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

convenes

MEETING 47

ADVISORY BOARD ON

RADIATION AND WORKER HEALTH

DAY TWO

The verbatim transcript of the 47th Meeting of the Advisory Board on Radiation and Worker Health held at The Sheraton Denver West, Lakewood, Colorado on June 12, 2007.

STEVEN RAY GREEN AND ASSOCIATES
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C O N T E N T S

June 12, 2007

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JUNE 12, 2007

P R O C E E D I N G S

(8:35 a.m.)

OPENING REMARKS

DR. ZIEMER: Good morning, everyone. I'd like to call the meeting to order. Welcome to the second day of our deliberations, the Advisory Board on Radiation and Worker Health. I trust you had a refreshing evening and Board members are ready to focus. I want to double-check on our Board members who are with us by phone. Mike Gibson, are you with us this morning?

(No response)

Mike Gibson?

(No response)

DR. WADE: No, he -- I mean he spoke to me a moment ago. Are the phone people hearing us?

DR. ZIEMER: Mike Gibson, are you with us this morning?

MR. GIBSON: Yes, Dr. Ziemer, I'm here, but it's -- we have a phone problem.

DR. ZIEMER: Okay. Yeah, mute your phone then after you speak. Thank you.

Phil Schofield?

MR. SCHOFIELD: I'm here.
DR. ZIEMER: Thank you. John Poston?
(No response)
Jim Lockey?
DR. LOCKEY: I'm here.
DR. ZIEMER: Okay. John Poston?
(No response)
Poston --
DR. WADE: He's supposed to be calling in.
DR. ZIEMER: Supposed to be calling in. Okay, we'll check again in a little bit.
Josie Beach is conflicted on this discussion but is here in the audience, so we will proceed. The -- oh, comments from our Designated Federal Official, Dr. Wade.
DR. WADE: Now these -- these are not official comments, they're just sort of phone etiquette comments. I would ask everyone on the line, as Paul mentioned, to -- to mute the phone if you're not speaking. Be mindful of background noises that might be so familiar to you that you don't -- you don't hear them, but they can be very disruptive to what's going on here.
If you're speaking to the Board, try and do it through a handset, not through a speaker phone.

It's important that the Board can extend its reach by having members or interested parties participate by telephone, but it's terribly important that we maintain the ability of all to communicate. So please think about that and it will serve all of us.

ROCKY FLATS WORKGROUP REPORT

DR. ZIEMER: Okay. This morning we're going to first continue our discussion of the working group's report. Following that we will hear from the petitioners, and then we will have additional time for discussion and, as appropriate, motions relating to the SEC.

So I want to begin, Board members, by opening the floor for discussion on Mark Griffon's report. Mark, do you have any additional comments before we raise questions? Or members of the working group?

(No responses)

Okay, Board members, what questions do you have for Mark relative to his report?

MR. CLAWSON: Dr. Ziemer?

DR. ZIEMER: Yes, Brad Clawson.

MR. CLAWSON: I'm -- I'm not clear -- I've been watching -- and forgive me for my ignorance

because I've been watching a lot of the e-mails go back and forth and stuff like that, and I'm still not clear on some of these thorium strikes and -- and where they were at because I've got conflicting e-mails back and forth of where they happened and when they happened and I'm just wondering if there's any kind of clarification of -- of what happened on those or --

DR. ZIEMER: Okay, Mark or -- or --

MR. GRIFFON: (Off microphone) (Unintelligible) NIOSH --

DR. ZIEMER: Yeah, maybe Brant -- we catch you off-guard here, but the question -- and the discussion can relate to issues raised by Brant, as well. The question was the timetable on the thorium strikes. Could you clarify that for -- for Brad and other members of the Board, and I don't know if you need to refer to your presentation from yesterday, but Brad, your question was when did they take place or -- and where or --

MR. CLAWSON: Yeah, the facilities, because I've kind of been monitoring some of the e-mails back and forth and stuff like that, and I

was kind of understanding they were in a different facility, and so forth like that, and I'm just not quite clear on -- on how --

DR. ZIEMER: Both when and where.

MR. CLAWSON: When and how many were there, actually.

DR. ZIEMER: Okay, see if Brant can clarify that for us. Is that --

DR. ULSH: How -- is this --

DR. ZIEMER: That's -- there you go.

DR. ULSH: Okay. Brad, we talked to the project manager in charge of the thorium strikes. He was directly there, he was directly hands-on in the projects, and he had very explicit recollections about first of where the strikes occurred. They occurred in Building 881, Room 266. And he even showed us what glovebox they were performed in. The reason that they were performed there was because there was not a lot of activity going on in that building at that time, and you're talking about a project that had a significant external radiation potential, so that's why they chose to do it there.

Now as I mentioned yesterday, there was some

confusion because there's a document that was located that seems to indicate that the strikes occurred in Building 71. We checked into the pedigree of that document. The first one was -- it's history of uranium-233 at Rocky Flats. It was written about 40 years after the fact in -- you know, in the 2000s -- and it referenced a classified document that was actually written in 1965. And we got redacted pages from that document and that document is the source of this impression that they might have occurred in 71.

However, that classified document was written by an investigative committee that was chosen because they were independent. They were not involved in the project themselves. And part of the uranium-233 processing did occur in Building 71. The first step was the receipt of the uranyl nitrate solution, and they transferred that into a receiving vessel, and that occurred in Building 71.

The question then is what happened next. The next step is the thorium strike, and did that occur in 71 or -- or 81. The classified document indicates 71, but that, again, was

written by people who were not involved in the project, and we are basing our conclusion that it was based in 81 on the project manager's recollection, who was directly involved in the project. So -- and he had very compelling reasons as to why they did that.

DR. ZIEMER: That's 881 or 8--

DR. ULSH: Yeah, I'm sorry, Dr. Ziemer. They -- the building designations did change over time. They were originally 881, later the first eight was dropped; same with 771. So we're very confident that it was in Building 81.

However, in the worst case scenario -- let's just say it did happen in 71. We've also got air data for that -- that -- that room, too, for the time.

Now, the second part of your question dealt with when these strikes happened and how many there were, and the first thorium strike happened --

DR. WADE: Can I just stop you for a minute --

DR. ULSH: Yes.

DR. WADE: -- give you a moment to think of your answer. The Board members and others on

the line can't hear because of a great static problem.

DR. ULSH: Okay.

DR. WADE: We're going to take one quick fix, which is for us to break the line and dial back in, so let's do that, and then I'll ask them again if they can hear. If we solve the problem, fine. If we can't, we'll take the next step along the chain, and I'm sorry to interrupt, but I think it's important that the other Board members hear this.

DR. ULSH: So you want to just wait until we do that?

DR. WADE: Yes, ma'am. Consider your answer.

(Pause)

I'm sorry to do this, but I think it's better to do it early in the day than...

(Pause)

This is Lew Wade. Have we resolved the static problem? Can people on the hear me clearly?

UNIDENTIFIED: I hear you better now, Lew.

UNIDENTIFIED: Yeah.

MR. GIBSON: Yeah, for the moment that was good.

DR. WADE: Okay. I guess I would ask David

Staudt, who I know is on the line, to serve as our monitor. David, if you sense a problem, then call my cell; I'll have it in front of me --

MR. STAUDT: Will do, Lew, thank you.

DR. WADE: -- and we'll take the next step. Sorry for the break in the continuity, but I think it's important that everyone can hear. Please, proceed --

DR. ZIEMER: Yeah, we'll proceed. Brant Ulsh is answering the question about the thorium strikes. Brant.

DR. ULSH: Right, and just to summarize because I don't know how much the people on the phone heard, we're very confident that the thorium strikes occurred in Building 81, Room 266, based on the information that has been provided by the hands-on project manager.

Now the second part of your question, Brad, dealt with when the thorium strikes occurred and how many there were.

The first thorium strike occurred in April of 1965. I gave the exact -- I think the 26th through the 28th, something like that. The second thorium strike, and last thorium strike,

occurred in January of 1967. And I don't recall the exact days off the top of my head, but we have provided that information.

The motivation for doing a thorium strike was that the U-233 that they were working with contained, as a contaminant, U-232. And U-232 leads to a lot of short-lived daughter products, one of which is thorium-228. And the U-233 that they used in those first two projects, 1965 and 1967, had a relatively high concentration of that contaminant. It was slightly less than 50pp -- 50ppm, so that was the motivation to do thorium strikes on that uranium-233, to remove that.

Now, Rocky Flats also did some subsequent operations with uranium-233, but that uranium-233 had a much lower concentration of the contaminant, and so thorium strikes were not necessary on those and they didn't do thorium strikes after 1967. And that is again based on the recol-- distinct recollections of the project manager and also on the recollections of Mel Chew, who is on the ORAU team, who was involved with the uranium projects from the other end and -- and both of those individuals

said no, we didn't do any later thorium strikes because we didn't need to; the contaminant concentration was much lower.

So there were two thorium strikes, 1965, 1967; they occurred in Building 81, Room 266.

MS. MUNN: Brant, that's on your slides, the -- the dates, the exact dates, if you want them.

DR. ULSH: Right.

MR. CLAWSON: (Off microphone) (Unintelligible) several different (unintelligible). (On microphone) I've seen several different e-mails going back and forth that has contradicted both of that, so I wanted to get clear exactly what we were dealing with.

DR. ZIEMER: Thank you. Dr. Melius.

DR. MELIUS: Yeah, Brant, don't go 'way. While -- if -- I guess I'm trying to get a little bit more clarification on this. You mentioned you have air data for Building 771?

DR. ULSH: That is correct.

DR. MELIUS: Is it related to the same time period and same processing that was going on?

DR. ULSH: It's related to the same time period. We pulled the -- the air data for Building 71, Room -- I can't remember if it was

14 or 114, but it's the room where they received the -- the uranyl -- uranyl nitrate solution for the time of the thorium strikes, and so we have that available. We don't think that that's where it occurred, but we do have that available.

In terms of was it related to the process involved here, it's just like the data that we have in Building 81 in that it is the -- the results from the air samplers that were in that room. And the approach that we have taken with the data that we have is that we will take the highest of those air samples. And you know, should -- should new information come up to suggest that it was actually in 71 -- I don't believe that's going to happen, but should that happen, we would take the same approach in Building 71 with that air data.

DR. MELIUS: Has the -- this is a question for Mark. Has the working group seen this air data? And evaluated -- I'm just --

MR. GRIFFON: Yeah, we -- we've seen data for Building 81, so --

DR. MELIUS: I'm asking for 71.

MR. GRIFFON: No, no, no, we haven't seen that

--

DR. MELIUS: Okay.

MR. GRIFFON: -- no.

MS. MUNN: Didn't need to, didn't think it was there.

UNIDENTIFIED: (Off microphone) (Unintelligible) 149 771.

DR. ULSH: Okay. Dennis, right? Dennis just told me that it's --

UNIDENTIFIED: Room 149.

DR. ULSH: -- Room 149.

DR. MELIUS: Okay. And is that data available on the O drive?

DR. ULSH: No.

DR. MELIUS: Okay.

DR. ULSH: Not at the moment, but we can certainly make it available on the O drive.

DR. MELIUS: Okay. Okay, thanks.

DR. ZIEMER: Additional question, Jim?

DR. MELIUS: No, not on that issue.

DR. ZIEMER: Other Board members? Questions for clarification?

DR. MELIUS: I -- Brant, before you get down then, I have a separate issue, just briefly. You quoted from the NR-- NDR-- NRDP, NDRP

(unintelligible) --

DR. ULSH: NDRP.

DR. MELIUS: -- one of those reports yesterday. I got a copy of the report, don't find any mention of EEOICPA in it. I -- I can't recall if you were quoting from the report or from a transcript, and I guess I was looking for the reference, and if -- ask --

DR. ULSH: Okay, when you say "the report," are you asking about the NDRP protocol, or something else?

DR. MELIUS: Well, I got "a report" --

DR. ULSH: Okay.

DR. MELIUS: -- "the report" -- hang on, I'm trying to find the...

(Pause)

DR. ROESSLER: I think you quoted from the report of the Advisory Committee.

DR. ULSH: Yeah, the first -- I --

DR. ROESSLER: Report itself.

DR. ULSH: I presented two quotes. The first one recommended -- my loose paraphrase here -- recommended that the NDRP results be substituted for the dose of record. That came from the final recommendations of the NDRP.

DR. MELIUS: Okay, so that's -- that's -- I have -- what I have is the protocol report.

DR. ULSH: Okay. The protocol is a technical document that the Scientific Advisory Committee recommended be prepared by the scientific staff of the NDRP.

DR. MELIUS: Okay.

DR. ULSH: So that's not a -- an Advisory Committee product that you're looking at.

DR. MELIUS: Okay.

DR. ULSH: So the first quote about using the NDRP results as the dose of record came from the final recommendations of the NDRP Scientific Advisory Committee. The second quote about the NDRP results forming a reliable basis for dose reconstruction under EEOICPA came from one of the meeting minutes of, you know, a meeting just like this one where the Scientific Advisory Committee got together and they issued minutes.

DR. MELIUS: Uh-huh.

DR. ULSH: And that happened sometime after 2000. I don't know off the top of my head exactly which one, but I would be happy to provide those minutes to you.

DR. MELIUS: Could you provide them to me this morning? I just asked, I'm not --
MR. GRIFFON: We -- we have -- the workgroup has those. I have those with me. I -- I can probably --
DR. MELIUS: Okay.
MR. GRIFFON: Yeah.
DR. MELIUS: Okay, thank you.
DR. ULSH: Thank you, Mark. I know they're sitting on my desk in my office in Cincinnati, but that doesn't do us much good here.
DR. ZIEMER: Other questions? Jim, did you have a follow-up or --
DR. MELIUS: No, not right now.
DR. ZIEMER: I guess, Brant, you can stay there, too. Maybe you can help with this, or I'll ask Mark. Mark, yesterday in your presentation you had a slide that is called additional issues with regard to neutron approach, and you discussed buildings where neutron work was done and also the issue of when NTA film was or was no longer used. Do -- do we have any more definitive information on either of those? How well do we know where neutron work occurred, and number two, when --

do we know now when use of NTA film was terminated at Rocky?

DR. ULSH: Do you want me to field that, Mark, or do you want to -- okay.

The first question, what buildings were -- were jobs performed that presented significant neutron exposure potential. Yes, we do know that. It was the plutonium processing buildings, and there are several -- 771, 776 --

DR. ZIEMER: I don't need all the numbers --

DR. ULSH: Okay, there's a lot of them.

DR. ZIEMER: -- I just (unintelligible) we know what buildings they were.

DR. ULSH: Yes, we do. There -- in addition, there was the critical mass laboratory, which was Building 88--

UNIDENTIFIED: (From the audience) 886.

DR. ULSH: Thank you -- 886. And that was a building that would have presented neutron potential.

Now yesterday I believe Mark asked about these in situ experiments, and I described those yesterday -- you know, to determine safe storage conditions for ur-- uranium parts and plutonium parts. Those experiments were

performed in the 1950s by two individuals -- I know their names -- and they were the individuals that were responsible for nuclear criticality safety for the entire plant in the 1950s. And so I checked to see whether or not they were monitored for neutrons in the '50s, and both of them were.

MR. GRIFFON: I -- I should say all the -- all the workgroup has confirmed to this point is that the -- those sub-critical experiments were done in that facility. I mean that's all I -- I heard Brant's response to this yesterday, but we haven't seen that information necessarily. We've just heard what you've heard -- what the rest of the Board has heard, so...

DR. ULSH: Yeah, this was a late-breaking --

MR. GRIFFON: Yeah.

DR. ULSH: -- question --

MR. GRIFFON: Yeah.

DR. ULSH: -- that came up, but...

DR. ZIEMER: And what did you say about the NTA film?

DR. ULSH: Oh, yeah, right, the NTA film and when they phased it out. They transitioned from NTA film to neutron TLDs, and that

transition occurred in 1970. Now there was some confusion late in the process here because a couple of reports indicated maybe some different dates, and I think that confusion stems from the fact that the badges that they used at the time had the capability to insert neutron films, but they didn't -- there's no indication that they did that after 1970, so 1970 was the transition year from film to TLDs.

MR. GRIFFON: TLD.

DR. ULSH: Uh-huh.

DR. ZIEMER: And what was the -- what was the TLD system for neutrons? Was this one that used a -- moderated the neutrons and then detected the thermals or do --

DR. ULSH: Well, I don't know off the top of my head, Dr. Ziemer, what -- what the TLD system was that came in.

MR. GRIFFON: I thought it was lithium 6/7 combination --

DR. ULSH: Sounds right.

MR. GRIFFON: -- system, yeah, yeah.

DR. ULSH: That sounds right, but I --

MR. GRIFFON: I'm pretty sure of that.

DR. ULSH: -- can't say definitively.

MR. GRIFFON: Yeah. And then they had an algorithm --

DR. ZIEMER: Okay, so --

MR. GRIFFON: -- to determine --

DR. ZIEMER: Yeah.

MR. GRIFFON: -- you know, yeah.

DR. ZIEMER: Right, uh-huh. So this would be a -- what, a lithium fluoride enriched in lithium-6 and one in lithium-7 --

MR. GRIFFON: One in 7, yeah.

DR. ZIEMER: -- and you do the differencing.

MR. GRIFFON: Right. Well, it -- maybe not just the -- it's a little more complicated --

DR. ZIEMER: Oh, yeah.

MR. GRIFFON: -- an algorithm, but yeah --

DR. ZIEMER: Right, right.

MR. GRIFFON: -- yeah, that's the sense, yeah.

DR. ZIEMER: Right. Okay. Other questions?

DR. WADE: Could I do a quick line check? We had dif-- complaints of difficulties, now I'm getting the high sign. Are things okay out there? Can you hear me now clearly?

MR. STAUDT: Lew, you're pretty good, but there's a tremendous amount of noise on this line and pulsing and clicks and scrapes, it --

it's terrible.

DR. WADE: Is this still -- that is still the case now?

MR. STAUDT: No, when you speak, you're pretty clear, but as soon as you get off the line and it opens up for everybody else, it's very noisy.

DR. WADE: Okay, let me try Brant now. Brant, speak.

DR. ULSH: Okay, is -- can you hear me clearly or --

MR. STAUDT: You're good.

DR. ULSH: Oh, okay.

UNIDENTIFIED: I don't hear the noise anymore. Either someone dropped off or muted their phone.

DR. ZIEMER: Okay, thank you.

DR. WADE: We believe that the problem was someone had a line open, was typing and hadn't muted the phone. The -- the technical person here feels now the problem is resolved. Again, David, call me immediately if you have a problem.

DR. LOCKEY: Lew I would suggest that -- and Paul, everybody speak directly into your

microphone, too.

DR. WADE: Okay. Little bit of discipline on our side then, everybody directly into the microphone, and we'll keep working at this. And again, if we need to, the next solution is ev-- we ask everybody to call back in, but at this point I don't think that's necessary so let's proceed then. Again, everyone real close to the microphone.

DR. ZIEMER: Okay. Further questions or comments?

(No responses)

Okay. Thank you, Brant.

ROCKY FLATS PETITIONERS' PRESENTATION

DR. WADE: Petitioners.

DR. ZIEMER: Thank you, Mark. I think we'll proceed to hear now from the petitioners, and let me turn the mike over to Jennifer Thompson. And Jennifer, you have others who are going to participate with you? Is there a debate as to who's going to lead off here?

MS. THOMPSON: (Off microphone) lead off (unintelligible).

(On microphone) Good morning to the Board and thank you again for the opportunity to speak to

you today and present some additional information on behalf of the petition. I would like at this point to introduce Anthony DeMaiori, former president of the United Steel Workers of America and petitioner. If you recall, he's been out of town for many months and is back with us, and he's going to serve as the moderator for the rest of this session for us. Thank you.

MR. DEMAIORI: Thank you, members of the Board, for granting us this opportunity to present to you today. Right now I'd like to call -- call our distinguished Congressman, Bob Beauprez. Congressman?

CONGRESSMAN BEAUPREZ: It's really an honor to be with you this morning, and I think especially appropriate given the setting and the fact that we're really talking about a generation of patriots who helped us win a most important war. I'd like to just begin our part of the presentation, if everyone would please rise, and we'll do the pledge of allegiance: I pledge allegiance to the flag of the United States of America, and to the republic for which it stands, one nation under God,

indivisible, with liberty and justice for all. Thank you. I'll be back up. Tony, you going to take over once again?

MR. DEMAIORI: I'd like to call up Jennifer Thompson, spokesperson for the petition. Jennifer.

(Pause)

MS. THOMPSON: Good morning again to the Board and thank you. We're going to kind of go back and forth this morning and I apologize if it's not as smooth -- I'm not a techno—techno-wizard, so we'll try to make it go as smooth as possible.

Initially I want to say thank you to the entire Board for the time and dedication for your service on behalf of our workers. We greatly appreciate it. And especially I want to thank Mark Griffon and the entire working group who have spent many, many hours on this particular topic.

I would also like to thank Terrie Barrie -- Terrie Barrie and Laura Schultz and others, Judy Padilla, folks that have worked countless -- countless hours on behalf of our workers on a volunteer basis. Our workers appreciate it

and we greatly appreciate their dedication.
I also want to thank our Colorado Congressional delegation, and the Governor and Lieutenant Governor of our great state, who in unprecedent (sic) partisan support have urged the Board to approve our petition today.
I also want to thank the 15 Senators, including two Presidential hopefuls, who are calling for Congressional hearings to investigate the corruption of process and administration of the Energy Employees Occupational Illness Compensation Program Act.
I also want to thank the *Rocky Mountain News* for their unrelenting coverage of this important issue.
And most importantly, I want to thank the Rocky Flats workers, our workers, our friends, our family, who have toiled with equal dedication to first make this world safe for democracy and then diligently worked themselves out of their jobs and performing the monumental environmental cleanup and closure of the Rocky Flats site.
I would like to take a moment now to pause in thanks to our workers, those that are sick,

those that may one day become sick, and most importantly, the 67 workers who would have ultimately been approved for compensation but died waiting. May no more workers have to die while awaiting their claims to be processed.

(Pause)

Thank you. Oh, look, it works. Okay. Oops, my slides are out of order.

(Pause)

Okay, I wanted to show those photos to remind everybody of why we are here, and that is for our sick workers, for their surviving spouses in particular, who have an extremely difficult time getting through the process in terms of an individual claimant because they simply don't have the knowledge or information. If NIOSH is having a hard time determining which room numbers the strikes occurred in or what buildings they occurred in, imagine the difficulty of a surviving spouse in determining what buildings their -- their husband or their wife worked in during their 30 years of employment at -- at Rocky Flats. So we're here for them, the workers, the spouses, and we're here because we still believe in our hearts

that justice for all is the right answer today. That's the reason we wanted to begin today with the pledge of allegiance is to remind everybody what this country is about, and that is about justice for all.

Our workers should not have to fight for their lives and fight with the government at the same time in terms of getting claims compensated through this process. They deserve better than that.

Last month the Advisory Board took preliminary actions to approve SEC status for three small carved-out classes. You all know them well, 1952 to '58; the neutrons '59 through '70; and thorium. And every indication to us has been that the Board is prepared today to vote to approve only these narrow classes.

We are here to continue to press SEC status for the entire class of Rocky Flats hands-on workers. And again, the pledge you heard ended in "justice for all" and that's what we ask you to do today is to give justice to all of our workers.

NIOSH is very good about citing a lot of statistics -- 300,000 internal records, 400,000

this, 80,000 lung counts. There's some statistics they won't cite so prominently or proudly -- 742, the average number of days it takes a claim to be processed resulting in a positive worker ruling; 67, the number of workers who were going to be approved but died awaiting the ruling; 70, the percentage of workers with cancer that have been denied compensation; 33, the percentage of workers from 1964 to 1992 with missing data in their records.

Oh, well, I guess we have a little alignment issue there, but that's okay. You guys have seen this before. Most of the stuff at the top you've definitely seen before. This is the time line details for this process. I just want to remind everybody today we are on day 847 since the petition was submitted.

In 2000 the Energy Employees Occupational Illness Compensation Act was passed. It's been seven years. Some of our workers have been waiting seven years. And the other fact on this -- this slide that's important is that the NIOSH recommendation, which was a recommendation to deny the entire petition in

its entirety, was made on day 40 -- day 440 after receipt versus the amendment to the law in 2005 which required them to make that recommendation within 180 days of receipt. Now NIOSH in their rule said that we want to do it 180 days after certification, but even with their rules you can see at 315 days they missed it substantially.

Okay. To remind you what we were asked to do when we submitted our petition, and that was we were asked to prove that there was a class of Rocky Flats workers for whom it was not feasible to accurately estimate the radiation dose they received. We believe that we did that on the day we submitted the petition, and we believe that the law meant today. The law didn't mean government wait almost two and a half years and then deny the petition based on a new set of standards, new TIBs, new information that wasn't available at that time. The charter of the Advisory Board was to evaluate the petition, not to help the government fix the wrongs. We are very glad that the wrongs are being corrected, don't get us wrong -- there's a lot of wrongs there --

don't misunderstand. We're -- we're proud of the work that's been done to -- to make the dose reconstruction process better. We just feel that that is not what -- what was set out in the law originally, and we believe that our petition, on the day it was submitted, was valid; that obviously the Board and the working group has found many valid points in the petition, otherwise we wouldn't still be here 847 days later.

We believe that fundamentally from the beginning, some of NIOSH's basic assumptions were -- were very flawed; that their house is built on sand and not on science; that on April 7th, 2006 when they issued their evaluation report, they did an important and interesting thing. They determined that they were going to expand the class beyond the class that the petition was filed for to include everybody at Rocky Flats. And in doing so they said NIOSH determined that all employees -- all employees -- were similarly or identically exposed and therefore cannot be disaggregated from the union workers with respect to their work and exposures. They offered no scientific basis

for that conclusion they came to, and nothing can be further from the truth.

The union collective bargaining agreement that they've had at Rocky Flats clearly delineated what work was steel worker work and no one else was allowed to perform that work. In fact, you would get grieved if you did. The steel workers were the only ones who handled plutonium with their hands in the gloves that did chemical processing of plutonium. They were the hands-on workers. And so we believe that that statement is -- is grievously in error. They had significantly greater potential for inhalations and external doses than any other categories of workers.

Now NIOSH would have you believe that I was similarly exposed. I worked at Rocky Flats for 14 years and in the end I was a nuclear decommissioning project manager. Okay? I oversaw work. I went in the back areas and watched my crews work and -- and dressed out and wore a respirator. But I did not go inside tents with contaminated equipment and cut it up; the steel workers did. I did not put my hands in the gloves and remove plutonium

materials and holdup from glovebox systems; the steel workers did that work. So we believe that -- that from the beginning, their premises are fundamentally flawed and not backed up by any -- any facts.

There are limited exceptions where folks that were salaried people or other classifications that did receive substantial exposures, but those are the exception, not the rule. And those would be instances of fire response and cleanup, high dose vault work, and research and development efforts where scientists did put their hands in gloves and manipulate materials in research efforts. But those are isolated and easily separated from the rest of the work at the site.

And -- and -- and it's interesting that as late as 847 days we're still arguing about some fundamental facts about the history of buildings at Rocky Flats, particularly Building 881. I -- I did a quick internet search a long time ago -- and by the way, our petition pointed out that there was plutonium in 881 -- and in the historic American engineering record itself cites the fact that beginning in 1960

and until 1977 that they did chemical recovery operations on site returns that included plutonium processing.

And -- and it's interesting that NIOSH uses the term nuisance plutonium. When they did the cleanup of Building 881 they found extensive contamination -- plutonium contamination in the ducts and throughout the building. What's also interesting is if this was in fact just nuisan- - nuisance plutonium; i.e., just like little bit of contamination that you'd brush off your shoulder or something like that, then -- then it wouldn't have been necessary for them to put up an entire evaporation, calcination and drying process for that and then take it to another building to recover the plutonium. There was enough plutonium there that they wanted to recover it, so you're not talking about just a small amount of isolated contamination. They had plutonium in that building.

And we think this draws the fundamental question of NIOSH's ability to recon--create the history of buildings and to not leap to the easy answers all the time that's convenient and

fits their models. The assertion that two people single-handedly conducted critical mass testing is -- is absolutely absurd, given -- given the requirements, the safety requirements, the building requirements at that facility, two people couldn't do almost anything. It took 14 people to change a light bulb in a criticality controlled area, so you think that two people could really go into the facility, take material out, put it together and -- running the risk that it could go critical, without an -- a support staff, no RCTs, no hands-on workers, no nothing? Two people may have been in charge of those criticality experience (sic), they may have been project managers like me, but I didn't single-handedly run the projects that I did. I had dozens of workers doing that. Okay? So that's ridiculous. I mean -- so it's -- it's shocking that 847 days later that we're still discussing things so fundamental as whether or not there was plutonium in Building 881. And I think that just draws into question the ability, particularly that lots of the models rely a lot on what activities were in what

buildings, whether there were neutrons or not, and then where the workers actually were at any given point in time to reconstruct their dose. I find this very disturbing.

Thank you. She got it to work.

The Neutron Dose Reconstruction Project, as -- as you all recognize, is -- is another area that's -- that's disturbing. After 847 days, why is this still an outstanding issue? Why are they now just pulling another method or another model out at the last minute? Why again were we not provided the report that -- that NIOSH discussed yesterday, and it appeared that many on the Board had not seen this information, either. And -- and now we're going to make a -- a rush decision after 847 days. I mean I -- I don't believe the Board has any other choice but to approve neutron exposures from '59 to '70 just based on the fact of this last-minute maneuvering. I think that it would be very insulting to me if I were a Board member to -- to have information discussed that I hadn't been privy to prior to the meeting.

In addition, in that conversation there were

some shameless misrepresentations. The 1969 fire in Building 776, when NIOSH implied that following the fire the workers were sitting in the cafeteria and so they weren't getting any dose. Hello, following the fire the workers were cleaning up from the fire getting huge doses. Okay?

In 1970 there was a strike. Okay, yeah, there was a strike, 91 days. However, it's interesting that the site still met every single one of its production schedules for 1970, so what do you think that meant? That meant that when the workers came back from strike, they worked a lot of overtime, a lot of extra hours and got a lot of exposure, not less exposure, the same exposure they would have gotten if they'd been working those 91 days. So it's just very frustrating to hear those kinds of statements and -- and that they're asserted as factual is -- is really frustrating. If -- if the NDRP works, as NIOSH asserts -- they put those two wonderful quotes up on the board and said oh, yeah, it's all great. It was the model, it's wonderful, we should use it. Okay. Well, if that's true,

then why did they come up with another method? If that's true and they really believe that true -- is true, they should have the integrity and stick behind it and prove to the Board that it does work, not come up with another Band-aid or another method.

We believe that there's substantial process issues, and we believe the petition was valid on the day it was submitted. Ultimately if -- if we end up in appeal for this process, we have to discuss two things, the science and the process. And in terms of the process, we believe that currently we're out of bounds of the process that the Board was chartered to evaluate and not fix. And that's not really to lay blame on the -- on the Board. We understand your -- your desire, your goal to fix what's wrong and -- and bless you for that. But just in terms of this process, it's not what was envisioned.

Petition notification and non-timely distribution of reports, conflict of interest issues that we've discussed before and I won't go -- go over again, that the process has in effect been tainted by political and budgetary

influences. You can't help but, in this environment, have that affect the process. The 180-day requirement was not met by NIOSH; that new science is used as the basis for denial -- I found it very interesting that when NIOSH issued its report on April 7th of 2006 they cited a list of 11 technical information basis documents that they based their report on, and eight of the 11 were written after -- or approved after the petition was filed. So if you look at that TIB-006, X-ray procedures, that's really not a crucial one, but 19 coworker data is, 20 coworker data for external data is; 23, assignment of missed neutron doses is; 27, supplemental external dose information is; 33, applications of internal doses is important; 50, use of the NDRP document stuff, that's very important; and then -- though it's not on there because it came out not till February of 2007 is TIB-49, which is the high-fired oxides TIB. So -- so the question is, on the day the petition was submitted, could they accurately reconstruct dose, and I believe the answer is no. Otherwise they would not have gone through the trouble of creating all these

new technical information basis document, changing methods, coming up with new assumptions.

There's a couple of interesting things when asking questions. We -- we found on the SC&A report where it said that from '64 to '92 33 percent of workers had air -- had missing data, and -- and when I asked NIOSH about that, they -- they said nor did we find that 33 percent had missing data. The records were complete. So I'm a little confused here because as SC&A is telling me there was missing data and NIOSH is telling me the worker -- the records were complete.

You know, and again, quantity is not quality. I mean you keep hearing from NIOSH the numbers of this and the numbers of that and how many they have. The fact that records are present is unrefutable. Yes, records exist at Rocky Flats. The question is the accuracy of those records and being able to reconstruct dose based on a moving site population, based on unknowns or -- or historically people not remembering what happened where, that -- that's where you get into a challenge. SC&A said

there are large gaps in internal dose data, notably from 1964 to 1992, and SC&A said NIOSH has not demonstrated its ability to fill existing gap datas -- gaps for external dose. The SC&A report on data completeness looked at 32 cases and then also at 20 non-random cases, and in the report it says randomly selected cases allow a picture to be developed about the general extent of the gaps in the Rocky Flats workers' records. But then NIOSH told me we are not extrapolating from 32 random samples to the entire Rocky Flats population. Are we extrapolating or are we not?

Another interesting round of questioning was the petitioner asked was it possible for NIOSH to accurately reconstruct dose for individuals with high-fired oxide exposures prior to changing the particle size and prior to the new Technical Information Bulletin -- petitioner said that. NIOSH on June 5th said yes, so they said yeah, on February 15, 2005 it was possible for us to accurately reconstruct dose.

Okay. Then they went on to say all cases that were denied compensation using the default ICRP solubility models are currently being re-

evaluated to determine if they would become compensable when the methods described in TIB-49 are used. So now I'm confused again.

In a letter they say the prior dose reconstruction POC calculation on your claim is now invalid -- starting to sound a lot like they couldn't reconstruct dose for high-fired oxides on the day the petition was submitted. There's potential that they're going to have to do 3,000 re-evaluations or redo dose reconstruction for 3,000 people. To me that sounds a lot like they couldn't reconstruct dose accurately.

We believe that there are some remaining issues for high-fired oxides. Particle size we still believe is one. NIOSH decided on a particle size of one, and in response to our questions cited one study in 1967 as the basis for selection of that particle size. We have documentation for particle size as small as 0.12 -- now I think there's a -- a measurement difference there. I think the .12 is one -- one type of measurement and the 1.0 is another, so I think the .12 is actually like .36, so it's not as bad as it looks on that slide, but

I'm not a scientist so I don't quite understand the difference between AMAD and MMD, but I'm sure you guys get that.

I believe that retention in the lungs is not clearly known and -- but what -- what I mean by that is you don't know how long it stays in the lungs. We haven't done studies to determine how long is that material staying in the lungs and what does that do in terms of -- of how it's metabolized and distributed to the rest of the body.

NIOSH dismissed the ceramicized particle issue with no real scientific consideration, even if shielding -- they conclude that shielding would not be 100 percent. Okay, so even if it's not 100 percent, does it -- does it allow your lung count to -- to think that there's less plutonium in your lungs. Okay. You can see it, you know it's there, but do you know how much is there.

We found it interesting -- this word "plausible" that -- that people seem to use. I'm not sure if -- if they really recognize the connotations of it, but SC&A in its report said that it was plausible that if you use TIB-49

you could do dose reconstruction, and -- and that struck me as odd so I looked up the word plausible, and plausible means seemingly true, often implying disbelief; applies to that which at first glance appears to be true, but which would may or not -- may or may not be so. So what that tells me is we think it might work, but we're not really sure. That's really not good enough when you have people that are dying of cancer.

We think there's still a lot of questions about super class Y material that's not known. In 2003 the PNNL said the precise nature of super class Y material is not known and -- and the body of research data created from 2003 to present is almost minuscule. There's no new research or new science on this topic, so I don't know how you go from a point in time where the precise nature is unknown to a point in time you think that you can accurately apply a method to reconstruct dose. Things like what temperature is necessary to create a high-fired oxide. Okay? You know, NIOSH keeps referencing the fires, but there were a lot of thermal processes at Rocky Flats that created

high-fired oxides, and those are being ignored. What particle size is generated from high-fired processes and plutonium fires? Again, they have one datapoint.

How long does a high-fired oxide particle stay in the lungs in its insoluble form before becoming soluble and making its way into the urine stream of an affected worker or to their bones or to other places in their body? How does the body metabolize high-fired oxides? How do you know what percent of a worker's plutonium exposure came from high-fired versus soluble forms? How do you know what type is in their lungs? Do particles resulting from high-fired processes and fires have a ceramicized nature? What research was done on this?

We believe there's several unresolved issues still at this point, and for that reason, again, we are asking the Board to vote on the petition in its entirety and grant justice to all of the Rocky Flats workers. Accuracy of monitoring of external exposure to the upper torso, head and back when the dosimeter's blocked or pointed in the opposite direction; movement of personnel across the site, accurate

records do not exist on where people were for what periods of time. You can't go on storage board location. You also can't go on people's memories. They just don't remember, and if they're dead their spouses definitely don't know where they were for what years.

Timeliness, 742 days to process a claim is definitely a timely process.

Neutron doses 1952 to 1970, you all know that issue better than I do.

Missing records, large gaps in internal dose; the adequacy of the coworker model which again relies a lot on location and -- and areas where neutrons were. The valid-- validity of dose records for specific workers working in high dose rate jobs, you heard workers testify that they thought sometimes the zeroes meant that they had burnt out on their dosimeters.

The new methods, the models have not been sufficiently tested or proven. There's lack of independent verification in the NDRP data.

The high-fired oxides issue, and failure for NIOSH to understand basic building history and processes and extent of contaminants, and the willingness of NIOSH to disregard the truth or

manipulate it to meet their needs. There's no effort made to -- to determine the effects of the radioactive cocktail where chemicals and radioactive materials are exposed and -- and metabolized differently in the body.

You know, I never thought I would quote Shelby Hallmark because of some of the other things he said, but this is something that he said that makes sense now. He said does it make any sense to continue to defend a dose reconstruction process that will just get more complicated and attenuated. I think in the last two years and four months or 847 days the dose reconstruction process for Rocky Flats workers has definitely become more complicated and attenuated. With all the new models and all the new TIBs, it's becoming more difficult, not less difficult to reconstruct dose.

We believe that what has happened over the last 847 days dictates that the Board should approve the SEC petition for Rocky Flats in its entirety. Just the fact that it has been more than two years alone and significant factors are still unresolved means that our petition is valid and should be approved. The fact that

the site profile was significantly re-- changed and reviewed, that nine new TIBs were added, the particle size for high-fired oxide was changed, that the new coworker models were developed, adjustment factors, other models were tweaked, that the new methodology just yesterday unveiled for -- for NDRP reconstruction, and that -- that the PERs mandate that now NIOSH will have to do -- redo thousands of dose reconstructions based on these changes. To me that means you couldn't do it accurately before, otherwise why are you redoing it? For goodness sakes, if you could do it accurately before, please don't spend my taxpayer dollar redoing it.

The Board has no legal or moral choice but to approve this petition in its entirety today, and that's what we ask you to do. Please grant justice to all of our workers. Thank you.

(Pause)

MR. DEMAIORI: At this time I'd like to introduce Mr. Bill Brady, a law professor at the University of Denver's Sturm College of Law, who teaches advanced law classes in hazardous waste and toxic torts and represents

cancer victims and others who have been exposed to toxics -- toxic substances. Bill.

MR. BRADY: Good morning, ladies and gentlemen. I spoke to you briefly last time for about -- a little less than 10 minutes. With your indulgence, I'm going to take just a little bit longer today. And again, remember I'm a lawyer, and when a lawyer says a little bit longer, it sometimes might be a lot longer than most of you might anticipate.

I -- I represent Charlie Wolfe, who you heard from yesterday. Charlie, you may recall, was the individual in the blue-green shirt who had the very severe scar on his head, who -- after fighting for four and a half years -- finally had his claim approved this past March. We started representing Charlie in October and refiled petition under Part E and were very fortunately successful in getting him benefits under Part E of the EEOICPA.

We also learned yesterday afternoon that based upon a second cancer that had surfaced in Charlie, a bone -- a bone marrow cancer known as myelodysplasia, we had refiled for Part B benefits because he had been denied under Part

B several times. And we felt that with the new cancer and with both -- not only Charlie's doctor but the district medical consultant in Cleveland stating that he thought that perhaps the myelodysplasia qualified as a new primary cancer, that we might be able to obtain Part B benefits as well for Charlie. And we found out yesterday afternoon that he was denied Part B benefits based upon the fact that the dose reconstruction was still less than 50 percent. So I really don't know how to explain that to a client, to tell them that well, yeah, you got your Part E benefits and you're going to get your -- fortunately he's going to get his medical expenses paid under Part E for his glioblastoma multiform brain cancer, as well as his myelodysplasia. But for some reason NIOSH still doesn't believe that he's -- he's had a sufficient radiation dosage to justify Part B benefits, so it's very, very troubling and perplexing.

I am here to talk a little bit more about Charlie's case again by way of example. I am not going to repeat myself, but I did want to share some of the evidence that we presented at

his hearing, which I think may be useful in your deliberations.

We have a plutonium working group report that was done by the Department of Energy in November of 1994 and the report is on environmental safety and health vulnerabilities associated with the Department's plutonium storage program. And there are five pages that are devoted to Rocky Flats. I don't know if this is part of the record. I haven't been informed that it is and I -- I don't believe that it is, so I'd like to take the opportunity just to summarize some portions of this report for you, which I think provide some very, very interesting facts that you may not heretofore have been privilege to.

This report was involved -- involved, excuse me, an 18-member working group assessment team and a 31-member site assessment team, and they conducted a Rocky Flats vulnerability assessment. This is an initial stakeholder involvement plan developed by the Department of Energy for Rocky Flats. A focus group of interested stakeholders was formed to participate in the assessment. The group also

included the Colorado Department of Health, the Environmental Protection Agency, an emergency planning committee and local public interest organizations.

The findings are, as you might imagine, rather -- rather stark. The report says, in part, in December, 1989 the Secretary of Energy curtailed operations at Rocky Flats. Subsequently Rocky Flats plutonium operations were shut down. A large inventory of various forms of plutonium was placed into indeterminate storage. There were no formal plans for a safe and orderly shutdown of operations. Storage was not expected to be long-term.

Reactive and corrosive plutonium materials and solutions are causing deterioration of packaging and containers, generating combustible gases and pressurizing packages. Unless corrective action is taken, these packages will eventually breach and could cause exposure of workers and the public, and environmental contamination.

Rocky Flats has many of the most significant plutonium vulnerabilities in the entire DOE

complex. The exact magnitude of the problem is uncertain because of missed or incomplete inspections, records, and the difficult of ascertaining the status of degrading materials and packaging. In decreasing order of priority, the most significant vulnerabilities of Rocky Flats are -- and then there's a listing of buildings that goes on for about three pages, describing the number of plastic containers that are cracking and leaking, problems with the ventilation system, leaking gloveboxes, packages of plutonium peroxide cake which are chemically hazardous and unstable, 55-gallon drums that are leaking, and a number of other instances which you've heard over the last few days from many of the people who have -- who have testified here.

Of particular interest I think are some of the statistics about the vast numbers of storage containers, over 8,000 drums containing waste and plutonium scrap residues are stored throughout all buildings. These materials increase general area radiation levels and the amount of radioactive material available for release in the event of a fire or an explosion.

The drums add to the combustible loading in all facilities.

The ventilation ducts, gloveboxes and supporting equipment have unknown quantities of plutonium holdup, which routinely adds to building radiation levels and worker exposures. Plutonium holdup is released to the environment during accidents.

Because of the storage of large numbers of packages in vaults, some vault radiation levels current exceed 100 millirems per hour. This is due to gamma radiation caused by americium buildup and to neutron radiation from mixtures of plutonium and lighter elements.

The report goes on to talk about solution vulnerabilities within the piping and equipment in a number of the buildings, and the fact that these workers were routinely exposed.

And then the report says records show that the workers have frequently become contaminated in Rocky Flats facilities. Out of service gloveboxes, tanks and piping systems in nearly all buildings contain internal radioactive contamination. Buildings 371, 707, 771 and 776 have rooms with contamination in work areas on

the external surfaces of gloveboxes, outside the gloveboxes. In some areas an application of paint or elastomer compound has been used to cover up the contamination. However, these substances peel or chip from wear or aging, re-exposing the contaminants.

It's an extraordinary document and -- and one that if you haven't -- haven't seen, I think deserves -- deserves some study.

I'm also -- also wanted to point out a couple of reports that I've reviewed and which we brought to the attention of the hearing officer during Charlie's hearing, some reports that were put together by Dr. Jim Ruttenber of the University of Colorado Health Sciences Center. You might remember Charlie referenced Dr. Ruttenber yesterday, and his reports specifically deal with Rocky Flats and I think are -- are telling.

One is a very recent report, submitted in draft form, entitled "Risk Estimates of Brain Tumors and Ionizing Radiation", and Dr. Ruttenber -- the conclusion of the report -- I won't go through the detail in the report, but the conclusion says there is strong evidence for a

causal relationship between exposure to ionizing radiation and brain tumors. There is also strong evidence for an elevated risk for brain tumors among nuclear workers, particularly those involved in the processing of plutonium. There is evidence that the risk is likely to be associated with external penetrating radiation. However, the high estimates of risk per unit dose for workers in plutonium facilities needs much further exploration.

The doctor explained, for example, that some of the bioassays that were done on workers were inadequate to show the extent of the plutonium contamination that had been either inhaled or ingested by some of the workers. The urinalysis, the lung counts, often were not reliable.

He states in his report none of the studies of brain tumors among plutonium workers have explored the extent to which neutron exposures have been accounted for in estimates of tonal -- total penetrating radiation dose, or whether neutron exposure might have a unique biological effect on the tissues of the brain. The

extremely high risk per unit dose estimates from Los Alamos and Sellafield could be due to a large but unascertained neutron dose component from the fluorination of plutonium produced by alpha reactions with fluorene, or to unique biological effects of neutrons in the brain, or both.

Given the possibility that the current IREP uncertainty distributions for the risk per unit dose for cancers of the central nervous system are underestimates of the true risk, it makes good sense to explore dose response relations for brain tumors among nuclear workers, and among plutonium workers in particular. Data from the Rocky Flats cohort promises to be particularly useful as data for gamma radiation doses are available for all cohort members, and data for job titles and building locations which can be used to identify the workers with potential neutron exposure, as well as some estimates for neutron doses, are available for most of the current -- most of the -- excuse me, production worker cohort.

Given the likelihood that current IREP assigned share estimates are underestimated -- let me

read that again. Given the likelihood that current IREP assigned share estimates are underestimated for nuclear workers with brain tumors, it is prudent to replace the current IREP distribution with one that is more favorable to claimants. It is also fair to reopen previously dismissed cases of brain tumors for claimants under the Energy Employees Occupational Illness Compensation Program Act. The issue of brain tumor risk for nuclear workers underscores the need for continued -- continued epidem-- epidemiolo-- epidemiological research in cohorts of nuclear workers worldwide. Data from this research is critical for the fair compensation for past U.S. workers, and for the protection of nuclear workers now and in the future.

Dr. Ruttenber has also issued a second report entitled "The Mortality of Plutonium Workers at the Rocky Flats Nuclear Weapons Plant" -- we also submitted this at Charlie's Part E hearing. And I'll just very briefly read a couple of quick sentences from the abstract of the report.

Studies of plutonium workers have identified

elevated risks for cancers at a number of sites, including lung, liver and bone, and other connective tissue. Previous studies of U.S. plutonium workers have suggested increased brain cancer mortality.

Methods. We calculited -- we calculated standardized mortality ratios for 16,258 Rocky Flats workers who produced plutonium components from 1952 to 1989, and a subcohort of 8,672 plutonium-exposed production workers.

We're not talking about 30 and 22 here, or 32 and 20.

The results. The standardized mortality ratios for malignancy of the brain were elevated and of statistical significance.

And then he goes on to conclude the elevated standardized mortality ratios for brain tumors extend previous findings for this cohort and indicate the need for a more detailed analysis of possible causes of brain cancer.

We also submitted some reports from S. Cohen & Associates, and they seem to be fairly critical of the dose reconstruction process at work. Specifically a letter of January 17th, 2005 to Mr. David Staudt at the Center for Disease

Control and Prevention from John Mauro of SC&A, and a couple of very interesting issues were raised about the -- the dose reconstruction process. On page 2 of this letter there is a very brief paragraph that I'd like to read, which states: Objective one, determine the degree to which procedures support a process that is expeditious and timely for dose reconstruction. Answer: A well-written procedure presents all required data in a logical, concise, unambiguous and prescriptive manner. Frequently SC&A found that poorly structured procedures sequestered the key information or guidance in the final section. This requires the dose reconstructor to read through voluminous and frequently irrelevant background information. An improved format would provide the essential guidance and data for dose reconstruction at the front of the procedure. Relevant background or technical support data would be more effective as addenda that the dose reconstructor could consult if needed.

Now this ties in with the next section that I wanted to read with you, which was objective

six on page 4.
Evaluate procedures for its ability to adequately account for the uncertainty of dose estimates. The input to the Interactive RadioEpidemiological Program of annual external doses as measured by weekly, monthly or quarterly assigned film or thermoluminescent dosimeters not only required an estimate of uncertainty for each individual dosimeter, but also considers the collective uncertainty of the annual dose that may correspond to as many as 52 dosimeters for a weekly exchange frequency. While all external dosimetry procedures reference the need to include uncertainty, only one guidance document attempts to explain how this is to be done. However, guidance in one document is inadequate and scientifically questionable as described below in the review of an implementation guide OCAS-IG-0001. The treatment of uncertainty pertaining to internal exposures as assessed by bioassay techniques is equally deficient. Again let me read that. The treatment of uncertainty pertaining to internal exposures as assessed by bioassay techniques is equally

deficient.
Objective 7, assess the scientific and technical quality of methods and guidance contained in procedures to ensure that they reflect the proper balance between current consensus, scientific methods and dose reconstruction efficiency. The seventh -- this is the answer now. The seventh and final review objective not only assessed the scientific credibility of procedural methods, but also the EEOICPA directive that the methods and procedures must achieve a balance between technical precision and dose reconstruction efficiency. SC&A's review of procedures identified a number of technical inaccuracies and errors. Many prompt a dose reconstructor to pursue levels of detail not reasonably obtainable. On a more subjective level, SC&A believes that currently select portions of the dose reconstruction process demand a high degree of sophistication and detail that goes well beyond the regulatory requirement of a reasonable dose estimate and comes at the expense of reducing process inefficiency.
Now having read that -- having understood Dr.

Ruttenber's concerns and having talked about what happened at Rocky Flats, I think it fairly quickly becomes obvious that there is a great deal of scientific uncertainty that surrounds this process of dose reconstruction.

There are other letters that we introduced, talking about reports, another report for Rocky Flats, a report of epidemiological analysis performed for Rocky Flats production workers employed between '52 and 1989 dated March 3rd, 2003, again performed by Dr. Ruttenber at the University of Colorado Health Sciences Center. And the report states the significant increase noted for unspecified nervous system neoplasms as well as the increase for brain and other central nervous system cancers, deserves further exploration since dosimetry models indicate that plutonium exposure deliver extremely small doses to the brain. Other agents such as gamma, photons, neutrons and chemical carcinogens should be considered as possible causes, both singly and in combination.

There is also another report in the *Federal Register* entitled "Guidelines for Determining

the Probability of Causation and Methods for Radiation Dose Reconstruction" and there is a section on rule-making and it states in the future NIOSH may make additional changes in IREP to address the differences in radiation-related cancer risk between Japanese atomic bomb survivors and employees involved in nuclear weapons productions. Some research has shown substantial differences in the risks for certain cancers such as brain cancer and multiple myeloma. The radiation-related risk of these cancers is significantly elevated among employees involved in nuclear weapons production, whereas it is not among the Japanese study population.

Again, criticism of the IREP technique being used in dose reconstruction.

I also wanted to reference very briefly a very short portion of testimony that was taken last April at your hearing out in southeast Denver at the Four Points Sheraton -- I was not present for that but I do have a copy of the transcript -- talking about the dose reconstruction process. And this is a very brief portion of the testimony from Dr. Ulsh,

and he says on page 53, we've got a large body of dosimetry records here, and this is the primary information that we use for dose reconstruction. He then goes on, on page 60, to talk about the basis for the petition and he says the next basis in the petition was that there are instances when it is not possible to link intakes to specific incidents. And the concern here -- if I can just present a hypothetical situation to you -- a worker's going along on a routine biomonitor -- bioassay program, let's say for plutonium. He gets a plutonium bioassay; it's negative. He gets another one a few months later; it's negative. He gets another one a few months later, positive. Well, then the question is where did that intake come from? Without having special bioassay results, if an incident is recognized at the time that it happens -- for instance, a glovebox fire -- what will typically occur is that special bioassay would be required. But in the absence of that -- I mean there are exposure scenarios where the worker wouldn't even know that he had been exposed. That has certainty -- that certainly occurred at Rocky

Flats and other places throughout the DOE complex. And so in some situations we agree with the petitioner that it's not always possible to link intakes that you observe in bioassay results back to specific incidents. It's helpful when we can do it, that is true. Now he goes on to explain that -- a method for taking that into account, which Dr. Ulsh states is approved by the International Commission on Radiological Protection. I wonder how long it's going to be before those standards change. The problem that we've got, ladies and gentlemen, is this issue of scientific uncertainty. And I am deeply distressed by -- by what I see as an air of benevolent arrogance in the scientific assessment process. I -- I don't think it's intentional. I think it's perhaps out of an unwillingness to admit that we simply don't know that which we think we should know. Examples abound throughout this process -- the dose reconstruction issues we've talked about, the issue of high-fired oxides, the so-called super S compounds, the reliability of measurements purporting to assess exposures and doses, the missing

records, the inaccurate records, the incomplete records.

As a law professor I'm not usually concerned about what my students don't know, because most of them will readily admit their ignorance. That's why they attend class. They read their assignments. They exhaustively research that which they don't know, until they are as certain as they can be -- as certain as the law will allow them to discern what they believe is the truth. Hopefully then justice will follow. But I'm deeply concerned about what my students think they know that just ain't so. In that case their analysis often turns out to be inaccurate, their advice unwise, and unfortunately clients will rely to their detriment on that advice. That approach I think forms the basis for this dangerous form of benevolent arrogance.

Now there's another answer, and it's an approach that stands in opposition to what I term as the benevolent arrogant approach, when we are faced with scientific uncertainty. And that approach is known in the law as the precautionary principle -- many of you may be

familiar with that term. The precautionary principle espouses a goal of preventing rather than merely reacting to harm. The principle incorporates issues of risk, of scientific uncertainty and cost that we're all familiar with. The application of the precautionary principle is triggered by the identification of a potentially serious or irreversible harm that could be averted by regulation. And of course here we have dying workers who have not received medical benefits in many cases. I can't think of a more serious or irreversible harm than those faced by the people that you've -- you've heard from.

The central feature of the precautionary principle is to encourage regulatory approval before the causal relationship between the activity and the harm can be fully proven. We see it with mad cow disease. This is a principle that has been embraced by the United States government in numerous treaties, the Rio treaty of 1994 first adopted this principle, and it is embo-- firmly embedded in many of our regulatory structures and especially the environmental area. The focus on serious and

irreversible harm is a willingness to regulate under conditions of uncertainty because of the seriousness of the risk, and the mandate to take action in advance of harm occurring are existing elements of this Special Exposure Cohort process. The Special Exposure Cohort process really is a form of law which embodies the precautionary principle.

Now assume for a moment that you are one of these unfortunate workers diagnosed with cancer. Can you honestly state, members of the Board, that knowing what you know now of the legitimate differences in studied expert opinions and the quality of the evidence before you, as well as the assumptions that are being based upon the lack of appropriate, competent, available evidence, that you'd be satisfied with the fairness of the dose reconstruction process at Rocky Flats if you had one of the cancers that these people who've testified before you have? Have you delegated the determination of whether or not dose reconstruction can be done with a reasonable degree of scientific certainty to scientists who just really aren't completely sure of the

process? Can you go home tonight confident that your decision to deny SEC status to workers stricken with cancer at Rocky Flats, treated each worker just like you'd want to be treated? If you were sitting out there in their place, based upon the doubts that you have about what you have seen, the evidence and the assumptions, would you want someone with your frame of mind making that decision for you?

We have a process in criminal law -- it's actually a Colorado jury instruction -- called reasonable doubt. It's a short instruction, and it says reasonable doubt means a doubt based upon reason and common sense which arises from a fair and rational consideration of all the evidence, or the lack of competent evidence, in the case. It is a doubt which is not a vague, speculative or imaginary doubt, but such a doubt as would cause reasonable people to hesitate to act in matters of importance to themselves.

Can you honestly state that you are giving each one of these workers the benefit of reasonable doubt? I think if you can't, you're not doing

your job.
Ultimately your determination and that of NIOSH and the Secretary of Human Health and Services (sic) will have to be able to withstand judicial scrutiny. Dr. Ulsh's opinions and assumptions, and those of others at NIOSH, will be microscopically dissected under the glare of cross-examination to see if they can pass the test of reliable scientific evidence, which many of you seem eager to adopt today.
Judicial review of final agency rule-making unfortunately is several years away, and you've already exceeded your allotted time for making a decision for far too long. It's tragic that many of the workers here won't ever know the final outcome. We implore you for the last time, please adopt the precautionary approach and pass the petition. Thank you.
MR. DEMAIORI: Next I'm going to introduce an old friend and colleague, somebody who brought me along in the union movement for several years. That's this individual had worked very hard in conjunction with several members of the old oil, chemical and atomic workers union who -- who merged into PACE and then finally the

steel workers. This is an individual that testified before Congress on the effects of low-level ionizing radiations, that's -- and worked very, very hard to get compensation for the beryllium workers and the plutonium workers at Rocky Flats. This individual is invested 30-plus years of experience with his time, his energy and his very life. That's -- the next person I'm going to introduce is the former president of Local 8031, Jerry Harden. Jerry.

MR. HARDEN: I don't like it when they clap before I give my presentation. Good morning. My name is Jerry Harden, as you've already heard. And I'm going to go through kind of a laundry list today because this appears to be my last attempt to convince you people the error of some of your ways. I have appeared -- this is the third time -- before most of you, and I -- I want to go through my laundry list, and if you have problems, I challenge you -- take me on, make me substantiate what I'm going to tell you 'cause if you don't, you're missing a chance. In fact, that's one element that's totally been missing from this whole process is a form of active dialogue where if there are

questions or challenges that they can be raised on the scene rather than having both groups sequestered where we do a hearsay, he said/she said thing, which we've all been victimized by. And I -- I'm appalled by this process, so you've got to know that. This is -- this is going to be a rock-throwing contest with me and I've got a big pile.

So going on with this, I was employed at Rocky Flats for 37 years. My man [identifying information redacted]. I carry a lifetime exposure of 36 rem. I was discovered as having a high lung count in 1988. Now you've heard testimony the last few days how this reconstruction has occurred and they've used bioassay data. Keep in mind, 1988 I was already an employee for over 20 years, and then all of a sudden I showed up at the two-dimensional lung counter and they said you've got high numbers. So I was very disturbed about it. In fact, I am today. You may see elements of that that still remain. And you know, I -- I think it shows the -- the fallibility of this so-called pseudo-science that we've been victimized by -- get out of the

way.
The other thing that you need to know is in my lengthy career there I was a radiation control technician. I also served three terms as the president of United Steel Workers of America, Local 8031, representing the production and maintenance workers at the Rocky Flats nuclear weapons plant uniquely.
When I hired early in 1967, the company didn't give us baseline analysis on radiation that we might have brought to the plant. That didn't occur till much later. In fact, it started to be more of a common practice after the big fire, the cataclysm of 1969.
The fire, to me, was a -- was an amazing event and we'll talk about that through my ranting and raving here this morning.
When I was hired I was issued a film badge which used photographic emulsion tablets or plates. And as you've heard in previous testimony, they went through thousands of these with a high quality control program in effect.
The truth of the matter is, they had one woman, [name redacted]*, that counted physically the neutron tracks on the film emulsion. Many of

those emulsions were in question. Neutrons, by the way, have been talked about generally but not specifically. We haven't talked about fast neutrons or slow neutrons. And I would use my experience in the 71 building, 771, in the 114 fluorinator -- and by the way, we had no radiation shielding of any consequence prior to about 1968. The neutron shielding was effected with a labyrinth type thing, or water walls later in some of the other areas. In the fluorinator in 114 of 771 building we -- we developed or produced a product called pink cake, which was one of the earlier steps in the reduction of plutonium as metal. The pink cake was screaming, according to our field survey instruments. In fact, in the bullpen or the labyrinth, I couldn't use an alpha field survey instrument. There was so much activity due to whatever energy that was, it would avalanche a normal Ludlum air proportional instrument. We had to bring whatever those products were outside in an area where we could isolate them -- and where we could try to protect ourselves, too, by the way, 'cause as many of you know, neutrons are

one of the hardest things imaginable to try to shield production workers from.

And so we hobbled along for many years, you know, with this pretense that we were being monitored for our radiation exposure. But I can assure you, if you were ever around pink cake with any of our instruments that we had, you'd -- you'd either think that there was a malfunction or some phenomenon that occurred, you know, out of the --the cosmos. And this was a normal environment.

Keep in mind that the contractors received bonuses for kgs of plutonium out the door, for units down the road -- to Burlington, Iowa or Pantex at Amarillo that took many of our components.

Heard stories about atomic bombs and weapons. That isn't totally accurate in my working man's knowledge. We made the spark plugs. It takes an atomic bomb to make a thermonuclear bomb, I've been told. And in the course of that a lot of the eggheads had a lot of different designs. And every time there'd be a new graduating class at -- at University of California or wherever they were hired, we'd

get some new designs. And amazingly, a lot of these things looked like deja vu all over again to me. But these things like the enhanced neutron thing that you heard about, well, every weapon that we ever made -- or component, kicked off neutrons.

Some of these unique ones for the Russian tanks were enhanced radiation devices where they were to be used as a tactical weapon, supposedly, due to the numerical superiority of the Russian tank force. That project was a hit and miss. Boy, they spent millions of dollars on equipment to try to shield the workers, and in most cases that equipment never performed as intended.

Now in the -- in the sequence here, coming down the line, a lot of these -- these situations were crimes of omission and convenience. Keep in mind, the contractor got bonuses -- kgs to the -- to the -- off the floor and units, that was our completed product, down the road.

We also received a lot of site returns. Those were -- were products that were viewed as being obsolete, or in some cases where they disintegrated to the point where apparently

they wouldn't perform as intended.
The reason I'm telling all of you this is because some of these things seem to have been conveniently omitted in some of the -- the presentations that I've been a part of. The other thing that's been omitted is some types of radiation. We haven't heard about radon. We had huge concentrations of radon in the subterranean concrete buildings -- 991 tunnel was a real beauty; 81 building, another one; 371, the new one, totally -- totally ignored. And the contractor conveniently disregarded radon exposure. And I can assure you that radon is a very serious thing. As many of you intellects know, the prime energy of the emission off of radon is very close to the prime emission off of plutonium.
There was a doctor -- maybe he's still alive, I haven't talked to him or read about him in many years -- that did work for the uranium miners in Grand Junction. Some of those men were dying like flies due to radon exposure, diesel fuel and diesel emissions, cigarette smoking, you name it. His name was Gene Sakamano*, and the reason I'm going to throw these names out

as we go is to hopefully give you some credibility. Even though I'm an ignorant fool, I want you to know that I'm paraphrasing some of these other people's findings, and hopefully that'll flesh out this thing as -- as we go along.

The other thing that has been totally ignored in my audience here is beta exposures. 883 building, we were a part of what they called the LIP* project, and this was an attempt by the government to remedy a boondoggle on the M-1 military tank. And we had over 100 tons of depleted uranium in residence. Now in the course of this production boondoggle, this uranium was decaying and creating oxide -- dirty, brown dust all over everything. In fact, it infiltrated our dosimetry badges where they actually had to have the workers put their badges in a sack in order to keep from cross-contaminating the -- the radiation detection process. I don't know if you're aware of it, but you need to be. Beta emissions have been ignored here -- again, in my -- my visits with you.

The other thing that has been totally ignored

through this process are tritium exposures -- haven't heard a word about it. Maybe you've talked about it in other sessions, but I haven't heard it here. The government spent over $100 million on property east of Indiana adjacent to the plant on land remediation processes due to tritium and some of our other effluents -- errant effluents. They even bought the rights of Great Western Reservoir, that was a water supply for the city of Broomfield until some sharpie said hey, you got tritium contamination in the -- in the -- in that reservoir. You need to know that. We had workers that were at the epicenter of these tritium projects. The contractor finally said oh, it was a problem of contaminated site returns and we didn't have a system to screen tritium, and we certainly didn't have a system in place to protect workers from exposures. That's been totally ignored through this process.

Now the health effects I realize are in hot debate on all of these things. And the reason that I'm telling you this is because, again, these -- these are serious omissions, in my

mind. We were not a -- a head shed. We were not dealing with onesie-twosie types of things. In fact, at one time Madame O'Leary, the Secretary of Energy, said we had 16 tons of plutonium in residence at Rocky Flats, and a fair percentage of that didn't occur on any inventory or any known way of accountability. And that was due to the so-called heritage thing or drag-along where the record-keeping was so deficient that no one could tell you for sure where the money was buried.

And so the point I'm trying to make here is a -- is a sequence of incompetence, deception, distortion, omission, and as we go along here in my -- in my rambling I want to tell you that I'm very concerned about the well-being of the people. I would use my own example. As I've already confessed to you, I have a lung burden and body burden and some other problems that you've already witnessed mentally. And the reason that I bring this to your attention is because the exposures. And originally we had three crystal arrays as detectors, one of them positioned over a normal human's liver area and two over each lung. And as you know, the right

side is usually bigger than the left side kind of thing and it goes on and on and on.
So, in the course of the early use of this array, one of the intellects in the castle decided that the data that they were generating off this liver crystal array wasn't to their liking, so they yanked the liver crystals.
Again, keep in mind what I've already told you, that I was a worker for over 20 years before they found a high level of count in my lungs.
The other thing ironic is this presentation about bioassay. None of that ever showed on my urine samples. Now you're familiar with a phenomenon called Langham's curve, where usually after an exposure you have a high rate of excretion right after that event. Never occurred on any of my records. All of a sudden I showed up on that fine day in 1988 and I rung the bell. This is due to this -- this technique and this equipment that has already been highly praised through this -- this process that I've witnessed. I resent it.
The other thing that -- that thing is bothering me. The other thing that I want you to know, and I alluded to it briefly before -- I'm

deviating from my notes and it gets worse -- is the transuranic -- Transuranium Registry donors. The government has spent hundreds of millions of dollars soliciting workers to make these donations at their death so these scientists can analyze the -- the data. And Dr. Roessler, you got to be familiar with that because every month the Health Physics Society printed a journal and it was full of papers put up for peer review, and quite a few of them involved Rocky Flats autopsy donor data. And you can look through these indexes -- names like [name redacted]*, couple of others. Any time you see those, it's probably about Rocky Flats workers. And the list of papers is extensive.

The reason that I'm bringing that to your attention today is the government has spent all this time and effort to harvest these organs and con these workers into donating body parts, and it's been totally ignored in this format in my attendance here. I don't understand that. I think that the -- the information gleaned from these body parts darned well ought to substantiate the -- the abilities of our -- of

our radiation protection program. Why hasn't it been a component of this -- this process? The other thing, as you may already be aware of, is we had three workers that donated their whole bodies. And I don't know what the outcome or the data generated from any of that has -- has developed. I don't know. But you need to know that this isn't a thing that just happened last week. It's been going on for years.

The other thing that you need to know is our workers have been guinea pigs. I was a guinea pig. Now I've dropped part of that and I'm just a pig, according to some of them, but what -- but a cultured one. And the reason that I bring that up is because our workers, when they had inhalations or puncture wounds, were subjected to several snake oil salesmen peddling DTPA, saying hey, take this magic drug; all the bad stuff will be gone from your life.

Well, the fact of the matter is, it's always been an experimental drug, in my knowledge. [Name Redacted] down at Oak Ridge was another snake oil salesman peddling that. But the same

guy that sold that to our workers was the guy that harvested the organs for the -- for the Transuranic Registry.

Now I find all these things, again, as being crimes of convenience. I don't have a PhD to present you today, and you ought to be grateful for that 'cause if I -- if I would have gone to school it would have been terrible, folks, but the reason that I bring that to your attention is not to necessarily entertain you, but to enter-- to inform you that I'm not making any pretense of being something that I'm not.

The other thing I would tell you, early on in my employment at Rocky Flats I was told routinely by management about this phenomenon known as hormesis. Well, a little bit of that isn't going to hurt you at all. Now that, to me, is a direct expansion on Nietzsche's comment that what doesn't kill you will only make you stronger, and I would tell you that I think that's a very poor operating philosophy, but it's one that we lived with for all my years at Rocky Flats.

The other thing is synergy, and some of you folks may already be well aware of that and may

be experts on the subject. But most of the things that we had at Rocky Flats were what I'd call mixed stream or mixed waste. It was very rare that we had a unique or a virgin type product, five nines pure. It just didn't exist except in the labs. Most everything was mixed with something else.

And in case you haven't figured it out, they didn't make atomic weapons out of good things. And this phenomenon is merely where you take one bad thing and another bad thing and you make something even worse. And that happened with a lot of the products that our people were exposed to.

We had limited resources for detection, and very limited ways to protect the people. As I've already tried to illustrate feebly to you, neutrons were very difficult to work with, and still are. We had virtually no protection on the shop floor other than distance and time. They tried the water walls and it caused a reflection where these particles -- or these -- these energy things would come in and they would bounce all around, so they made a problem that was bad much worse by this -- this

experiment. So we wound up where we stripped out most of our so-called neutron shielding and the workers worked with it naked, basically, using distance and time and our feeble instruma-- instrumentation and our dosimetry techniques.

The reason that all of that is important to you is because I don't view this committee or this -- this legislation as just being a one or two-item thing. It was intended to be an omnibus thing where you covered the beryllium victims, you covered the radiation victims, and then of course Part E speaks, you know, to the solvents and some of the other problems.

Which, by the way, I heard someone talk about some of the solvents the other day. We were one of the biggest users of carbon tetrachloride in the U.S. We had over 20,000 gallons in tanks in residence at Rocky Flats in the height of production. Now any of you that have ever worked around that know that that's very difficult to contain. It's probably about as difficult as it is for tritium. You can't keep tritium in anything for very long. And so we had this material and it was in our

production stream.
Some of the eggheads said hey, we need to have that carbon tetrachloride because it doesn't seem to affect the properties of our metals or our products. Not much thought was given to what it was doing to the workers. I've seen carbon tet where it defied gravity, where it defied vacuum on dry boxes, and it would migrate through most all of our packaging.
Heard earlier in a presentation about radiolytic decay. Well, that came on us from the Ahern committee and a couple of those others -- again, intellects -- talking about all the errors of our ways. Packaging has always been a problem. And again, keep in mind that we didn't deal with pure products usually. Like if we had plutonium residue, we usually had nitric acid or something similar that was a component of that, as well. So most of our packaging would disintegrate and the workers would be around where there wasn't any air sampling.
And as I've already feebly tried to point out to you, we didn't have real good monitoring for inhalations, other than bioassay. Again,

remember what I told you, my -- my body burden didn't show up on a urinalysis, didn't show up on a lung counter for 20-some years. I believe that my lung burden was this so-called S material -- which I believe is S, but not the connotation that you believe -- and I believe that we had high-fired oxide all along.

And that brings up another one of my items on my shopping list. I was in radiation safety, as I've already confessed to you painfully. We used to have a stupid system -- stupid -- where we would divide the plant between soluble and non-soluble plutonium. And the standard for non-soluble was twice as high as it was for the soluble. Now I don't know the health effects, you know, and how they differentiate one to the other, but this is the way we operated. And some of the people have been around the plant a while maybe know what I'm talking about. But this was another crime of convenience. So our workers in the so-called non-soluble areas, they were breathing higher levels of radiation than those that were in the soluble areas. And you know, I -- I never could understand that conflict.

I had a guy the other day in the course of this hearing say, you know, you never -- you never were a very good worker on the floor; why did you stay? Valid point. I learned early on I couldn't afford to quit; I had a young family. I thought well, if you can't quit or don't have the guts to quit, try to make it better. And that's when I got involved in the union activities. Even though we didn't clear the deck, I think we helped make it a little better.

The other thing that helped is when we got out of this umbrella from the Atomic Energy Commission where the contractors didn't answer for any of their -- their ills. They still don't. Uncle Sam just writes them a check for their legal fees and whatever else is encountered along the way. But we were in a total vacuum, in a bubble. We had virtually no rights. We had virtually no sounding board for our problems. That came about as a DOE aberration, the Williams-Steiger Act, commonly known as OSHA. DOE said we won't allow OSHA inspectors in, but we'll give you our own rendition, and boy, did they ever. And we

brought in some inspectors -- I was promptly fired for about two -- two hours. And you know, this is the benevolent contractor that we're going to get around to here in a bit. And the point I'm trying to make is this wasn't an open environment, an open dialogue. In fact, in some ways it's reminiscent to what I've seen here. We had groups of people talking about problems, but we didn't have all the people talking about the problems. So it -- it winds up where you have isolated groups of information, isolated groups that are defining problems. And I'm very disturbed that there isn't a commingling where we have an active dialogue develop.

In regard to the contractors -- I see that my protege is restless, and I hope you are, because if you're not I haven't accomplished anything. The history of Rocky Flats and the contractors. The government has conveniently hidden behind the cloak of secrecy and, by using pseudo-science created by arrogant intellectuals, denying the workers and the public access to the truth. So with that, I'd ask do you have any questions today? This is

your chance -- chickens. Once again, please -- please, fire away.

MR. CLAWSON: I -- I do want to talk because, you know, a lot of this is to be able to allow you to be able to have a say, but I also want to bring something else up.

MR. HARDEN: You've been captive.

MR. CLAWSON: The thing is is I want you to explain, when you have to go in and decon an area, what kind of stuff they'd give you to decon with and how -- how it affected you. And sometimes when it wouldn't decon all the way, some of the mixtures that they'd come up with.

MR. HARDEN: Well, first off, you need to calibrate your question in specific time frames 'cause this thing evolved due to low-bid contracts and suppliers. Like after the big fire, Dow Chemical sold us a bunch of their kitchen cleaner -- imagine that.

Speaking of the fire, and this is an extension of your comment, when we got shielding in 1968 or thereabouts, a lot of it was Benelex. When the plutonium caught on fire or ignited, it gassified the Benelex and that accelerated and expanded the damage of the big fire

considerably. Prior to that we had virtually no gamma shielding on that main line.
I heard a guy the other day say that workers were all in the cafeteria after the fire. Well, that -- that's bull, and we need to make a steer of that bull, and we're about to. The workers were out salvaging material. We had parts hanging on pendants in the chainveyors in the dry boxes with the gloves and the windows burned off. These workers were trying to recover the very valuable and strategic important plutonium at a line.
To answer your question about the decon, it was always pretty much Stone Age. We went through several renditions and a lot of different chemical experiments, but the most effective -- if -- if that could ever be accomplished -- was usually with chem-wipes and with the solution with the water -- wetter or surficant. And the other thing that they used, especially when we're in the height of production, was purple paint. And whatever we couldn't control in a timely fashion, they'd bring out the boys and they'd start spraying the paint all over the place. And like in 71 building, a couple of

those corners of the big rooms had probably an inch or better residue of paint, you know, where -- they were interested in getting production going. They weren't interested in cleaning an area, you know, to satisfy workers' needs.

So I would tell you that decon's very hard to generalize because every situation, every material brings its own unique characteristics into the mix, which brings up the subject -- like if you had solvents, carbon tet, very difficult to control or contain, very difficult to decon. Some of the solids and some of the bigger particulates like turnings from a lathe bed, obviously you can -- you can clean those up fairly easy. Some of the other things would permeate, you know, in the structure, in the pores of whatever the product was. We were in some situations where they had to use jackhammers or scarfing equipment, you know, to -- to abrade the surface before it could be released for whatever purposes that they intended.

So I didn't mean to -- yes, I did. I meant to expand on your question. But I've seen a lot

of that through the course of this, and this may be my last chance to torment you so you're going to pay. And the purpose is not to antagonize you, it's to try to inform you that you've listened to a lot of people that had pedigrees, but they weren't on the shop floor and I can prove it. But I've been there and I'm -- I'm interested in it, so...

DR. ZIEMER: I want to defer to your spokesman. Do you want to have the general questions and discussion now or do you have some additional presenters first?

MR. HARDEN: Yeah, sorry. Yeah.

DR. ZIEMER: We -- we do need to get a comfort break here (unintelligible) --

MR. HARDEN: Yeah, no, no, no, that's fine.

DR. ZIEMER: Let us defer to your --

MR. HARDEN: No, I can take a hint. Thank you very much. Please help the sick Rocky Flats workers.

(Pause)

MR. DEMAIORI: I would like to now introduce a Colorado native, somebody who's grown very close to us at Rocky Flats, somebody who grew up with a lot of the folks that worked at Rocky

Flats, a lot of the professional staff and the blue collar people, somebody who's represented the state of Colorado very well in Washington, the distinguished Honorable Bob Beauprez.

I'd like also to remind everybody that Congressman Beauprez is a U.S. Congressman, co-sponsored H.R. 428, and has always been a strong advocate of ours at Rocky Flats.

Congressman.

CONGRESSMAN BEAUPREZ: Thank you, Tony, and all of you. It's a privilege to be here, and thanks for your patience and your dedication and -- as you can imagine from that introduction -- during my time in Congress at least I felt very much like I was on that side of the table, and that's probably what I will focus most of my comments on in just a moment.

A little bit of expanded biography -- and very little. For the record, I was born in 1948, about a good drive or distance away from what became Rocky Flats. I was -- I guess I would have been two, maybe three years old when they broke ground at the Flats, so in fairness, all my life it's all I ever knew was the Flats. Didn't know for sure what happened there,

didn't talk about that for a long while. But almost everybody that I went to church with in Lewisville, to school with, their parents worked there, depended on it, did stuff that we knew was extremely important. And then it was their kids, same generation as me, and then the kids after that that worked at Rocky Flats.

I came to appreciate especially this group of patriots. I don't think that word's been used today, but in my opinion, they are. We -- we won that war. We won that war because of you and we -- you know, we're -- we're in one again, and we're all distressed that we deploy our -- our best and our finest for a year, some of them two, some will go back for a third, maybe even a fourth tour of duty. You just heard from one that did it for 37 years. And we won that war.

And we send people off to work. My [identifier redacted] told me to climb ladders and paint the sides of the barns on our dairy farm or stack hay or -- these people showed up for work, too, knowing full well that there was a risk inherent. They did the job. They did it with an assumption just like I did with my

[identifier redacted], that if something happened -- you fell, you got hurt, something unforeseen that we didn't imagine before were to happen to you -- we'd be there for you. Somehow we'll pick you up, take care of your injuries. We'll take care of you.

Now a nation that is great enough to figure out how to win that Cold War, not only on behalf of the United States of America but I submit to you for the good of the majority of this entire planet. A lot of people are far safer because of what these people did. A nation that is great enough to win that Cold War ought to be big enough and great enough to have the compassion and the caring and the justice to take care of the warriors who won the danged thing in the first place.

I want to talk a little bit about process, and I will submit to you -- I guess for -- for the record, for whatever good it is -- the wise words of a -- an old lobbyist friend of mine who happened to be from the other party. I'm a Republican, he was a Democrat. But he told me once, he said Bob, you know, if you're going to assign me something, assign me to defeat it, to

get a no vote. And if what I've read in the papers of late -- brought them with me -- is true, the votes are probably already in. I doubt honestly that anything I'm going to say up here in the next few minutes is going to change any of your opinions that are probably already cast.

I've been in that situation. Again, I've sat through hearings before. I'll -- I'll confess, as a member of Congress you go there and your mind's pretty well made up. You think you've got the facts. I suppose you probably think you've got all the facts. Maybe you've made you mind up. And you just kind of wait till the bitter end when everybody's said their piece, and you cast your vote.

I get the joke. It's not a joke to these people. This is life and death. This isn't about well, we ought to fix Social Security. We should. This isn't about disagreeing on immigration policy. We ought to fix that, too. But consistently we find the votes, don't we, to say no. And the way you do that, he told me, is massive amounts of information. And the bigger and the more complicated and the more

maybe, could have been, should have been, might have been that you can create, somebody gets just a little bit of an element of doubt and they let the perfect be the enemy of the good. It's not good enough. It's not perfect enough. I guess I'll vote no. And too often we avoid doing the right thing.

I fear, if what I read in these papers is correct, that exactly what frustrates people -- and ought to -- about government is that government, as big and as great as this nation is -- and I'll defend that flag till the day I die and I know you will, too -- as big and as great as we are, sometimes we can't find the means to do what is right in front of us and is blatantly obvious.

Now let me talk about EEOIPA (sic), or however you refer to it, that Act, that legislation. I was there. I voted for it. And I did sponsor legislation with my Republican colleague Wayne Allard in the Senate and two Democrat colleagues, Mark Udall in the House and Ken Salazar in the Senate, that if EEOIPA (sic) wasn't good enough -- and for heaven's sakes, let us put an exclamation point on it and tell

you -- if the record is not perfectly clear, we as representatives of the people, every single one of the current delegation, Democrat and Republican, House and Senate, as well as a bunch of us has-beens, Republicans and Democrats, every one of us, as representatives of the taxpayers, said take care of these people. They've earned it. They deserved it. They showed up and did the job. They took the risk. Some of them are paying the price. For heaven's sakes, do it. That's what we meant by the Act. Not to go through volumes and volumes of woulda/coulda/shoulda and find a reason to deny, but reasons to approve -- and do it in 180 days or less, not in two and a half years or more, and submit these people to endless torture.

I had [identifier redacted]that went through cancer. Fortunately not caused by work at Rocky Flats, but I know what he went through and we went through, my [identifier redacted] and I, in those eight months that he was on chemotherapy. I know what we went through and still go through every day with that ghost that sits on your shoulder -- is it back, am I sick

again, did I just get it, have I got the early signs? It's a terrible thing to live with, and then to believe that your government that asked you to do the job is going to pull the rug out from under you when you most need them. That's a terrible thing to put people through. These people did the job.

And [identifier redacted], wherever you're at -- wherever [identifier redacted] went -- see, all of you who took the risk and maybe didn't have every ounce of protection by the contractor, by the government, by whomever, my apologies. But let me state from a lay person's standpoint what I witnessed at Rocky Flats. I did visit. My [identifier redacted] and I visited. We went in Building 70 -- 70 -- 771, too, and I guess if NIOSH is going to expand, maybe they ought to take care of me, too, in case I get sick. I don't think that was the intent, and I'll tell you that was not the intent. The intent of the legislation was to take care of the petitioners, these steel workers who did the heavy lifting, who put themselves in harm's way and who've got every right to expect that we would take care of

them.
From my perspective, they did the unthinkable, the unimaginable, the impossible. They worked with plutonium, and you know all the rest. And they won the war. They did what we asked them to do, and they did it going home at night sometimes with a neighbor right across the street protesting what they were doing. That's tough duty. That's tough duty, to just continue to show up because you know it's the right thing to do, and you signed up and you're going to get it done, believing that the government's going to be there for you.
And then we said all right, the Cold War's done. We can tear this place down. And of course we heard the hue and cry -- you'll never get it done, not in any of our lifetimes. You'll never really clean it up, will you? They did. It was these same petitioners, these steel workers, who got it done -- ahead of schedule, under budget, and today it sits perpetually, as it started, as a wildlife preserve -- from Mother Nature back to Mother Nature. That's a pretty glorious lesson that they taught the entire world.

Now we've got some of them that are sick, and we're trying to find every single way we can to say bad things happen to good people -- see ya. Not the government I served and not the government I believed in. I implore you to approve this petition. Not only me, but every single political representative in Congress, Democrat and Republican in this entire state, present as well as past and now your -- your current Governor and Lieutenant Governor, are saying this is a political question. What do we want to do on behalf of a grateful nation; we want to take care of these people. Take care of these people.

There's another test or two that I think is worth mentioning. We -- we are a nation, I think rightfully and proudly, founded on what we typically call Judeo-Christian principles. Go back to those first Ten Commandments that were given a long, long time ago. Right and wrong, take care of folks, treat others as you would want to be treated yourself. It doesn't get any more complicated than that. Our kids have developed their own cliche for that -- a little test. What would Jesus do. I suppose

we're not supposed to mix religion and politics. I don't think I am. I think what I'm doing right now is talking about the foundation of this country, the principles that guide us -- again, we call them Judeo-Christian -- what would Jesus do. Jesus will take care of these people some day when He gets them in His tender loving care, I have no doubt about that. Will we? Will we? It is in your hands. It is in your hands, and you -- as I've had to before with my votes -- you will have to live with whichever decision you make. I pray that you decide on behalf of these petitioners. They've earned it. They deserve it. They've got a right to it, justice for all. Thank you.

MR. DEMAIORI: In order to facilitate this meeting, the petitioner now closes comment. Thank you very much.

DR. ZIEMER: Thank you very much. I think we will take this point in the meeting to have a comfort break for folks, so let's take a break and then return around 11:00 or so and we'll continue at that point. Thank you very much.

(Whereupon, a recess was taken from 10:40 a.m. to 11:10 a.m.)

DR. ZIEMER: I think we're ready to reconvene if you'd please take your seats.

I want to double-check and see if Board members -- Mike Gibson, are you still on the phone?

MR. GIBSON: Here.

DR. ZIEMER: And Phil Schofield --

MR. SCHOFIELD: Yes, I am.

DR. ZIEMER: Jim Lockey?

DR. LOCKEY: Yes, I'm here.

DR. ZIEMER: John Poston?

(No response)

John Poston not on the phone?

(No response)

ROCKY FLATS PETITION DISCUSSION

Okay, thank you. We want to open the floor for some discussion period now. I want to recognize a gentleman who's been a pa-- I think a part of the petition group that has had some questions, and I'd -- if you would raise your questions now, I don't know if the Board can answer them, or perhaps NIOSH can help us with your --

MR. ROMERO: Well, my questions weren't necessarily for the Board but it was for NIOSH.

DR. ZIEMER: Okay.

MR. ROMERO: And I asked these questions yesterday and you said NIOSH would answer them.
DR. ZIEMER: Well, I --
MR. ROMERO: Well --
DR. ZIEMER: -- I can't volunteer NIOSH, I guess --
MR. ROMERO: Well, whatever.
DR. ZIEMER: -- but --
MR. ROMERO: But my question was --
DR. ZIEMER: -- NIOSH is here, a representative, if they can answer it.
MR. ROMERO: I mean they -- they had their film badges, we've listened to different people, and my concern is about internal deposition --
DR. ZIEMER: Right.
MR. ROMERO: -- from airborne contamination --
DR. ZIEMER: Right.
MR. ROMERO: -- from jobs that went on at Rocky Flats.
DR. ZIEMER: Okay.
MR. ROMERO: Deconning, production, you name it. Hazards of the job, going in the area, SAMs go off, no respirator -- or going back in an area where the airborne concentration's too high for the type of protection that you're

wearing.

DR. ZIEMER: Right. So the question has --

MR. ROMERO: And many -- my question -- my question is, what documentation did NIOSH use --

DR. ZIEMER: For internal --

MR. ROMERO: -- other than bioassay. That's all they talk about --

DR. ZIEMER: Other than bio--

MR. ROMERO: -- bioassay.

DR. ZIEMER: Oh, okay.

MR. ROMERO: What else did they use? We have numerous different types of information that was out there that's over at the Federal Center. Did they have access to all that information?

DR. ZIEMER: Okay, let me have NIOSH answer this, but I -- I can tell you that NIOSH's first approach is always to use the personal bioassay information, so I guess -- Dr. Ulsh, you want to address that?

DR. ULSH: I'll try. I might have to get some clarification on exactly --

MR. ROMERO: (Off microphone) (Unintelligible)

DR. ULSH: -- what you'd like to know. As Dr.

Ziemer mentioned, the primary source of data that we rely on to evaluate internal dosimetry, internal intakes, is the urinalysis data, whether it be for plutonium-specific, uranium-specific or gross alpha -- I mean depending on what was available. Subse-- secondary to that, we also use lung counts when -- when necessary. I mean the first line of defense is -- or the first thing that we would rely upon is the urinalysis data.

I know that also in -- in later -- sorry -- in later time periods, some limited fecal sampling was also done. We would use that when it's available. But those are the primary sources of data that we would rely upon.

MR. ROMERO: Well, my question is on protection factors of respirators. You know protection factor respirators and what the maximum amount you can be in an area with that type of protection.

DR. ULSH: Uh-huh.

MR. ROMERO: If you're in a area that's ten times or 100 times or 1,000 times that protection, that person's in that area working --

UNIDENTIFIED: (From the audience and off microphone) Sorry, we've got people on the phone (unintelligible).

UNIDENTIFIED: Okay.

UNIDENTIFIED: (From the audience and off microphone) Could you (unintelligible) microphone?

UNIDENTIFIED: (Unintelligible)

MR. ROMERO: My question is about protection factors of respirators, 'cause that's all we had to do our jobs out there. A full-face or a PAPR respirator.

DR. ULSH: (Unintelligible).

MR. ROMERO: That's all we had to do the deconning, move material, bag-outs, glove changes, window changes, you name it -- respirator's all we had. When the protection factors were exceeded, management would allow us to close the job down, shut the job down, go to the next level of protection.

DR. ULSH: Uh-huh.

MR. ROMERO: But as times went on, management deemed that it was allowed to exceed protection factors out there, and protection factor were exceeded on a constant basis out there,

especially during D&D times. The levels may be 1,000 times or 100,000 times the protection factor of that respirator or PAPR, and the people that were in those areas doing that work, day in, day out for months were not subject to fecal samples or not subject to urine samples on a daily basis. It was only during extreme sit-- sit-- situations where they would make them go do fecal, make them do urine. Occasionally they would do that, but they didn't like do it on a daily basis because they knew they were exceeding protection factors because they didn't want Price Anderson fines.

So my question is to you, how do you judge -- I'm in a area that's 1,000 or 100,000 times greater protection factor than my respirator, how are you going to equate that to what I got internal to that respirator, if that respirator was functioning at 100 percent.

DR. ULSH: Okay. That's a very good question and I appreciate your concern on this, and there are certainly -- certainly safety implications for a situation like you describe. What I need to try to make clear, though, is

that in NIOSH dose reconstructions we don't consider any reduction in intake because people were wearing respirators -- none, none whatsoever. We don't assume a protection factor of 1,000, 100, nothing. We rely strictly on the urinalysis, the bioassay data, under -- you know, most normal circumstances. So let's say you were wearing a respirator and it was malfunctioning, or you were in an environment that was inappropriate for that respirator and it resulted in an intake because, you know, you had the wrong respirator or it wasn't working. Well, if that resulted in an intake, then that would be reflected in your bioassay data. And I understand that it wasn't taken on a daily basis -- except under extraordinary circumstances. But there was a routine bioassay program at Rocky Flats. And let's say you go in on Monday, you get a -- an intake. You go in on Tuesday, you get another intake. On Friday you go in for your bioassay. Well, that's going to show the integrated measure, all of those intakes that you got are going to be reflected in your urinalysis data, and that's what we're going to use for dose

reconstruction.

MR. ROMERO: What about -- what about three to six months later? They weren't done three days later, four days later.

DR. ULSH: Right.

MR. ROMERO: They may be done months later.

DR. ULSH: Right, taking --

MR. ROMERO: Or when specific times happened where they deemed for them that they needed to do it. So my question is, a person that did 12-hour days, seven days a week in those high values, how can you sit there and tell me oh, we'll wait until we do a fecal sample or a urine sample on that person to get an evaluation. If it's three or four weeks later, he's already excreted whatever might have been inside of him, so the dose is not going to be the same.

DR. ULSH: You're absolutely right. The body can clear, and does clear, radioactive materials with a known function --

MR. ROMERO: Uh-huh.

DR. ULSH: -- you know, that we --

MR. ROMERO: Natural pathways.

DR. ULSH: Exactly. And so what we would

typically do is -- let's say you had a bioassay in January. You got an intake in February. You didn't get the next bioassay until June, and it shows a positive. Well, we can't say when in that period you actually got that intake -- sometime between January and June. So given the fact that we can't -- usually -- can't sometimes tie a particular intake to a particular event, what we are going to do is say well, we know it happened sometime in this time period, before -- or after the last negative bioassay. What can we do to estimate this dose in a claimant-favorable manner? What we're going to do is assume, in general, that it happened the day after your last bioassay. That results in the highest dose estimate for that situation.

Now if we assumed that your intake occurred the day before your bioassay, that would not be claimant favorable, and that's why we don't do it. We go all the way back to your last bioassay, and that's a claimant-favorable way to do it. It results in the highest estimated dose.

MR. ROMERO: And that's going to be conducted

at everybody that worked out at the plant?

DR. ULSH: Yeah, that's routine.

MR. ROMERO: Plutonium side or uranium side.

DR. ULSH: Yes, absolutely. That's the way we do internal dose reconstruction.

DR. ZIEMER: I might add that the Board has examined this methodology and -- and we agree with -- with NIOSH that that gives the most claimant-favorable outcome. In other words, it will give a number which is never lower, but is -- is in general higher than the actual dose because it is a very conservative assumption. It's sort of like the reverse of The Price is Right. You never want to be under the number, you want to be at the number or over, and this always does that.

DR. ULSH: Yeah, and that --

DR. ZIEMER: So the Board has been satisfied with that methodology.

Another question? Yes.

UNIDENTIFIED: I have a question for Mr. Ules (sic), too. My question is about --

DR. ZIEMER: And for the record, you need to identify --

UNIDENTIFIED: Oh, I'm sorry.

DR. ZIEMER: -- yourself, yeah.
MS. PADILLA: My name is Judy Padilla and I would like to ask Mr. Uls (sic) of NIOSH about the as least likely as not, the 50 percent. Why don't they put as 50 percent of what? We never know what that number is and how you arrived at that number.
DR. ULSH: Okay. That's a -- I'm going to try to answer your question in the time that we have available, but recognize that it's a very complex --
MS. PADILLA: Of course.
DR. ULSH: -- topic, of course. The probability of causation reflects the chance that the cancer was caused by the radiation exposure that you experienced at Rocky Flats. And we take the value at the 99th percentile -- now that sounds like mumbo-jumbo. Let me explain it just a little bit.
MS. PADILLA: Of course.
DR. ULSH: There's a dis-- there's a distribution of values, and it reflects what -- some of what you've heard about here today, the uncertainties. We take all of that into account explicitly, and when we come up with a

probability of causation value, we don't take the median, the average value. We take the value all the way out at the 99th percentile, and that tells us that in 99 times out of 100 -- there are -- a 99 percent chance that we are overestimating the dose, overestimating the probability of causation. And we do that to account for a lot of the uncertainties that have been discussed. I hope that answers your question.

MS. PADILLA: No, it doesn't answer my question. My question is, why don't they put the number of what the 50 percent is from, the -- the 99th percentile, as you call it. That's not on our paperwork.

DR. ULSH: Oh, I see, not in the dose reconstruction report that you get.

MS. PADILLA: Yes.

DR. ZIEMER: Dr. Neton perhaps can clarify this.

DR. NETON: I might comment on -- on that. The -- the do-- NIOSH's responsibility under the Act is to actually do the dose reconstruction, so you'll get a detailed report that highlights the information -- the dose that was calculated

in your particular case. It's really the Department of Labor that has responsibility to do the final adjudication; that is, do the final calculation to determine what the probability of causation is, and that number will show up on the letter that you get from the Department of Labor.

DR. ZIEMER: Well, let -- let me add some -- maybe to clarify. The -- the Department of Labor basically is using the IREP program, which has been referred to before, which is a computerized model of the National Cancer Institute's risk statistics. For example, a certain cancer has a certain probability per unit dose. This is largely based on the Japanese studies and adjusted for the American population, but it's a probability per unit dose, numbers that come from the National Cancer Institute, that Labor uses. And based on the dose that that person received to the organ of interest -- say it's the lung -- they compute that and it's -- and it is the -- they get a distribution of possibilities and they take the high end of that, which is the most claimant favorable, and they say okay, that is

what we're talking about. So it's -- it's that. It's the pro-- it's -- is it more likely than not, based on those numbers.

Now let me give you an example, and I'll do this in terms of asking a question of one of our presenters. Let me ask Bill Brady, who talked about the risk estimates for brain tumors and cited the work of Dr. Ruttenber. Now -- so he had information on the incidence of brain tumors, I assume, and then calcul--

MR. BRADY: No, that's not right.

DR. ZIEMER: Oh.

MR. BRADY: His concern was that because of the high incidence at --

DR. ZIEMER: At Ro--

MR. BRADY: -- at Rocky Flats, that the numbers were in fact not accurate and that the IREP model was faulty.

DR. ZIEMER: Yeah, I understand that.

MR. BRADY: Yeah.

DR. ZIEMER: But I'm saying he had some number -- he had a number of brain tumors in that population --

MR. BRADY: Yes. I'm sorry, yes, I didn't understand.

DR. ZIEMER: -- and I assume that he relied on the Rocky Flats dose data. What -- what did he use to -- to determine risk per unit dose?
MR. BRADY: Oh, I -- I -- I'm sure that that's what it was, yeah. I mean I -- I can't --
DR. ZIEMER: So he --
MR. BRADY: -- recall off the top of my head, but I can't imagine it being anything else.
DR. ZIEMER: So he -- he --
MR. BRADY: Would have to agree.
DR. ZIEMER: -- he in fact relied on the Rocky Flats dose data --
MR. BRADY: I think that's right.
DR. ZIEMER: -- to compute a risk per unit dose.
MR. BRADY: I think that's right.
DR. ZIEMER: And in essence, he could do something similar -- you know, he's saying okay, maybe -- maybe these numbers are the ones that should have been used. We're -- we're required under law to use the National Cancer values until they change them, and perhaps that study -- and -- and in fact the IREP model over -- over time has changed as we get new information. That -- that that was a possible

--

MR. BRADY: I think that was part of the conclusion of the study.

DR. ZIEMER: Yeah. So -- but all I'm saying is that that's really the approach that's used. It's to take information of that type, but it also -- I had a sort of a subtle point I was making is that he did rely on the validity of the Rocky Flats data to do that study, and I simply want to make that -- that note.

DR. ROESSLER: Could I add to that?

DR. ZIEMER: Yes, Dr. Roessler.

DR. ROESSLER: I have a comment right on that point, and since you brought it up I'll make the point. Also Dr. Ruttenber --

UNIDENTIFIED: (From the audience and off microphone) We can't hear you.

DR. ROESSLER: Yeah, I don't think my mike is working maybe.

MS. MUNN: This one is.

DR. ROESSLER: Let me try this one. Now I think this one's working.

UNIDENTIFIED: Great.

DR. ROESSLER: Yeah. You mentioned also that Dr. Ruttenber is recommending a rather large

epidemiological study on the Rocky Flats workers. I think he's particularly interested in brain cancer, but to do an epidemiological study you need dose estimates. You need good -- you know, excellent dose estimates, even better than you would need for this particular program. You don't need just upper bounds, you need accurate dose estimates. So my conclusion is that Dr. Ruttenber does feel that he can get dose estimates from the Rocky Flats workers, and that's my only comment.

DR. ZIEMER: Dr. Melius?

DR. MELIUS: Well, I -- I hesitate to follow up 'cause I think we're -- we're speculating on -- but -- on something that -- person who's not here and maybe that's not completely fair, but I -- I just would remind that -- one correction to what -- what you said, Dr. Ziemer, is the Act does call upon NIOSH to develop modifications to IREP where appropriate based on the worker experience and --

DR. ZIEMER: Right --

DR. MELIUS: -- and my -- my inter--

DR. ZIEMER: -- I thought I'd made that point, in fact --

DR. MELIUS: Okay.
DR. ZIEMER: -- that we have modified IREP as we go along, as we get new information, and perhaps this would be such a case.
DR. MELIUS: Right, and I -- and I think that's what he was recommending, so -- okay.
DR. ZIEMER: Yeah. I -- I agree with you on that.
MR. BRADY: If I could just comment on that --
DR. ZIEMER: Right.
MR. BRADY: -- the conclusion of the -- of the -- I forget it now -- the mortality of plutonium workers at the Rocky Flats nuclear weapons plant, that conclusion is -- and I'll quote -- data from the Rocky Flats cohort provide the best source for estimating the risk per unit dose for lung cancer among modern plutonium workers, estimates that are important for assuring that plutonium workers receive adequate workplace protection, and that former plutonium workers with lung cancer are fairly compensated through the EEOICPA.
DR. ZIEMER: Right.
MR. BRADY: So yes, in fact he is recommending that study be done based upon that -- that

population.

DR. ZIEMER: While you're at the mike, could you clarify -- did -- did his study look at only malignant bone -- brain tumors or --

MR. BRADY: No --

DR. ZIEMER: -- both --

MR. BRADY: -- he -- he looked at more than that, but -- and again, the -- just let me finish the -- the last sentence of the report following that last sentence was: For similar reasons, dose response studies of Rocky Flats workers may help clarify the risk for brain tumors among radiation workers.

This study purported to look at -- and I think I read it into the record earlier, but there were several cancers and I'm -- I'm looking for the section that I -- here it is -- lung, liver, bone and connective tissue were the areas that he looked at, and he found elevated risks certainly for the bra-- brain tumors, and is recommending further study for all of them.

DR. ZIEMER: Thank you very much. I'd like to -- just a moment. I just want to follow up on one thing. Jerry raised the issue of tritium, and I want to ask NIOSH, do we have tritium

bioassay on any workers at Rocky? I -- I think we do, but I just wanted to get some clarity on that.

DR. ULSH: The answer is yes, we do have bioa-- tritium bioassay. I've personally seen tritium urinalysis results in individual worker radiation files.

DR. ZIEMER: Okay, just wanted to clarify that. I thought that was the case, but I wanted to be sure.

UNIDENTIFIED: (From the audience) They didn't do urinalysis (unintelligible) tritium. (Unintelligible)

DR. ZIEMER: Okay, other -- Dr. Melius.

DR. MELIUS: Just to follow up on that -- Mark, maybe you can answer this, or somebody from SC&A -- has that issue ever been evaluated by the workgroup or SC&A and have they looked --

MR. GRIFFON: Yeah --

DR. MELIUS: -- at the completeness of that data and --

MR. GRIFFON: -- we -- we looked at -- in our -- our discussions on other radionuclides, we certainly looked at tritium as one of the other radionuclides and -- through the workgroup

process, so yes, we did look at that.

DR. MELIUS: But -- but has it been validated or verified -- I mean in terms of going back to -- I -- I'm just trying to get sort of the depth of the evaluation --

MR. GRIFFON: I honestly can't remember. I don't know if SC&A can speak to that -- the extent of the data and whether we -- but we...

DR. ZIEMER: Dr. Makhijani's approaching the mike --

MR. GRIFFON: You know, that's why we -- we did end up with thorium as --

DR. ZIEMER: -- do you recall --

MR. GRIFFON: -- the final sort of nuclide that we were concerned about. But anyway, go ahead.

DR. MAKHIJANI: Yeah, tritium was one of the radionuclides that we looked at in our other radionuclide report. We did not find tritium data on the HIS-20 database, unlike some of the other radionuclides where we said -- neptunium, americium I remember -- to the best of my memory, we found them compiled in the electronic database. We did not find tritium data compiled in the electronic database and raised this question in a working group. And

at that time we were told by NIOSH that the tritium data are in the individual worker dose records. Also -- but for the record, there -- the one check that we did, I believe -- and Kathy was the one who did this -- from -- from the individual dose record, I believe maybe from the SEC petition, we didn't find that sample in the record, but that was just one thing and we didn't find a systemic pattern. There are -- I believe that we have verified that there are some tritium bioassay data in the -- in the record, but we did not follow up on the NIOSH statement and do an exhaustive check on that. We -- we accepted that statement.

DR. ZIEMER: Okay.

DR. MELIUS: Thank -- thanks for the...

DR. ZIEMER: Kathy DeMers, do you have some additional comments from --

MS. ROBERTSON-DEMERS: Yeah, and if --

DR. ZIEMER: -- SC&A?

MS. ROBERTSON-DEMERS: -- if you remember, there was a logbook that we looked at, 1966 through 1969, special analysis logbook, there were also some tritium results listed in there.

DR. ZIEMER: Okay, thank you. Question.
MR. DEMAIORI: Tony DeMaiori. I'd like to move to another subject that Mr. Bradley Clawson had brought up, and that was describe the decon procedures that we worked under at Rocky Flats. As being a chemical operator, chemical control operator and then a rad tech, I have a lot of experience in area and personnel decontamination. That's a lot of time working in Building 771, the carrier for the plutonium was nitric acid, whether it was seven -- seven five normality or 12, that's when a SAM alarm would occur, selective alpha air monitor, that's the people would go out of the room, they'd run. That's basically -- they'd meet in the hallway. We'd pick up the decontamination supplies, big stacks of paper towels, we called them chem-wipes, that was the manufacturer's -- and detergent. We'd run back in the room with full-face respirators on and we would, in a rapid fashion, throw as many paper towels on the floor as we could as quick as we could. Somebody would follow with the wet solution, the decontamination solution, in a desperate attempt to keep the plutonium from drying out

and going airborne, to reduce the mess, basically, is what I'm telling you. That -- that was pretty normal. We didn't take DAC samples back then. We didn't have any idea of airborne concentrations. We simply went in and negated the circumstance, the problem. That was pretty normal. That's 771, 371, being an aqueous system with all the variety of chemicals from hydrofluoric acids to nitric acids to caustics. After we controlled the spill, then the process of the actual cleanup would occur. We'd decon from the ceiling to the floor. That's -- and then we would have to neutralize the suits. That's -- this is -- considerable period later when we decided if it was a nitric acid spill, we'd dress everybody in a rain suit, a yellow acid-resistant suit, and we'd put -- we'd put individuals in charcoal canisters. Now I'll have to tell you, being human, you -- you know, I've done a lot of decontamination in charcoal canisters for nitric acid with plutonium, so I did take an OSHA class several years later that said no known protection for nitric acid other than SCBA, that's supplied breathing air, that's

SCUBA, that's self-contained breathing apparatus. We used nitric -- for nitric acid we used charcoal canisters. We thought we were protecting ourselves. We thought we were protecting our brothers and sisters. So in fact we were breathing plutonium nitrates the entire time we were deconning at Rocky Flats, and we did it for years. That's -- and as Jerry Harden articulated on the bioassay program, it may or may not have shown up in the bioassays. That's simply to say that we'll catch you in the next 30 days, 60 days, six months is absolutely incorrect. That's -- we believe this, we stand by this, that's -- we -- we failed to convince members of the Board of this, however we believe the high-fired oxides do mask themselves and that they're not caught, they don't dissolve, they're insoluble and that it doesn't go through the waste system in -- in a quick period of time. So -- so we don't believe that you can hang your hat on that. But you did ask for the decontamination procedures. 371, we had the big acid spills, the 4,000 or 5,000 liters where we blew up tanks when we were first starting the -- the

building, we had a -- a stainless steel side and we had a carbon steel side of -- of our process, stainless steel for the acids. Unfortunately during construction a few carbon steel tanks were piped into the stainless steel system and -- and they did explode and we lost 4,000 or 5,000 liters of nitric acid, to the point where you could see an orange cloud above the facility. That's -- and I mean on the outside when I went to work that day. It was a huge spill it took us almost nine months to clean up. That's -- and we did the same thing, we used our charcoal canisters and it was with plutonium. I mean it was plutonium-based. So -- so you -- you know, we've had a lot of problems and the cocktails were definitely there. I use the term cocktails because whether it was aluminum nitrate, hydrofluoric acids, nitrates, you know, I dumped a lot of soda in -- in the bags of -- of the acid suits of my coworkers to neutralize so that it wouldn't explode in a 55-gallon drum. And we had 55-gallon drums explode on us. We -- we had drum lids where you could see the rings on the ceilings of our facilities that were 35, 40

feet in the air. That's -- and so, you -- you know, we worked real hard and -- and we tried to mitigate these things, and a lot of things we were involved in didn't go documented, but -- but I have to honestly tell you, what Dennis is saying is true. We tried to protect ourselves. We used the best -- best protection available to us. That's -- and we believed that we were protecting ourselves and our coworkers. That's -- but as time tells, as technology gets better, as we get smarter as people, we -- we often find that what we did in the past wasn't good enough.

That's -- and my analogy to that is the solar ponds, state of the art in the '50s. You didn't like it, you threw it in the pond. It evaporated, wind blew it to Nebraska and it rained on those people, but it was gone. Okay? That -- we thought hey, that's a pretty good thing. That's a good way -- way of dealing with waste. And then we found out hey, no, that's not. Good folks in Nebraska didn't appreciate it. So -- so technology, you know, that's -- we're learning and that's why this petition is so important to us 'cause we

believe still today that we're learning this and, you know, when you're talking about people's lives and you're talking about their families, to -- to say absolutely we can do this -- I think in a perfect world, absolutely you can, given all the facts on every single thing. But I don't think that we have all the facts and I don't think we ever can.

So anyway, to answer your question on the decontamination, that's -- we were in there, that's -- we did the decontamination the best we could as fast as we could with the tools that were available. That's -- we did try to protect ourselves from acid burns, that's -- we didn't want to absorb anything, for -- for goodness sakes, if we didn't have to. We didn't want to breathe it if we didn't have to, but that didn't always work. I worked in 371, caustic treatment, that's -- we broke a caustic line. I sent a guy in unprotected to shut the valve. It was a 4,000-liter tank. That's -- we didn't want to expose the rest of the world, so he just threw on a full-face. His job was just to go in and shut the valve. Somehow it got on his arm and it burnt the heck out of

him. I mean, you know, that was just part of the job, that's -- but he saved the rest of us tremendous amounts of exposure. It's just what happened. That's how we did it. That's -- we did it to the best of our training. That's -- and the end of Rocky Flats, we had the -- the fire in the stacker retriever in 371, that's -- and you -- you know, our procedure was three fire extinguishers and supplied breathing air and you're out. Then -- then you turn it over to the fire department. But our people thought that they could control this fire and 33 fire extinguishers later and a $1 million Price Anderson fine, that's -- we brought the fire under control. That's -- and I have to tell you, the guys did it for the right reason, that's they wanted to protect their families. They wanted to protect the community. Okay? I had a answer to that, and my answer was that they were heroes. They didn't necessarily follow their procedure, that's -- and so you -- you know, I tell you that a lot of things that we did was instinct and training. That's -- and dedication, from the heart, but it wasn't always perfect and I think the nitric acid with

the charcoal canisters is a prime example of that. I myself have a little bit of plutonium -- just a little bit, though -- in -- in my lungs, and you -- you know, it came out of one of these body counts.

One year they said hey, the americium's up, we're going to recount you. They recounted me, you're below background. Next year they said hey, the americium's up, we're going to recount you. They recounted me, I was below background. The third year they said the Am's up and we know where it came from. You -- you were involved in an incident in this module, so draw your own conclusions. That's -- I -- I mean honestly, draw your own conclusions. I was in every environment on that plant site, both as an operator and a rad tech. That's -- I personally don't believe the bi-- bioassay's infallible. I believe that once you do detect it, once you do get ahold of it, then you can measure it, absolutely. But when do you get it? From incident, from inhalation, from intake, injection, whatever, to when we actually discover it, that's -- I was involved in shutting 771 down when we were in the middle

of decommissioning the building because we had 11 people out of nowhere, out of absolutely nowhere, that's -- come up with extreme intakes. Okay? We didn't know where it came from. We'd been working in the building happily, everybody was working really hard, the progress was phenomenal. All of a sudden one day, wham, 11 people do -- we couldn't figure it out fast, but we had to shut the facility down. We had to stop the decommissioning of that facility and then try to regroup and figure out where it came from. So this happens, that's -- and how does it happen? It happens because a valve's leaking and you've got to go in there and shut it, and it happens because --

UNIDENTIFIED: (From the audience and off microphone) (Unintelligible)

MR. DEMAIORI: Well, it's not -- not even mistakes. It's nature of the business, the absolute nature of the business. Thank you.

DR. ZIEMER: Thank you. Board members, any additional questions or comments? Dave Hiller.

MR. HILLER: Thank you, Dr. Ziemer. I'm David Hiller with Senator Salazar's office. I've got

a couple of questions for the appropriate NIOSH representative. I'll let you pick.

The -- the first question is that there were references made yesterday to comments -- statements of the Scientific Advisory Board for the NDRP, and my question is whether or not ORAU, who is managing NDRP for NIOSH, was involved in selection of the people who participated on that advisory board.

DR. ZIEMER: I believe that advisory board predated the -- the EEOICPA activities, did it not?

MS. MUNN: It did.

DR. ULSH: That is correct, it predated EEOICPA.

DR. ZIEMER: But ORAU was around, so I guess that's the question.

DR. ULSH: I don't -- I don't know the answer to your question, David. I don't know how they selected the members of the advisory board.

DR. ZIEMER: Okay, go ahead David.

MS. MUNN: I think they were people who (unintelligible).

MR. HILLER: Before you leave, Dr. Ulsh -- second question is -- you indicated that with

regard to the analysis of the thorium strike issue that -- that there was one individual upon whom you placed a great confidence rather than relying on -- on the report of a documented investigation. But there are other issues. For example, Mr. DeMaiori just provided some personal history anecdotes of incidents that he was personally involved in. In some circumstances you don't accept the -- the statements of individuals as defining what occurred at the plant. Can -- can you explain that dichotomy, please?

DR. ULSH: Well, okay. In terms of the thorium strike, first you have to realize that we're talking about a very small group of people. I mean there was a larger group that was involved in the uranium-233 project, but there were seven individuals involved in the thorium strike and we have their names. I mean we know who they were. The person that we relied upon was the manager in charge of the project at the time. He was there when they did the thorium strike. He was a hands-on individual involved in that project.

Now in terms of -- you mentioned other accounts

that you characterized as we don't accept. I don't agree with that characterization. We -- I spoke yesterday that we evaluated each and every concern expressed by members of the public in the petition, that we could cull from the transcripts, through communications with the petitioner, and we evaluate each and every one of those, just as we did with -- with this particular individual. I mean we -- we -- we consider each and every one of these things that we have heard. We take them very seriously and we -- we investigate it.

MR. HILLER: And did you contact each of the other seven individuals that were involved in -- - in handling the thorium --

DR. ULSH: No --

MR. HILLER: -- materials?

DR. ULSH: -- no, we didn't.

DR. ZIEMER: Could I interrupt on this one? Now the -- the other report that you referred to, I think it was the advisory board or the advisory group, that identified a different building -- 71 --

DR. ULSH: Not exactly. There -- the report that first raised this question -- okay, not

first raised it, but it brought it to our attention -- was called "A History of U-233 at Rocky Flats" and that report was written 40 years after the fact. And it relied on a classified document that was authored in 1965, right at -- just after the time of the thorium strike. We got that classified document -- we had it pulled and we had it -- the pages redacted, and that is the source of the idea that the thorium strike might have happened in Building 71. So then we evaluated the pedigree of that -- of that document. And what we found was that it was authored by an independent investigation committee. Not investigating the thorium strike, they were investigating a later contamination incident dealing with the U-233 and some U-235 that got in with it, and they were investigating that particular incident. And they were an investigation committee and they wanted to purposefully pick people who were not involved with the project because they wanted independence. So we evaluated that -- the word -- the recollection of the hands-on project manager was more definitive, more authoritative than -- than that other report.

DR. ZIEMER: But you couldn't necessarily rule out the possibility that thorium strikes did occur in the other -- I mean in both cases it's recollecting something --

DR. ULSH: I can --

DR. ZIEMER: -- quite a ways back, I guess.

DR. ULSH: Well, I can tell you that this project generated a lot of attention from -- from health physics. Dr. Bistline, who is known to many of the workers and who is -- or at least was, I think he still is -- retained by SC&A, characterized it as this project -- this is my paraphrase 'cause I don't have it right in front of me -- this project received very high attention from health physics and so -- I mean it just wasn't one of these projects that, you know, went under the radar.

Now there was security concerns with it. I don't want to misrepresent that. But the point of that is that there was a small group of workers who were involved with this project and they wanted to maintain that group of workers to do that same project when it occurred again in '77, so I'm pretty con-- I'm -- I have the utmost confidence in the -- the worker that we

talked to.

DR. ZIEMER: Thank you. David?

MR. HILLER: My next question is for SC&A, Dr. Ziemer. In -- in reading the most recent supplemental report from SC&A, my interpretation of that report, as -- as a lay person, is that there's a real question as to the -- the reliability and accuracy of the -- the methodologies used as part of the -- the NDRP. And I guess my question for SC&A is whether -- if we leave aside the -- their careful wording that they used in the supplemental report, if SC&A has in fact concluded that the NDRP is not accurate and reliable.

DR. ZIEMER: We can have SC&A respond, or Mark, did your group address that question in terms of the SC&A report?

MR. GRIFFON: (Off microphone) (Unintelligible)

MS. MUNN: (Off microphone) (Unintelligible) take that.

DR. ZIEMER: Arjun?

DR. MAKHIJANI: (Off microphone) (Unintelligible) couple of slides (unintelligible) (on microphone) the table that

might help.

DR. WADE: We don't really have time.

DR. MAKHIJANI: You don't have time?

DR. ZIEMER: We're kind of pressed for time, but can -- can you summarize --

DR. MAKHIJANI: I can give you an or--

DR. ZIEMER: -- very quickly what --

DR. MAKHIJANI: Yes, I can give you an oral report. The NDRP had several components. One was to gather up nearly 90,000 badges that Brant has talked -- Dr. Ulsh has talked about and reread them. There was a process for doing that. And the other was to calculate doses for people who were not monitored for extended periods of time, like a whole year or large fraction of a year. They were called notional doses. And then the third involved badges that were never found and so could not be reread. Let me start with the notional doses first, people who were not monitored. The NDRP used the gamma badge data, neutron-to-photon ratios that have been talked about, by building -- so they calculated average ratios for buildings -- and then applied them to the gamma dose. And when we investigated this we found that it

might be okay for saying what happened to the population in the building, but that would not be accurate to calculate an individual dose on that basis. And in fact, the NDRP itself concluded that the notional dose estimate should be considered somewhat speculative and the variance estimate should be considered quite approximate. And this applied to periods when there were large gaps. There were instances when there were no building data for the whole year and for the whole building, or nearly no data, and this applied to the SEC you voted on last time, in much of that period, and also to Building 76 and 77 in the early '60s. And for that the NDRP itself concluded -- so what I'm saying is our conclusion was much like the scientific staff of the NDRP, not their advisory board which has been quoted, but their scientific staff report said that for building/year combinations in which neutron films are not available -- that's for the year -- for the whole year, the notional doses are highly speculative. So obviously in -- in those cases the NDRP cannot form the basis of individual dose estimates that would be with

sufficient accuracy, in my opinion.
For the badges that were not found, there are a number of different problems. In order to be brief I'll just focus on the later period, '68 to '70 or '69 to '70, when the badges were deliberately not archived. Some reasons have been presented, but we were not able to find a satisfactory reason why the badges were not archived. Or in more simple terms, thrown away.
The main problem with these badges not being thrown away is that from -- starting from -- being thrown away or not being archived, is that starting in 1967 a new policy of reading neutron badges was instituted because it was found that the workload of reading all the badges was far too high and there weren't enough technicians to do that job. And so only some of the badges of people considered to be at higher risk were read, and the rest of the badges were not read. And instead of the badge being read, a calculated dose was entered based on an estimated neutron-to-photon ratio that was shown by later work in the NDRP to be generally, in our view, not correct. So

there's a real data integrity problem with the 1968 to 1970 data because very large number of -- a fraction of those badges were not recovered and not reread, and the data record is actually a mixture of these calculated doses, most of which -- or many of which would be wrong, together with originally doses that were read at the time.

The significance of that for the present situation is that NIOSH has proposed to use a correction factor based on all of the 87,000 badges that were reread of 6.95, but if you look at the affected workers, 200-and-odd in '68, 200-and-odd in '69 and 1,700-plus in 1970, the correction factors are actually all over the map and vary from .22 to 220. That is, they vary by a factor of thousand -- one thousand, and they bear little or no correlation to the -- the reread dose, so you don't know what correction factor to apply to any particular amount of mis-- gaps where the badges were not recovered. You could apply .2, you could apply .5, so in the one specific instance I can give you -- so there was a 20-millirem original badge dose that was not

found, and you could calculate a 10-millirem dose using a correction factor of .5; you could calculate 20 millirem using the correction factor of -- 16 millirem using the correction -- 20 times seven, 140 millirem using the correction factor proposed by NIOSH, and 20 times 200, or 4,000 millirem using one of the correction factors that's plausible from the table.

The -- finally the question of the rereading of the badges and the statistical corroboration of the re-readings, the NDRP had an elaborate process of trying to check the accuracy of the rereading. This turned out to be a big issue because individual readers were generally found to have significant errors in their rereading, even in the NDRP, and there they were daily checked for the accuracy of their readings and validation of their readings, but as Dr. Griffon (sic) mentioned yesterday, there was one reader who was the gold standard and he -- as consultant to ORAU, Roger Falk described himself as the gold standard -- and the accuracy of his reading was never checked. So in a normal independent evaluation, the -- the

rereading that was done of the badges would be in question because all of the -- all of the readers had correction factors that were necessary to their reading, with a master reader whose correction was never -- whose -- so to that -- to the extent that the NDRP reread doses are the foundation of the neutron dose reconstruction project, that would remain --

DR. ZIEMER: I believe --

DR. MAKHIJANI: -- in question.

DR. ZIEMER: -- the working group has been quite aware of this and has looked at these issues, as well. Is that correct, Mark? Yes. David, do you have a final question?

MR. HILLER: I do have one other question, and that relates to the -- the timing of the process going forward. It's -- it's my understanding that -- that NIOSH has proposed, and I -- I'm not quite sure if the workgroup has accepted or is going to recommend to the Board for acceptance some changes to the methodology that will require recalculation of neutron doses and maybe other radionuclide doses as a result of the discussion that -- and

the analysis of SC&A that Dr. Makhijani just described. And -- and I -- I am wondering if -- in SC&A report, the suggestion was that there is no estimate as to how long it will take to -- to conduct that -- those recalculations, so my question is to -- to NIOSH whether in fact they have analyzed how long it will take to conduct whatever reconstructions they are proposing, whether they have the staff to do that at the present time, so that we know whether we're looking at a period of three months or six months or another year before these doses are calculated.

DR. ZIEMER: Let me suggest that NIOSH wait to answer that till they determine whether the Board is proposing any such thing to them.

MR. HILLER: Fair enough. I -- I would just urge -- in light of the fact that timeliness remains an important issue --

DR. ZIEMER: Yes, understood.

MR. HILLER: -- that that's considered.

DR. ZIEMER: Right.

MR. HILLER: Thank you, Dr. Ziemer.

DR. ZIEMER: Board members, other comments? Yes, Mark.

MR. GRIFFON: I just wanted to -- I -- I think we might want -- it might be useful to have a follow-up from -- from NIOSH on -- and I -- I'd like maybe just the narrow question of the '67 through '70 with the zeroes and the correction factor approaches and I -- I know you've looked into this quite a bit, so I -- I think we need to hear response on that.

DR. ZIEMER: Right, okay.

DR. ULSH: I can tell you that the NDRP -- well, the situation that Dr. Makhijani described I think is accurate at the time the badges were read in that time period. The NDRP, when they went back and they reacquired all of those neutron films, they reread them at the time. Now, Arjun is correct that there are a higher fraction of those original films that were not able to be reread in that time period, in that later time period. We also know that we can identify which of the films were actually read originally and which ones were based on the ratio that Arjun described. The worksheets that you fill out when you do the -- the reads are different. They're going to be blank. And so we know which ones are which.

And I also have to comment on the point that was made about the individual readers, and the reason I have to comment on that is because I don't think the description was complete. It is true that there was a senior reader who was considered the gold standard. However, his readings -- he was simply the normalizer. All of the other readers were compared to him, and his readings were compared to a calibration set of films of known -- films that had received a known dose. And so he was -- his readings were compared to those calibration films. So it's not as if it was just blind faith that they just accepted that his readings were right.

DR. ZIEMER: Thank you.

MR. GRIFFON: Just -- just a --

DR. ZIEMER: Mark.

MR. GRIFFON: -- Brant, just a follow-up on that, just for clarification. The -- part of what I was questioning yesterday was you have -- for '67 through '70 you have this question of -- in some cases, and Arjun mentioned the archiving -- when these -- the policy in that time period, I'm not sure exactly when it started or stopped -- or when it started, but

the policy was to not necessarily keep the films, but in all those cases you have these worksheets. Is that what you're telling us?

DR. ULSH: Let me tell you again what the policy change was.

MR. GRIFFON: Yeah.

DR. ULSH: I think Arjun alluded to it. The AEC, before they made this decision, considered the official dose record to be the NTA film itself. Then they changed their policy and made the official dose record the worksheet that was created when the films were read, and therefore the site was no longer required to archive the films. So to answer your question, Mark, yes, we have the worksheets that were created when those films were read.

Now you asked me in every single case. Well, there are a lot of them, I can tell you that --

MR. GRIFFON: But you have the -- you have the worksheets --

DR. ULSH: Yes.

MR. GRIFFON: -- in gen-- and -- and I guess the other important thing that I heard, which we did examine on the workgroup, was that during that time period actually -- at least --

I'm not sure if it's the end of '66 or early '67, we definitely saw a point where the most highly-exposed workers, to neutron exposures, were monitored -- had measured data and not the notional data. And I think -- you know, the -- the approach was to basically -- the non-measured badges that we're talking about for the most part were -- and I -- and I -- and we looked at this at the workgroup and it was confirmed that the highest likely exposed were monitored in that time frame, so I think that's an important consideration in discussing this time period, too.

DR. ZIEMER: Okay. Thank you, Mark.

MR. GRIFFON: Wasn't a question there, just a --

DR. MAKHIJANI: (Off microphone) (Unintelligible) the record -- (on microphone) I just wanted the record to be correct about what I said in relation to the master gold standard reader. I said that there was no independent verification, and he himself has said that I was right about that, there was no independent verification. What he has said is documented in the SC&A report of April 30,

which you have. His calibration was done by his rereading calibration badges that he himself had prepared and in the '60s at least knew the readings of and said that he had disciplined himself to not remember those readings -- that's not a quote, it's a paraphrase, but I believe it's pretty accurate -- so that under a normal procedure or validation of an -- of a very large multi-million-dollar exercise of 90,000 badges, it would be expected that an independent validation of one person who was the master reader would have been conducted.

A second point also should be clear for the record, which is that Roger Falk told us as a consultant to ORAU, which is why I'm allowed to say his name in that context, that the AEC required the non-- did not require the archiving of TLDs once TLDs were introduced, and that was not until 1971 -- this is also in the interview. We were -- and this is in our report. We were not able to find a good reason why the badges that were still NTA badges were not archived for the period when the policy change to paper records was supposed to have

gone into effect when TLDs were introduced, according to Roger Falk, all -- I believe that I've accurately represented what is in the reports and I just wanted the Board to be aware of what is in the SC&A reports. Thank you.

DR. ZIEMER: Thank you. Okay. Board members, do you have any further questions for --

UNIDENTIFIED: (From the audience and off microphone) I've got a question for you.

DR. ZIEMER: Okay, we need to make it quickly.

UNIDENTIFIED: Well, I'm a little confused with NIOSH's saying about the reconstruction and the doses on the TLDs that were zeroes or didn't have reading. Now what about the TLDs from when they started to closure that came back as zeroes and they should have information on them, are they go-- 'cause you can't re-evaluate those 'cause those are only a one-time read, so how are they going to address people's TLDs that came back with no data available, what number are they going to assign those people in reconstruction?

DR. ZIEMER: Well, I think we're just referring to the film badges here, not to the TLDs.

UNIDENTIFIED: Well, 'cause we've had TLDs in

the past that come up no data available, but yet the person sitting next to you or working in the same job, he's got data, so how they going to evaluate that? That's the same -- that's the same thing going on with the film badges -- the same thing.

DR. ZIEMER: Well, that's -- that's an individual case. You take that case-by-case, I assume.

MR. GRIFFON: But -- but they have approaches -- maybe -- maybe Brant can just say quickly, you know, you do have approaches and we -- we have discussed this on the workgroup.

DR. ZIEMER: Yeah.

DR. ULSH: Yes, we have, we've discussed -- first of all, we're mixing a couple of issues here. The no data available was a concern that was expressed -- I think it was a matter of great concern for the workers, and we investigated it under the data integrity effort that the working group looked at, and the explanation for it is this, and I'll try to make this quick, as Mark requested.

The dosimetry department issued supervisor reports to the supervisors and, during some

time periods at least, the workers -- you know, those were posted and the workers could see them. Due to workload, sometimes those reports themselves showed NDA, or no data available. That is not the same as a zero. What that meant was that by the time the report had to be issued, they hadn't been able to read the dosimeter yet. But we checked. We looked for individual cases where there was a no data available in the supervisor reports. We went back to the individual worker radiation file and we verified that those badge were read after that report and they -- the entry was put into the worker's radiation file.

DR. ZIEMER: Thank you.

UNIDENTIFIED: But what if it's invalid?

DR. ZIEMER: Well --

UNIDENTIFIED: How are you going to...

DR. ULSH: Well --

UNIDENTIFIED: (Off microphone) (Unintelligible) those?

DR. ULSH: -- you're right, the TLDs are a one-time read, because when they read them it resets them --

UNIDENTIFIED: Right.

DR. ULSH: -- and so that is entirely correct. We have no indication that -- that there was a systematic problem with TLDs like there was with the NTA films. The NDRP covered the NTA films.

UNIDENTIFIED: There was, constantly.

DR. ZIEMER: Okay. Mark, do you have any other comments from the workgroup, or is the workgroup prepared to make any recommendations to this Board?

UNIDENTIFIED: (Off microphone) And I have (unintelligible) --

MR. GRIFFON: I -- I -- I just think we might want one more response from NIOSH --

DR. ZIEMER: Okay.

MR. GRIFFON: -- on the independent verifica-- you know, the -- the question of the gold standard and the reading of the NDRP films -- I mean...

DR. ZIEMER: Okay, we'll hear from -- a gentleman have a comment first?

MR. HERRAN: Yeah -- yes, my name's James Herran. You know, all this stuff you talk about, I lived it. Roger Falk is the guy that was in charge when I filed that complaint 35

years ago that the film badges were wrong. My film badge showed 50 percent of the gamma for the neutron. In other words, it should have been ten times higher. It was half of what it should have been. Falk was in charge. I know these guys -- like Bistline. I know him. All you talk about this stuff like the 233, I was there. The first criticality test, I was there. The fire, I was there. All this stuff. You know, it seems like what we're doing here is we're generating some big high salaries for people that know big words. In the meantime, these people are dying. I think your priorities are wrong. I think it's time we did something where we said hey, let's put the priority where it belongs. We're spending more money doing this and talking with big words -- I think if you put the money where it belongs, there are -- these people worked hard. They did a damned difficult job in a difficult situation and sometimes they did it on -- they winged it, because they had -- there was nobody to tell you something. Like when I learned stuff, I went out and learned it -- you had to learn it on the job, or you tried to grab this

here or that there and you put it together because there was nobody there to stand over you.

You know, it's funny, I never saw any DOE guy in the area with me, or AEC people. They weren't there. You know why? They stayed up on the hill where it was safe. I think the priority is wrong. I think it's time to say hey, listen, folks, put the money where it belongs. These are the people that are dying. Those are the ones that did the work. Take care of them.

DR. ZIEMER: Thank you.

MR. HERRAN: Put the priority where it belongs.

DR. ZIEMER: Okay, is there someone from NIOSH that could address Mark's question?

DR. NETON: Yeah, this is Jim Neton. I would like to address this issue of the -- of one person being the gold standard doing the calibrations. I've -- I've been involved in probably 25, 30 years of calibrating instruments in my career, specifically radiation instruments, and I -- I don't -- I don't find the argument that -- that -- the first part of the argument that SC&A rings very

true in the sense that if one person calibrates the instrument, they do it their way and they develop a ratio between their reading and what the standards measure. Now a different person could get a very different calibration factor, but the point is as long as you apply that calibration factor consistently across the board, you'll get the right answer every time. So it really in my mind is not relevant that a different person didn't establish the calibration of the -- of the technique.

Now I will agree that Roger made the -- Roger Falk made the standards and it's not double blind. That may have some merit. But the fact that it was not independently calibrated is -- is not inconsistent with the way that many readers are calibrated in general.

DR. ZIEMER: Uh-huh. Okay, thank you. Mark, additional questions?

Wanda Munn?

MS. MUNN: Just the observation -- a couple of observations, one with respect to the issue at -- at -- of concern right now. Although one might not consider that an individual's work was being peer-reviewed at the time, that

doesn't change the fact that if his standard is the one that all of the others were having to test to every single day when they went to work, then you're getting multiple individuals essentially verifying the same standard day after day after day, simply because that was the standard they had to meet. So it's difficult to say that that was not in fact the case.

One other quick comment about concerns that have been expressed very passionately here about how long this process has taken with respect to your claims. It would be helpful if you understood that most of the delays that you're concerned with are not on the heads of the people that you've charged them with delaying. It's on the head of this Board's working group, of which I am a member. The reason these delays have taken place is because our contractor brought to us a long laundry list of very detailed concerns that you had brought forward and that they perceived might be problems with what they were seeing. And this group went through every possible activity that we could think of to examine each one of

those in painful detail. Nothing was overlooked. This was not the result of the agency. It was the result of the fact that this working group kept saying if this has some problem with it, is there any legitimate way you can approach it and still be accurate, and so the agency said yes, there is indeed another way to look at it and still be accurate and they've done that. And that's why you see all of the detailed procedures that were -- you were concerned with evolving after your claim was brought to us. It's because we looked very closely at how things could be done, how they should be done, and the procedures were in many cases produced to address exactly those concerns. So yes, it's been a long time. It's been painful for everybody. But those of us who were involved in the working group need to take responsibility for much of that delay, and it's because we felt we were doing so on your behalf.

DR. ZIEMER: Okay. Thank you, Wanda. Other Board members, comments at this time? Mark?

MR. GRIFFON: I -- I just wanted to -- I think one -- one more point that we need maybe NIOSH

to respond on, as far as the three issues that we've been discussing, the follow-up iss-- actions from the Board from the previous meeting, the 881 building and whether we can -- whether the coworker approach adequately bounds the earlier -- early period photon doses and -- and shallow doses, but photon doses, and I -- I think the only clarification that I wanted as a workgroup member was a little bit more on the question of whether the operations in '60 and '61 when you do have data, I think compared to pre-'60 when you -- when you don't have data, whether the operations were comparable or if -- if changes were made, they -- they wouldn't affect the doses significantly. We saw factors of four or five in the difference in doses, the coworker model assigning higher than '60/'61, but I just want to be reassured that any changes -- or that there weren't any significant operational changes that may negatively affect our analysis on this, so...

DR. ULSH: Right, Mark. Yesterday I talked about the fact that we know that there were some changes that occurred, specifically I talked about the one in -- around the 1957 time

frame when they added to the machining capability in that building. That certainly happened. But what we expect is, because of the new pit design, that that increased the amount of enriched uranium and the machining that would be required. So if anything, you would expect the dose to go up, and that would be reflected in the 1960 and '61 dosimetry. Similarly with other processes, yes, there could have been other processes -- process changes. We know that there were not significant shielding improvements during that particular time period that would depress those later doses. We know that that didn't happen. So the crux of our reasoning on this issue was that the coworker models that we have exceeded even the maximally exposed individual by such a large margin that sure, the doses might have been a little bit higher in the '50s, but not -- it's just not plausible to say that they would have been so much higher at the same time that they were judged to have an exposure potential of less than ten percent of the regulatory limit. Keep in mind that that was why they were not monitored at the time. It's

just not plausible that they would have been so much higher that they would have exceeded that large margin of error in our coworker models -- large margin of safety in the coworker models.

MR. GRIFFON: And -- and did you -- and I -- I'm trying to re-- I don't remember, quite frankly. I know that SC&A also I -- I think identified some operational changes in that period. Have you -- and maybe I have to (unintelligible) SC&A to the -- to the podium, but you know, I -- I'm not sure if SC&A identified any operational changes that they feel might have negatively affected this approach. SC&A, can you...

DR. MAKHIJANI: Yeah, we -- we looked at the question of changes and the engineering history of Rocky Flats actually identifies a number of very substantial changes in Building 81 in the late '50s and early '60s. The nature of some of these changes including in the chemical process and the way things were handled and so on, beyond the pit design. Some of them at least are mentioned in the report that we just submitted to you, and it was for that reason we felt -- and -- and we did not find any

investigation of these changes in the NIOSH May 17th report in terms of validation of the coworker model doses relative to what might have been. And since the early period -- the early period equipment, if I'm remembering correctly, and designs generally related to the Manhattan Project era and the changes that occurred from the mid-'50s onward, late '50s onward, were reflective of the experience, at least a priori it -- we felt it cannot be assumed that you could use 1960s data as a way of saying the coworker model is a lot more than 1960s data, therefore it's okay, because the production processes look to have been -- at least in some cases -- substantially different.

MR. GRIFFON: And -- and do you have -- I -- I know it's probably in your report, but for the record, do you have example of this --

DR. MAKHIJANI: Yes, I'll have to --

MR. GRIFFON: -- significant change --

DR. MAKHIJANI: I'll have to --

MR. GRIFFON: Okay.

DR. MAKHIJANI: Let me just find it and then I'll bring up --

MR. GRIFFON: All right.

DR. MAKHIJANI: -- the page and quote it for you.

DR. ZIEMER: John Mauro's approaching, maybe he wants to add to that or -- John.

DR. MAURO: Yes, along those lines -- one of the -- Brant gave a presentation regarding the birdcages. Now if I cor-- if I understood it correctly, this is -- the argument was that well, really the worst scenario one could envision is you have this enriched uranium sitting in a birdcage which is specifically designed to pre-- prevent criticality, and you really couldn't have more material closer together without running into a criticality situation. Now I found that -- we -- we were not awa-- we had -- that was the first time we've seen that. And I just want to -- I guess -- am I correct -- I guess this is posing this question to -- to Brant -- that when that analysis was done, it's my understanding that it's being representated (sic) at -- as a scenario that places an upper bound. You really can't have an external exposure scenario worse than having a person one foot away from this five-by-five birdcage I guess for 2,000

hours per year. And I guess if -- this the first I heard it and I found it very compelling, and I'd like to hear a little bit more about that.

DR. ZIEMER: All right, Brant is approaching.

DR. ULSH: Actually what that was, John -- I -- I don't recall -- we didn't do that originally for Rocky Flats. It was just an analysis that was performed at one of the -- in one of the other TBDs. To be honest with you, I can't even remember which one it was and I certainly don't know if it's on the list that you guys have reviewed yet.

UNIDENTIFIED: (Off microphone) (Unintelligible)

DR. ULSH: Okay, that's -- that's where I pulled it from.

DR. MAURO: Yeah, you ge-- so -- my question really goes toward -- I am familiar with that analysis and -- but basically what I'm hearing is that that analysis and the dose rates that were observed from running those calculations -- and we did check those calculations at that other site, might have been Huntington, I'm not quite sure; it was one of the AWEs, but you --

but that's one of the reasons you feel comfortable that the coworker model that you've constructed, notwithstanding the changes in design that we have been talking about, you're saying that notwithstanding those changes in design, you feel that since the coworker model comes up with external doses that are higher than what you would experience by being one foot away from this birdcage, that gives you a sense of confidence that the coworker model will serve the process well.

DR. ULSH: Yeah, you've accurately stated it, John. I'm not saying that this represents a situation that actually existed at Rocky Flats. It was presented merely to give some perspective on how much higher could it have been. And the details of that analysis were a five-by-five array of birdcages, a person spends 2,000 hours a year one foot from it. Now did that actually happen? No, it didn't. But it's meant to be a bounding analysis just to give you an idea of the magnitude of an increase that we could be looking at. And you've got to understand, as I mentioned and John mentioned, we're talking about fissile

material here and so criticality concerns are very serious, as you all know. And that's -- that -- you can't have more material really than that scenario presents because you would get into trouble with criticality. So -- so your description, John, was accurate in what we were trying to demonstrate with that.

DR. ZIEMER: Arjun, did you have a follow-up on your previous comment?

DR. MAKHIJANI: Yes, I have -- I have quotes from the -- our report. They're on pages 25 and 26 of the report where it does say that the initial processes at Rocky Flats were based on World War II processes that were then immediately after refined at -- at Los Alamos and Y-12 before the construction of the Rocky Flats plant, and that's what was operated initially -- I'm paraphrasing -- and that the dissolution, precipitation and calcination processes were originally performed as batch processes. By the late 1950s to early 1960s the processes became one continuous operation, so that's the first sort of major change. The orange oxides were converted to uranium tetrafluoride, a green salt. The conversion

was conver-- conducted by placing the orange oxides into Monel, copper/nickel alloy, containers, heating to reduce the compound and adding anhydrous hydrogen fluoride. The green salt -- et cetera, and then it describes how these changes came about, and this is all from the Rocky Flats engineering history. Plant personnel contributed many unique improvements to enriched uranium recovery processes. Improvements were made to the continuous dissolution processes of the following materials: sand and slag from foundry operations and skull oxide material recovered from foundry crucibles. Improvements were made in other continuous processes for peroxide precipitation, calcining of uranium peroxide and leeching of powdered solids. Site personnel developed improved processes for graphite incineration, (unintelligible) parts decontamination and achieved a 15 kilogram scale reduction of uranium tetrafluoride to metal. So as you can see, the -- the changes in the operations in -- in Building 81 were ec-- extensive and -- and basic to the way they did business over there. The health physics

implications of this are -- are not known because -- because as -- as NIOSH has stated, Building 81 workers were not monitored during the 1980s and this was one of the things that we discovered through our data completeness evaluation and also through what NIOSH has stated. Thank you.

DR. ZIEMER: Okay, thank you. Okay.

MS. MUNN: Mark?

DR. ZIEMER: Mark, I'd like to --

MR. GRIFFON: Just -- just to follow up on that, that was in '59, Arjun? I think --

UNIDENTIFIED: (Off microphone) (Unintelligible)

MR. GRIFFON: I'm sorry.

DR. MAKHIJANI: (Off microphone) Late '50s and early --

DR. ZIEMER: Use the mike, Arjun, please.

UNIDENTIFIED: Excuse me --

DR. ZIEMER: Hold on, sir.

UNIDENTIFIED: Oh, excuse me, sir.

DR. MAKHIJANI: This happened in the late '50s and early '60s, and the data that we're talking about in terms of the first monitoring was from the last quarter of 1960 and the whole year of

1961.

MR. GRIFFON: Thank you.

DR. ZIEMER: Sir, do you have a question?

MR. SABA: Yes, sir, my name is Phil Saba. I was a machinist in 81 building. I started there in 1957, and I was there until they closed the building down -- or the production down to send to Oak Ridge. Okay, the birdcages were used in the hot area in 76 and 77 building. Okay. In 81 building the parts ranged from eight-inch diameter to 12-inch diameter, and they were set on a cart out in the open. We washed the parts in car-- in percolene and, like I said, you know, the carts were -- the parts were in open area so there was no birdcages in 81 building.

DR. ZIEMER: Okay, thank you. Okay, Mark.

MS. MUNN: Please. Please, Mark.

MR. GRIFFON: I -- I -- this is a question again to NIOSH, just to clarify for the record for us, I -- following up on -- on Jennifer's presentation, the -- and -- and this -- this was new news to us, as well, but the 881 subcritical experiments and I know you mentioned two individuals and my -- my sense is

similar to -- to what the petitioner presented, which is that likely these were the two leads, but you -- you must have had some support personnel, so I wonder if -- if NIOSH -- you know, it's the question of whether this building is included as a neutron building and to what extent we can identify who within that building is likely a -- a -- you know, a candidate for neutron ex-- or had potential for neutron exposure, and I -- I would -- I would expect it might be a little wider of a population than two, but I -- I -- you know, I just want to understand more how NIOSH is going to make -- make that determination.

UNIDENTIFIED: (Off microphone) Don't they have (unintelligible) in the trunk?

DR. ULSH: Okay, this question came up -- was brought up by SC&A, and the source that they quoted was the -- it was called a "Technically Useful History of the Critical Mass Laboratory at Rocky Flats," I believe, or pretty close to that. And I pulled that same document and looked at it, and -- okay, I'm going to delete the names here for Privacy Act considerations, but to quote directly from it, it says

(reading) A bright and innovative young man named -- and it gives his name -- was hired away from -- again, I -- I want to be very careful --

MR. GRIFFON: Yeah.

DR. ULSH: -- for Privacy Act information, but he was hired away from another facility. His task was to establish some form of criticality safety at the fledgling facility. Soon after arrival he hired another scientist -- it gives his name -- to assist him, and here is the key part -- these two provided the entire criticality safety program at Rocky Flats throughout the rest of the first -- that first decade, the 1950s. That's quoting directly from the report that --

MR. GRIFFON: Yeah.

DR. ULSH: -- formed the reference that NIOSH -- that SC&A quoted. Later on they hired more people. For many years the entire nuclear safety group consisted of only 14 persons, but that was later on, into the '60s.

Okay, here's another quote from the -- that same report. (Reading) Prior to constructing the CML, that's the Critical Mass Laboratory,

persons performing in situ experiments were the same ones evaluating criticality safety throughout the plant. The same ones.

MR. GRIFFON: Right.

DR. ULSH: And there were two -- at least according to this report.

MR. GRIFFON: Yeah. But I -- I guess -- do we have any further indication of where -- within 881 was it a certain designated area all the time? Was it in various areas? Do we know any --

DR. ULSH: No, I don't --

MR. GRIFFON: -- mention anything like that?

DR. ULSH: I don't --

MR. GRIFFON: 'Cause I would argue that if someone says that they were in that building and worked, you know, in that certain room or -- or area, I -- I would think -- and I would hope that DOL's determination would be to presume they were exposed to neutrons rather than make the individuals prove that they were one of those two, you know.

DR. ZIEMER: Or even if they weren't part of that group --

MR. GRIFFON: Yeah, so I --

DR. ZIEMER: -- if they were in the area.
MR. GRIFFON: Well, I -- I understand these two were likely in charge of the experiments, but I -- I would imagine that they might have had, you know, setups and things like that, or stand-by people in case of a -- an accident, an incident or whatever, I -- I don't --
DR. ULSH: Okay.
MR. GRIFFON: -- you know.
DR. ULSH: A couple of other facts about these in situ experiments, because they were also done at Lawrence Livermore and I talked to a guy who did them there. He said yeah, we did similar types of things as they did at -- at Rocky. These are not big, enormous experiments, Mark. I mean they're putting together components, pieces, stacking them up in different configurations and they're very carefully monitoring the amount of neutrons that come off of them. And what I was told is -- I mean you've got to understand that as you approach criticality, it's not like once you hit critical geometry you use this much and if you only go -- have half that much, then you have half the number of neutrons. It's not

like that. It's like flicking a switch --

DR. ZIEMER: Exponential.

DR. ULSH: -- because of exponential --

DR. ZIEMER: Uh-huh.

DR. ULSH: Exactly. So what I'm saying is that they always -- and that's described in this report. They always kept the neutron dose, the amount of neutrons, neutron flux coming off of these experiments to a very, very low level. It was characterized to me as they could barely even detect them they were so low. And the quote that SC&A pulled out from this same report -- which I can't find right now on the spot -- also talked about for safety considerations or something like that -- this is my loose paraphrase -- they always did this off-shift, when other people weren't around, for exactly these reasons. That's what it says in this -- this report, because of -- you know, I mean you don't want to exp-- put more people at risk than absolutely necessary.

MR. GRIFFON: No, I --

DR. ULSH: Now all I can do is rely on this report right here and what it says in that report. I'll -- I'll let you evaluate the --

the merits of what -- what it says.

DR. ZIEMER: A question?

MR. DEMAIORI: Yes, I'd like to extrapolate a little bit on what NIOSH has articulated as far as the amount of individuals that would be required to do this. That's -- the building would have to have a minimum of two SOEs just to operate the building air. That's -- there's no experiments that could possibly take place that -- where they would abandon the minimum staffing of the facility. That's -- they would also have to have rad techs. That's absolute. That's your minimum, your safety envelope, your SOEs, your rad techs. You'd have to have security, special nuclear material. That's -- you'd have to have material control people, special nuclear material, access in and out of the vaults. That's true enough, that's -- anybody within reason would -- would do it on an off-shift to reduce the number of building personnel day to day. That's -- however, to -- to make the assumption from a report that a building was evacuated -- that's on a second shift or a third shift -- completely of personnel is absurd. That's -- it would have

been very unsafe.

DR. ZIEMER: Yeah, thank you for clarifying that, it (unintelligible) to make sense.

MR. GRIFFON: All right, I think I --

DR. ZIEMER: Further comments or questions?

MS. MUNN: (Off microphone) Please (unintelligible).

DR. ZIEMER: Then I'm going to ask Mark -- question, sir?

MR. CASTILLO: My name is Richard Castillo. I worked there from 1978 to 2005. Back in the '90s when we were in production, how do you take and try to evaluate a reading, a dosimetry reading, when you have management telling the workers your dose is too high; you need to take your badge, stick it in the office in a desk. How do you get a reading for that? I mean he can calculate all he wants, but these people were getting dose that was never calculated.

DR. ZIEMER: Thank you. Actu--

MR. CASTILLO: Also I want to go back to an incident that happened in -- in E module. In E module we had the birdcages that they talk about. There was a line, there was a conveyor and they went overhead. We had this one

foreman, and I could give you his name if I -- but I -- for purposes of safety or -- not safety, but Privacy Act, I will not. But anyway, what happened is five of the triggers fell off the line, off the birdcages overhead. Okay? He came to me -- well, first he went to the crate engineers and he said okay, the crate engineers got back with me. They said for -- it was okay for you to get up there and move them, it wouldn't cause a criticality. I says I want to see it in writing. He says oh, they said it's okay. I says no. I says I want to see it in writing. He says well, then I'll do it. I says okay, you do it. Let me get out of here. So I cleared that -- that -- in case his hands caused a criticality 'cause now you have -- you're changing the configuration.

DR. ZIEMER: We understand.

MR. CASTILLO: He got in -- up there and moved it. I seen him a year later. Both hands are full of cancer. I don't care how much data he has, that's living proof. That's all I want to --

DR. ZIEMER: Thank you. And let -- let me -- let me mention that in the -- the first case

that you described where if a worker in his -- in his claim so indicates that the situation that you described did occur, NIOSH does have methods to -- to handle that, as well, so they -- they do -- and it's done on an individual worker basis. If you -- if you said that this was done with my badge --

MR. CASTILLO: Yeah, they have -- they have calculations for that, but how do you account for the guy having the skin cancer? That's living proof. And I -- I could tell you the guy's name, and I could give you the names of the people that put the badges in the desks. They asked me to do it. I refused.

WORKING GROUP RECOMMENDATION

DR. ZIEMER: Okay. Thank you. Now Mark -- call on Mark for purposes of a recommendation from the working group.

MR. GRIFFON: Yeah, I -- I think at this point the workgroup -- I have at least a -- a preliminary motion, and I think -- I have written out a draft anyway that has some of the details supporting the motion, but I think I can offer the sense of the motion first --

DR. ZIEMER: Okay.

MR. GRIFFON: -- if that's okay.
The motion is to -- to have an SEC established for all workers who were monitored, or should have been monitored, for neutron exposures from January 1, 1959 through December 31st of 1966, and -- and it's -- it's worded as all -- all workers who were monitored, or should have been monitored, so we have that same language where we have to -- that's why I was inquiring some on the buildings that would be included and how we're going to determine -- I think that's a separate discussion, but that's -- that's the -- that's the one -- one motion we're prepared to make.
DR. ZIEMER: Okay. Let -- let me -- that -- that is a motion then from the -- from the workgroup?
MR. GRIFFON: Well, it's a motion -- well, I guess it's my motion. We didn't have -- Mike Gibson wasn't -- hasn't -- hasn't seen this or heard this, so -- but Wanda --
MS. MUNN: I second.
MR. GRIFFON: Wanda seconds, yeah.
DR. ZIEMER: Okay, the motion is made and seconded. Let me ask if the workgroup is

prepared, after we take action on this motion, to address subsequent years, namely '67 and beyond, in some fashion and -- or -- your motion goes through '66 --

MR. GRIFFON: Yeah, yeah --

DR. ZIEMER: -- 1966, you would --

MR. GRIFFON: -- the motion beyond -- '67 through the -- is it 2005, the motion is to accept NIOSH's evaluation report and -- and that would also overlap the '52 through '66 for non-neutron parts of the evaluation report. So it's basically to accept NIOSH's conclusions in the report for --

DR. ZIEMER: Well, that motion is not before us yet, but just --

MR. GRIFFON: Right.

DR. ZIEMER: -- in anticipation. So the motion is to recommend Special Exposure Cohort status for neutron workers for the period of January 1st, 1959 through December 31st, 1966 -- is that correct?

MR. GRIFFON: Right -- yes.

DR. ZIEMER: Okay, and the motion's been seconded. Board members, do you have questions or comments on this motion, pro or con?

MR. GIBSON: Can I make a comment?
DR. ZIEMER: Yeah, is that Mike?
MR. GIBSON: Yeah.
DR. ZIEMER: Mike Gibson, please proceed.
MR. GIBSON: First I apologize that I wasn't able to be there in Denver, but -- so I have not seen the motion. I guess I just want to comment that in light of Ms. Munn's comments and I, as part of the working group, do take responsibility for the process being drawn out. I didn't quite look at it in those terms as -- that she's put them, but I do accept that responsibility. And I feel that since we have been less than timely, I would just like to say that at the end of this exhaust-- (broken transmission) approach, we're still down to NIOSH saying -- throwing the word "plausible" around. And when I look at the definition of "plausible," it says believable and appearing likely to be true, but usually in the absence of proof. And given that, I just think that we might ought to consider (broken transmission) the petition to include all Rocky Flats workers.
UNIDENTIFIED: Yes.

DR. ZIEMER: So Mike, you are speaking against the motion, as I understand it then.
MR. GIBSON: Or to -- to amend it and to broaden the scope.
DR. ZIEMER: Okay, thank -- thank you. Other comments or questions, Board members? Dr. Lockey or Phil -- Phil Schofield, any comments?
MR. SCHOFIELD: Yeah, this is Phil. I would like to -- I'm still concerned about some of the records, particularly (broken transmission) to about 1970, which if we're not going to be able to expand it for the whole time frame, then we should at least make it through the end of 1970 because of the spottiness of a lot of the records in '69 and '70.
DR. ZIEMER: Okay, so your concern here is the period from basically '67 to '70. Is that correct?
MR. SCHOFIELD: Correct.
DR. ZIEMER: Yeah, okay. Let me ask Mark to address that momentarily here.
MR. GRIFFON: That was certainly a -- a -- a lengthy discussion between workgroup members that -- and we -- we certainly considered that. A couple of points on that. One is that it's -

- it's clear in our review that the -- the highest exposed individuals from '67 through '70 -- the time period for this NTA film consideration -- were actually measured during this time period and -- and not -- not assigned notional dose in the NDRP project. So that was one part of it.

The other part of it was that this question of the zeroes and the correction factors and this -- this sort of non-recovered films that were never -- never measured. The -- the worksheets being available is helpful 'cause we can distinguish which ones are actually measured zeroes versus -- and I raised this as a concern yesterday, that if we can't sort that out, we -- we may have a -- a problem here. But in fact we have the worksheets to back that up and -- and one further item was that I've -- and NIOSH can confirm this, but I've been assured that in the event that worksheets are not available for certain of that group, they would assume unmonitored and assign just the highest -- the 95th percentile cycle date. I -- NIOSH may want to veri-- they're -- they're nodding their head, the record should show, in agreement with

that.

So given those factors, I think that -- you know, that made -- that made a solid argument to break that period up and that's -- that's why we ended up with that split there. Certainly we -- we did consider at -- at length for quite a while as to whether to include it all the way through '70.

DR. ZIEMER: Okay. Thank you. Other members wish to speak for or against the motion?

(No responses)

Are you ready to vote on the motion?

MS. MUNN: Yes, call the question.

UNIDENTIFIED: All or nothing.

SEC VOTE

DR. ZIEMER: Okay, the motion is to add -- or recommend the addition of neutron workers to the Special Exposure Cohort for the period of June 1st --

MR. GRIFFON: January.

DR. ZIEMER: -- or January 1st, I'm sorry, 1959 through December 31st, 1966. We'll take an individual vote here. I think I'm going to ask the Designated Federal Official to do a roll call vote here, so --

DR. WADE: Okay. Mr. Presley?
MR. PRESLEY: I vote for the motion.
DR. WADE: Mr. Clawson?
MR. CLAWSON: No.
DR. ZIEMER: No.
DR. WADE: Mr. Griffon?
MR. GRIFFON: For the motion.
DR. WADE: Ms. Roessler?
DR. ROESSLER: I'm for the motion.
DR. WADE: Ms. Munn?
MS. MUNN: For the motion.
DR. WADE: Dr. Melius?
DR. MELIUS: Just repeat the motion again.
DR. ZIEMER: The motion is to recommend a Special Exposure Cohort status for neutron workers covering the period of January 1st, '59 through December 31st, '66. And of course the wording that would go to the Secretary would include the more complete description and our usual caveats which would spell out how soon the Chairman has to get that information in and -- and --
DR. MELIUS: Okay.
DR. ZIEMER: -- the usual legal wording on -- on that motion.

DR. MELIUS: Then -- then I'll vote for that.
DR. ZIEMER: Okay.
DR. WADE: Dr. Lockey?
DR. LOCKEY: I vote for the motion.
DR. WADE: Mr. Schofield?
MR. SCHOFIELD: Vote for the motion.
DR. WADE: I'm sorry?
MR. SCHOFIELD: Vote for the motion.
DR. ZIEMER: For the motion.
DR. WADE: Mr. Gibson?
MR. GIBSON: I abstain.
DR. WADE: I assume Dr. Poston is not on the line?
(No responses)
Dr. Mel-- Dr. Ziemer?
DR. ZIEMER: For the motion.
DR. WADE: We have eight yeses, one no, one abstention.
DR. ZIEMER: The motion then carries. The Chair now recognizes the workgroup chairman for making any additional motions.
MR. GRIFFON: Yeah, the -- the -- the second -- this second time period, I don't know that we've -- I -- I was trying to look for language to this effect, but it's basically to -- we did

agree that we would discuss this second time period separately, in a separate motion, so that's why I'm offering it as a separate motion, to have a separate discussion on it and --

DR. ZIEMER: Right, the --

MR. GRIFFON: -- separate -- separate vote.

DR. ZIEMER: -- Chair insisted at the last time that the Board take some kind of action, pro or con, on the remaining time period. I -- I want it on the record, at least. So we're talking about January 1st, '67 and up through I think 2005 --

MR. GRIFFON: Five, right.

DR. ZIEMER: -- was the period covered in the petition.

MR. GRIFFON: Yeah.

DR. ZIEMER: So your -- your motion basically is that --

MR. GRIFFON: That the -- that the Board accept the NIOSH evaluation conclusion that they can reconstruct dose for -- can reconstruct all radiation dose for that time period.

DR. ZIEMER: That is the motion. Is there a second?

MS. MUNN: Second.

DR. ZIEMER: And seconded. Now discussion on this motion? Let me start with those on the phone.

MR. SCHOFIELD: Yeah, could I have the motion restated and -- I seemed to break up right then.

DR. ZIEMER: The -- the motion is to accept the -- or to agree with the NIOSH recommendation that for the period 19-- January, 1967 through 2005, agreeing that dose reconstruction can be done and therefore to not recommend Special Exposure Cohort status for that time period. Now Board members, do you wish to speak for or against the motion? Dr. Melius.

DR. MELIUS: I'd like to speak against the motion. I think there are too many open issues that have not been adequately addressed, at least to my satisfaction, regarding the '67 to '70 neutron dose exposure issue, the thorium issue and the building 881 issue, as well as I think a number of other issues that have been -- been brought up today by the petitioners and other people here. And for those reasons, I am not in support of that motion.

UNIDENTIFIED: (From the audience and off microphone) Thank you.

DR. ZIEMER: Thank you.

MR. GIBSON: Dr. Ziemer?

DR. ZIEMER: Somebody on the phone, is it --

MR. GIBSON: Dr. Ziemer, it's Mike.

DR. ZIEMER: Okay, Mike Gibson, thank you.

MR. GIBSON: Yeah, I'd like to -- I'd like to speak out in opposition of this motion. This Board was made up by law of those from the scientific, medical and the labor field, and I think that we have to give as much weight to the experiences that the people went through at the site as we do to the scientific issues. And again I state, at the end of the day all I hear is it's plausible on the scientific side, and I hear argument after argument from people that were actually there doing the job, and I think that the -- if we're to do our duties correctly, we need to consider the people's experiences and we need to grant this petition as they (broken transmission) it.

DR. ZIEMER: Thank you. So you are speaking against the motion. Thank you.

Wanda Munn.

MS. MUNN: At the core of our responsibility on this Board we have only one issue. We are not chartered with dealing with the unfortunate business of what's been referred to as chemical cocktails -- I think appropriately referred to. We have one responsibility and one only, and that's to deal with the issue of whether adequate information exists to complete accurate -- reasonably accurate dose reconstructions for individuals who have had radiation exposure. So the core of our responsibility is really very difficult to get to, but in simple terms, the only issue is whether adequate information exists for those reconstructions to be done in a reasonable manner.

We have heard no indication that we do not have adequate information to do that. We have excellent information, and for that reason I support the motion.

DR. ZIEMER: Other Board members, pro or con? Yes, Mr. Clawson.

MR. CLAWSON: You're absolutely right. We've got a responsibility, but we also know that there is gaps. And I'm -- I'm not a scientific

person. I'm still a worker. I still work in the industry and I still know the fallacies that are out there. I believe that we are still learning. I believe that we -- you look in the last 40 years what we have learned and what we have gotten, and I apologize, I -- it's no disrespect to NIOSH or anybody else, but I really do not feel that it can be done, and I speak against it.

UNIDENTIFIED: (From the audience and off microphone) Thank you.

DR. ZIEMER: So you speak against the motion. Mr. Presley?

MR. PRESLEY: As a -- a Board member that's been on the working group, yes, we've taken a tremendous amount of time. We've looked at a tremendous amount of data. And I think that NIOSH has done their job, SC&A has done their job. They have given us reports, they have given us data that says that they can do dose reconstruction and do it accurately and do it in the favor of the petitioner. I would like to speak in favor of the motion.

DR. ZIEMER: Thank you. Dr. Roessler?

DR. ROESSLER: I wasn't on the working group,

but I have worked in the field of health physics and dosimetry for a long time. And I -- I have confidence that NIOSH, in their very detailed evaluation of the situation, can reconstruct the doses in the manner that we're required by this rule, and that is to have an upper bound. I think enough information is known, in spite of all of the things that have been brought up, that -- that an upper bound and a claimant-friendly dose can be obtained. I -- I do want to add, though, that it's very difficult, as a Board member, to listen to these people, and I sympathize with all of the health problems. So this decision is very difficult for me to make.

DR. ZIEMER: Thank you. Any others on the phone that have comments? Dr. Lockey?

MR. GIBSON: Dr. Ziemer?

DR. ZIEMER: Yes.

MR. GIBSON: If I could just add --

DR. ZIEMER: Sure.

MR. GIBSON: -- (broken transmission) my comment just a little bit.

DR. ZIEMER: Yes, Mike Gibson.

MR. GIBSON: And with all due respect to my

former -- my working group member, Ms. Munn, I just want to make a note (broken transmission) the record that we have more than one responsibility. We have the responsibility to do this in a timely manner, and I just (broken transmission) I take the responsibility as a member of the working group that we have not (broken transmission) in this time, but you know, I don't think we have that liberty now that it's been put in this kind of light. But we have more than one responsibility to do it in a timely manner and I don't believe that criteria was met in this situation.

DR. ZIEMER: Thank you. Let's see, Mike -- okay, Mark.

MR. GRIFFON: Yeah, I -- I guess I have to -- I mean I -- I want to say that I agree with Wanda's point that -- and as a workgroup member I do take responsibility, and probably the chief responsibility for some of these delays because, quite frankly, I was the last person maybe on the workgroup or -- well, maybe not -- maybe that's not true, but I certainly was attempting to, as Brant I think characterized it, turn over every stone and had a great bit

of doubt about some of the database data, asked for -- met some resistance sometimes, but asked for a lot in terms of we want more raw data to support some of these conclusions. We -- you know, I -- I see some inconsistencies between databases. We -- we have to go back to raw data and verify this. We're not just going to accept this as the truth. And I think we did push for a lot of those -- extensive amount of raw data and looked into that at great length and, you know, I -- I think it's also important to point out, after doing all this, I think -- at least for those points I went over in my presentation yesterday -- it doesn't include the '67 through '70 time -- time period with the neutrons, but from '70 and beyond, SC&A is -- is concluding -- is in agreement with this, you know, that their -- their findings are consistent with what we're saying on the workgroup. So it's not only NIOSH telling us this. We've had SC&A look at this thoroughly, and I think that's also important to remember. We -- and we all know how extensive SC&A's report is. I think it totals probably over -- close to 1,000 pages now. So we -- we

definitely looked at this and didn't just accept it on face value. We -- we tore into this and I think at the end of the day, you know, we -- we do have the data for that later ti-- I feel we do have the data for that later time period, so...

DR. ZIEMER: Thank you. Let me ask if either Phil or Jim Lockey have any comments, pro or con, on the motion?

DR. LOCKEY: This is Jim Lockey. I -- I've been impressed by the -- the work that this working group has gone through, and particularly Mark leaving no stone unturned. And I think that all the Board owe a debt of gratitude and thanks for the extra effort that's gone into this project.

DR. ZIEMER: Okay. Do you have any specific comments for or against the motion?

DR. LOCKEY: I -- you know, after looking at all the data and -- and listening to the workgroup, I think it -- it -- that it appears that dose can be reconstructed in this cohort for the time period outlined.

DR. ZIEMER: Okay, thank you. Phil, are you on the line?

MR. SCHOFIELD: Yes, sir. I'm actually against the motion as it stands because I still feel that the data for '69 to '70 is awful spotty and there's a lot of assumptions being made instead of hard data for that, so people actually trying to get their dose reconstructed, '69/'70, when there's large gaps, I have a problem (broken transmission) those years in the motion.

DR. ZIEMER: Okay, thank you. Dr. Melius, you have an additional comment?

DR. MELIUS: I would just like to elaborate a little bit. First of all, I -- my disagreement with the conclusions of the workgroup is not meant to in any way criticize the workgroup's hard efforts in trying to evaluate this petition and -- and come to grips with what's a very complicated site with lots of different exposures and over a long time period and with information that's not always easy to deal with. However, I would remind the -- all of the Board that I -- I think the -- the fault, to a great extent, with this process and with the effort required, you know, goes back to how this site was originally approached. We had a

site profile that was largely written by people with very significant conflicts of interest. To this day if one goes back to the revised site profile in the two main chapters, those on external and internal exposures, all of the attributions I believe in those chapters are to those two individuals who were originally involved in the dose reconstruction program -- yet to be convinced that there's been an adequate, independent review of that. Secondly, there was no opportunity, for very little opportunity for worker input into the process. There was one meeting held in 2004 prior to the more recent work with the petition. And one -- if one goes back to the revised site profile, one -- though one finds some verbiage that says that worker inputs were considered, there is not one reference to a -- any comment or information received from a worker into that -- that report. Unfortunately we're then left at the end of the process with the petition to try to sort through what I think's been a lot of valuable information, including valuable information that we received last night that I don't think

we've given, you know, adequate attention to or -- or have adequately followed up on.
We also are dealing with a process that's very unfair to the petitioners. They are given -- you know, they lack resources. They're given access to information begrudgingly and often at the last minute and not in a timely fashion. And even the Board is presented with information from NIOSH that is incomplete and at the last minute. We were given a presentation yesterday we're still struggling to get some of the references for that was -- the report given to us I believe in the end of May had no attributions as to where the information came from and so forth. And so we're being asked to judge things very quickly and with incomplete and inadequate information.
And finally, I -- I think the report that Jennifer and the other petitioners have -- have made quite well. I mean this process has taken 847 days and that's -- it's -- something is sort of grossly unfair about that and, you know, maybe we could struggle on and -- and try to come to grips with all these issues, but I think we have to try to reach some closure on

it. It may be up to Congress or to the legal system to better address this process, but -- or it may be to NIOSH to revise the whole process, but -- but thi-- this is not a fair process and I can't, you know, claim that I've been adequately convinced that individual dose reconstruction is po-- feasible to be done with sufficient accuracy over the entire time period and over the tire-- entire scope of the period that's covered in -- in Mark's motion.

DR. ZIEMER: Okay.

UNIDENTIFIED: (From the audience and off microphone) Thank you.

DR. ZIEMER: Thank you. And typ-- typically the -- typically the Chair on a board of this type is supposed to sort of be the moderator and -- and not enter into the debate. But I think it behooves me to make some remarks, as well.

First of all, I've become convinced, based on the work of the working group, that it is certainly feasible to -- for NIOSH to do dose reconstruction with sufficient accuracy -- and sufficient accuracy in this case means accuracy that will allow them to make a claimant-

favorable decision. I also note that the workgroup, through their process, has caused, in a way, NIOSH to change much of what they were doing on this site in terms of dose reconstruction so that in the end, sort of regardless of how the final thing comes out, dose reconstructions done here will be done in a much better manner than they would have been done prior to the efforts of this workgroup and this process.

Now we heard from the Congressman earlier today and I -- in a sense, and I can say this since I'm not a part of any of these agencies. It's unfortunate that the burden has been passed to a group like this to correct what Congress should have done correctly in the first place. It is hard to get any of them to admit that the -- the generation of the convoluted process that we find ourselves in is the way that the law was originally written, that basically --

UNIDENTIFIED: (From the audience and off microphone) (Unintelligible)

DR. ZIEMER: -- that basically requires us to go through this process, that requires some time-consuming efforts for us to do our

responsibilities as they are stated under the law, because what we see here is duplicated all over the country. This is not the only site that has the same -- we have these problems -- timing problems with a Board which -- of workers which is not as large as the law dictates it should be and therefore is very overburdened. That's why our working groups are -- are overburdened in time -- doing a little soap-boxing here --

DR. WADE: No more about Congress, but you can talk about the process.

DR. ZIEMER: Yeah. But the process perhaps could -- could have been set up in a better manner at the front end, but we have what we have. And I think the Board is struggling to do its job in the way that it -- it believes it should be done. Every Board member is very conscientious. I think every Board member empathizes with the workers very much. We -- we end up in somewhat different places. We do this in a collegial fashion. None of us are mad at each other because of how we vote on these things. We do it in a collegial fashion, but we have to -- we have to proceed and vote.

Now at the moment, without the vote having occurred, it appears to the Chair that the vote may pass. Now -- and I want -- I want us to think about that for a moment because what we will have will be a recommendation to the Secretary that is not a very strong recommendation. But nonetheless, he will have to deal with that in some manner or another. The other part of it is to point out to the assembly that we are not precluded, I suppose, in the future from having a different recommendation if other information comes forth of the type that Jim mentioned. However, I -- I do -- I don't want to drag out the process and -- and delay the process. I've tried to press the Board to come to a type of closure. We'll be where we are at the end of this process today. Perhaps there will be additional information come forth that would re-- that would suggest that there be some -- some other endpoint in the future, but we have what we have at the moment.

MR. ROMERO: (From the audience and off microphone) Mr. Zimmer (sic), another question, please?

DR. ZIEMER: Yes.
MR. ROMERO: If it's Congress's problem why this is not working, why didn't you address that when the man was standing right there?
DR. ZIEMER: Probably I --
MR. ROMERO: Why didn't you tell him how to fix it so he can go to Washington and fix it?
DR. ZIEMER: I -- I think -- I think he's already indicated that -- that they're -- Congress is in fact taking some steps that may change the process, so he recognizes that, I think, and -- I -- I don't want to say -- I'm -- it's not my intent to insult Congress. I'm -- I'm simply expressing a concern --
UNIDENTIFIED: (From the audience and off microphone) (Unintelligible)
DR. ZIEMER: -- I'm simply expressing a concern. None -- none of these laws are -- you know, this one doesn't consider the chemical mixes and so on, so we have -- there's -- there's those kinds of things. We can't address them all, but we'll do the best we can. Now --
DR. WADE: Call the roll?
DR. ZIEMER: -- additional comments. Robert?

DR. WADE: I can call the roll.
DR. ZIEMER: Ready for a roll-call vote.
DR. WADE: Okay. Presley?
MR. PRESLEY: I vote for -- I vote for the motion.
DR. WADE: Clawson?
MR. CLAWSON: No.
DR. WADE: Griffon?
MR. GRIFFON: For the motion.
DR. WADE: Roessler?
DR. ROESSLER: For the motion.
DR. WADE: Munn?
MS. MUNN: For the motion.
DR. WADE: Melius?
DR. MELIUS: Against the motion.
DR. WADE: Lockey?
DR. LOCKEY: For the motion.
DR. WADE: Schofield?
MR. SCHOFIELD: Against the motion.
DR. WADE: Gibson?
(No response)
Mike? Mike Gibson, are you with us?
MR. GIBSON: Yeah, are you calling me?
DR. WADE: Yes.
MR. GIBSON: I can hardly hear.

DR. ZIEMER: You vote --
DR. WADE: I'm sorry.
MR. GIBSON: I vote against the motion.
DR. ZIEMER: Thank you.
DR. WADE: Thank you. Dr. Ziemer?
DR. ZIEMER: For the motion.
DR. WADE: The vote is six to four in favor of the motion.
DR. ZIEMER: Six to four is the vote. The motion carries.
Board members, are there any follow-up -- and again, this motion would be put into the -- the normal regulatory form that would go forward to the Secretary, and I assume that -- and -- and we have, at the request of the -- the Colorado delegation, held the letter for the original motion. They asked that it not be sent in until we completed the -- the work here at this -- so there -- there would be recommendations on three different time periods that would go forward. Is -- is that your understanding --
DR. WADE: Correct.
DR. ZIEMER: -- Dr. Wade? Right. Okay, Board members, any further comments or questions relative to the Rocky Flats petition.

MR. SCHOFIELD: This is Phillip, just one comment. I think that SC&A and the working group have done an outstanding job and have dug up a mountain of facts that they have (broken transmission) to sift through.

DR. ZIEMER: Thank you, Mike (sic). Any other comments?

DR. WADE: We have more work to do. That was Schofield.

DR. LOCKEY: Paul?

DR. ZIEMER: Oh, that was Schofield. Okay. Yes?

DR. LOCKEY: Paul, Jim Lockey, I --

DR. ZIEMER: Jim.

DR. LOCKEY: -- I just wanted to reiterate your -- your comment that you made a few minutes ago about additional steps that -- that perhaps should be taken in relationship to this legislation.

DR. WADE: Again, individual Board members can speak out their views relative to Congress, but the Board really is in no position to advise Congress.

DR. ZIEMER: Okay. Yes.

UNIDENTIFIED: (Off microphone)

(Unintelligible) Maryanne (unintelligible) (on microphone) and I'm going to ask you to sit through one more thing.

DR. ZIEMER: Sure.

UNIDENTIFIED: This is called "The Silent Soldiers". (Reading) They walked many days in plutonium dust because there were those who told them they must. They stood behind glass that was meant to shield while the gaskets on boxes plutonium did yield. They battled the dragons of plutonium fire and fought criticalities down to the wire. Aprons of lead were their garments of armor, dosimetry badges their badges of honor. They went when their call -- country called them to service, as the nuclear threat made our citizens nervous. Day after day quietly serving their nation, and they did it proudly till the Cold War cessation. But now when they need their allegations supported, there is none to be found, the nation's aborted. They die one by one, brothers and sisters by their side, watching and waiting till it's their turn to die. There will be no flags flown half-mast in their honor, no flags on their coffins when

that -- once they have passed. No statutes -- no statues designed nor monuments created, no walls with their names, only memories abated. I call the nation to consider their plight, for these are the silent soldiers of the Rocky Flats site.

DR. ZIEMER: Thank you.

UNIDENTIFIED: (Off microphone) I honor all of you, including (unintelligible).

DR. WADE: One thing we need to do are the --

DR. ZIEMER: Thank you very much. Let's see if we can move ahead.

DR. WADE: Right now? Okay.

DR. ZIEMER: We do have some members that will be needing to catch planes and I'm wondering, Board members, do you want to proceed through the lunch hour and try to finish up?

MS. MUNN: Could we have a 20-minute break?

DR. ZIEMER: We can have a break -- comfort break, 20 minutes, and we'll recon-- well, let's see what it -- it's --

MR. ROMERO: I'd like to thank the four members -- four Board members that voted for us, I'd like to thank them.

DR. ZIEMER: So noted, thank you. We'll take a

20-minute break.

(Whereupon, a recess was taken from 1:10 p.m. to 1:50 p.m.)

DR. WADE: People on the line?

DR. ZIEMER: Let me check and see who's on the line. Mike Gibson?

MR. GIBSON: Yeah, here.

DR. ZIEMER: Thank you. Jim Lockey?

(No response)

May -- may not. Phil Schofield?

MR. SCHOFIELD: Here.

DR. WADE: Okay, we have a quorum.

DR. ZIEMER: We have two on the line, we have four, five, six here.

DR. POSTON: Paul?

DR. ZIEMER: Yes.

DR. POSTON: John Poston's on the line.

DR. ZIEMER: Oh, John, hi. Okay. Thank you, John.

FURTHER ROCKY FLATS DISCUSSION

Now we have one -- one sort of carry-over item and I committed to Dave Hiller to see if we can get an answer to his question, which basically was how -- sort of imbedded in Mark's original proposal was that we would encourage NIOSH to

utilize the issues -- the new information that has derived out of the working group to -- to upgrade -- I'll use the word upgrade -- how dose reconstructions are done on this site. There's been a piece of paper passed around and it has four bullets on it --

MR. GRIFFON: I think NIOSH needs to be in the room, too, for this.

DR. ZIEMER: I don't -- I'm looking for --

MR. GRIFFON: Yeah.

DR. ZIEMER: -- NIOSH people. Is either Jim Neton or Brant --

MR. PRESLEY: I think Jim had to leave. I believe they had to catch a flight.

DR. ZIEMER: What about Brant?

MR. PRESLEY: I'd say they're both on that same plane.

MR. GRIFFON: (Off microphone) Better get (unintelligible) --

MR. PRESLEY: They left here about --

MR. GRIFFON: -- (unintelligible).

MR. PRESLEY: -- (unintelligible) 1:00 o'clock.

DR. ZIEMER: Can we get either one on the cell phone or not? I don't know.

MR. PRESLEY: Let me look out here --

DR. ZIEMER: David Hiller --
MS. MUNN: (Off microphone) (Unintelligible) went to go (unintelligible).
DR. WADE: Can call Brant on his cell --
DR. ZIEMER: Yeah. David, we're going to try to reach Brant or Jim by cell phone. Apparently they have left the -- left the room -- left the hotel, but David, do you have a copy of the bullet points that -- that the Board has that describe the new issues that were raised in terms of dose reconstructions and changes? Do you have that?
MR. HILLER: Yes, I do, Dr. Ziemer.
DR. ZIEMER: Yeah. And I think your question was how long would it take NIOSH to enact or get these in place. Is that basically your -- or do you want to restate the question?
MR. HILLER: No, that -- that's exactly my concern, and I was hoping that the -- the -- the Board would have that information from NIOSH before you acted on the motion. I'm not sure if -- if it's a three-month process or an 18-month process, or longer, for NIOSH to reconstruct all these doses again based on the -- the new methodologies.

MS. MUNN: (Off microphone) (Unintelligible) thinking -- I doubt they could tell you that.
DR. ZIEMER: Well, we're going to try -- try to get one or the other of them on the phone here in a moment so stand by and we'll see if we can get an answer.
MR. HILLER: Thank you.
MR. GRIFFON: I don't know. No, I don't know.
MR. PRESLEY: That sticks in my mind.
MR. GRIFFON: I don't -- I don't want to put words in (unintelligible).
MR. PRESLEY: Yeah, I don't want to say it.
MR. GRIFFON: Yeah. Should we -- should we read -- I -- I -- I handed around -- and I think they're available for the public, also -- the -- sort of the full -- the motion is the same in these, but I think it also gives the detail of what I think should be rolled into a letter when the letter is written, including for the first period the -- the defin-- or the technical merit or basis of the --
DR. ZIEMER: Right, uh-huh.
MR. GRIFFON: -- proposed petition --
DR. ZIEMER: You want to read that?
MR. GRIFFON: Yeah, and for the second period

it -- it lists these re-evaluations that NIOSH should do in -- in a timely manner, so we -- we sort of do -- we think that's important to get on the -- in the letter to the Secretary, so...

DR. ZIEMER: Read that -- that one with the bullets. That's the (unintelligible).

MR. GRIFFON: Okay. Okay. So the -- and I -- I think -- you know, we -- we may need -- this was done hastily so there may be some editorial questions, certainly. But this is the -- the second motion that we voted on, and I'll read it for the record.

The Advisory Board is in agreement with NIOSH's evaluation report with regard to the ability to reconstruct radiation dose for the period from '60 -- 1967 through 2005, and for all radiation dose other than neutron dose from 1950 -- that might be '51, I -- I might have to correct that -- 1951 through 1966. I'm not sure if it's '51 or 2, I'd like to --

DR. ZIEMER: We'll check --

MR. GRIFFON: -- come up with a --

MS. MUNN: My memory is 2.

MR. GRIFFON: Through the review process of the Rocky Flats petition, SEC 30, NIOSH has made

several important modifications to the dose reconstruction approach, and the Board notes that NIOSH has committed to re-evaluation of all affected cases in a timely manner. The primary changes of concern include, but are not limited to -- bullet one -- NIOSH will use modified approach for assessing internal doses due to super S plutonium for all affected cases. Bullet two, NIOSH will use modified internal dose coworker approach, using the agreed-upon approach of using the 95th percentile values of the electronic data in estimating worker dose via coworker internal dose model for all affected cases -- and I'm -- get your edit pencils out on that line. Bullet three, NIOSH will use modified internal dose coworker approach for D&D workers using the agreed-upon approach of using the 95th percentile values of the electronic data in estimating worker dose via coworker internal dose model for all relevant radionuclides for all affected cases. And bullet four, NIOSH will use modified approach for reassessing neutron doses for the time period from January 1, 1967 to December 31st, 1970 for all affected

cases.

UNIDENTIFIED: (Via telephone) Hello, (unintelligible).

MR. GRIFFON: The Board strongly recommends the -- that re-evaluation described above be completed in a timely manner.

DR. ZIEMER: Someone on the phone?

DR. WADE: Someone was speaking. This is a conference call. Is either Jim Neton or Brant Ulsh on the phone?

DR. NETON: Hello, this is Jim Neton.

DR. WADE: Hi, Jim.

DR. ZIEMER: Jim.

DR. WADE: Would you please stay with us? The Board is starting to discuss, Jim, this issue of a timely re-evaluation of completed dose reconstructions based upon the technical changes that have resulted from the workgroup process.

DR. NETON: Okay.

DR. WADE: And again, I think that the Board might have some questions for you as to your ability to meet their desire to see timely work done. So stay with us. Mark was simply going through a motion where he called out several

issues that NIOSH had to rework. Mark --

DR. NETON: Okay.

DR. WADE: -- for Jim's benefit, could you give the list again?

DR. ZIEMER: Just read the four bullet points.

MR. GRIFFON: Yeah, the four bullet points, NIOSH will use modified approach for assessing internal dose due to super S plutonium for all affected cases. Second bullet, NIOSH will use modified internal dose coworker approach, using the agreed-upon approach of using the 95th percentile values of the electronic data, in estimating worker dose via coworker internal dose model for all affected cases. The third bullet, NIOSH will use modified internal dose coworker approach for D&D workers, using the agreed-upon approach of using the 95th percentile values of the electronic data, in estimating worker dose via the coworker internal dose model for all relevant radionuclides for all affected cases. And the fourth bullet, NIOSH will use modified approach for reassessing neutron doses for the time period from January 1st, 1967 through December 31st, 1970 for all affected cases.

DR. NETON: Okay, I've got it.
DR. ZIEMER: And Dave Hiller basically asked how long will it take to implement these changes, or perhaps you've already implemented some of them.
DR. NETON: Right, we've started on some of them, but I -- I would say that we -- in some cases when we -- when we apply the Program Evaluation Report, we actually just take the analysis far enough to make a determination that it doesn't change the case, the outcome of -- of the decision. So with that proviso, I mean one -- if that's okay, that's how we'll do it. Are you looking now for an opinion as to how long it would take for us to implement all four of those changes?
MR. GRIFFON: Yeah, I said for affected cases, so you know, that --
DR. ZIEMER: Yeah, in other words, you're going to have to go back and redo some earlier cases, possibly. Right?
DR. NETON: Right.
DR. ZIEMER: And we had some --
DR. NETON: I would say -- I'm not sure what time frame is desirable, but I think we can do

this in a matter of -- of a month or two.

DR. ZIEMER: I think that's the kind of information Mr. Hiller was looking for. We wanted to see --

DR. NETON: Right.

DR. ZIEMER: -- whether we're talking about a month or a year or whatever (unintelligible) --

DR. NETON: Right, I -- I --

DR. ZIEMER: Dave, is -- is that responsive to your question? I just want to make sure that...

MR. HILLER: Yes, that -- that's responsive to the question and I hope it's an accurate estimate. Thanks.

DR. ZIEMER: And -- and we will certainly be -- can I commit us to following up at our next meeting to make sure that that's on track, just to get a report from NIOSH --

MR. GRIFFON: I did -- I did consider putting a -- a time estimate in here for -- in our letter of what the Board considers timely. I know that wouldn't necessarily be binding, but I -- I -- I don't know if it's worth including (unintelligible).

DR. ZIEMER: Well, unless -- unless the Board

feels that -- that we need to do something that's more pressing, I -- it seems to me a month is quite reasonable, and we'll be --

MR. GRIFFON: (Off microphone) (Unintelligible) is still reasonable.

DR. ZIEMER: -- meeting -- we'll be meeting in a month and if we find nothing's happening, why we can take some further action. But is -- is that --

MS. MUNN: I -- I'd hate to put restrictions on them, really, not understanding fully what else is before them -- how big the Hanford site and how -- how big other sites and -- and other things we have on our plate are going. But certainly a month or two seems more than reasonable to me, and a verbal commitment ought to be able to do it without our providing restrictions, I think.

DR. WADE: Could -- could I ask a clarifying question of Jim while you're on the line? Jim, this is Lew.

DR. NETON: Sure.

DR. WADE: I know your process is you first do the step of triaging all of the denied cases, and then you make --

DR. NETON: Right.
DR. WADE: -- then you make a judgment as to which cases could be affected, and then you go ahead and re-evaluate those cases.
DR. NETON: Correct.
DR. WADE: Now is your month or two covering all of the steps I've listed?
DR. NETON: Yes.
DR. WADE: Okay.
DR. NETON: Yeah, I would say it'd be closer to two months just to get it through the process, but we can get the triage done fairly quickly, but then we'll have to apply these models to the remaining cases and it's difficult for me to predict how many that would be, but I'm pretty confident we could do that in two months' time.
DR. WADE: Thank you.
DR. ZIEMER: Okay. Thank you, Jim, appreciate the input.
DR. NETON: Okay.
DR. ZIEMER: Okay. Thank you, Mr. Hiller. Board members, we have a couple of items to take care of. First of all --
MR. GRIFFON: Do -- do we want to read both

these motions in for the record, the other motion as well, or do you just want to take these -- I mean I -- I look at these and I already found edit -- you know, certainly grammatical problems, but if -- I would leave it if the Chair --

DR. ZIEMER: Well, I --

MR. GRIFFON: -- wants to reword for editorial purposes, that's fine.

DR. ZIEMER: I think the -- I think the original motion is on the record --

MR. GRIFFON: Okay.

DR. ZIEMER: -- and is adequate for that. We have already indicated we would put it in the form of -- of the letter, which will be actually more detailed than this --

MR. GRIFFON: I guess just one --

DR. ZIEMER: Liz, do you --

MR. GRIFFON: -- one point of clarification in -- in this motion, it does say that -- and for all radiation doses other than neutron doses from '52 through '66 or '51 through '66. I -- I had -- I'd said that in my initial motion, but I think when you -- when you recharacterized it you sort of boiled it down

to this '67 through 2005 time frame. The question was raised during the break as well, what about the non-neutron workers prior to '67, and this -- this says we can reconstruct those doses, so I just wanted to be clear on that.

DR. ZIEMER: That was already sort of built in.

MR. GRIFFON: It was said, right, right.

DR. ZIEMER: Also -- well, Liz, did you have a comment -- comment?

MS. HOMOKI-TITUS: I just would like you to clarify for the record, when you say you're going to put it into your standard language, does that include the 250-day determination?

MS. MUNN: Yes.

DR. ZIEMER: That's all included in there and -- and the reference to the appropriate legisla-- or -- or --

MS. MUNN: Part?

DR. ZIEMER: -- CFR 82 Part whatever -- 81 and 2 and 3 and the other wording, so we will distribute to the Board the drafts of those letters so they have the exact wording on that. The thrust of the motion remains the same, I believe.

MR. GRIFFON: Yeah.

DR. ZIEMER: And further, I -- I don't want to do additional voting now --

MR. GRIFFON: No.

DR. ZIEMER: -- because we've lost members. Not everybody's here that was here when we voted.

DR. WADE: Understood.

BOARD WORK TIME

DR. ZIEMER: I do want to ask for a motion to approve the minutes of April 5th. It was a relatively brief meeting and hopefully you've had a chance to read those. I've read them and --

MS. MUNN: So moved.

MR. PRESLEY: Second.

DR. ZIEMER: Any -- any corrections or additions?

(No responses)

All in favor, aye?

(Affirmative responses)

Opposed?

(No responses)

And Mike and Phil on the phone?

MR. GIBSON: Aye.

MR. SCHOFIELD: Aye.
DR. ZIEMER: Okay, motion carries, minutes are passed.
I'm going to suggest that we not have workgroup updates today. Lew, I don't think it's mandatory. We had them a few weeks ago in our earlier meeting. We can pick that up next time, but we do need to get underway with the SC&A contract issues.
DR. WADE: Right, one small issue now. Jim, are you still on the phone, Jim Neton?
DR. NETON: Yes, I am.
DR. WADE: Jim has given me a report to give you on the status of the Hanford SEC. I guess, Jim, I might have the piece of paper, so you want me to do it or do you want to do it?
DR. NETON: No, it'd be better if you did it. I don't think I have it memorized.
DR. WADE: Okay. So you had asked Jim to provide you with an update with the -- on the Hanford SEC status, and this is his update. A class for SEC0057 (sic) proposed by petitioners for 1/1/42 through 12/31/90 -- so there was a petition 0050 (sic) proposing to add that class. A NIOSH evaluation report was

issued on 5/18 of this year that proposes to add a class for 10/1/43 through 8/31/46. Okay? A second NIOSH evaluation report will be issued to address the remaining years. The anticipated completion date is by August 21st of this year.

Last item. There is an SEC outreach meeting scheduled for Hanford the week of June 18th of this year.

So this was in response to whether it's worthwhile to go to Hanford. I think you have one petition evaluation report by NIOSH that recommends that you add a class. You have another pending. I think it would be good to go to put this Board before the workers at Hanford and to start to hear their stories.

DR. ZIEMER: Wanda Munn.

MS. MUNN: It's always good to go to Hanford.

DR. ZIEMER: We like those unbiased opinions.

MR. CLAWSON: That's questionable.

DR. ZIEMER: Okay. Thank you. Do we -- any more on that then?

DR. WADE: No, then I can do SEC.

DR. ZIEMER: Okay.

DR. WADE: SC&A.

DR. ZIEMER: SC&A.

DR. WADE: We all realize that SC&A is a critical part of this process and we want to make sure that SC&A is available to the process, and particularly for the Board, at the start of next fiscal year. That's October 1st of 2007. In order to do that, the time line David Staudt and I have looked at would be that we would be in receipt of SC&A proposals for work next year when the Board meets in Hanford in July. The Board could then modify those proposals as it would like, ask for amended proposals, and that would give David the ability to get amended proposals from SC&A according to Board's instruction, and issue modification to the contract that would have SC&A funded and working on October 1st of this year.

In order to do that, I need to go to SC&A and ask them for proposals. What I would like to do is ask the Board's concurrence that I go to SC&A and ask them to produce cost proposals on Task I, that is the review of site profiles. I would ask them to do a proposal that would include six site profiles, but to present it in

a way that the Board would be able to see the unit cost of reviews so that the Board could decide in July if it wanted to adjust that number up and down.

Second thing I would ask the Board to do --

DR. ZIEMER: Let me interrupt, Lew. Are -- are we at this point simply asking for a number of site -- not specific sites in --

DR. WADE: Not specific sites.

DR. ZIEMER: -- their proposal.

DR. WADE: Right.

DR. ZIEMER: Okay.

DR. WADE: Not specific sites, generic -- SC&A has a good ability to estimate now -- I think John would agree -- the doing of site pro--

DR. ZIEMER: Does it make much difference whether it's a complex site like Hanford or a simpler, smaller -- I -- I'm -- what I'm really getting at is whether or not we should say, for example, three major sites and three minor or just leave it at six or -- or what -- how would you approach that?

DR. MAURO: Yeah, in the past we did make that distinction. Based on the experience, the reality is it doesn't -- we can -- quite

frankly, it's 1,000 work hours per site profile, and it averages out -- typically what happens is we -- we don't know which ones are going to be the tougher ones, but usually it works out that they end up averaging out at that right spot and -- and that's exactly what's happening with the set of six we're doing this year. So we -- I -- I would prefer just to give you unit cost for the six, and I -- the way the cost would be is to deliver the draft report, and then there would be a separate budget in terms of work hours again for the closeout process. This is exactly how we did it the last time.

DR. ZIEMER: Thank you.

DR. WADE: Thank you, fine. For Task III, that's the review of procedures, I would ask SC&A for a cost proposal that would include the review of 30 procedures, that's what we've normally asked for, but I would ask them to give me unit costs on three types. One would be the review of a new procedure. The second would be the review of a previously-reviewed procedure that has undergone major revision by NIOSH. And the third would be the review of a

Program Evaluation Report. That's what we're talking about in terms of the review of completed dose reconstructions that Jim was speaking of.

I would like to have the Board have the ability to decide that it would like to do some of that type of review next year and to have unit costs on those three types of procedures. Okay?

For Task IV, which is individual dose reconstruction reviews, I would ask for 60, a proposal for 60. Again, SC&A has good cost estimating capabilities now. And for the record, SC&A has realized significant economies now in their performance of this work.

MR. GRIFFON: Do we want to -- do we want to scale up? I know we talked about eventually adding more per year --

DR. WADE: I think we want to have the ability for you to judge --

MR. GRIFFON: Yeah.

DR. WADE: -- that in July, so --

MR. GRIFFON: I know -- I know -- having said that, I know the workgroup's -- or the subcommittee's way behind where -- the resolution process is way behind where SC&A is

(unintelligible).

DR. WADE: You want to ask for 60 plus the cost of an addit-- of additional blocks of 20?

MR. PRESLEY: Mark? Mark?

MR. GRIFFON: Yeah, I think so. Yeah, at least to have -- so we can consider it.

MR. PRESLEY: What about -- what did we decide to do about blind?

DR. ZIEMER: Use -- use the mike.

MR. PRESLEY: What did we decide to do about blind?

MR. GRIFFON: Yeah, we -- we did say (unintelligible).

DR. ZIEMER: Well, I -- I think it was said this would include some blind studies since --

MR. GRIFFON: Right.

DR. ZIEMER: -- proportionately there's not as many of those, so you could -- for example, if it was 55 and five, is it going to make much difference.

MR. GRIFFON: Factor that in, yeah.

DR. MAURO: To help that out a bit, with regard to this eighth set, we're expecting that we will be doing the eighth set and some additional blind -- perhaps two, three,

whatever you decide -- within the existing budget. So as far -- so what I can do is when I provide the -- the cost, I guess I could also put in the unit cost per blind dose reconstruction as part of it, so I'll give you the -- in other words, there's unit cost for 60 plus additional blocks of 20, and per additional blind dose reconstruction --

DR. ZIEMER: That would be good.

DR. MAURO: -- so you can pick and choose.

MR. PRESLEY: Yeah.

DR. ZIEMER: Okay, let's do that.

DR. WADE: Fine, thank you. And for Task V, which is the SEC task, I would ask for six, three focused reviews, three general broad reviews, and again with unit costs for each -- each type.

DR. ZIEMER: Now --

MR. GRIFFON: I -- I was just going to ask, in terms of the 60 cases, I know we have -- we've had some discussion on the subcommittee about basic versus advanced and -- and re-looking at that scope as a subcommittee. I don't know that we've completely defined that, but I know John's been there during those deliberations.

I don't know if it'd be worthwhile to break out unit cost at least. I don't know that we know how many advanced or basic, but reconsider maybe unit cost for the advanced cases based on what --

DR. ZIEMER: Well, didn't we --

MR. GRIFFON: -- we were discussing --

DR. ZIEMER: -- end up sort of saying everything we're doing now -- it's not basic and it's not advanced; it's somewhere in between?

MR. GRIFFON: Somewhere in between, right.

DR. ZIEMER: And unless -- unless we're going to make that distinction in the future -- if we're -- if we're going to continue --

MR. GRIFFON: I guess we haven't made it yet so we can't (unintelligible) yeah.

DR. ZIEMER: -- we haven't, and -- and in fact, it really has come down to the distinction between the -- the best-estimate cases and the other kind of cases. That's what it's really boiled down to, in practice, at --

MR. GRIFFON: No, no --

DR. ZIEMER: No?

MR. GRIFFON: -- not -- not always, but we --

DR. ZIEMER: Well --
MR. GRIFFON: And I guess we have to wait till -- we -- we are working on that issue in the subcommittee, so --
DR. ZIEMER: But we haven't --
MR. GRIFFON: -- until we -- until we define something --
DR. ZIEMER: Unless the subcommittee comes up with a good definition --
MR. GRIFFON: Yeah, I agree.
DR. ZIEMER: -- of what these are --
MR. GRIFFON: I agree.
DR. ZIEMER: -- I think we can go with -- now I think, Lew, you've suggested how we proceed. I'm going to ask the Board for a motion --
MR. STAUDT: Lew, this is Dave.
DR. WADE: Yes, Dave.
MR. STAUDT: There just another -- Task VI, and that covers program management cost, and I think it's probably going to be pretty consistent again this year.
DR. WADE: Right. Sorry, Dave, that's right.
DR. ZIEMER: That would be built in. Right?
DR. WADE: But we would ask for --
DR. ZIEMER: We would ask for that.

DR. WADE: -- for a reasonable and prudent proposal for project management -- which is excellently done.

MR. STAUDT: Okay.

DR. ZIEMER: Thank you, David.

MR. CLAWSON: Dr. Ziemer, I just have a question on these -- I -- I guess I'm wondering -- these blind or -- or whatever case profiles that we redo, I guess what I'm getting to is will some of these -- or could they be part of some of the Rocky Flats ones that were -- we're asking them to go -- NIOSH to go back and redo some of these. Are they still going to be a part of this -- they'd be -- can I just -- I want to kind of check the work that is -- has -- has been done and that it --

DR. ZIEMER: Well, it may or may not be. I -- I think a blind review is going to be completely blind to the -- to the reviewers, but it'll be up to the subcommittee to consider --

MR. GRIFFON: (Off microphone) (Unintelligible) select, yeah (unintelligible).

DR. ZIEMER: -- whether to select --

MR. CLAWSON: Well, I just wanted to make sure

that we -- we had the ability to be able to go back and look at some of these that were -- were redone.

DR. ZIEMER: Yeah, whether blind or not, we can always do that.

MR. GRIFFON: (Off microphone) (Unintelligible) yeah.

MR. CLAWSON: Right.

DR. ZIEMER: Right. I -- I'm simply going to ask for a motion to -- to charge SC&A to prepare the cost proposals as described by Lew, which is, to reiterate, Task I, six site profile reviews; Task III, review of 30 procedures, which includes the new, the revised and the Program Evaluation types and subsets; 60 dose reconstruction reviews plus blind reviews plus additional sets of 20; and finally, three focused and three broad SEC reviews. Can someone make a motion?

DR. WADE: And project management.

DR. ZIEMER: Or project -- plus -- plus the project management proposal. Someone make such a motion?

MR. CLAWSON: I move to do what you said.

DR. ZIEMER: Thank you. That was exactly the

motion I was looking for.

MS. MUNN: Second.

DR. ZIEMER: And seconded. Any discussion?

(No responses)

And Phil, Mike, John, Jim, any discussion?

MR. GIBSON: No.

MR. SCHOFIELD: No, it sounds good to me.

DR. ZIEMER: Sounds good, that's what we were looking for.

All in favor, aye?

(Affirmative responses)

DR. WADE: Let me call the roll.

DR. ZIEMER: Call the roll since we have some on the phone.

DR. WADE: Well, I know the ayes in the room, but on the phone -- Phil Schofield?

MR. SCHOFIELD: Aye.

DR. WADE: John Poston?

(No response)

DR. ZIEMER: We lost John.

DR. WADE: We lost John. John (sic) Lockey?

(No response)

MR. GRIFFON: Jim Lockey.

DR. WADE: Mike Gibson?

MR. GIBSON: Aye.

DR. WADE: Okay. So we have Gibson and Schofield voting, Lockey -- Jim -- and Poston not on the line.

DR. ZIEMER: Okay, motion carries. Thank you very much.

Do we have any other items to come before the -- the remnant of the Board?

MS. MUNN: I have one.

DR. ZIEMER: Wanda.

MS. MUNN: Due to unbelievably fortunate circumstances, all of the procedure review committee is -- working group is still present. That's Mike, Mark, Paul and alternate Presley. I had mentioned earlier that I'd hoped we might be able to identify a date for a workgroup call, a conference call, where we could take a look at the outstanding procedures which we already have in hand. They've been provided to us by SCA. And identify what date we might be able to take half a day to sit down and go through that list, between now -- hopefully between now and -- and the July meeting on the 17th, so --

DR. ZIEMER: You have a date to suggest?

MS. MUNN: I would like for us to do that yet

this month, if it's possible to do it. I was looking at something like June 27th, Wednesday. Give us a couple of -- of weeks to look at the material we have and give some thought to --

DR. ZIEMER: I'm okay.

MS. MUNN: -- advanced thought. Is the 27th okay?

MR. GRIFFON: If it's early or late, I can do it. Middle of the day is tough for me, but...

MS. MUNN: Okay.

MR. GRIFFON: Yeah, early Eastern time.

MS. MUNN: Yeah, early for you is too early for me, probably. So late is okay, late being after what your time?

MR. GRIFFON: 4:00 p.m.

MS. MUNN: After 4:00 p.m. your time?

MR. GRIFFON: (Unintelligible)

MS. MUNN: Is that bad for others?

DR. ZIEMER: Well, are you going to go all evening then or --

MS. MUNN: No.

MR. GRIFFON: Well, you may be able to pick another -- better date, I don't know.

DR. ZIEMER: I'm okay. I mean I'm willing to stay over.

MS. MUNN: Would you be better --
DR. ZIEMER: Are -- are we talking about Cincinnati or do you want to go somewhere --
MS. MUNN: Well, I'm -- for this date I'm just talking about a four -- probably a four-hour phone call.
MR. GRIFFON: Phone call.
DR. ZIEMER: Oh, a phone call.
MS. MUNN: Phone call probably.
DR. ZIEMER: Oh, yeah, that's -- I thought we were traveling.
MS. MUNN: Would a day other than Wednesday be better? In the morning? Or are all your mornings tied up?
MR. GRIFFON: No, Thursday's better, Thursday --
MS. MUNN: Thursday better -- Thursday 28th all right?
MR. GRIFFON: Yeah.
MR. PRESLEY: (Off microphone) (Unintelligible) can't.
MS. MUNN: No, not for Bob. He's our --
MR. PRESLEY: And I'm -- I'm just an alternate.
MS. MUNN: What about --
MR. GRIFFON: Wednesday --

MS. MUNN: -- you, Mike?
MR. GRIFFON: -- Wednesday if we started it at --
MR. GIBSON: What time of day did you say, Wanda?
MS. MUNN: I'm -- I'm -- we're looking at the morning of June 28th for a four-hour -- probably -- no more than four-hour phone call talking about SC&A procedure reviews and making some selections about which ones we want them -- we want to talk about them with face-to-face.
MR. GIBSON: Yeah, I could do the 28th in the morning.
MS. MUNN: 28th be okay? So we can't get to --
MR. GRIFFON: I could -- I could do --
MS. MUNN: -- Presley from anywhere.
MR. GRIFFON: Oh, okay.
DR. ZIEMER: Bad for Presley.
MR. PRESLEY: That's -- go ahead and have it. I --
MR. CLAWSON: He's an alternate.
MR. PRESLEY: -- (unintelligible) go see my...
DR. WADE: Pick a time, Wanda, see what happens.
DR. ZIEMER: You're -- you're out?

MR. GRIFFON: If it was -- actually Wednesday or Thursday I could probably do it if we started at 9:30 Eastern time. I don't know if that's too early for you, Wanda. It's kind of early.

DR. ZIEMER: 6:30.

MR. GRIFFON: 10:00?

DR. ZIEMER: She's up by then.

MS. MUNN: Up, but not awake.

MR. GRIFFON: All right, Thur-- Thursday I could go -- you know, start a little later, at 10:00.

DR. ZIEMER: What about Friday?

MS. MUNN: Well -- well, I guess we have not looked at Tuesday. Would Tuesday the 26th catch everybody? Could we do that?

MR. PRESLEY: I can do that.

MS. MUNN: Tuesday the 26th?

DR. ZIEMER: Yeah.

MS. MUNN: Let's -- let's do the morning of Tuesday the 26th. Okay?

DR. WADE: Morning is what time?

DR. ZIEMER: Morning is what time? I've -- I've got a luncheon that day and I --

MS. MUNN: Oh, you do? Okay.

DR. ZIEMER: Although I'd be willing to skip it.
MS. MUNN: If we start 7:00 o'clock my time, that's 10:00 o'clock --
MR. GRIFFON: Yeah.
MS. MUNN: -- your time, that's going to take you through lunch, but it may not --
DR. ZIEMER: That's -- no, that's all right.
MS. MUNN: -- take us more than two hours.
DR. ZIEMER: That's all right, I can -- I can skip this one.
MR. GRIFFON: So 10:00 --
MS. MUNN: Okay.
MR. GRIFFON: -- 10:00 on the 26th?
MS. MUNN: Yes, 10:00 o'clock Eastern time on the 26th.
DR. WADE: Mike, did you hear that? 10:00 o'clock on the 26th of June?
MR. GIBSON: Yeah, I got that.
MS. MUNN: And that'll do? Okay. And you have the material from -- from SC&A, all that list of procedure reviews that they've done?
DR. ZIEMER: Yes.
MS. MUNN: You have that, Mike?
MR. GIBSON: Yeah, I believe so. I think it's

on my flash drive. I'll look and make sure.

MS. MUNN: Okay, good. Thanks. I'll verify by e-mail.

DR. ZIEMER: Thank you very much. Any other items to come before us?

MR. CLAWSON: Just mine on the Fernald workgroup. Hans Behling has given us the SEC review -- SC&A's review of the Fernald group and I wanted to be able to get the working group together, but we don't have NIOSH so --

DR. ZIEMER: Let's do it by e-mail probably --

MR. CLAWSON: Okay.

MR. GRIFFON: Do it by e-mail, yeah, we're pretty (unintelligible) --

MR. CLAWSON: Okay, I'll --

MR. GRIFFON: Yeah.

MR. CLAWSON: -- send out the e-mail and we'll go from there.

DR. ZIEMER: Okay.

MR. GRIFFON: Yeah.

DR. ZIEMER: Thank you. Any others?

MR. SCHOFIELD: Okay.

DR. ZIEMER: If there's no other items to come before us, I declare the meeting adjourned. Thank you very much, everyone.

DR. WADE: And thank you all for your service.

(Whereupon, the meeting was concluded at 2:20 p.m.)

CERTIFICATE OF COURT REPORTER

STATE OF GEORGIA

COUNTY OF FULTON

I, Steven Ray Green, Certified Merit Court Reporter, do hereby certify that I reported the above and foregoing on the day of June 12, 2007; and it is a true and accurate transcript of the testimony captioned herein.

I further certify that I am neither kin nor counsel to any of the parties herein, nor have any interest in the cause named herein.

WITNESS my hand and official seal this the 4th day of July, 2007.

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STEVEN RAY GREEN, CCR

CERTIFIED MERIT COURT REPORTER

CERTIFICATE NUMBER: A-2102