the internal TBD as well as the site description.

CHAIRMAN SCHOFIELD: Did K-45 keep a, you know, something like a 5000-3-A, 5000-3-B or something log of incidents like skin contaminations, internal contaminations? Was this a centralized thing or was this kind of a hit and miss over the years?

MR. NELSON: I do not have a good feel for that, Phil. Michalene are you familiar with that?

MS. RODRIGUEZ: Yes, I did do some research on what kind of logs that they kept at K-25, and I did not really find anything of significance.

What I did find, though, is that reference that you were referring to, the Buddenbaum 1999, they seem to have found a lot of air release documents and how they were related to a building, the amount released.

And so they seem to have captured a great deal of information from the start all the way to the late 1980s. That's what I used when I was looking at the incidents section there.

CHAIRMAN SCHOFIELD: So, basically these would be incidents that would be reported to ERDA, DOE, AEC, somewhere like that, rather than individual incidents of just one or two people receiving the small internal dose or skin contamination? Is that --

MR. NELSON: Phil, you would hope to find those in the individual monitoring records that we would have in NOCTS. That should be in their own personal dosimetry file.

CHAIRMAN SCHOFIELD: Okay.

MR. NELSON: But whether there was a site-wide record of that, I'm not familiar with that.

CHAIRMAN SCHOFIELD: Yes. Okay. Josie, you got any comments there?

MEMBER BEACH: No, I don't.

CHAIRMAN SCHOFIELD: Joe, you have any comments?

MR. FITZGERALD: No, I think it's similar to the last one where the draft revision will be augmented by addition of these incidents, and that's kind of where we were coming from. That last version seemed to lack treatment of that. So I guess, you know, when that revision is available, you can certainly see the additional --

CHAIRMAN SCHOFIELD: Okay, then I would suggest, with the concurrence of the Work Group, that we leave that in abeyance until the TBD has been revised.

MEMBER BEACH: I agree with that, Phil.

CHAIRMAN SCHOFIELD: Okay, then let's move on to item number 6.

MR. NELSON: Okay, item number 6 we discussed in the last Working Group as well, pretty well, but I think what happened, we

agreed there was a few issues that we may have not identified very clearly in the matrix and we didn't really seem to fully answer them. I know we tried to extract them out of the large document and I don't -- I think our conclusion was, we didn't do a very good job in the Work Group of identifying and answering the issues. So fortunately, we went back and looked at this closer, and Joe also provided us with parts A, B, C and D, which are more of a focus of what the issues are.

MR. FITZGERALD: Yes, this was originally a rather broad coworker finding in the Site Profile review, but it just had a number of sub-issues that were embedded. It was a little bit convoluted, so I think what we tried to do is simplify it, combine some issues where they should be combined, and just make it a little more clear.

That's kind of where we're at. So we did discuss this, but I think this will maybe enable the Work Group to follow this a

little better.

MR. NELSON: Yes, it definitely will, and it really helped us too, I think.

Anyways, what I did, is I put parts A and C together, because they are really related. The question here is assignment of coworker intakes for 1945 through '47.

We have lots of data, bioassay samples from 1948 to 1988. We developed this coworker model. And that coworker model, in our current procedure, we wanted -- because everything was very consistent and constant, we felt in that revision that we could apply those back to '45 and '47, and upon further review, we felt like it would be prudent to revise the internal coworker document, and from 1945 to '47, expanded our coworker guidance and we are allowing the assignment of the 95th percentile uranium intake as a constant distribution.

And those would be for individuals that had no monitoring data, maybe didn't know

what kind of work environment they worked in, and they could have been routinely exposed to airborne radioactivity.

So we put some qualifiers on it, but like, if you didn't have data back in those days and there were some unknowns, like part C talks about solubility issues, you know, how can you necessarily bound those?

So what we felt is that we tightened up that part of the coworker OTIB, which incidentally will be in the external TBD. We have merged those two documents, so you don't have to go to both documents. It will be an appendix or an attachment to the external TBD, the coworker model will be.

And now, we will allow the assignment of the 95th percentile. That's parts A and C.

MR. FITZGERALD: And Phil, while we are on this subject, I think that is particularly responsive to our concern that perhaps, you know, with the lack of

information in some cases, the other distributions would not be sufficient.

And this is similar to the other circumstance I think Jim Neton talked to, that this gives the dose reconstructor another option when faced with a situation where the data may be lacking.

MR. NELSON: Yes, we really struggled with it because the intake rates were so constant and consistent that we really felt like it was probably okay, but then we thought, well, there's going to be the possibility of those instances, those earlier years when they were just starting production, and you know, things are always worse when you start.

So that was kind of what gave us an uneasiness and we felt like, well, we should do that. It would be prudent to do that.

So should we go by each sub-part or -- I think it would be better to group them that way. That way, if anybody has got issues

with another part, we can -- so I grouped A and C together because they are essentially the same thing: can you apply coworker intakes from '48 to '88 to the early years, '45 to '47? And we are now saying we are going to use those but we are going to give them the 95th percentile, so they'll get a higher intake rate for those individuals that have that potential to be exposed.

CHAIRMAN SCHOFIELD: How old is the characterization of the material in the '45 to '47 time frame?

MR. NELSON: Well, I'm not sure if I understand your question, but one of the things we thought about looking at was, you know, what was the production rate of material and how much work was going on, and for the most part we felt like there was less work going on during that period of time.

So that was another thing that kind of supported using the later coworker data. But there's some other uncertainties as to

why, and it's obviously going to be a pretty small population of why we felt, you know, let's go ahead and allow -- assign them the 95th, and you are always going to have an individual that you are going to really think about and say, okay, this guy worked directly with material during this time, he left before 1948, we don't have any other bioassay data on him, and we've got some uncertainties about this guy. And this is the kind of guy you want to give the 95th percentile to.

A vendor went in there and he worked for two days. It would be not real reasonable to assign him the 95th for a year or something like that.

MS. RODRIGUEZ: This is Michalene. I would also like to mention, in that time frame there were only two Class K buildings on line. It was K-25, and I believe K-27 was online, starting in '46. Plus there were also a lot of buildings that were, you know, up and coming, being constructed, and yes, I would

probably agree that the exposure potential during that time frame is probably less than what you would find in their earlier production years, starting in the late '40s, early '50s.

CHAIRMAN SCHOFIELD: Joe or anybody, you got any input on that? It seems like a reasonable approach at this point.

MR. FITZGERALD: No, like he said, I think we were concerned about the back-extrapolation of the later periods for that very earliest period, without any qualification. I think this is the reasonable way to address what may be some exceptions to the distribution.

CHAIRMAN SCHOFIELD: Josie?

MEMBER BEACH: No, I don't have anything. I'm good. Thank you.

CHAIRMAN SCHOFIELD: Okay. I'm good on that too at this point, so we'll wait for those revisions.

MR. NELSON: Okay, part B, this

issue, the question essentially was: can we assign -- can we use the chronic intake and assign that as a coworker dose for an unmonitored worker, when there were likely some acute intakes?

And like I mentioned earlier, the urine concentrations at K-25 are relatively constant. If you look at the internal coworker TIB, it evaluates that and it runs it through several models and different solubilities, and it's a pretty constant chronic intake. It actually is a very good model when you don't know a whole lot about an individual, and he might have had, you know, a few acute intakes here and there, it actually will over-predict.

So most of our DCAS coworker models were developed and applied under this assumption of constant chronic intake. So our opinion is it's adequate and it's kind of how our program is written. So the kind of thing, it's a global model -- a global issue, so if

there's an issue with the use of a chronic constant intake, then we kind of feel like it's outside of this Gaseous Diffusion Working Group.

DR. NETON: This is Jim. This is something we have talked about in the past quite a bit, the adequacy of the chronic model in light of what may have been some acute incidents.

And I think we have come to agreement that the chronic model in general will over-predict an intake rather than -- for a person who had an occasional acute intake, because you are assigning this chronic intake over a very extended period of time.

I would argue that the person had a series of many acute intakes and that probably borders on the chronic exposure scenario anyway.

So these are the kind of discussions we have had in the past, and as Chuck said, this is sort of part and parcel of

our program, these chronic explicative models and I don't think there's anything special or unique about K-25 that would invalidate that approach.

MR. NELSON: Yes, Phil, we are okay. I mean, this is I think a four- or five-year-old finding. So to some extent --

DR. NETON: That's what I was thinking.

MR. NELSON: -- we kind of have caught up with this particular question in a number of discussions and I don't think there's any disagreement.

CHAIRMAN SCHOFIELD: I have no problem moving on then, at this point, We will come back and see that when the TBDs are revised and what you guys come out with.

MR. NELSON: Okay, the last part of item 6 is part D, and it was regarding the use of the ICRP 23 daily urine excretions versus ICRP 89. This is again another programmatic issue. It's not generic to the gaseous

diffusion plants. It's what our program is, and it's outside of this Working Group, I believe.

CHAIRMAN SCHOFIELD: Okay, well I guess that shuts that door. Anybody have any input there?

MR. FITZGERALD: No, I think it was just again for the reviewers doing the Site Profile, there was an awareness that there was another ICRP model, but you know, again, I think, as a broader question I don't disagree that that's not specific to this Site Profile.

CHAIRMAN SCHOFIELD: Okay, then I would suggest we move on to issues 7, 9 and 11.

MR. FITZGERALD: Yes, we already addressed those.

CHAIRMAN SCHOFIELD: Right, but I just wanted to make sure we are still closed on those. Well, not closed in a sense, but there's nothing else for anybody to add, those we started off with.

MR. NELSON: I think we are going to -- awaiting a NIOSH report focused on Portsmouth and K-25.

DR. NETON: That's correct.

MEMBER BEACH: Yes, I wrote it down as a work in progress on NIOSH's side. So we still have 10 and 12.

MR. NELSON: Yes, 10 and 12 are the same technetium-99 issue.

CHAIRMAN SCHOFIELD: Yes.

MR. NELSON: And we've talked about that. So I think that's our final issue.

MR. FITZGERALD: And we felt the OTIB addressed, or -- I guess it's report 59, addressed the issue that we were looking at. That's a generic item that closes out issues related to GDPs.

CHAIRMAN SCHOFIELD: Well, I think we've got them all closed then for today, with the items that we still have to -- the TBD revisions.

MR. NELSON: Right. I will talk to

our management and we'll get them as soon as we can to you. Like I said, we are still working on the neutron issue.

MR. KATZ: This is Ted. That sounds good, Chuck. Can you, as well as -- I know you'll do this as soon as you can, but at whatever point you can sort of give a rough estimate for when this will be done, will you let us know? That will help us with scheduling.

MR. NELSON: Okay, I sure will. I'll update our Work Group coordination document. How's that, Ted?

MR. KATZ: That sounds great. And then a question for the Work Group, for Phil and Josie. So you have essentially -- you have closed out Paducah. You can't really report out -- I mean, you can report out in your Work Group report that you closed out the issues there, but you can't really report out on that closing for this upcoming Board meeting. You don't really have time to prepare.

But the question is: do you want to aim for reporting out on this at the March Board meeting, or would you prefer to report out on all three -- I mean, there are some similarities and then there are differences -- report out on all three together when you have them all wrapped up?

CHAIRMAN SCHOFIELD: I think March would be a good time frame. Hopefully by then we will be able to wrap up all three. That might be a little over-optimistic but that would be depending on the Work Group coordination that, you know, how much work DCAS has and SC&A has on their plates.

MR. KATZ: Okay.

MEMBER BEACH: Ted --

MR. KATZ: Go ahead.

MEMBER BEACH: This is Josie. I think it would be less confusing to report out on all of them when they are completed, whether that's March or the next meeting.

MR. KATZ: Okay. That's what I was

asking. So, depending on what we hear from DCAS in terms of when they'll have the neutron stuff sorted out, we'll plan accordingly.

MEMBER BEACH: Sounds reasonable.

CHAIRMAN SCHOFIELD: Okay. Anybody else got any input?

MR. FITZGERALD: I know that this is a work in progress as far as the TBD revision. Is that a next year item or the year after? I mean, is there a rough sense of when that might happen?

MR. NELSON: Definitely next year. I mean we are in, what, the beginning -- the first week in December, it's definitely next year. When in next year? I will say that we have a lot of these drafted and they are almost ready to roll. But there's some fine details that still have to be worked out and they have to go through the review process and --

DR. NETON: I think that the HEU neutron issue is a long-running issue right

now, and I think until we look at the data that we just got in and see if there's anything useful in there, it's hard to tell when that will be wrapped up.

But I'm hopeful that, you know --

MR. NELSON: In fact, we haven't got that data yet. We are just checking -- well, we're interested in this next box.

DR. NETON: I would hope somewhere in the first quarter or end of first quarter, maybe going into second quarter at the latest. But I can't -- it's hard to predict. We'll get an estimate as soon as we can out there.

CHAIRMAN SCHOFIELD: I think that puts March a little over-optimistic.

DR. NETON: Well, I was going to say that. I think March may be a little over-optimistic. But, you know, that would include getting a report done, through the review cycle, ADC issues, that would be a lot to accomplish by the -- and then have the Work Group meet and SC&A have time to review it.

MR. NELSON: Yes, we've done a lot of upfront work on these other procedures, but like the external TBDs, we haven't looked at that on the DCAS side yet. So there's a whole review process that starts at ORAU and goes through us and ADC and all that.

CHAIRMAN SCHOFIELD: Okay, anybody else have any input? Ted?

MR. KATZ: I think we're good, then. I think you can adjourn.

CHAIRMAN SCHOFIELD: Okay, well, thanks, everybody. Appreciate your input today and we'll --

MEMBER BEACH: See you next week.

CHAIRMAN SCHOFIELD: Okay. Thanks a lot.

(Whereupon, at 2:38 p.m., the above-entitled matter was concluded.)