

1 **DR. H. BEHLING:** -- you've seen this -- these
2 are (unintelligible) when you try to identify
3 the name and -- and -- you know, I mean these
4 are not easy to decipher.

5 **MR. GRIFFON:** Unless you're one of those
6 (unintelligible) --

7 **MR. TOMES:** (Unintelligible) they changed --
8 they changed format (unintelligible) '73
9 changes and then you go back to the --

10 **THE COURT REPORTER:** Who is this?

11 **UNIDENTIFIED:** That was Tom.

12 **THE COURT REPORTER:** I didn't hear what he
13 said.

14 **MR. TOMES:** At Savannah River they have several
15 different formats for reporting the doses. You
16 have annual summary, then you have details
17 provided from the early days where you had
18 every cycle detailed, then they just give you
19 quarterly details and then finally they just
20 give you a -- I think in 1973 they started a
21 format where they just gave you cycles that
22 were positive results and didn't even list the
23 negative results. In 1989 they started giving
24 you everything.

25 **DR. H. BEHLING:** That's where missed dose could

1 have come in because he's not even reporting
2 anything that was not a positive report, so you
3 don't know (unintelligible), you don't know the
4 details. It's very, very difficult --

5 **MR. GRIFFON:** Right. That -- and I think
6 that's one of -- probably one of the ones I saw
7 in the other case that I reviewed 'cause there
8 were just blank -- in the monitoring period
9 there were spaces. Rather than zeroes or
10 values, there were spaces.

11 **MR. TOMES:** A zero -- zero -- if there were
12 zero (unintelligible) shallow dose and zero
13 (unintelligible) zero deep dose it would not be
14 (unintelligible).

15 **THE COURT REPORTER:** Okay, was that Mr. Tomes?

16 **MR. TOMES:** Sorry. Yeah, it was.

17 **THE COURT REPORTER:** I'm not hearing you.

18 **MR. GRIFFON:** Sorry about that, Ray.

19 **THE COURT REPORTER:** Okay. Could he repeat
20 that, please?

21 **MR. TOMES:** Sure. If there was zero dose in
22 both shallow and deep dose on -- on some of
23 those forms there would just not -- be no
24 entry.

25 **THE COURT REPORTER:** Thank you.

1 **DR. H. BEHLING:** Okay.

2 **MR. GRIFFON:** And -- and I agree, it's a
3 general issue that I've brought up many times
4 with the Board, and I -- and I think that --
5 I'll throw in one thing for you to further
6 think about to complicate the matter is the
7 people that have recorded doses, they're
8 shortchanged because they set their dosimeter
9 aside. They're impossible things probably to
10 prove, but one way might be coworker data or
11 area survey data. But we have more -- you
12 know, a lot of anecdotal information on places
13 that was done, and it's reinforced by the fact
14 that you sort some of the early annual summary
15 data and everything stops at 4.99 rem and
16 nobody ever exceeded a -- or -- or 15 rem in
17 the early years when -- or 12 rem, whatever
18 their cutoff was. But --

19 **MR. GIBSON:** This is Mike Gibson. You could
20 also -- you're going to run into cases where
21 you may see a person's been in a radiation
22 monitoring program, but there's still going to
23 be doses that were unmonitored because they
24 were sent into areas where it was improperly
25 (sic) characterized -- not monitored for those

1 radionuclides. One of those events happened at
2 Mound. You can go back and you can look at the
3 actinium event where the people weren't
4 properly bioassay sampled, and two or three
5 years after the fact they said well, what can
6 you tell us? We can tell you that it shows up
7 in the bioassay sample today you had over 100
8 rem.

9 **MR. GRIFFON:** Mark Griffon, this is -- I think
10 so far the cases we've done in this first cycle
11 they cover -- you cover that with the high five
12 or the DOE-wide 28 radionuclide high
13 (unintelligible), but we're going to run into
14 that down the line maybe, yeah.

15 **MS. MUNN:** This is Wanda. Conversely, on the
16 other end of the scale is the fact that a
17 significant number of these workers had very
18 liberal policies with respect to time off and
19 time when they may have had significant periods
20 of time when they simply were not on-site.
21 That may or -- I don't know how well that
22 information can be tracked for early years, but
23 certainly in the later years -- the '60's,
24 '70's, things of that sort -- I don't think
25 that it was unheard of for a person to be gone

1 for several weeks at a time if there were, for
2 example, a severe illness in the family or a
3 parental problem in some other state, something
4 of that sort. And I don't know how closely our
5 -- our dose records indicate actual absence
6 from the workplace for something other than --
7 than worker illness itself.

8 **MR. HINNEFELD:** That's true, that could also --
9 this is Stu Hinnefeld. That could also explain
10 gaps in records for people who were well-
11 monitored, as well.

12 **MR. GRIFFON:** Yeah, and they -- and they
13 (unintelligible) -- as we know, there are work
14 histories -- it's hard to recollect what you
15 did in the 1946 (unintelligible) --

16 **UNIDENTIFIED:** (Unintelligible) last week.

17 **MR. GRIFFON:** -- (unintelligible) right.

18 **DR. H. BEHLING:** Okay, case #10.

19 **MR. HINNEFELD:** Ready for case #10?

20 **DR. H. BEHLING:** Yes.

21 **MR. HINNEFELD:** We're moving along.

22 **PRESENTATION/DISCUSSION OF ISSUES FOR CASE #10**

23 **DR. H. BEHLING:** Case #10 is another Savannah
24 River Site claim. The period of employment
25 extends from to so he was less

1 than years there. His job was -- job
2 description identifies him as an .
3 This individual has two cancers. The first one
4 is a colon cancer, the second one a prostate
5 cancer. And based on an assigned dose of 3.6
6 rem, most of which comes from a hypothetical
7 internal exposure using the Savannah River Site
8 high five approach, his POC was 11.3 percent.
9 So with that I'll turn it over to Stu and talk
10 about issue number one.

11 **MR. HINNEFELD:** Issue number one is a comment
12 that the medical X-ray dose perhaps should be
13 the dose from photofluorographic examination
14 versus standard chest PA exam of -- because
15 that was done for some period of time at
16 Savannah River. And our research in -- at
17 Savannah River about this, the
18 photofluorography, indicates that it was pretty
19 much done by 1970. And that while there was a
20 photofluorographic examination used for routine
21 screening at least for some portion of the work
22 force up through -- up until -- up through
23 1959, that it didn't persist beyond that and by
24 '60 and later they were using standard PA exam
25 for chest X-rays. And so we feel -- since this

1 person's employment was after , we felt
2 like the assignment was probably correct.
3 Issues number two and three on this are the
4 generic issues for Savannah River, the
5 organically bound tritium and the high --
6 Savannah River high five, that intake, which I
7 think we're going to talk about in the next
8 case.

9 And then the fourth comment or the fourth issue
10 are -- relates to items made during -- in this
11 case it's actually the closeout interview.
12 These are -- this was information provided
13 during the closeout interview, which is a
14 different interview than the claimant interview
15 prior to the dose reconstruction. A closeout
16 interview occurs after the dose reconstruction
17 report has been written.

18 In this case the claimant was a survivor and
19 insisted that her husband was monitored, and
20 his job was one of probably someone who may
21 have entered radiological areas from time to
22 time and worn a badge for those entries. We
23 were unable to find any of those type of
24 badges. And in fact, the dose reconstruction
25 that was prepared and has been reviewed was

1 really prepared before any of these comments
2 were made. And so with respect to the dose
3 reconstruction itself, I think it's relatively
4 -- you know, not feasible to have addressed
5 this in the dose reconstruction report. So
6 depending upon the nature of what we're doing
7 here, I mean -- the dose reconstruction report
8 was prepared with the information available at
9 the time, and so the existence of these
10 comments in a closeout interview are sort of,
11 you know, not part of the dose reconstruction
12 preparation process, so I don't know how we
13 want to go, whether we want to go into these --
14 you know, how we want to treat these.

15 **DR. H. BEHLING:** Just for clarification for
16 you, Wanda, Stu's reference to a closeout
17 involves a phone log and -- and therefore the
18 dose reconstruction had been completed and in
19 essence the phone log of conversations that
20 took place between the interviewer and the
21 survivor of this claimant centered around what
22 she felt were discrepancies -- I suppose she
23 must have reviewed the dose reconstruction
24 report and -- and came to some conclusions
25 about whether or not some of the issues that

1 she addressed were included in the dose
2 reconstruction report, such as he was monitored
3 and that -- that he had worked at other sites
4 that may have also added exposure, et cetera.
5 So Stu's comment is that the dose
6 reconstructionist who wrote this one had no
7 understanding of what was about to come because
8 the phone log followed the dose reconstruction
9 process --

10 **MS. MUNN:** Uh-huh.

11 **DR. H. BEHLING:** -- so there was no way for him
12 to at least even address these issues as part
13 of the dose reconstruction report.

14 **MS. MUNN:** I understand. Those kinds of
15 discrepancies would be difficult.

16 **DR. H. BEHLING:** Yes.

17 **MR. HINNEFELD:** Right. Nothing else?

18 **DR. H. BEHLING:** I guess we're done with case
19 #10.

20 **MR. GRIFFON:** Well, I -- is there any -- I
21 guess you guys are still grappling with that as
22 to what to do with that. Do you --
23 (unintelligible) that it changes the dose
24 reconstruction but is there any follow-up with
25 the --

1 **MR. HINNEFELD:** I don't -- I don't know about
2 this case.

3 **MR. GRIFFON:** Yeah.

4 **MR. HINNEFELD:** I don't know about this case.
5 I know that --

6 **MR. GRIFFON:** Those situations (unintelligible)
7 --

8 **MR. HINNEFELD:** -- today --

9 **MR. GRIFFON:** Yeah.

10 **MR. HINNEFELD:** -- we'll spend -- when that is
11 mentioned, if it's mentioned at closeout
12 interview, we will try to obtain visitor
13 exposure records from the sites
14 (unintelligible). That frequently doesn't
15 yield a lot. Sometimes it does.

16 **MR. GRIFFON:** Right. Right.

17 **MR. HINNEFELD:** There's another instance here
18 that this particular Energy employee had a long
19 career with and only one portion of that
20 was at Savannah River. So she felt like he
21 worked for all those years, how can you
22 say only a and so there's a
23 covered employment period issue which is not --
24 you know, (unintelligible) resolved. The
25 Department of Labor develops the evidence for

1 the covered employment period and lets us know.
2 So there are, you know, some things like --
3 like that that factor into essentially a sort
4 of an inability on our part in this particular
5 case to resolve all these issues. So -- but
6 today, if that (unintelligible) happen today we
7 hear about well, we put down who hired him on
8 our form, but he also worked at these other
9 sites, or he went on business trips to these
10 sites and he did this kind of stuff there, we
11 will pursue that now with the visited sites and
12 if there is no report of that visit in his home
13 -- his employment location of record.

14 Sometimes some sites will provide a report of
15 exposure from another site that the person, you
16 know, made a business trip while they were
17 working, they were monitored, got
18 (unintelligible) report, it'll be in the
19 record. That doesn't happen all that much.

20 **PRESENTATION/DISCUSSION OF ISSUES FOR CASE #11**

21 **DR. H. BEHLING:** Case #11. Case #11, just for
22 Wanda and the recorder's benefit, involves
23 another Savannah River Site case. The
24 individual here was a -- He
25 worked there for approximately -- or even less

1 than a . He worked at various time
2 intervals in :
3 but collectively they all represent less than
4 about of employment at the
5 Savannah River Site as ar . He has
6 two types of cancers, a skin squamous cell
7 carcinoma and a basal cell carcinoma. In fact
8 he had two skin squamous cell carcinoma and a
9 third skin basal cell carcinoma. The assigned
10 dose for him was again maximized using the
11 hypothetical intake -- internal intake and that
12 corresponds to about 60 percent, 70 percent or
13 so of the dose of 3.6 rem assigned to him. His
14 only external exposure, according to the dose
15 reconstruction report, comes from occupational
16 medical exposure and on-site ambient exposure.
17 There are no assigned dosimeter or missed doses
18 since he was apparently not monitored.
19 So with that, I'll turn it over to --

20 **MS. MUNN:** And what was his job descrip--

21 **DR. H. BEHLING:** He was an

22 **MS. MUNN:** Oh, thank you. I remember your
23 saying that now.

24 **MR. HINNEFELD:** Issue number one on the -- on
25 this dose reconstruction is that the on-site

1 ambient dose that was assigned doesn't follow
2 the guidance in the Technical Basis Document.
3 And that appears to be correct. The doses in
4 the dose reconstruction are higher than the
5 guidance in the Technical Basis Document and so
6 was I guess a -- a mistake in some part or of --
7 -- you know, Savannah River Technical Basis
8 Document guidance on ambient exposures has
9 evolved. There have been two -- like two or
10 three versions of ambient exposures at Savannah
11 River, so it could have been an older version
12 that was (unintelligible).
13 And then there's a comment about a distribution
14 that was supposed to -- the value should have
15 been entered as a lognormal distribution and my
16 recollection of most of the ambient doses --
17 and I -- and I -- this is kind of what we said
18 but I'm having trouble keeping everything
19 straight -- is that typically the environmental
20 aspect of the TBD will provide the monitoring
21 information and in most of our (unintelligible)
22 data is lognormally distributed so it'd give
23 you the mean and the standard geometric
24 deviation for the environmental data. But very
25 frequently we will also provide some

1 overestimating numbers, like the highest number
2 at -- recorded at any location on-site, ambient
3 location at the site for that year, adjusted to
4 assume that that person was at that location
5 for 50 hours a week for every week. And since
6 we're making an overestimating assumption,
7 we'll certainly choose those numbers and enter
8 it as a -- as a constant value for ambient. So
9 that's a relatively common practice, so we've
10 got a little discussion going on today about
11 the appropriateness of overestimating as a
12 constant versus a more accurate estimate with
13 distribution. So we could probably lump some
14 evaluation of this into that, but I think in
15 this case this is probably quite a significant
16 overestimate of the actual numbers in the TBD.
17 There's also a comment about conversion and
18 wheth-- if the dose that's recorded is -- seems
19 to be saying that there should be an additional
20 adjustment in order to arrive at skin dose
21 versus deep dose. And I think that might just
22 probably be a pretty good comment. We think,
23 though, the magnitude of the comment is
24 probably relatively small compared to the
25 overestimates that they described in the

1 previous, where we used -- ambient doses are
2 quite a bit higher than what the TBD said, but
3 --

4 **DR. H. BEHLING:** Can I just jump in -- Hans
5 Behling. The issue here is what does ambient
6 on-site dose really reflect. If it turns out
7 that this is mostly ground deposition, probably
8 not a significant issue when you talk about
9 deep dose versus shallow dose. But if you're
10 talking about, for instance, noble gases and
11 you're downwind in the plume and -- or downwind
12 from the discharge point, there would be a
13 significant difference between the HP10* versus
14 the 7 milligram shallow dose, so --

15 **MR. HINNEFELD:** Right.

16 **DR. H. BEHLING:** -- it was just only thrown in
17 here that -- as a generic issue it only applies
18 to skin cancer claims.

19 **MR. HINNEFELD:** Right.

20 **DR. H. BEHLING:** Certainly would not apply to
21 any organ other than the skin tissue, but it
22 was just a technical issue that I thought I'd
23 raise because I know that on-site environmental
24 dosimeters that are normally hung -- even
25 though they may represent a four-element

1 Panasonic 802 that has the capacity to tell you
2 what the shallow dose is, for -- for historical
3 reasons they're usually not recorded. Neither
4 is the 300 milligram eye* dose, so what you
5 usually record only is the deep dose at 1,000
6 milligram --

7 **MR. HINNEFELD:** Right.

8 **DR. H. BEHLING:** -- and so in -- in select
9 cases of cancers, the ambient dose for skin
10 cancer would potentially be underestimated
11 under those circumstances.

12 **MR. HINNEFELD:** Yeah, I think there are some
13 other mitigating things here. There's -- well,
14 there's -- the time period the person worked
15 was in the , so presumably the -- you
16 know, fission product emissions are low -- you
17 know, beta emissions were somewhat less than
18 say the early days (unintelligible) or
19 something. So probably this person was
20 assigned the annual ambient dose for every
21 calendar year that he was there, when in fact
22 he was only there for about a total of a
23 in about an calendar year period, so
24 there's a lot of mitigating aspects to the
25 actual reconstruction.

DR. H. BEHLING: Again Hans Behling. We're only bringing up technical issues. In this case I (unintelligible) concur with Stuart that based on the fragmentation of his employment that covers several years, and for each fragmented year he's given a full exposure for ambient dose, we're more than adequately covering any of these gaps, but it's strictly a technical issue that I'm raising here.

MR. GRIFFON: Stu, I -- I was curious about this fragmented work period, too, and it may -- I mean this -- this case totals to probably. But it's interesting to me anyone who, under these kind of (unintelligible) worked for at a time over a course of . I just wonder if it was -- you know, hopefully it wasn't intermittent hot work. It doesn't seem like it would be. It seems like in the that kind of stuff wasn't occurring.

MR. HINNEFELD: Probably wasn't.

MR. GRIFFON: But you know, I just wonder if --

DR. H. BEHLING: He was not monitored, which --

MR. GRIFFON: Well, at times he was.

DR. H. BEHLING: Yeah, well, in the CATI