1 report.
2 **MR. GRIFFON:** Right (unintelligible).
3 **MR. HINNEFELD:** It's a common pattern -- it's a
4 relatively common pattern for people who -- I'd
5 have to look and make sure, but it's quite
6 likely this person was not employed by
7 -
8 **MR. GRIFFON:** Right.
9 **MR. HINNEFELD:** -- but employed by a
10 construction subcontractor and, as an
11 , would work for the construction --
12 construction or renovation (unintelligible).
13 By the Savannah River was probably doing
14 a pretty good job of (unintelligible)
15 construction workers. Maybe -- maybe not.
16 Again, you know, intermittent, a 12 full month
17 -- 12 months of total employment there. This,
18 you know, looks like a pretty -- to me, it
19 looks like a pretty solid case.
20 Okay, issue number two is the generic Savannah
21 River high five, and actually it's the next
22 case when I'm going to talk about it.
23 And issue three is the generic organically
24 bound tritium.
25 Issue number four (unintelligible) the CATI.

1 There are four bulleted items that are
2 commented on as perhaps one investigation.
3 Three of these are checkmarked items on the
4 CATI form. Quite -- it would seem that
5 oftentimes checkmarks are made with -- yes,
6 there was plutonium there. Yes, there was
7 cesium there. Yes, it was (unintelligible)
8 there. And oftentimes the actual word
9 descriptions of the work, the notes that are
10 made -- you know, the comments that are made to
11 the dose reconstructor provide usually a better
12 insight and understanding into the actual work
13 that they did. And so we felt like in this
14 case this is probably -- there are probably
15 explanations for the various things that were
16 checked. For instance, there was a checkmark
17 that he was checked for breath analysis in the
18 in vivo monitoring or personnel monitoring
19 section.
20 By the 1980's at Savannah River I really
21 suspect -- we really don't think they were
22 doing breath analysis for bioassay purposes
23 (unintelligible) Savannah River, so we felt
24 like, given the sum total of information
25 available on the case, it was a -- it was a

1 pretty -- pretty solid case.
2 **DR. H. BEHLING:** Okay. Hans Behling again.
3 The fact that -- however that this individual
4 raises these issues, I think, again, the
5 prudent thing on the part of the dose
6 reconstructors is to try to give an explanation
7 as to why these issues were not considered in
8 the dose reconstruction report, just in order
9 to satisfy any concerns that he -- he may have
10 been exposed, but that exposure was ignored by
11 the dose reconstructionist.
12 **MR. HINNEFELD:** Right. Right, good comment.
13 And now I believe we're ready for case #12. We
14 have an index kicking around where #11 and #12
15 are --
16 **DR. H. BEHLING:** Yes.
17 **MR. HINNEFELD:** -- interposed. I -- I reversed
18 it to say #11 is -- you know, I'm not sure why,
19 because when I got my three-ring binder, #11
20 was where #11 should have been and #12 was
21 where it should have been, and so I don't know
22 -- I was lucky to get the one where they didn't
23 switch back and forth, but my case #12 is the
24 Savannah River Site claim and I think
25 that's what we have next here. I don't know if

1 you want to switch them around.
2 **MR. HINNEFELD:** Well, we've gone through your
3 case #11, which was our #12.
4 **DR. H. BEHLING:** Okay (unintelligible) --
5 **MR. HINNEFELD:** (Unintelligible) so that'll go
6 on to --
7 **DR. H. BEHLING:** Yeah.
8 **MR. HINNEFELD:** -- (unintelligible).
9 **PRESENTATION/DISCUSSION OF ISSUES FOR CASE #12**
10 **DR. H. BEHLING:** Okay, as stated -- this is
11 Hans Behling. As stated, this particular claim
12 #12 was another Savannah River Site claim. The
13 person worked there for a
14 starting in and through He was an
15 at the facility. His assignment was
16 in the
17 and he also worked in the area where
18 took place. And his
19 cancer was of the rectum, with a POC of 36
20 percent. That was based on a -- an assigned
21 dose of 85 rem. So this guy had a significant
22 exposure. A good part of that exposure was
23 real exposure from photons and neutrons
24 assigned to him, and I guess there was also an
25 -- hypothetical internal exposure from tritium

1 and other radionuclides that represent about 13
2 of the 85-rem total.
3 So with that, I'll turn it over to Stuart.
4 **MR. HINNEFELD:** The first issue identified by
5 SC&A on this report was the fact that measured
6 photon doses were not entered as a -- with a
7 normal distribution but rather was entered as a
8 constant value. That's the issue we talked
9 about earlier that we're going --
10 **DR. H. BEHLING:** Two other cases.
11 **MR. HINNEFELD:** Two other cases we've had that.
12 **DR. H. BEHLING:** And I do just want to make a
13 mention of it -- as I said, the reason I
14 believe that these uncertainties are not an
15 oversight, but I guess I want to be sympathetic
16 to the dose reconstructor, to do an uncertainty
17 based on cycle-by-cycle dosimeters that for the
18 early days may have involved a primitive, 2-
19 element film dosimeters that was issued on a
20 weekly basis, I'm very sympathetic to the dose
21 reconstructionist who says to hell with this,
22 I'm not doing it. So it may not be an
23 oversight as much as it is a -- a rebellion
24 (unintelligible) some degree of restraint, but
25 I believe that's what's happening here because

1 I'm sure Tom -- Tom Tomes can probably verify -
2 - I asked him during a break whether he reviews
3 cases, and I'm willing to have him state
4 something on record -- have you ever seen a
5 case where a dosimeter was in fact given an
6 uncertainty?
7 **MR. TOMES:** Yes, and I've also seen the word
8 "ridiculous" come out of my mouth.
9 **DR. H. BEHLING:** Okay (unintelligible). Okay,
10 we will go to issue number three then.
11 **MR. GRIFFON:** So there --
12 **MS. K. BEHLING:** There was no issue one.
13 **MR. GRIFFON:** No issue one, all right.
14 **DR. H. BEHLING:** There is no issue one. Mis--
15 mislabeled here.
16 **MR. HINNEFELD:** Yeah. Clearly my mistake
17 again.
18 Okay. Issue numbered number three then is that
19 the dose reconstruction assigned a neutron dose
20 that was 118 times too high for the 100 to 200
21 -- I'm sorry, 10 to 100 keV neutron energy
22 region, and 21 times too high for the 0.1 to 2
23 MeV neutron energy.
24 This comment stems, I think, probably more from
25 a rather unclear representation of some of the

1 information in the dose reconstruction report.
2 There is an apportionate of neutron dose at
3 Savannah River for the facility in question. I
4 suppose, since it's neutrons, this is probably
5 for the F area. There is a -- in the Technical
6 Basis Document there's apportionment of neutron
7 dose into the two energy bands I just
8 described. Fifteen percent of the neutron dose
9 should go into 10 to 100 keV energy range and
10 85 percent should go in the 0.1 to two MeV
11 energy range.
12 There are also organ correction factors --
13 organ dose correction factors (unintelligible)
14 applied, and neutron -- yeah, in this case,
15 neutron radiological effectiveness dose
16 correction based on different understanding of
17 neutron radiological effectiveness today than
18 at the time these numbers were recorded by
19 Savannah River. So the representation of this
20 combination of factors in the dose
21 reconstruction report, the -- there are factors
22 that are combined for a single table.
23 (Unintelligible) the individual factors that
24 are used in the -- in adjusting the recorded
25 neutron dose are not broken out individually

1 but (unintelligible) combined factor, and so it
2 -- viewed from our view, it appears that that
3 was not -- that's not -- it's not explained
4 clearly in the dose reconstruction for sure,
5 but that seems to be what was done. There was
6 a combination of factors and that in the
7 evaluation there was some -- you know, perhaps
8 it wasn't noted by the reviewer that this --
9 these factors that were presented were actually
10 a combination of a couple of factors.
11 But the major difference, though -- I mean that
12 -- that would account for only some small
13 amount of the dose. The major difference in
14 the missed dose is that the dose reconstruction
15 includes the missed photon dose multiplied by
16 the neutron to photon ratio for the period in
17 question in order to arrive at a missed neutron
18 dose. Since the neutron doses during early
19 periods rely on a neutron to photon ratio, that
20 if you have a missed photon dose, there is also
21 a missed neutron dose that goes along with it.
22 So the dose reconstruction includes a fairly
23 large amount of missed neutron dose, based on
24 the missed photon dose. And that, we believe,
25 is the main difference between what the SC&A

1 reviewer found and what was in dose
2 reconstruction.
3 **DR. H. BEHLING:** I -- I looked at the data
4 again and -- let me have the next slide -- I
5 will state that it was my oversight not to
6 incorporate into the recorded neu-- recorded
7 photon dose the missed dose, and so I will
8 concur with Stuart's comment that we failed on
9 that front.
10 However, I will also say that I still cannot
11 come up with it when I said we were off by a
12 factor of 118 times, I calculated this and then
13 this is the recorded photon dose times the 15
14 percent that you see there times the ICRP-60
15 neutron correction factor, and the 95th
16 percentile neutron to photon ratio as defined
17 by 0.82. What's missing there is the
18 additional missed dose so what -- I'm going to
19 have to speak up because I'm going to have to
20 go to the (unintelligible) room here, so the
21 actual recorded dose -- as an example, for
22 I think he split it (unintelligible) two
23 energies that were 56 and 56, so it's 112
24 millirem, and you multiply that times a .15 to
25 .28 and a .82 and you end up with

1 (unintelligible) and that gives you 3.8
2 millirem. What is missing here is the missed
3 dose, which is considerably larger, was 470
4 millirem for the two energies, which translates
5 to 940. And I'll give you what the actual
6 number is that I calculated. And it should
7 have been, instead of -- what I have, 3.86
8 millirem for that year, it should have been
9 36.23 millirem, and I believe I've not done it
10 correctly, but it's still 13-fold lower than
11 the one that he assigned. So we probably were
12 all guilty of mistakes. I was guilty of a
13 mistake and I believe, even with that
14 explanation, the dose reconstructor also made
15 some mistakes.
16 **MR. HINNEFELD:** Okay. I will -- I will go back
17 and do some more evaluation and --
18 **DR. H. BEHLING:** Yeah. Well, I --
19 **MR. HINNEFELD:** -- we'll -- we'll exchange
20 calculations (unintelligible).
21 **DR. H. BEHLING:** Yeah, my -- my -- my failure
22 was to include -- and correctly so, it was the
23 missed dose which, in addition to the 112
24 recorded dose, should have added 940 millirem
25 of missed dose (unintelligible).

1 **MR. HINNEFELD:** Okay.
2 **DR. H. BEHLING:** Yeah. So we -- we all made
3 mistakes here.
4 **MR. GRIFFON:** Well, getting close
5 (unintelligible). Right?
6 **MR. HINNEFELD:** We'll exchange our
7 calculational notes here and we'll -- we'll
8 sort this one out.
9 Issue number four, the reviewer questioned why
10 we used a chronic exposure rate for neutron
11 exposure versus the acute, which is our typical
12 for photon, and that's just a standard practice
13 for effectiveness factor. The acute gives you
14 a higher radiological effectiveness for
15 photons, but chronic gives you a higher
16 radiological effectiveness for neutrons. It's
17 a -- it's an IREP thing.
18 **DR. H. BEHLING:** Yeah. Hans Behling. As a
19 comment, I fully agree that for claimant
20 favorability you'd use acute in one case and
21 chronic in the other. From an (unintelligible)
22 point of view it looks kind of paradoxical
23 where you have a TLD which is a dose
24 integrating device that concurrently measures
25 both photons and neutrons, and why assign one

1 that's acute and the other one chronic? As I
2 say, from an optics* point of view, it doesn't
3 make sense. From a claimant favorability, it
4 makes a lot of sense. I just questioned it and
5 I wonder if other people say how can one be an
6 acute exposure and the other one chronic when
7 in fact they occurred simultaneously. And it's
8 just an issue that sort of, from a scientific
9 point of view, leaves you sort of hanging in
10 the air saying I agree, it's claimant
11 favorable, but it certainly doesn't make sense
12 from a scientific point of view.
13 **MR. HINNEFELD:** We pretty much all said the
14 same thing. Every-- everybody who joins the
15 program pretty much has that -- that comment.
16 **DR. H. BEHLING:** Okay, we'll let that go and
17 say it's claimant favorable, even if it doesn't
18 make sense to the health physicist.
19 **MR. HINNEFELD:** Okay. Issue number five is the
20 -- the comment that the missed photon dose was
21 calculated incorrectly. And when we reviewed
22 the -- the missed dose -- let me go through my
23 notes here -- yeah, there is in fact -- there
24 is an error of -- in that -- it's the error we
25 talked about earlier, a -- a dose less than LOD

1 over two was counted as a real dose
2 (unintelligible) should have been a zero and
3 added -- and counted zero (unintelligible) dose
4 in the missed dose calculation, so that error
5 was made and that is -- that is correct.
6 I think part of the other issue is -- I don't
7 know if this is part of the issue or not, but
8 it is a fact that the -- the missed dose
9 photons -- photon total is divided into two
10 energy ranges, and so therefore it appears in
11 two different locations --
12 **DR. H. BEHLING:** (Unintelligible) locations.
13 **MR. HINNEFELD:** -- on the IREP input sheet, and
14 so it's easy to --
15 **DR. H. BEHLING:** To miss.
16 **MR. HINNEFELD:** -- to miss the second
17 installment of it, so (unintelligible)?
18 **DR. H. BEHLING:** Yeah.
19 **MR. HINNEFELD:** Yeah.
20 **MR. GRIFFON:** I think this probably comes up
21 under the CATI comment, but the individual
22 talked about losing a badge eight times,
23 presumably losing -- losing his badge eight
24 times --
25 **MS. MUNN:** Can hardly hear you.

1 **MR. GRIFFON:** Sorry. I said that this may come
2 up under the interview comments, but the
3 individual talked about -- claimed he either
4 lost or damaged his (unintelligible) dosimeter
5 eight separate times. I just wondered -- you
6 know, if the record showed doses were assigned
7 that presumably (unintelligible) SCA
8 (unintelligible) reflect either coworker data,
9 area monitors and (unintelligible) pocket
10 dosimeters. I -- I question how you came to
11 that conclusion, Hans, (unintelligible) the
12 data.
13 **MR. HINNEFELD:** This -- this is actually not a
14 CATI comment, but this was in the DOE records.
15 **MR. GRIFFON:** Oh, it was? Okay.
16 **MR. HINNEFELD:** So yeah, the -- these -- these
17 -- there were -- essentially (unintelligible)
18 dosimetry (unintelligible) report or dosimetry
19 (unintelligible) sheet when someone loses their
20 badge or damages it, it's generally the
21 practice to try to reconstruct for that wear
22 period what did that person get exposed to.
23 And you can -- may do it by -- if -- if they're
24 in a fairly static job, you may do it by the
25 average monthly exposure that they got. You

1 may do it by the people on their work crew,
2 whatever the appropriate analog is
3 (unintelligible). These were actually those
4 kinds of things in the DOE response. We had
5 those kinds of things in the DOE response, so
6 we felt like that is essentially equivalent to
7 the reported dose for the person by
8 (unintelligible) and so we accounted for it as
9 if it, you know, as the reported dose by
10 (unintelligible). But -- okay.
11 **MR. GRIFFON:** Well, I -- I don't know if it's
12 okay or not. I just point it out. I mean
13 eight -- eight times lost or damaged badge
14 seems a little high. Maybe this individual
15 (unintelligible) --
16 **DR. H. BEHLING:** For a (unintelligible) --
17 **MR. GRIFFON:** -- (unintelligible) worker or --
18 **DR. H. BEHLING:** For a period of many years --
19 **MR. GRIFFON:** Yeah.
20 **DR. H. BEHLING:** -- you know, when -- Kathy and
21 I, we both spent eight years at Three Mile
22 Island and we were in charge of, among all the
23 other things, dosimetry, and people would
24 (unintelligible) lose their badges. We would
25 find them someplace in the containment building

1 with megadoses and then you try to figure out
2 what to do.
3 **MR. GRIFFON:** Did you lose your badge that many
4 times, Hans?
5 **DR. H. BEHLING:** No, I didn't.
6 **MS. MUNN:** I can't ima-- over -- over what
7 period of years did this paragon of virtue do
8 this?
9 **DR. H. BEHLING:** This guy worked there for
10 , so it's probably not --
11 **MS. MUNN:**
12 **DR. H. BEHLING:** -- an unusual number of lost
13 badges.
14 **MS. MUNN:** Okay. So once every three years he
15 screwed up a badge.
16 **MR. GRIFFON:** (Unintelligible) yeah, he screwed
17 up a badge. The one thing I don't -- I don't
18 follow in the report, also, is maybe there
19 could be some indication -- like -- like we can
20 tell when a missed dose was assigned. We can
21 tell -- tell when a badge-recorded dose is
22 assigned. It seems like another -- maybe
23 another category that they -- it was an
24 assigned dose from coworker data from other
25 than his individual badge.

1 **MR. HINNEFELD:** Well --
2 **MR. GRIFFON:** What I was trying to do was how
3 do I find these eight separate times when this
4 was used, and were those doses higher than
5 other -- I couldn't track them back, you know
6 what I mean? I was trying to crosswalk and see
7 which ones -- which periods were these -- was
8 this done for.
9 **MR. HINNEFELD:** Did you -- (unintelligible).
10 Did you get the entire file for that?
11 **MR. GRIFFON:** I -- I don't know. I -- I pulled
12 off some documentation on it (unintelligible) I
13 got all 20 cases from SC&A but --
14 **MR. HINNEFELD:** Okay.
15 **MR. GRIFFON:** -- it wasn't one of my assigned
16 cases, no.
17 **MR. HINNEFELD:** The place where -- if -- if I'm
18 correctly interpreting what we -- what we say
19 in here, the place where this would be found
20 would be in the DOE response portion of the
21 record for this case, and the DOE response may
22 -- it may be one response, sometimes they
23 respond in pieces so there may be more than one
24 thing. But they're grouped together in the --
25 in the file, and so if these -- there should be

1 -- if I'm interpreting it correctly, there
2 should be a series of those lost badge results
3 -- or lost badge (unintelligible) form provided
4 to us by the Department of Energy in the
5 response.
6 Now you know, that being the case, then what
7 you're suggesting we do is that where we
8 describe that the -- you're asking us to --
9 where we describe that the Department of Energy
10 provided exposure information on the person --
11 you know, where we obtained the exposure
12 information -- we could at -- you know,
13 theoretically we could at that point say some
14 of which was reconstructed by the site because
15 of lost badges. I mean we could do something
16 like that. I really -- I would hesitate to try
17 to embark too much down the path of putting
18 information in a dose reconstruction report,
19 then trying to remember it every time, because
20 by and large what we're doing now is when the
21 site provides us with a response for the
22 person's exposure record, you know, we'll look
23 through it and things like this, like a lost
24 badge investigation, we can fit -- we consider
25 a standard practice in the radiation protection

1 industry and really not particularly note-- you
2 know, noteworthy. You know, we would say okay,
3 they were doing what we would expect radiation
4 protection program to do and they're providing
5 the end result to us in this person's exposure
6 record, so I -- I guess I would really wonder
7 what -- what additional subset of description
8 we include in here.
9 **MR. GRIFFON:** Yeah, I'm not -- I'm not -- I'm
10 not sure. I was thinking out loud kind of. I
11 mean I'm not --
12 **MR. HINNEFELD:** Yeah.
13 **MR. GRIFFON:** If it's annual doses you're
14 having in your file record and these are only
15 intermittent (unintelligible) months that this
16 happened for and you can't really put an
17 asterisk -- you know, have a footnote on each
18 year 'cause it's not the whole year. It might
19 be one month out of the year.
20 **MR. HINNEFELD:** Right.
21 **MR. GRIFFON:** I just wanted to be able to
22 crosswalk it, and maybe my question more is --
23 is to Hans, when I see your comment here, the
24 record showed doses were assigned that
25 presumably reflect. And I guess my question to

1 my audit contractor is, you know, how -- how
2 did you determine whether they did reflect or
3 did not reflect -- were you able to crosswalk
4 it and -- and (unintelligible) --
5 **DR. H. BEHLING:** I would have to go back to the
6 individual case to --
7 **MR. GRIFFON:** Yeah.
8 **DR. H. BEHLING:** -- to really give you a
9 definitive answer. I don't remember the
10 specifics of this case, but I think they try to
11 address it in some form or fashion. But you
12 know, there are so many options when you talk
13 about unmonitored periods, what do you do; do
14 you -- you know, did the -- the procedures give
15 you multiple options. For instance, if there
16 is a his-- history of exposure before and after
17 this missed period, they simply ask you to
18 interpolate. And so say if this is the
19 exposure per unit time before, you have the
20 missed dose and after, (unintelligible)
21 straight line and say take the midway point,
22 that's one option. Another option is to use
23 coworker data as the surrogate for his
24 exposure. Another option that was commonly
25 used in days past was to look at the regulatory

1 dose limits for a calendar quarter or year, and
2 then assign the maximum or a fraction or the
3 administrative limit for a given facility so
4 that, you know, in days past I remember having
5 to assign three millirem -- three rem per
6 calendar quarter when the dosimetry records
7 were missing because at one time 12 rem a year
8 was a possibility and you ended up, you know,
9 biting the bullet on that one. So those are
10 options. I'm not sure in each and every case
11 which option would be appropriate. It would
12 depend on the compensability of the claim where
13 you could afford to give him a quarterly limit
14 or -- or whatever it is; or you would go to a
15 lower tier, an administrative limit; or the
16 maximum exposure that was observed during that
17 time frame; or the average for the -- I mean
18 there's an infinite number of options --
19 **MR. GRIFFON:** Sure.
20 **DR. H. BEHLING:** -- one could use.
21 **MR. GRIFFON:** I just wanted to know what they
22 did.
23 **DR. H. BEHLING:** I really can't answer that.
24 **MS. K. BEHLING:** This is Kathy Behling. I'm
25 speculating here, but just based on the fact

1 that we used the word "presumably", we went
2 back to standard practice in making that
3 comment --
4 **MR. GRIFFON:** That's what (unintelligible).
5 **MS. K. BEHLING:** -- (unintelligible) wasn't
6 anything in the record necessarily.
7 **MR. GRIFFON:** That's what I would have guessed
8 there, and I gue-- I -- I don't even know how
9 close this claim is, so maybe -- you know, this
10 is the kind of red flag that if you had
11 something over 40 percentile you might pull the
12 string a little more on it or something --
13 **MR. HINNEFELD:** Well, if --
14 **MR. GRIFFON:** -- (unintelligible) a lot lower.
15 **MR. HINNEFELD:** If you're overestimating the
16 dose reconstruction --
17 **MR. GRIFFON:** Yeah.
18 **MR. HINNEFELD:** -- (unintelligible) the
19 Savannah River high five intake
20 (unintelligible) --
21 **MR. GRIFFON:** Right, uses the high five, yeah.
22 **MR. HINNEFELD:** -- yeah, so it is an
23 overestimating approach (unintelligible).
24 **MR. GRIFFON:** But these are the -- to me, this
25 red flags -- and -- and I've seen this go both

1 ways, but certainly I've seen damaged badges
2 that -- you know, you -- I've heard damaged
3 badges and actually (unintelligible) you know,
4 and someone down the line threw it up and this
5 is, you know, improbable or impossible and it
6 didn't get recorded. I've heard the other
7 scenario where workers have even admitted to me
8 in interviews that different guys would put
9 badges on hot spots (unintelligible) system, so
10 to speak, so I'm sure there's that side of it,
11 too. But you know, I think -- I don't know, I
12 think if you have , I mean he could
13 have had quite a bit of -- of --
14 (unintelligible) exposure.
15 **DR. H. BEHLING:** And he did -- as I mentioned -
16 -
17 **MR. GRIFFON:** Yeah.
18 **DR. H. BEHLING:** -- in (unintelligible) slide,
19 he had -- at least the assigned photon dose was
20 22.7 and the assigned neutron dose was 38, so
21 total he had 60 rem.
22 **MR. GRIFFON:** Right.
23 **DR. H. BEHLING:** So -- and that -- that's --
24 **MR. GRIFFON:** That's why -- that's why --
25 **DR. H. BEHLING:** -- recorded dose, so this guy

1 had a substantial amount, and if it had been a
2 cancer other than, you know, rectal cancer, he
3 might have probably been pushed over the
4 (unintelligible) --
5 **MR. GRIFFON:** My -- my feeling there is if I go
6 back and track these eight -- eight badges or
7 whatever and I see that each time they assigned
8 ten millirem, then I'd say wait a second, you
9 know --
10 **DR. H. BEHLING:** Right.
11 **MR. GRIFFON:** -- it seems like this guy was
12 getting a lot more in all these other time
13 periods. Something's wrong here.
14 **MR. HINNEFELD:** (Unintelligible)
15 **MR. GRIFFON:** And -- and I didn't -- I wasn't
16 able to track that back. I -- I don't know
17 that I got the full record, but I got partial
18 (unintelligible) --
19 **DR. H. BEHLING:** Yes.
20 **MR. GRIFFON:** -- on this case and I wasn't able
21 to determine which ones were assigned by
22 (unintelligible) practices versus measured by
23 the TLD, so...
24 **MR. HINNEFELD:** I guess --
25 **MR. GRIFFON:** I -- I -- I don't think that

1 needs to be included in -- in your final dose
2 reconstructions, but I think for -- for -- I --
3 I think it needs to be trackable, anyway, I
4 guess (unintelligible).
5 **MR. HINNEFELD:** Okay. Well, I think it -- I
6 think it's probably there in the record.
7 **MR. GRIFFON:** (Unintelligible)
8 **MR. HINNEFELD:** Those forms are probably in the
9 record.
10 **MR. GRIFFON:** (Unintelligible)
11 **MR. HINNEFELD:** I -- I could try to
12 (unintelligible) out, (unintelligible) to you
13 somehow (unintelligible) DOE's response
14 (unintelligible).
15 **MR. GRIFFON:** Okay, I'll -- I'll ask Hans,
16 you're -- you agreed to -- to check back on
17 this. Right?
18 **DR. H. BEHLING:** Yeah, I'll check to see what I
19 have in the records, and then I'll go back
20 through the DOE records.
21 **MR. HINNEFELD:** Okay. We were at
22 (unintelligible) -- right? -- of --
23 **DR. H. BEHLING:** I think --
24 **MR. HINNEFELD:** Yeah, we did five.
25 **DR. H. BEHLING:** (Unintelligible) six.

1 (Break)
2 **DR. H. BEHLING:** Are we back in business here?
3 **THE COURT REPORTER:** Yes.
4 **MR. HINNEFELD:** Yeah, as far as --
5 **DR. H. BEHLING:** Ray, we're going to start with
6 issue number six for case #12.
7 **THE COURT REPORTER:** Okay.
8 **MR. HINNEFELD:** Okay, issue number six is that
9 the review indicated the missed neutron dose
10 was too high and that -- our response is it's
11 the same issue as 2(a) above. Does that sound
12 right?
13 **DR. H. BEHLING:** No.
14 **MR. HINNEFELD:** Well, that's what someone told
15 me.
16 **DR. H. BEHLING:** If you want to leave it at
17 that, let me go and explain why it's not --
18 **MR. HINNEFELD:** Sure.
19 **DR. H. BEHLING:** -- because for the missed
20 neutron dose -- I guess there were periods --
21 you have to define which period we're talking
22 about because it's pre-'72 and post-'72. In
23 one instance we used the neutron/photon ratio
24 as our method, and after -- starting with 1972
25 we actually used the dosimeters, the HMPD*

1 dosimeter, as our -- our dose of record. And
2 there we used the LOD or MDL value for that
3 dosimeter, so the missed dose has two
4 components, pre-1972/post-1972. And in the
5 next slide that I have here -- it's slide 12.2,
6 Kathy -- I have -- basically my assessment of
7 what might have done here and that is based on
8 ORAUT -- the site profile for Savannah River.
9 And part of the calculation is basically
10 nothing more than the number of cycles that
11 we're talking about; the LOD over two, it was
12 20 millirem over two was the LOD over two; the
13 fraction of the dose based on the 15 percent
14 for between 10 and 100; and the ICRP-60 neutron
15 correction factor and that (unintelligible) for
16 dose -- for this particular case where the LOD
17 was (unintelligible) and then (unintelligible)
18 which translates to five millirem and 165
19 millirem. And when you add those two up, you
20 end up with (unintelligible) millirem. So that
21 would be my approach to calculating doses that
22 were based on post-1972 where you have the HMPD
23 dosimeter that was to be used for -- for missed
24 dose.
25 Now I have a question on this issue, and I'm

1 addressing this question to Stu and Tom here.
2 When you have that as your format, are you
3 still then subject to -- to making other
4 correction factors or is this the total? I
5 mean would -- would this satisfy the -- there
6 are some things here that are very unclear in
7 this procedure, and I have to admit there are
8 times when I struggle trying to figure out what
9 do I need to do here to further modify these
10 numbers. You know, especially -- even -- in
11 some of those issues where you have missed
12 dose, they will tell you what the LOD over two
13 is, the number of cycles and the maximum missed
14 dose. They'll tell you 300 millirem for this
15 year. But in the case of neutrons, do you
16 still have to adjust that based on the neutron
17 correction factor? I -- I -- I'm really at a
18 loss. Some of those procedures I have to
19 really read over and over and at the end I'm
20 still at a loss to be sure I know everything
21 has been answered satisfactorily.
22 **MR. TOMES:** This is Tom Tomes. I think maybe I
23 -- I think I can address that.
24 (Unintelligible) some of those numbers
25 memorized. I think -- I think where we're

1 disagreeing on is the factor of .85 there, for
2 one thing, and the factor --
3 **DR. H. BEHLING:** That's the percentage value.
4 **MR. TOMES:** Right. But the factor of 1.62 is
5 the -- and actually 1.91 times .85, but .85 is
6 incorporated into the 1.62 and 1.91 is the
7 ICRP-60 correction factor for the neutron
8 (unintelligible).
9 **MR. HINNEFELD:** Right. The 1.91
10 (unintelligible) --
11 **DR. H. BEHLING:** So I'm (unintelligible) this
12 here. In other words the (unintelligible) is
13 not necessary. It should be .85 times 1.91 or
14 1.6 minus the (unintelligible) .85. Is that
15 correct?
16 **MR. TOMES:** (Unintelligible) the other ratio,
17 the .15 should be eliminated from that.
18 **DR. H. BEHLING:** Okay, that was not clear.
19 **MR. HINNEFELD:** That was the unclear
20 representation in the dose reconstruction
21 (unintelligible) --
22 **DR. H. BEHLING:** I mean I (unintelligible) --
23 **MR. HINNEFELD:** -- (unintelligible) dose
24 reconstruction report, yes.
25 **DR. H. BEHLING:** I struggled with that saying

1 what does this mean, why am I not using 1.91.
2 **MR. HINNEFELD:** Yes, for that --
3 **MR. TOMES:** You could get that out of the TBD,
4 but it's not readily apparent.
5 **DR. H. BEHLING:** Yes.
6 **MR. HINNEFELD:** And the dose reconstruction is
7 not clear. The dose reconstruction report is
8 not clear.
9 **DR. H. BEHLING:** Okay.
10 **MR. HINNEFELD:** I would like to suggest for
11 issue six that it's like issue -- the earlier
12 issue in that we need to resolve the
13 calculational difference, and we'll exchange
14 that calculation with SC&A and make sure we
15 both understand the calculational approach. I
16 mean we'll take -- we'll take that to do it,
17 send it to Hans, see what he thinks.
18 **UNIDENTIFIED:** That's fine with me.
19 **MR. FITZGERALD:** Yeah, I think -- you know,
20 some of these just -- you have to see what the
21 implication is before you make the judgment
22 (unintelligible) answers.
23 **MR. HINNEFELD:** Okay. Now we're at issue
24 number seven, which is the generic issue we've
25 been avoiding and saying we would talk to at a