The Work Group convened in the Bridges Room of the Holiday Inn Cincinnati Airport, 1717 Airport Exchange Boulevard, Erlanger, Kentucky, at 9:00 a.m., Eastern Time, Josie Beach, Chair, presiding.

PRESENT:

JOSIE BEACH, Chair
BRADLEY P. CLAWSON, Member
PHILLIP SCHOFIELD, Member
PAUL L. ZIEMER, Member*
ALSO PRESENT:

TED KATZ, Designated Federal Official
NANCY ADAMS, NIOSH Contractor*
BOB BARTON, SC&A*
RON BUCHANAN, SC&A*
PETE DARNELL, DCAS
JOE FITZGERALD, SC&A
JENNY LIN, HHS*
JIM NETON, DCAS
MATTHEW SMITH, ORAU Team*
DONALD STEWART, ORAU Team
JOHN STIVER, SC&A*

*Participating via telephone
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Welcome and Roll Call

MR. KATZ: So, good morning, everyone. It's start time, 9 o'clock. This is the Advisory Board on Radiation and Worker Health, Mound Work Group. And we're all assembled here in the room.

Our meeting this morning, we have an agenda and some materials for the meeting. They're all posted on the NIOSH website. For folks who are on the phone, go to the NIOSH website for this program and schedule of meetings, today's date, and you can open up the agenda and some materials associated with the agenda there to follow along with the discussion.

So let's do roll call to start with. We're speaking about a site, so please speak to conflicts of interest as we go. And I'll start with Board Members in the room.

(Roll call.)

MR. KATZ: So I think that takes care
of all preliminaries. Josie, it's your meeting.

Please, everyone on the phone, except when you're speaking please mute your phones, *6 to mute your phone if you don't have a mute button, and *6 to come off of mute. Thanks.

CHAIR BEACH: Okay, thank you. And welcome, everybody, to this meeting. We haven't met since 2012, when I was going back through documents. The two things that we have that we can look at today are SC&A's review of the remaining Site Profile issues at Mound, and the matrix that Tim put together -- or Peter put together -- excuse me, Peter.

What I thought we would do is go through and there are several of these that SC&A has determined that -- or they recommend that we should close them. I thought maybe we should go through all of those first, saving 9, 10, and 13, which is matrix issues 11, 12, and 13. It could be a little confusing because we combined the old matrix numbers with the new one, but savings those. Those
fall under the V&V, the White Paper that Peter put together.

Anyway, if we could through and take care of those easy ones and any discussion that we need and then move on to the ones that I'm sure there's going to be some discussion on. Everybody okay with that?

MEMBER CLAWSON: You're the Chair.

**Matrix Issue #5 PU-240, 241**

CHAIR BEACH: Okay, so if we start with matrix issues, it's not issue 1, but it's old matrix issue 5, the Pu-240/-241. I don't know if NIOSH wants to just give a brief and then SC&A goes from there.

MR. FITZGERALD: Just for context sake -- this is Joe Fitzgerald. When the Work Group tasked us, the Board tasked us, in 2015, at the Board meeting in November, to go through the newly-issued TBDs to review them and to provide any feedback for discussion, we did a pretty comprehensive job.
Mound has a long history, as we were just commenting, and some of it is a little convoluted because we did spend quite a bit of time on issues, such as the environmental dose issues. So we wanted to certainly scrub it pretty well because there was a lot of discussions that went on in Work Group meetings and what have you. So we did a pretty thorough scrub in terms of looking at transcripts, looking at different exchanges of White Papers, and so this matrix is the product of that.

And a lot of it, frankly -- and this is by going to your comment about just reaching closure -- is just clarifying with NIOSH where we came out, because, again, I think, in a lot of cases, there was convergence, agreement, but it didn't seem like there was any closure per se because we were on to other topics or kind of got into tangential issues. So, just as context.

A lot of this isn't so much we have a problem per se. It's just that we kind of lost the
thread in some cases and wanted to know, where did
the TBD come out per se and where can we find
something that documents a resolution of that
issue? Because in discussions, it looked like we
were in agreement.

So, with that background, on this item,
issue 1 -- oh, sure.

MR. DARNELL: This is Pete Darnell.
Which paper are you speaking from, the SC&A
February document or the paper that NIOSH put out?

MR. FITZGERALD: Yeah, the February
document. I just wanted to provide a little
context as to how that is laid out. And in a lot
of cases, it speaks to agreement, in a sense, but
also suggests that we didn't really nail it as far
as sort of a conclusion and some either reflection
in a revised TBD or an agency position of some sort.
And that's what we were kind of looking for as a
punctuation point to some of these issues.

I didn't sense, given all of the
discussion -- we spent a great deal of time
discussing Mound, as you remember -- I don't recall having any remaining large technical issues, but we had a lot of questions of clarity, and maybe in terms of TBDs perhaps being a little more specific about certain questions that came up during Work Group discussion.

So, that deals with the February document, which I think we identify everything that we looked at and kind of tried to be very specific about the particular questions that we have left and tried to put a very specific reference into transcript and what have you so there would be no question where it came from.

That's sort of where we're coming from on some of these, but I just wanted to make sure it's clear that we don't sort of have a burning issue so much as just a question of where did this all come to, and where can it be reflected in the record?

So on this first issue, again, there was a lot of discussion about the different isotopes
and plutonium. And in particular, I think 241 came up. And this was probably in an ongoing discussion that took place five or six years ago on the internal dose TBD. And it was felt that there ought to be a clearer treatment of 241 in the matrix, particularly Table 511, I think, was the location where the different isotopes were addressed.

And I think -- well, I'll leave it to you, but that was kind of the question we had, was it wasn't crystal clear where it was being addressed, but I think what you're saying there is the revision, the revised TBD, was expanded and does have some very specific treatment of Pu-241 in it.

So I think we're fine with that. I think we went back and just compared the two tables and felt 241 certainly was expanded and was included.

MR. DARNELL: I'm not going argue with you agreeing with this.
MR. FITZGERALD: Yeah. Again, a lot of this is just making sure we can put our finger on the locations in the documents where I guess the agency feels it has satisfied that particular question. And I think we're fine with that.

CHAIR BEACH: Okay, Work Group Members, any questions on that first one? I know I went back and looked at that table, too, and saw the update of it.

Paul, do you have anything? Any questions?

MEMBER ZIEMER: No. This is fairly straightforward.

CHAIR BEACH: Okay, I agree. Brad, anything? Or Phil?

MEMBER CLAWSON: No, not at this time.

CHAIR BEACH: Okay, do we agree that we should close this item, then?

MEMBER CLAWSON: Yes.

MEMBER ZIEMER: Yes. I agree.

CHAIR BEACH: Okay, then that is now
closed.

The next item is the tritides item. Joe, did you want to go ahead and give us a brief on these, too?

**Matrix Issue #6 Tritides**

MR. FITZGERALD: Yeah. We had a fair amount of discussion on tritides, to say the least. And in that discussion there was, beyond the insoluble tritides that was the real -- I think we spent a year on that particular issue trying to resolve the question of how one would treat them in dose reconstruction. But there was also some question about, well, what about the intermediate solubility tritides, titanium tritide was one of those, which, of course, Mound handled.

And sort of the question was, okay, certainly the insoluble tritides were clearly a question of how one would address those. However, was there any thoughts on how we would treat something that wasn't quite as insoluble but still would present some questions or issues?
And I think in the transcripts of a couple of Work Group meetings, and I think, Jim, if was you that kind of said, yeah, certainly it's a question. It's not something that's going to hold up the SEC, but certainly that's something we ought to at least give some thought to as far as how we're going to address that in terms of dose reconstruction.

So that got sort of parked in a Site Profile parking lot, as we call it. And I went back and I really couldn't find a final resolution of that, and so this is really a --- I know we didn't really have a disagreement. It should be somehow looked at, but I couldn't find a formal resolution.

And I think, if I can paraphrase what the NIOSH response is, is that there was some IMBA runs that were run and this question was looked at, but in the end -- and this is not too surprising given the nuclide involved, or the isotope involved -- it turned out that intermediate solubility tritides resulted in what we would call negligible
doses, ones that would not matter in dose reconstruction, given the less than rem, millirem value that was ascribed to them.

So this is sort of a moot issue, that even if there was a need to come up with a DR approach, the doses that were involved were so low that it would not be one that you would do dose reconstruction for anyway.

So I might add that even for the insoluble tritides, I think, in all that process, we probably came up with only a few millirem in the end for those as well. So, the bottom line is that the doses that result are fairly, fairly low, and in this case negligible and I think would make this issue moot, Josie.

CHAIR BEACH: Okay. NIOSH, anything?

MR. DARNELL: I think we've pretty much put this one to bed.

CHAIR BEACH: Yeah, I agree. I just want to make sure for the record we have this all discussed out.
Anything, Paul, for you?

MEMBER ZIEMER: No. I agree with that. I think we should close this issue.

CHAIR BEACH: Okay, Phil?

MEMBER SCHOFIELD: No.

CHAIR BEACH: Brad?

MEMBER CLAWSON: I'm good.

CHAIR BEACH: Okay. We recommend closing the matrix issue 6 on tritides.

And then our next one is issue 3, or item 3, matrix issue 9, the high-fired Pu-238.

Matrix Issue #9 High-Fired PU-238

MR. DARNELL: I believe that one was already recommended for closure.

MR. FITZGERALD: Yeah, we recommended at the last Work Group meeting that the Work Group consider closure on that question.

The issue there was whether -- I feel like I'm going through archival material now -- but we had a Type L model that I think Los Alamos had championed and we felt that had attributes that
ought to be at least available to the dose
reconstructor if need be, and I don't think there
was any disagreement on NIOSH's part, so I think
that issue went away.

CHAIR BEACH: Everybody agree with
that? I thought we closed it before, too. I just
wanted to make sure.

MR. FITZGERALD: Again, this is sort of
trying to come up with a bottom line from Mound and
make sure there was nothing left hanging. That one
I think we recommended, but it wasn't closed.

CHAIR BEACH: Yes. Paul, any
objection to closing that?

MEMBER ZIEMER: No.


So there's several layers to the next
one. Item 4 covers matrix issues 11, 12, and 13.
There are several that we are going to talk about
and have recommended closure, and there's a couple
that we are going to hold until the end.

This very first one, the uncertainties
and low recovery of plutonium -- polonium, excuse me, bioassay procedures. That is one that SC&A has recommended closure on, but we'll go ahead and just continue going through those.

MR. FITZGERALD: I'm not sure where we are now.

CHAIR BEACH: Item 4.

MR. FITZGERALD: Right, on polonium?

CHAIR BEACH: Yeah.

MR. FITZGERALD: I think this one was again an issue of -- this got raised very early in the process. We went on to bigger and better things that had to be addressed more urgently on internal dosimetry. But as you recall, there was some very lengthy White Papers involved on it, the internal dosimetry TBD, you know, 75, 80, 100 pages apiece.

So there were a couple of items that sort of got -- not overlooked, but we just never got back to firm up what the positions were. In this particular case, this was a question of the
chemical processing on polonium, whether somehow
in the DR process it was recognized that there was
a correction needed.

Again, this is sort of a technical
detail sort of in the context of a TBD question.
And so I did put that in there just because I wasn't
clear, looking at the TBD, exactly where NIOSH felt
this was addressed.

And I think in Section 5.5.11, which I
think Pete and his staff have outlined, they have
pointed to all the sections of the TBD that would
provide that correction. And also commented that
in the DR procedures or directions, general
directions, that's also addressed and has been
since the early years. So somehow that wasn't
clarified. We didn't catch that. But I think
we're fine with that explanation.

And it helps knowing both the specifics
of the TBD as well as this DR procedure that takes
care of that correction on polonium. So that was
kind of a technical loose end that we felt ought
to be clarified. We would recommend closure for the Work Group.

CHAIR BEACH: Okay, any discussion on that, Paul?

MEMBER ZIEMER: This doesn't actually close the matrix item, does it?

MR. FITZGERALD: Just the issue.

CHAIR BEACH: No, just this issue.

Yeah.

MEMBER ZIEMER: Just the issue, right.

That's fine. That part should be closed.

CHAIR BEACH: Yeah, there's like nine sections, so we would consider just the polonium.

MEMBER ZIEMER: Yes. Is it that we're closing that part, that issue -- that part of issue 11, 12, and 13?

CHAIR BEACH: Correct.

MR. FITZGERALD: Recognizing that large parts of 11, 12, and 13 were closed by the Work Group going back four or five years ago. So these are more or less what were left and parked
over as TBD issues to be done.

MEMBER ZIEMER: Right.

CHAIR BEACH: So anything on the uncertainties on load recovery of the polonium, that's the only --

MEMBER ZIEMER: I agree to close that portion.

CHAIR BEACH: Phil or Brad, all okay with that?

MEMBER CLAWSON: We're all good.

CHAIR BEACH: Okay, so we agree to close that section on polonium.

The next one is under the same matrix issues items, other radionuclides data, SC&A data comparison. So we're talking about other. And there's quite a big write-up on SC&A on the issues side.

MR. DARNELL: They ended with the magic words "recommend closure."

CHAIR BEACH: Recommends closure.

I'm not so sure we didn't close that earlier, but
Joe, go ahead.

MR. FITZGERALD: Well, this is another -- like I said, we will admit that we scrubbed the record pretty thoroughly on Mound. And on this particular point there was a question of whether -- and this is kind of a prosaic issue and technical details -- whether the units and the way some of the other nuclides were listed would make difficult, for comparison's sake, for the dose reconstructor.

And we looked at the new TBD for internal, and in most cases it's a lot clearer, a lot of this. And granted, the first TBD was developed back in 2004/2005, that timeframe. So ten years later or so, I think the way things are presented are clear and we think the enhancements are sufficient for the issue here.

And this was made a Site Profile issue very early on because it really got into not so much a technical impediment to dose reconstruction; it was more of a this could be done better if you laid
out the information cleaner. It was one of these, yeah, the TBD, when it's rewritten, it could be done so it makes it easier. And I think it is written better. So we would recommend closure.

CHAIR BEACH: Any discussion on this one? Hearing none -- Paul?

MEMBER ZIEMER: This wasn't a technical issue so much as just a clarity issue, was it not?

MR. FITZGERALD: Yes, that's exactly right. Again, even though it was something that was mentioned, we had very early on said it would be just something for the agency to consider as far as future revision. And I think a lot of that has been addressed in the most recent revision.

Matrix Issues #11, 12 & 13

CHAIR BEACH: Okay. So, item 6, which is still in the matrix issues 11, 12, and 13, secondary, other radionuclides data, MJW evaluation. We'll go ahead and let Joe keep talking.
MR. FITZGERALD: Unless Pete wants to interject?

CHAIR BEACH: Unless Pete, yes.

MR. DARNELL: Go ahead.

CHAIR BEACH: This is one we've discussed at length also.

MR. FITZGERALD: This is more -- this is the laboratory work. And this is like hesitating to wade back into the --

CHAIR BEACH: The King document.

MR. FITZGERALD: -- shark-infested waters. Yeah. This is the question of other nuclides that figured in the laboratory work at Mound where -- and it didn't even bring up the King Report. I just figured I'd leave it out, but now I've brought it back in.

So this gets back to some of the questions raised as to whether one could -- I think early on there was a comment that one could not -- I was going to say ignore, but not really address so much a lot of these exposure potentials on
nuclides in the laboratory. And that got us into a long discussion about the King Report not, obviously, explicitly looking at exposure potential, but just indicating what was in the rooms or in the labs.

And I put that in there, knowing that it would evoke some consternation, but just to say that it was still a question that I think needed to be finalized. In other words, that NIOSH indicates it was not ignoring the nuclides and did have a process to address them.

And I think the contingency that's indicated is that if, in fact, there's no dose reconstruction method available for a particular nuclide -- and that's certainly possible given the spectrum that are being addressed or utilized in those laboratories -- then there are instructions, general instructions, that the dose reconstructor presumably would bounce that back up to NIOSH, probably to Jim, and that would be specifically addressed as a nuclide-specific dose
reconstruction procedure. Something would have to be developed and it would not just simply be ignored, but would be addressed as it would come along. Of course, that presumes that you would have a clear exposure potential and that there would be some issue that would arise where you would need to do that.

So I think certainly is kind of what we wanted to address, that there is an avenue that you can address these things, even if right now a priori you can't presume a potential because of the King Report. It's just saying it was there and if it does come up and somebody points, to our somebody comes in with a CATI or comes in with a claim that says I worked in the lab and I was exposed to nuclide X or Y and there's some evidence that there's some exposure data, then there's an avenue.

Again, this was just a -- because we went back and forth with the King Report. I think it was more philosophy than it was a discussion of what exactly what happened. And this is sort of
saying, okay, quite apart from the philosophy of
the King Report, what would happen if you had to
address any of these many nuclides that might arise
in the lab? And I think your answer is this.

MEMBER ZIEMER: Quick question. As a
practical matter, have we, in fact, encountered
such a situation and while the dose reconstruction
is done there?

MR. DARNELL: As of yesterday, I
haven't found any.

MEMBER ZIEMER: Remind me how many does
reconstructions we've completed out at the Mound
facility?

MR. DARNELL: Hold on a second. I
didn't write that number down.

MEMBER ZIEMER: I mean, it's a pretty
large number.

MR. DARNELL: Oh, yeah.

CHAIR BEACH: So you haven't ran across
anybody that has said they worked in the lab and
they were exposed to --
MEMBER ZIEMER: Something different from that group.

CHAIR BEACH: -- something different, something exotic?

MR. DARNELL: No, but you've got to remember that's just me looking through. I won't say that I have 100 percent coverage all the --

MEMBER ZIEMER: Well, of course, the point here is there is an avenue if you come across it. I was just pointing out, as a practical matter, we've done an awful lot of dose reconstructions and it hasn't occurred yet.

MR. DARNELL: There's 761 total, complete -- or 761 total dose reconstructions; 656 are complete; 30 are active; 75 are pulled.

MEMBER ZIEMER: Okay.

DR. NETON: I thought this really spoke more to if you encounter bioassay data in the record for these so-called exotics that aren't mentioned in the Site Profile, what are we going to do with them, because there wouldn't be such outlined as
the detection limits and that sort of thing.

So I think what we're saying here is
that those are handled on a case-by-case basis.
You run across an exotic radionuclide bioassay
result that's not covered in the TBD, we'd have to
find a way to do it. The principal internal
dosimetrist would weigh in on that decision, kind
of work its ways through the chain, but it just
wouldn't be ignored because we didn't have a
methodology in the Site Profile.

MR. FITZGERALD: Who is the principal
internal dosimetrist?


MR. DARNELL: The dose reconstruction
would look more like some of the AWE dose
reconstructions where the site information was put
into the dose reconstruction --

DR. NETON: It would be fleshed out in
the dose reconstruction rather than referring to
a section of the TBD, in accordance with sections
of the TBD, it would actually, the methodology
would be --

MR. FITZGERALD: That's helpful. I just never thought we got to that point because it was, like I said, we were sort of tied up in the King Report discussion.

MR. DARNELL: From what I was reading, both sides of this issue had gotten to a certain point. One was asking for concrete evidence that it existed. The other was saying, give us this road map. And we got to the road maps and --

DR. NETON: I don't think this was really about the King Report.

MR. FITZGERALD: No, no, no. I didn't want to get back there.

DR. NETON: The King Report is water under the bridge. This has to do with, if you see these nuclides --

MR. FITZGERALD: I wanted to change the subject a little bit on that, because I think the practical question was, okay, quite apart from the King Report saga, exactly what would you do if you
did come across it? And I think that satisfies
that. And the fact that you mentioned that you
hadn't come across it also is important.

MR. DARNELL: But I do want you to know
I've not looked at 100 percent of every single DR
and gone through and sampled and looked for.

(Simultaneous speaking.)

MR. DARNELL: This whole wonderful
team of ORAU that does the dose reconstruction,
they see what's in the documents before we could
even get to them.

CHAIR BEACH: Okay, so there's a
section in the internal TBD that covers that, 5.9.
And then you've got the lead dosimetrist if there's
an issue beyond that.

MR. DARNELL: Yes. The way it
generally works is it will go from the dose
reconstruction to the lead dosimetrist, and if
there's any issues there, it comes across to us.
We provide guidance and it goes back down to the
dose reconstructionist. And all that
information, as a matter of course, will get put into the dose reconstruction because it's not in a Technical Basis Document.

CHAIR BEACH: Okay. Paul, any other further questions on this one?

MEMBER ZIEMER: No, I'm comfortable with this.

CHAIR BEACH: Brad and Phil?

MEMBER CLAWSON: No.

MEMBER SCHOFIELD: No.

CHAIR BEACH: So we agree to close this portion of secondary other radionuclides.

Okay. The next one is the tritium log books missing for 1976, 1977. I believe we closed that with the 83.14.

(Simultaneous speaking.)

DR. NETON: Yeah, the SEC.

CHAIR BEACH: So I don't think we need to discuss that, unless somebody sees something different there.

And then the tritium bioassay data
bounding method for STC addresses SC&A's original concern. I wasn't sure if we had already closed this one or not.

MR. FITZGERALD: No. A lot of these were I think discussed, but not necessarily closed out. And I think on -- let me go back to this one.

Yeah, we recommended closure on the question of whether there was enough adequate bioassay data to support the tritium itself.

MR. STEWART: Are we on issue 7 or 8?

MR. FITZGERALD: We're on 8.

MR. STEWART: But we closed 7, is that correct?

CHAIR BEACH: Seven, with the 83.14, yeah, that took care of that one.

MR. STEWART: So that is closed.

CHAIR BEACH: Yeah. So this one --

MR. FITZGERALD: On tritium bioassay data adequacy, we originally raised this concern -- and this is going back to 2009, so this actually seven years ago. And we raised a concern that the
algorithm used to determine early tritium dose was adopted from a LANL procedure based on estimating whole body dose in tritium in water. And it was based on HTO and other compounds and did not address clearly STCs and organically-bound tritium that might be present at Mound.

And in the response that we got in 2012, this came a year or two later to our issue, I think at that time NIOSH noted that it had obtained tritium bioassay logbooks. This is where the logbooks came into the case. And therefore had access to the raw data itself, primary data.

So the issue, when the logbooks I think were made available as primary data, this question of relying on the secondary bioassay database, I think that mitigated that question.

And in terms of the STC compounds, we spent a lot of time on that, but on this particular issue we recommended closure at the last Work Group meeting, but I don't think it actually got closed out.
CHAIR BEACH: Yeah, and there's two
parts to this. One part of it we're not closing,
we'll discuss it later, and that's the question of
the Class YY. So, not to be confused, this small
portion of it, I think you're right, we did
recommend closing that one.

MR. FITZGERALD: And it wasn't right
away, but I think over the year or two that we spent
on the tritide issue and the question of how one
would define a class with logbooks as the primary
data, I think that issue did go away. It was raised
and then we never got back to it, but it sort of
is made moot by the resolution of the tritide
question.

So that's kind of -- and when I went
back, I was looking for anything where we just -- we
discussed it, but didn't actually close it out, and
this was one of those.

CHAIR BEACH: Okay, discussion on this
portion of it? Paul, anything from you?

MEMBER ZIEMER: No. I agree to close.
CHAIR BEACH: Okay. I agree with that. Phil, Brad?

MEMBER CLAWSON: We're good.

CHAIR BEACH: You're okay with that.

So that is 8.

And 9, we're going to reserve. Ten we're going to reserve and move to 11. So, item 11, page 5 of 11 and it's the fecal bioassay data.

MR. FITZGERALD: And this one, this again goes back to the original 2009 treatment that we developed on internal dosimetry data completeness. The issue there was a data completeness question addressing what we thought were relatively few fecal results in the PURECON, which is the plutonium urinalysis bioassay database. In this case, 29 fecal samples for 12 individuals was pretty much it.

And our question was, what was NIOSH's position on the very few samples, fecal samples that were available for use. And I think the answer during Work Group discussions was NIOSH
wasn't intending to use the fecal data anyway. So the whole thing was sort of rendered moot.

And the only question -- that was sort of in passing in the discussion of the Work Group meeting. And this really addresses what, more specifically, would the agency's position be on that data? That it doesn't intend to use it, but how does it play into a dose reconstruction if somebody has it, given the question surrounding that data?

And I think the response, if I can paraphrase -- and Pete, jump in -- that that still stands, that the reliance will be, quote, primarily on the urinalysis data. But if the fecal data is available for an individual, you're not going to ignore it, but you have to reconcile it, and I think that's the term you use, with the urinalysis data that might be available.

So it would contribute to the dose reconstruction, but wouldn't be relied upon. I think that's the emphasis.
MR. DARNELL: That's exactly correct.

MR. FITZGERALD: And we certainly don't have an issue with that. But I think we'd want a little more clarity on that, because it was sort of one of these passing things where it was a never-mind in the discussions, sort of saying, well, it's just not going to be relied upon, but it was never really hammered out more specifically than that. So I think this is much clearer. So I would recommend closure on that by the Work Group.

CHAIR BEACH: Any discussion on that?

MEMBER ZIEMER: Question for the DCAS staff: have there ever been any cases where there's only fecal data? I don't think we've seen any, have we?

MR. DARNELL: Not that I'm aware of. Don is shaking his head that he doesn't know of any either.

MEMBER ZIEMER: There would always be urine data if there was fecal as well.

MR. STEWART: For Mound, that is true,
yes. At least I have not seen a case where that is not the case.

MEMBER ZIEMER: Okay, good. Thanks.

CHAIR BEACH: Okay, any objections?
So we'll close that item.

Alright, the last, 12, item 12, the tritium HTO data comparison. Again, not to be confused with the YY. This one might be a little more discussion because we recommended that NIOSH provide a summary of how it conducted the V&V of the internal and external.

MR. FITZGERALD: Well, I think, in this case, this is part of the broader validation and verification of data adequacy and looking at plutonium, polonium, tritium, some of the major source terms. And the response for tritium is that, as we understood, as the process went forward, that when the logbooks were identified, I think NIOSH's position was reliance on the logbooks for the primary record rather than necessarily the electronic record, just because
whenever you have the primary, that's the gold standard. It's the original data. And that was the basis for the SEC as well.

So, in this case, in terms of -- we were asking for a broad V&V, but I think we're okay, as one could expect, in terms of, if you can rely on the primary record, that it doesn't get any better than that.

So I don't think we had an issue in terms of V&V. I mean, V&V comes into place when you're using secondary sources like electronic databases, whatever. When you're relying on the primary source, the validation is not as much of an issue. You might have questions of legibility, but, again, it's not going to be quite the same issues we have for the electronic.

So I would just tell the Work Group that this issue, as a piece of the V&V, sort of became not a question once the decision was made to go with the logbooks as opposed to the electronic record.

This is for tritium, though, just tritium.
CHAIR BEACH: Okay.

MR. FITZGERALD: We've already gone through the tritium logbook validation. That we discussed at some length during the SEC discussion, so I don't think there's an issue there.

CHAIR BEACH: Right. Okay, discussion on that one? Paul, Brad, Phil, for tritium, item 12? Does everybody agree to close that?

MEMBER ZIEMER: I would agree on that.

CHAIR BEACH: Okay, so we agree to close that. What time is it? Oh, goodness, we're going right through these. Is it time for a break?

(Laughter.)

CHAIR BEACH: Okay, so back to item 9 and it’s issues of the plutonium data comparison, the PURECON. And I guess maybe should Peter go through the V&V paper first? Because those all -- everything we have left are issues that fall within your V&V paper there.

DR. NETON: We've got issue 13 here.
MR. FITZGERALD: Oh, yeah, 13 hangs out too.

CHAIR BEACH: Did I miss that?

MR. FITZGERALD: But we can deal with that after V&V.

DR. NETON: Okay, that's fine.

CHAIR BEACH: Yeah, that's part of it as well. So we have nine -- what do we have, 9, 10, and 13 that are all open and all pretty much follow --

MR. FITZGERALD: I think 9 and 10, I mean, it's PURECON and PORECON, if I can use those terms, polonium and plutonium electronic database verification.

CHAIR BEACH: Thirteen was in there, too.

MR. FITZGERALD: And just for background, I think this is kind of a standard question that we've raised in all the SEC discussions as far as the databases were concerned as far as whether NIOSH has validated the adequacy
and completeness of the databases that are being relied upon. In this case, you had PORECON and PURECON were two databases that were set up.

Now, this is sort of an interesting question. I think there's no debate that they're not complete per se, and so that's one reason it came up early. But we never really had an opportunity to, I guess, collectively reach a conclusion what the validation answers were for those databases from the agency standpoint. I guess we're aware that MJW did some validation with -- was it PORECON?

MR. STEWART: PURECON.

MR. FITZGERALD: PURECON. Okay, they did some original work in 1998. But now we're just sort of saying, okay, in the final analysis, how is NIOSH satisfied that those databases are in fact complete and adequate for reliance in the dose reconstruction process? And that's kind of where the genesis of, you know, where did NIOSH come out on that. I know you've --
MR. DARNELL: Really, just cutting to the chase, NIOSH is not using PURECON and PORECON as the primary data for dose reconstruction. We're going back to the records, back to the source documents. We're using PORECON and PURECON more as references than we are as the data for dose reconstruction. In that case, we don't generally go back and validate references that were used.

Now, we can talk about what MJW did as far as their V&V, which was essentially 100 percent. After they found the error rate was initially too high, they went back and checked everything.

But as far as what you're asking for, it's assuming an application that we're not actually doing with these two databases. So, NIOSH basically doesn't see the need to go back and do a V&V on the reference that we're using just to kind of bounce our records off of -- dose reconstruction records off of.

MR. FITZGERALD: Yeah, and I think the...
clarification that would be helpful -- and I think you've addressed it here, but just to underscore that, when you say reference, you're not using it as a basis for dose reconstruction. You're using it, as you say, as a comparison point. I just want to -- how does that work?

CHAIR BEACH: I was going to ask that, too, because you said bounce off. So maybe walk us through --

MR. FITZGERALD: I always understood there was some --

MR. DARNELL: Don's a little closer to --

MR. STEWART: The way it appears in a dose reconstruction, you'll get a group of records. In some cases those are MESH printouts and in some cases they are in some other form as well. Sometimes they're in a logbook form or whatever. In fact, what we get from Mound are the employees' dose records. So these are the results that Mound sends to us. And sometimes they are in the form
of MESH databases.

MR. FITZGERALD: Yeah, but my understanding is that the MESH does incorporate some of that PORECON/PURECON data for the years that it's relevant or available, and you wouldn't be able to easily distinguish where it's actually feeding into MESH.

MR. STEWART: That's correct, yeah. That's correct. MESH, I believe -- and correct me if I'm wrong here -- was a work in progress for many years, because it really only came along in 1989. But it closed in 1996. So, many of the records have not been -- and the intent was that it would be their single reference point for dosimetry data. But it never got to that point. And it never got to that point for polonium. So the polonium project was essentially complete in 1973, so they didn't necessarily get all those records into MESH. But the PORECON database was there.

MR. FITZGERALD: Right.

MR. STEWART: That was put together.
So, yeah, you're right, but the DR would not necessarily know where it was coming from. But in some cases, you'll have duplicate records from several of these data sources. And this may not be generally known, but when we first look at a case, we have people go through the records and they will summarize the records that are there. And they put together what's called a biofile, and it's the bioassay data is transcribed into a spreadsheet. So you can see where it comes from and what page it's on in the DOL file that you get returned. So I will see sometimes three and four listings for the same result.

Now, they can be in different units and other things like that and I have to go reconcile that, but one of those might be MESH and one of them might be PURECON and one of them might a hand record. So I have to go figure out which are the right units and figure out which of those records to use. So it's my job as the DR to figure out what's the best record.
MR. FITZGERALD: I guess, again, the original question was, if one is using, or could use, an electronic file from a site, would NIOSH as a policy matter do a validation of that electronic file to validate the completeness and accuracy of it?

MR. STEWART: We don't get electronic files. We get printouts.

CHAIR BEACH: From an electronic source.

MR. FITZGERALD: Well, going back to the sites, the original data. That's the point I -- and we're going -- what site are we going back on? We're going back on the validation on another site for the same reason, you know, that's something that's sort of a data pedigree issue almost. And I think it's pretty well accepted at this stage of the game that the agency will do that for the site.

MR. DARNELL: Are you talking about INL?
MR. FITZGERALD: I'm trying to remember what site. I'm blanking because we have so many sites now. We're going back now and trying to backfill a bit validations, because it wasn't done originally for some of the data.

In this case, when I looked at this, I said, yeah, we did find-- I mean, MJW, it's not too hard to do -- in the beginning that there were some deficiencies in the database. And my understanding was it was only -- it wasn't for all years. It was only for certain years, but it was being fed into either MESH or being used.

So the question is a very basic one. If it's being used, did somebody go back and validate the completeness and adequacy? Obviously, for the PURECON, MJW did the heavy lifting pretty much already, so a lot of that is pretty much done. PORECON, I'm not clear on really who, if anybody, has done that. But if it's being used, I would think that, as a matter of policy, NIOSH would consider V&V to be something that would be done.
When I saw the reference database, I didn't know what that meant, because either it's being used or it's not being used. It's either being relied upon or not being relied upon. And it's not really a gray issue, it's sort of is it or isn't it?

If it is, I think by precedent the validation is something that is just done to make sure that you're not using data that's incomplete or has deficiencies which would mitigate against its being relied upon. If it had deficiencies, you would probably take it off the spreadsheet and say, you know, this just isn't good enough, rely on everything else if you can.

If it can't be taken off the spreadsheet, then you'd want to be sure that it was at least minimally adequate for the dose reconstructor. Or if it had certain holes, you might want to put the asterisk and say, okay, you can use this, but you're going to have to use it in coupling with maybe bioassay data, as well, so
that it would be corroborating information to go with it.

It just seems like you have to have sort of a systematic approach to it, not just sort of, well, we didn't validate it, but it's just there as part of the menu. A dose reconstructor wouldn't know that, wouldn't know if it had been validated or not. They would just choose from column A or column B depending on what was available, and that would be an individual choice, I would assume.

MR. STEWART: Right.

MR. DARNELL: As I understand, and it's in the paper, the primary and secondary records that come with the claim are what's supposed to be used first to develop the biofile that Don spoke about. PORECON, PURECON, MESH, those databases can be used to draw from but they're not the primary reference. They're not what's being used to develop the file.

CHAIR BEACH: It sounds like you're getting records, but you're not sure where they're
coming from if you're just getting a printout. Is that --

MR. STEWART: Well, I assume we get an Excel spreadsheet, but I never trust an Excel spreadsheet. It tells me where the data comes from, so I go back and look at the original records. It might be a hand record. It might be a -- and it's a little confusing because are talking about polonium here?

MR. FITZGERALD: That's one of the source terms.

MR. STEWART: Well, it's different. The PURECON database was created and then validated. And it was uploaded to MESH. Okay? So you it's in MESH, it's been validated. So we might see the PURECON printout or we might just see MESH, right? But whatever is in the record, we don't know always know what it is when we see it in the file. We know when it's a handwritten logbook.

MR. FITZGERALD: Yeah, because when
the claim comes in, I think you get what you get. Some claims would be maybe pretty complete depending on the timeframe. Others may be less complete and you do the best you can with each individual case.

MR. STEWART: We don't think any are incomplete. We don't see a lot of cases where they're incomplete. They are just maybe different kinds of records.

MR. FITZGERALD: Different kinds of records.

MR. STEWART: Depending on the era.

DR. NETON: I guess the question for me is, what is the primary record that the DOE is providing us for things like polonium and these other radionuclides? I mean, if it's just the PORECON database, I think it's a valid point that we at least haven't described how it was validated when MJW created it.

But if it is true that the DOE goes back, where are we getting these now, Legacy Management?
I don't know where they're coming from. Goes back and gets us the hard copy records for polonium and other radionuclides that are in the person's file, then PORECON -- it's not as big as a problem to validate the PORECON database. I guess I'm not clear in my mind.

MR. DARNELL: You had me thinking one way when we wrote the memo and now I'm wondering which --

MR. NETON: Okay.

MR. DARNELL: I think what we need to do is, on PORECON, come up with a better -- some more data on this. We need to take an action item to do this.

DR. NETON: It seems we need to flesh that out better.

MEMBER CLAWSON: My question is which data have looked at or are we reading?

DR. NETON: Exactly.

MEMBER CLAWSON: What is it?

DR. NETON: That's what we need to
flesh out, because it's not clear to me, based on what we wrote here, that we're describing the process properly or adequately.

MR. DARNELL: What I thought existed before the meeting and what Don is saying now we're slightly different, so we need to go back.

DR. NETON: I think we all agree that polonium data are probably okay.

(Simultaneous speaking.)

MR. FITZGERALD: I think it's just NIOSH adopting MJW's validation as being adequate. And I think we had, per the historic record, that MJW did it in '98, but not any position on your part.

DR. NETON: I'm assuming that when MJW develops a polonium database they had some sort of business rules they applied as well and it wasn't sort of willy-nilly, just throw it in there, you're done. So we need to go back and look at that, and then we also need to go back and look at what records we really do get from DOE when we request an employee's bioassay records.
MR. STEWART: Can I just summarize again? Plutonium is kind off to the side for this point, so I want to talk about polonium.

When I look at a polonium result, I will typically see MESH results that are from the PORECON database. I will also see primary records, for the most part, in that, because polonium was monitored from '48 to '73, and those are the eras of hand records. So in those files, I will see handwritten results.

MR. DARNELL: That's not what you said when we started.

MR. STEWART: I'm sorry, yeah. I will see handwritten results for polonium, typically, because that's how they did it in those days. The Mound files tend to be complete, and I'm sorry I left this out before, but because it was an earlier era, that's all they had. They had the logbooks to go back through.

And when I look at that Excel spreadsheet, it will list that result, because they
list every result and they will through a page and
they will put all the results from the PORECON
database and then they'll go back, you know, page
63, you know, 50 pages further on and they'll find
a primary record for that.

So what I typically do is sort by date
and I'll see result, result, result on that same
day and I'll say, how are those results different?
Okay, well, one of them is the primary record and
one of them is PORECON and one of them might be
something else. And so I'll go through and I'll
look at it and make sure that the units agree with
what I expect to be there, and then I'll use the
data that conforms to the TBD. Is that a little
clearer?

DR. NETON: Right, it's still not clear
in my mind, though --

MR. DARNELL: It's not saying that you
use the handwritten --

DR. NETON: Right, the handwritten
record is the only source of information that's
used. If that were true and we can verify that the
DOE provides all the handwritten records they have,
then the database validation is not necessary.

MR. DARNELL: Maybe I got it wrong when
I was listening, when we were developing this
paper, but that's what I thought was going on. We
saw the handwritten records. We used those. We
reconciled the reference databases. If that's not
the case, then we need to look more carefully.

MR. STEWART: Well, when I use the
handwritten records, I might -- again, I might see
three different entries for that bioassay, that
particular bioassay, and they all have the same
numbers. So, you know, I will use that
information. Sometimes the numbers are
different, sometimes there are more significant
figures, but I'll go back and figure out why they're
different, if they're different. So, you know, I
guess what I'm saying is that the DR is validating
that entry right there.

DR. NETON: I still think we need to go
back and ask the question of what records are they assembling for us? And if we're always getting the hard copy records for the polonium and other radionuclides, then that's fine. But I'm not sure I'm hearing that, short of someone going back and looking at the hard copy records and saying that's all of them and there's nothing, no discrepancies. You wouldn't even need to look at PORECON, I guess that's what I'm saying.

MR. STEWART: We don't need to. We don't need to.

MR. FITZGERALD: Well, the question is also sort of procedural for the DR, dose reconstructor. Is it clear that, if that were the case, that they would not look at PORECON, which would take it off the table, which I think is what we're talking about.

MR. STEWART: Again, when I look at a result in the spreadsheet, I won't necessarily know where it's from. I'll go back and I'll look at the reference page and it might be PORECON and it might
be something else.

MR. FITZGERALD: That's my concern, that it might not be easy for the dose reconstructor. You know, you're trying to get these things done. You may not investigate the source so much. And in the end it may just be easier just to confirm that MJW V&V'd PORECON -- I'm sorry, PORECON, and not have to worry about what the DR does. There's different ways to kill it.

MR. STEWART: Again, I'm not going to query that database and put the result electronically anywhere. I'm going to see three results. They are all three picocuries per liter. Which one of those am I using? I'm using them all because they agree.

MEMBER SCHOFIELD: So what do you use if there's a conflict between them?

MR. STEWART: You've got to investigate that. But the answer is, if you can't figure it out, use the highest one.

CHAIR BEACH: That's what I was going
to say.

MR. STEWART: This is dose reconstruction. It's not a doctoral dissertation. I mean, you could figure that out, but why would you want to do that? Let's just overestimate it.

MR. KATZ: If that's the procedure that you've always had --

MR. DARNELL: What we're saying, then, is we use the handwritten records unless one of these other references has a higher value, then we'll use the higher value to be conservative.

MR. STEWART: Correct.

CHAIR BEACH: Or like you said, you'd go investigate it.

MR. STEWART: Yeah. The DR needs to resolve that, because it would be nice to just electronically take all those results and say I trust them and put them in there. But the fact of the matter, if you have three results and they don't agree, then you've got to figure out why. Or
you've got to overestimate it.

MEMBER ZIEMER: Is that clear, that all
dose reconstructors would do that, in the
procedure?

MR. DARNELL: It's not currently
written that way in the Technical Basis Document.
The Technical Basis Document says that the dose
reconstructors should keep in mind that both gross
alpha and alpha-spectrometric programs were used
to detect and that they need to verify the PORECON
database against the written facts.

So what NIOSH needs to do is basically
say what Don just explained is going on with the
PORECON database, which is we use the primary
written record first, reconcile any difference
between the written record and the databases, and
in the last case fall to the most conservative
number.

CHAIR BEACH: But that's not really
what I'm hearing Don saying that happens. He just
gets his records and looks at the records. He's
not using the handwritten records as primary. I'm not hearing that at all.

MR. STEWART: Necessarily.

CHAIR BEACH: Necessarily.

MR. STEWART: Right.

CHAIR BEACH: So where we're at, we have the handwritten records, we have MESH. We have PURECON and PORECON, right? We know that MESH was V&V. I think SC&A did that.

MR. FITZGERALD: We sampled.

CHAIR BEACH: Sampled it. PURECON, MJW did that. PORECON has not been done. And I don't think we ever do anything with handwritten records, correct?

MR. STEWART: Well, as I understand it, validation and verification is simply looking at the electronic database, taking it back to the handwritten records and verifying that all that information ended up in the electronic database.

CHAIR BEACH: Yeah.

MEMBER ZIEMER: But if the electronic
database showed a higher number, one could still argue that that handwritten record is the basis and should be used.

MR. STEWART: You could do that.

MEMBER ZIEMER: Well, I think there's ambiguity here. I sort of agree with Jim, if we can figure out exactly what --

DR. NETON: I agree. I don't think there's a lot of work involved here, hopefully. I think it's a matter of going back and documenting better what we actually do. And if it sounds like what I hear what we're doing, we should be okay, but I think this could be handled in a couple pages of discussion about --

CHAIR BEACH: Okay, so you'll take the action on doing a sampling or what is it?

MR. DARNELL: I think what we need to do is just clarify what's being done.

DR. NETON: How we're behaving, what we're doing. And if it's going -- as Don has discussed, if it goes that way, I don't think we
need to do any sampling.

CHAIR BEACH: Okay.

MEMBER ZIEMER: Is that described in 10 or is that in 9?

MR. FITZGERALD: That's 9.

MR. KATZ: It's 9 and 10.

CHAIR BEACH: We were just talking about the paper, the memorandum, but, yeah, it does cover.

MR. FITZGERALD: We can get to 10. Actually, we can do PURECON first.

(Simultaneous speaking.)

MR. STEWART: Now, just a question here: as I understood it, PURECON we don't have a problem with because it has been V&V'd.

MR. FITZGERALD: Yeah, well, the issue there is more of an institutional one. MJW, a contractor, did the validation back in '98 and the only question is, does NIOSH accept that validation for the results it achieved and that would stand as -- that's just really a confirmation.
DR. NETON: We can state that.

MR. FITZGERALD: You can state that for the record? I think it was a historical footnote in our discussions in the past that they had done that.

DR. NETON: It was a 100 percent validation, so I don't know how much better -- you can't do any better than that, in opinion.

MR. FITZGERALD: Right.

MR. STEWART: So that will remain open as well about PURECON?

MR. FITZGERALD: That's up to the Work Group. I mean, if you want to deal with PURECON. That's the MJW validation we did in '98.

CHAIR BEACH: I was just going to look at that real quick again.

MR. FITZGERALD: I think there was some concern by them originally that the error rate was a little high, so they went back and did a scrub, 100 percent scrub.

CHAIR BEACH: Yeah.
DR. NETON: I think we can handle it all in the same discussion about the database and comment in our response that we are accepting the validation that was done by MJW because it was 100 percent validation. And we'll go back and look at the -- it may be true. I don't know, are we getting the hard copy polonium records, plutonium records, too, then?

MR. STEWART: Yes.

DR. NETON: So we need to go back and describe the process, how we're doing this and how decisions were made when we get this record from the Department of Energy.

MR. STEWART: Okay.

DR. NETON: And if it's as I think it is, I think we're okay and probably can do this in a couple page discussion.

MR. FITZGERALD: Just to put an editorial note, Josie, in terms of the PURECON discussion. MJW did do 100 percent for this because they thought 8 percent initially as an
error rate on transcription. They went back and
did a 100 percent scrub and found 4 percent. But
then they actually corrected the record using the
primary records to correct the electronic records
and eliminated those errors. But, again, that
sort of underscores the importance of looking at
V&V, because I think they were probably a little
surprised when it was 8 percent. That's a pretty
darn high transcription error rate.

So it would be useful to either take
PURECON -- oh, I'm sorry, PORECON off the table,
or certainly make sure that it's not likewise a
problem. And it may turn out, I haven't seen
anything in the record that MJW -- I didn't see any
results that MJW did a V&V on PORECON. It seems
they would have, particularly after the PURECON
experience, but I haven't seen it.

DR. NETON: They didn't create the
PURECON. That was an inherited Legacy database.

MR. FITZGERALD: Right.

DR. NETON: They actually created the
PORECON database.

MR. FITZGERALD: Good point.

DR. NETON: So it's a little different.

MR. FITZGERALD: Yeah, internally, they probably would have done QA of their own work, yeah.

DR. NETON: But I do agree we need to flesh this out a little bit.

MR. STEWART: There is some detail available on how they develop that database.

DR. NETON: Yeah, and you don't know when it's an 8.2 percent, what that really means. I mean, does that all affect dose reconstruction? Is it a result, is it a transposed, you know -- we can discuss that a little better.

CHAIR BEACH: Okay, so you've got the action on that. That takes us to -- anybody need a comfort break at this point?

Hearing none, okay, so we're going to leave 9 and 10 open, correct, until we review that paper? Is that agreeable to everybody?
MR. DARNELL: Yes.

CHAIR BEACH: Okay. And then 13 is the thorium bioassay database. That takes us back to that Class YY confirmed --

MR. FITZGERALD: Yeah, this is the last item. And again, this is sort of a leftover issue that was discussed, and again wasn't really high priority, but it was discussed in the internal dosimetry discussions. And, again, was a clarification on exactly where the issue was addressed. I think during the last Work Group meeting, Jim, you were mentioning that, yeah, that would be confirmed and cited somewhere along the way.

Because of the timeframe involved, it's been a number of years since we actually addressed that. It did get picked up in I think you mentioned the Berkeley Review, and I don't think it's a technical issue so much as that a broad -- just to clarify where that's a broad guidance to dose reconstructors at all sites. I think the comment
here that's made, Pete, I believe it's clear that
that certainly ought to be something that every
site would be applying.

But I guess, just for the record, is
NIOSH applying the Class YY approach, as at
Berkeley, as at Mound, for all sites?

DR. NETON: Well, what we're saying
here is Type S bounds Class Y type thorium.

MR. FITZGERALD: And that would be a
standard approach, then.

DR. NETON: Right. And that sort of
came about that -- I think some people indicated
-- and this is my memory, not correct 100 percent
-- but Type Y, Class Y uranium has certain clearance
patterns and Type S- has a much longer clearance
time, and our opinion was that it bounds even a
higher insoluble Y. And we discussed that at
length. Clearly, this little excerpt from the
Lawrence Berkeley Review, SC&A agreed with us that
solubility S bounds insoluble thorium. So we
would just apply the standard Type S clearance on
clearance rate.

CHAIR BEACH: And that approach is clear to the dose reconstructors?

DR. NETON: Yeah. I mean, that's a standard procedure. You do all three solubility classes and pick the one that gives you the highest dose.

CHAIR BEACH: Okay. And I think that was the main question, as long as the dose reconstructors understood that.

DR. NETON: This sort of piggybacked on that type super-insoluble uranium and then it sort of morphed into, well, maybe if uranium exists, then maybe Y does. And we never found any evidence that uranium existed, let alone thorium.

MR. FITZGERALD: Yeah, it was one of these discussion threads that went back and forth, and then sort of we went on and Mound, the SEC got settled. And so this is almost more of a loose ends, just trying to make sure that we can put a punctuation point on some of these discussions that
we had three or four or five years ago. It does get hard to remember.

CHAIR BEACH: It does. Alright, that takes us through our items. My gosh.

MR. DARNELL: So did we vote 13 closed?

CHAIR BEACH: No, we did not. So, 13, Paul, any discussion on 13?

MEMBER ZIEMER: No, I'm in agreement.

CHAIR BEACH: You're in agreement.

Brad, Phil?

MEMBER SCHOFIELD: I'm in agreement.

CHAIR BEACH: Okay, that one is closed.

That just leaves us with the two and a memo. I think we can handle that. Will we need another call for that?

MR. KATZ: Well, you'll need a call to close it.

CHAIR BEACH: Yeah.

MR. KATZ: That's okay, because that call you can discuss present that the Board then, right, because you will have wrapped up Mound. No,
wait, sorry --

MR. DARNELL: External still needs to be complete --

MR. FITZGERALD: One TBD outstanding.

MR. KATZ: Okay, and what's the timeframe for that?

MR. KATZ: Sometime next year.

CHAIR BEACH: That's what I was just going to ask.

MR. KATZ: I would just package this together. We don't need to have a call for this one. It's really too small a matter even to -- it's not worth the expense of the call.

MR. FITZGERALD: Maybe an email just providing the information.

MR. KATZ: Yeah.

MR. FITZGERALD: Then hold it for -- MR. KATZ: Hold it for how we deal with the external.

MR. DARNELL: I'll send out a memo to the group, like we've done before to the other
sites. Just say, okay, here's what the answer is and comments then can come in.

DR. NETON: How extensive are the external issues? I guess I've forgotten. Is it just the neutron issue?

MR. DARNELL: No, there's a few other issues.

DR. NETON: Since it wasn't on here, I didn't prepare for it. I do a just-in-time approach.

CHAIR BEACH: And I knew it wasn't going to be --

MR. KATZ: Is that a springtime -- how far out?

MR. DARNELL: I'm not going to give you any idea, because I'm not sure. The problem is that as you know, Tim Taulbee was given special dispensation from on high to talk about his knowledge while he's working SRS.

MR. KATZ: No, I know.

DR. NETON: But that was specifically
just to work on the neutron issue. It's a very narrow --

MR. KATZ: Right, but getting him to have time to talk to the principal external dosimetrist, which is Matt Smith, has been difficult.

CHAIR BEACH: Maybe his boss can make that happen. Just kidding.

(Laughter.)

MR. DARNELL: It's all on the schedule. It all needs to get done.

MR. KATZ: It's fine, it's fine. So, anyway, we'll package the closing of this up with the closure of that.

MR. FITZGERALD: There's a generic neutron issue for a couple of sites.

DR. NETON: Yeah, the Brookhaven, interpretation of the NTA film issue.

CHAIR BEACH: So my understanding is we'll get your memo. We'll all review it. And at that point, if there's any questions, we can
discuss it via email. Hold on to that until the last external comes out. Is that correct? Is that what I'm hearing?

DR. NETON: Yeah, sounds good.

CHAIR BEACH: Alright, that makes sense.

MR. DARNELL: This was a lot more productive. Very good.

CHAIR BEACH: Is there anything else?

I hate to say we can close, but --

MR. KATZ: That's lickety split. I think we're finished.

CHAIR BEACH: That's a lot faster than I thought, too. So we are finished with internal, waiting for the last memo on those two items, and so we can go ahead and close.

Adjourn

MR. KATZ: Thank you, everyone on the phone, for joining us, too. And we're adjourned.

Take care, everyone.

(Whereupon, the above-entitled matter went off the record at 10:16 a.m.)