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 the

WORKING GROUP MEETING

ADVISORY BOARD ON

RADIATION AND WORKER HEALTH

NEVADA TEST SITE

The verbatim transcript of the Working Group Meeting of the Advisory Board on Radiation and Worker Health held in Cincinnati, Ohio, on May 21, 2008.

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

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-- (sic) denotes an incorrect usage or pronunciation of a word which is transcribed in its original form as reported.

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-- "uh-huh" represents an affirmative response, and "uh-uh" represents a negative response.

-- "*" denotes a spelling based on phonetics, without reference available.

-- (inaudible)/ (unintelligible) signifies speaker failure, usually failure to use a microphone.

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P R O C E E D I N G S

(9:00 a.m.)

WELCOME AND OPENING COMMENTS

DR. BRANCHE: Good morning. I'm Dr. Christine Branche, the Designated Federal Official for the Advisory Board on Radiation and Worker Health. And today we are now starting the working group on the Nevada Test site, the site profile with Mr. Robert Presley as the Chair.

Would the Board members who are in the room please announce your names?

MR. PRESLEY: Robert Presley, Chair.

MR. CLAWSON: Brad Clawson.

DR. ROESSLER: Gen Roessler.

MR. SCHOFIELD: Phil Schofield.

MS. MUNN: Wanda Munn.

DR. BRANCHE: Are there any Board members who are participating by phone?

(no response)

DR. BRANCHE: Is there anyone on the phone who could please let me know that they can hear me?

MS. OH: Christine, this is Kate in Senator

Reid's office.

DR. BRANCHE: Great. Thank you very much. I'll announce you specifically in just a moment, but thanks for letting me know that you can hear me.

We do not have a quorum on the Board so we may proceed. Will the NIOSH staff who are in the room please announce your names and please say if you have a conflict with the Nevada Test Site.

MR. ELLIOTT: Larry Elliott, NIOSH/OCAS. I have no conflict on NTS.

MR. ROLFES: Mark Rolfes, NIOSH, no conflicts.

MR. CHEW: Mel Chew of the O-R-A-U team, no conflicts.

MR. RICH: Bryce Rich with the O-R-A-U team. I do have a conflict.

MR. ROLLINS: Gene Rollins with the O-R-A-U team, no conflict.

MS. HOFF: Jennifer Hoff with the O-R-A-U team, no conflicts.

DR. BRANCHE: Are there any NIOSH staff participating by phone? Would you please state your name and say if you have a

conflict?

MS. ADAMS: Nancy Adams, no conflict.

DR. BRANCHE: Are there any ORAU staff who are participating by phone? If you could please state your name and say if you have a conflict.

(no response)

DR. BRANCHE: SC&A staff who are in the room please announce your names and say if you have a conflict.

DR. MAURO: John Mauro, SC&A, no conflict.

DR. BRANCHE: SC&A staff participating by phone would you please announce your names and say if you have a conflict?

DR. MAKHIJANI (by Telephone): Arjun Makhijani, no conflict.

DR. ANSPAUGH (by Telephone): Lynn Anspaugh, conflict.

MS. BRIGGS (by Telephone): Nicole Briggs, no conflict.

MS. ROBERTSON-DEMERS (by Telephone): Kathy Robertson-DeMers, no conflict.

DR. BRANCHE: Mr. Anspaugh, you said that you do have a conflict?

DR. ANSPAUGH (by Telephone): Yes.

DR. BRANCHE: Thank you. I just want to make sure that I heard that correctly.

Are there any SC&A staff who I didn't, who I interrupted as they were saying their names?

(no response)

DR. BRANCHE: Other federal agency staff in the room, please state your names.

MS. HOWELL: Emily Howell, HHS.

DR. BRANCHE: Other federal agency staff participating by phone, would you please announce your names?

MR. KOTSCH (by Telephone): Jeff Kotsch, Department of Labor.

DR. BRANCHE: Petitioners or other representatives who are participating by phone, would you please feel free to state your names?

(no response)

DR. BRANCHE: Workers or their representatives who would like to announce their names?

(no response)

DR. BRANCHE: Members of Congress or their representatives who would like to mention

their names.

MS. OH: Katherine Oh in Senator Harry Reid's office.

DR. BRANCHE: Katherine, for the record would you please state your name? We need the court reporter to be able to register that properly.

MS. OH: Sure, Katherine, K-A-T-H-E-R-I-N-E, Oh, O-H.

DR. BRANCHE: Thank you very much.

Are there other members of Congress or their representatives on the line?

(no response)

DR. BRANCHE: Are there any others who are participating by phone who would like to mention their names?

(no response)

DR. BRANCHE: Before I turn it over to Mr. Presley, I just have a couple of announcements. We will hear from Ms. Oh, Katherine Oh, who is a staffer in Senator Harry Reid's office. And she's going to read a letter from the Senator into the record. And based on the discussion I have with Mr. Presley, she will do that at ten o'clock a.m.

eastern time.

As well each of the Nevada Test Site work group members and I and several others of us received a fairly lengthy letter from [Identifying Information Redacted] who is with [Identifying Information Redacted]. I would just like to say for the record, Mr. Presley and I discussed this, and the entire contents of the 24-page document will be entered into the record. We've given the information to the court reporter, and the entire document will be typed into the record. So we've now said that publicly.

(Whereupon, the four letters were delivered to the court reporter and are attached to this transcript beginning on page 241.)

DR. BRANCHE: For everyone participating by phone, I ask, and unfortunately, I'll probably have to remind you, but I do ask that you mute your phones. You would need to use star six if you do not have a mute button. It's important that you mute your phones because everyone participating by phone has the quality of their reception for the call is affected by everyone else's participation. So

I do ask for your indulgence. Again, if you do not have a mute button, then please dial star six. And when you are ready to speak, then please use that same star six. Thank you very much.

Mr. Presley, it's all yours.

INTRODUCTION BY CHAIR

MR. PRESLEY: Thank you, Christine.

Today we have two things that we'd like to wrap up on the site profile for the NTS site profile. We want first to discuss items having to do with tunnel reentry, and then we want to get into issue eleven and wrap that up today. If we have any more time this afternoon, we plan on starting to work on the NTS SEC petition.

But the main thing is trying to wrap up the site profile for NTS. And at this time I'd like to call on Mark Rolfes, our representative from CDC, or OCAS. I'll let Mark start his presentation.

MR. ROLFES: Well, thank you, Bob, and thank you everyone for coming today. As Bob said we had a couple of issues that we would like to discuss to hopefully allow us to close out

this portion of the discussion relevant to the site profile for the Nevada Test Site. The two issues that we wanted to discuss are related to air monitoring data following an initial reentry. For example, for individuals who might have reentered into the tunnels without respiratory protection following the initial reentry that was done with scuba equipment, S-C-B-A.

Also, we wanted to discuss the environmental radiation exposures at the Nevada Test Site. And to do that I'm going to ask members of our Oak Ridge Associated Universities Team to take us through those two issues. I believe the first issue we'd like to discuss is the tunnel reentry or post-tunnel reentry time period. And to do that I'd like to ask Mel Chew to give some of the information that he's prepared.

TUNNEL REENTRY

MR. CHEW: Thank you very much, Mark.

I think Mark had sent members of the working group quite a few attachments here, and so I'm going to be talking from those attachments. You can follow along with the

talking points.

DR. MAKHIJANI (by Telephone): This is Arjun. Is there any way this material can be e-mailed to me?

MR. ROLFES: I don't have the ability to send an e-mail right now.

MS. BRIGGS (by Telephone): Arjun, this is Nicole. I can e-mail that to you right now.

DR. MAKHIJANI (by Telephone): Okay, great, thank you.

MR. CHEW: Can everyone hear? The mikes are a little different than the ones we have used in the past. They're actually hand mikes, too, so we can pick up. Can everyone on the phone hear my voice there? Arjun, are you going to respond? Can you hear me?

(no response)

DR. BRANCHE: Would someone please indicate that they can hear Mr. Chew?

MR. SMITH (by Telephone): This is Billy Smith. I can hear you.

MR. CHEW: Thanks, Billy. I appreciate that very much.

Let me start this morning with a little bit of digression here. I'd like just

to read something from an obituary, actually, and I'll show why it was kind of key to this discussion here. The gentleman I'm talking about is a Cliff Penwell. He was 83, and he passed away last Thursday, May 15th. He was a World War II veteran, a member of the Marine Corps.

But in 1957, he began to work at the Nevada Test Site starting as a Radiation Safety Monitor. He was present at over 650 atomic tests in a 30-year career, and later became the Radiological Field Operations Superintendent. He is survived by his wife, [Identifying Information Redacted], his daughters and four grandchildren and as well as two great-grandchildren.

The reason why I'm going first this morning is that Billy Smith and Bill Frangas* who happen to be on the call who is with Tunnel Supervision, is going to be attending the memorial service that's going to be held at 11:20 Nevada time today.

I do have a personal relationship with Cliff. When I first went to the Nevada Test Site in the late 1961, he was the Radiological

person who took me in tow with him to show me the ropes at the Nevada Test Site. So I'm very much indebted to Cliff. Our sincere condolences to his family, and I would like to acknowledge his significant contribution to his country, to his service in World War II and to the service and the safety of the (unintelligible) Program. Thank you very much. Cliff, may you rest in peace.

I'd like to start today, I think you can follow along with the notes. The point was made in the site profile that there were workers who participated in the tunnel following the nuclear tests and recovery operations under radiological conditions including bioassays and from which dose reconstructions can be performed. However, the remaining concern there was a group of workers who were not on routine bioassay and who were assigned to preparatory projects in contaminated tunnels after from previous tests.

So the question was raised to demonstrate or to document those workers who were not exposed to a significant and

unmonitored internal sources of intake and there was sufficient data to allow a bounding of internal doses from the work in the contaminated tunnels from previous tests. So I'm going to show a few things. I put some things on the wall. There's also you people who got the e-mails did receive copies of it.

I'm going to try to walk you through a tunnel. I also brought some pictures of what tunnels look like for reentry. So let me just talk about what was the approach and how do we basically look at this problem and how to address this problem here. The approach is very important.

MR. ROLFES: Just to call everyone's attention. We're working from the talking points related to air concentrations following tunnel tests.

MS. MUNN: What day was this?

MR. CHEW: That was sent Saturday.

MR. ROLFES: It would have been Monday.

DR. BRANCHE: It's a large document that he sent, Mark sent, on Monday.

MR. PRESLEY: Twelve attachments.

MR. CHEW: And it says talking points

related to the tunnel.

MR. PRESLEY: Wanda, if you can't find it, if you want --

MS. MUNN: I think I'll be all right.

MR. CHEW: Does anyone need a hard copy around the table? Jennifer has some hard copies.

DR. BRANCHE: Dr. Makhijani, did you receive those documents that Mr. Rolfes sent?

DR. MAKHIJANI (by Telephone): I'm just downloading my e-mail to see if they've come in.

DR. BRANCHE: All right, we'll wait to hear from you if you haven't received it.

DR. MAKHIJANI (by Telephone): I have not yet.

MR. CHEW: The approach to look at this problem was there's a considerable amount of information at the Records Center at the Nevada Test Site. And I'd like to thank the Records Center for providing for us here. Tunnel shot histories and locations were reviewed in recorded documents from Defense nuclear agencies, the DOE. At the time there was AEC Nevada, and a variety of Health and

Safety reports, survey reports, data logs.

And during the time period at the beginning of the resumption of underground testing, which was about the 1961 timeframe -- I'm going to talk about 1961 -- and to the mid-1970s. This was the period of the development of containment technology. I think that's the important point here. Containment, things in the tunnels, were very exciting. It was going to be underground because of some of the test ban requirements here, the underground. And so learning how to contain shots underground was a very important part of that technology. And so there are greater containment issues here.

A selection of monitoring data from representative tunnel shots were chosen that will cover the time period in question and demonstrate the preparatory work. And what I mean by preparatory work is that people spent most of their time in the tunnel getting, preparing the tunnels for an event or a detonation. These were including putting experiments in, putting in the emplacement where the devices or the test units are being

conducted here.

And following the testing and recovery operation with a special emphasis to compare activity in the tunnels following completion of recovery efforts here. Both a time and location matrix of the tests of interest I have included here, and I can bring you to that just to talk about the different events that happened in the tunnel.

The process for record extraction can be briefly explained by reference to the excerpts from the index. And I think I sent a copy of the index. It was quite large here, but I just show the index here. This is only one of the indexes for the series called Operation Thorax. It’s a very large file. But it tells you what the people had to do to go in to find the data.

If you actually go into the index, you can see all the different documents, the forms, the reports, the data that correspond to a specific tunnel, a specific event, and that’s how you need to do to gather, to extract the data. There are thousands of pages of these indexes organized by DOE under

subject category.

The database is extensive and the result took some considerable time to research. And I'd like to certainly acknowledge Bryce Rich, who's sitting next to me on my right, and Billy Smith, who spent considerable time at the Records Center to gather this data for this presentation. Thank you very much, Bryce and Billy.

I don't think I need to go down each one of the indexes, but you can see it. You have a copy in your e-mail. It's quite a few pages here. But you can just see that, for example, you can go right to a particular location, and it says this is the V-Tunnel air data. It tells you what reel it is, and what frame it is. This is all in microfiche. No, it's not microfiche, Bryce it's in --

MR. RICH: It's on reel, not that ^.

MR. CHEW: Okay, and when you see it, you download it onto a big computer screen, and then --

MR. PRESLEY: It's on microfilm.

MR. CHEW: Microfilm. Okay, very good.

DR. BRANCHE: One note, Dr. Makhijani, I

noticed on the e-mail from Mr. Rolfes that you were not included so I just now e-mailed you all the documents.

DR. MAKHIJANI (by Telephone): I'm going to get them twice now. I just received them from Nicole. Thank you though.

MR. CHEW: The purpose of this presentation is to provide a summary of the information and the data analysis resulting from this particular study and some of the background operational facts that addresses the basic issues available from site knowledge and also being confirmed by the records. And then I'd just kind of read a little bit about the background that we think is relevant to help evaluate the data.

But I'm going to stand up for a second here and go to the board and bring you some realism I hope of what the tunnels kind of look like here. And many people said, Mel, you were there in 1961. That kind of puts you at 840 years old, very close to it.

I'm holding up some pictures here of some people going back in and how they were dressed out, and this is some of the initial

reentries here. You can see a person holding a PAC-3G alpha instrument here in some of the reentries here. This is going back into, this is the initial reentry. This is not the group that we're actually talking about because all of these people during initial reentries were bioassayed, surveyed and were well protected.

The group that we're focusing in on is the people that went in after these particular recovery operations took place when the tunnel was deemed to be radiologically safe so they can go back into digging new drifts, put in new experiments and fix up the tunnels in preparatory for the next event. I'm just going to show you a couple more of these pictures here, and I'll pass these around.

I'd like to show this particular one. Mr. Penwell, who passed away, was this gentleman here, he was the tunnel's radiological supervisor. And this is some wires that they communicate with the people as they were going into the tunnel. And this is a radiation monitor looking in. There's the many, many holes that are dipped into the drifts and the tunnels here for emplacement of

the charges and experiments and things like this. This is how the people monitor what potentially is leaking out of it.

Another picture here of the people coming back out of the tunnels and how they're radiologically monitored and surveyed. And this gentleman, I had to figure out what he was carrying, and this is, he was carrying a miner's lamp and the battery pack that's dangling down there. Just to give you some realism about going into the tunnel.

DR. ROESSLER: Now I remember we saw the outside of the tunnels, but I'm trying to visualize how deep they are.

MR. CHEW: Well, I'm going to go there. Thank you, Gen, that was a very good one.

You can go and follow along with me. There's a drawing that I'm going to show. It's called the U-12-B Complex. And I'm going to take advantage of being on the board here, and it's actually on one of the attachments here. You may have to find it. There was a series of little drawings. This is probably the key one, the U-12-B Complex. I'm going to take you through this particular tunnel and

walk you through, and I'm going to give you some distances.

Thank you very much, Gen.

This is a portal where the people actually entered the tunnel. This is a road that drives up to the tunnel. They assemble usually further down and get suited up properly with the proper respiratory protection and badging, dosimetry and et cetera. And then this is after an event.

I'm going to just walk you through a tunnel first, all right? And the first one I'd like to draw attention, this is called B Tunnel in 1957, 9/19/57. It was the first tunnel shot here called Rainier. This was prior to the period we're focusing on. This is 1957.

Right after that in 1958 Tamalpais was shot, and that was right in this particular portion, the drift on the right-hand side. And that was done in ten-eight. To give you the dimensions generated from it, you can see some numbers along the side of the tunnel where people reentered. The first number is 304. That means it's 304 feet from the

portal.

And as you go in further here, this is the 980-foot level. And then the Rainier is roughly at the 1,400 where the drift goes into the Rainier tunnel it's 1,438 feet into the tunnel. This is in feet. Now Tamalpais and the next one was expended in 10/29/1958. And this was Evans right in here, down this particular drift. So the first series fired to the moratorium that occurred in 1958 was Rainier, Tamalpais and Evans, which were also the names of some of the mountains in California.

Now there's also the other shots that I'm going to be focusing in on the discussion is the Cheena* event, which is down this particular drift. When we follow this it's the 1,900-foot level. This is the 2,300-foot level, 2,344, and the working point is right here about 1,000 feet in, almost 960 feet in from this particular entry point was the Cheena. And that was executed in 10/1961.

And then this particular one was Feather, going around the corner here at the 3,500-foot level. And that was in 12/22/1961.

And this is the last one here is Yuba. It was done here in that particular tunnel, and that was 1963. You see there's a period of timeframe between '62 and '63 and we're taking a lot of air samples right at that time because after those particular two events the releases of fission products and debris came down the tunnel and they radiologically cleaned it up. They took a considerable amount of air samples in for people to go back into to put the experiments in Yuba in 1963. This is Feather, Cheena and Yuba are names of rivers in California. And I think the last working group someone had asked me how did they get these names for these events. Well, these are Livermore shots, and being Livermore and being California, the test director has an option to name whatever he wants. And so they're names of mountains and rivers of California.

DR. ROESSLER: Now every time they went to one of those farther points, they always have to come in at that one entry point?

MR. CHEW: Yes, they did. Yes, they did. That was the entry point.

I think I just want to give you a feel for it. We're talking about from the entry point all the way to the working point. That's another term that we used in the test program called the working point, and that's where the device or the gadget that we call it is assembled and put together for the execution itself.

Then there's a lot of considerable amount of activity prior to the event. There's sandbagging and grouting was put in to ensure that things did not leave the tunnel itself. However, there are experiments here. One of the most important part of the experiments is called reaction history. Reaction history is what happened through the event. What were the yields here?

The best way to look at the yields, what gathers from the fission products here and tracers that were put in, and give a diagnostic tool. And those particular way to do it was actually insert a small tube right from the working point and into a vacuum chamber and then they go back out to recover those particular samples whether they're gas

samples or particulate samples, take them back to the laboratories for analysis similar to core sampling, but that's how they did that.

Later on they also did core sampling, too, when they came in from the top of the mesa and drilled down. So those are many opportunities to release activity into a tunnel. I hope I'm giving you some feeling for what that tunnel looks like here.

My personal experience, I was part of the reentry team, part of the Livermore technical group to come back in to look at developing diagnostic sampling, was involved with the tracers and things like this we put in there. And I made some of the initial reentries into Feather, and I learned a lot. And that's in December 22nd, 1961.

MR. PRESLEY: Mel, I'm sorry. Do you want to say how big in diameter the central shafts were versus -- that way you'll give them some idea of how big these things were.

MR. CHEW: The tunnels were approximately about, look a little less than the width of this particular room and about equally to high, and maybe a little higher, were

ventilation ducts. The side drifts became smaller and smaller depending on how big the experiments were and how big the recovery operations would be. But then the actual location where the working point is, is a room about the size of, a little bit larger than the restroom, say the bathroom.

We would bring in the parts that were actually assembled the device in place and putting all the arming and equipment and things like this. There was obviously quite a bit of extensive amount of technical work that has to do to making sure the experiments are going to be conducted properly to look at the signals they were looking for.

DR. MAURO: The air supply and the exhaust.

MR. CHEW: Yes, I'm going to talk about that. Thank you, John.

There are some, in the main drifts there are three places of ventilation systems here. And then the air is sucked in from the, pulled back from the working point and exhausted right at the portal like in a stack. So you can almost think of the tunnel as like a small glovebox or a big glovebox; however

you want to think about it.

And so as they go back in further and further, additional ventilation ducts are in, attaching onto the main ventilation ducts that are pre-installed. I'd like to also point out for John, radiological monitoring for both air sampling and looking at the radiation gamma detectors are placed along the RAMs units, Remote Area Monitoring unit here.

But the ventilation is a very key point because that's when the initial reentry goes back in, the tunnel superintendent is responsible, the tunnel safety, is responsible, number one, to making sure carbon dioxide, carbon monoxide, explosive mixtures, breathable air and the ventilation duct is properly, because that's how the exhaust issues.

DR. MAURO: So there is some kind of stack at the entrance.

MR. CHEW: Yes, right here.

DR. MAURO: And there's a fan blowing out.

MR. CHEW: Yes, it's blowing straight up.

DR. MAURO: Straight up. And ducts feeding into that fan. And now the exhaust fan itself

is there at the exit point.

MR. CHEW: Yes, the fans are up, sitting -- and actually, if you look at the portal -- I think some of you people went up and looked at the portal --

MR. PRESLEY: They've seen --

MR. CHEW: You see that the exhaust ductwork and the blowers are right up on top of the portal.

DR. MAURO: And that's monitored?

MR. CHEW: Yes, they are with the HEPA filters and the monitor had charcoal filters.

DR. MAURO: Pre- and post-HEPA?

MR. CHEW: Pre- and post-HEPA, yes, sir.

MR. SMITH (by Telephone): Mel, this is Billy Smith.

MR. CHEW: Hi, Billy.

MR. SMITH (by Telephone): Bill Frangas just walked in. He may be able to shed some light on how that ventilation system works.

MR. CHEW: Did he hear John's question by any chance, Billy?

MR. SMITH (by Telephone): Yes, he did.

MR. CHEW: Bill, would you have anything -- let me introduce you to the working group,

Bill Frangas. He was the mining superintendent. Bill has been at the test site, Bill maybe can tell a little bit about your own history there when you started at the test site. But I appreciate Bill coming and having to be on this call. He's also a very close friend of Cliff Penwell and will be attending his services.

Bill?

MR. FRANGAS (by Telephone): What is it that you don't understand about the ventilation system?

MR. CHEW: John, do you want --

DR. MAURO: This is John Mauro. I just asked a question. I wanted to know where the exhaust point was and where the fans were discharging the air to the atmosphere that was drawing down the negative pressure inside to keep the air moving. And whether or not at that location there were air samples being collected prior to the HEPA filter and perhaps charcoal filter because I know iodine, of course, is of concern.

And whether or not there was another -- and I'm mainly concerned with prior to

because there would be a good integrator of what the airborne activity is leaving the drift. And of course, after the HEPA and/or charcoal filter what would actually be discharged to the atmosphere. So that was the reason for my question.

The way I look at it that's a very convenient place to gather data that would provide you with insight into the integrated, in other words, you're at a point now where all the air collected from the entire place is discharged. So it's a good starting point to get a sense of the magnitude of the airborne activity particulate. I assume it was a filter --

MR. CHEW: It was a filter probably in the sampler.

DR. MAURO: The sample, perhaps silicon gel for tritium, perhaps charcoal for iodine. I'm not quite sure if it's segregated into those compartments which they, of course, did more recently, because that would be a very nice distribution capturing the three main elements: particles, tritium and iodine.

MR. CHEW: John, I think I want to make

sure. We're focusing today about what happens when the people went back in and the atmosphere and not necessarily the effluent monitor for later. That could be another discussion.

DR. MAURO: No, I am interested in the effluent, but I'm also interested if it's upstream from the HEPA and charcoal filters, what you've really got is a really nice sample of what is moving through the air and on its way out. So that would be a good spot to get an idea of what we're dealing with.

MR. CHEW: When they first turn the ventilation on, people are usually not in the tunnels unless they were focusing on exposure. They don't represent when people are there.

DR. MAURO: Okay.

MR. CHEW: Bill, did you want to clarify anything I said here? Do you have any points?

MR. FRANGAS (by Telephone): In large commercial tunnel-driving operations, traditionally they blew the air in. They've got it on positive. And then the air is sucked in from the outside, and it blows into the heading. Now, in our operations we went

into to reverse. In other words we tried to put the bad air in the pipe and exhaust it out. You still following me?

DR. MAURO: Yes.

MR. FRANGAS (by Telephone): Initially, the tunnels were short. The ventilation was sometimes marginal, and it took awhile to get enough equipment and enough air and so on. Now, in terms of the HEPA filters and whatnot, I never did, I just don't recall when they were start being used.

MR. SMITH (by Telephone): John, this is Billy. One of the things that, you know, listening at your question, one of the things that I think you need to understand is that the air that was in the tunnel that people were working in was actually being sucked out of the tunnel from the end of the vent line inside the tunnel and pulled out of the tunnel and passed through HEPA filter systems.

So your questions about sampling at that point to give you an indication of what the air is, is probably, would give you a very high value because all of the HEPA filters and the charcoal filters would have been,

concentrate the materials that are being pulled down the vent lines. People are actually breathing air, fresh air, that's being sucked in from the tunnel portal as the air is being pulled out from the rear end of the tunnel.

Is that clear, John?

DR. MAURO: Yeah, so what you're saying is that the concentration of radionuclides in the air in the tunnel is going to vary as a function of how, where you are in the tunnel. The only reason I brought it up is that I saw that as if that's your last point before discharge upstream of the filtration, and you're grabbing air samples, what you've just done is say, okay, here's the number of curies per second or millicuries or whatever --

MR. RICH: This is Bryce Rich. They did take ventilation samples, ventilation discharge samples, and did effluent evaluation, you know, discharge to the environment by the scrubbers as you indicate.

DR. MAURO: I understand that, but, please, I'm trying to build a little picture in my mind, and if there were -- typically, you take

your samples downstream of the filter because you're concerned about what you discharge into the atmosphere. I mean, that's standard. But I don't know if they always take samples upstream, especially since you'd like to get a handle on what is, in fact, in the air prior to it hitting the HEPA filter because that's the air that's in the tunnel.

MR. RICH: They did have samples on both sides.

DR. MAURO: Okay, that's all I was asking.

MR. CHEW: And, John, I think we'll make sure that we're focusing on today, you know, the discussion is this is the initial reentries we're talking about. And then we're trying to concentrate on what the air concentration would be after the initial recovery. But I wanted just to walk you through a timeframe here. That's good, John, good question.

MR. CLAWSON: While we're talking about this -- this is Brad. When they take and after they set the shot off, do they start the ventilation up after that or do they make an initial manned entry into there to be able to

review what they've got back there before they turn that on?

MR. RICH: They install in the tunnel remote monitors to determine, you know, both the gas mixtures and radiological gases and rams.

MR. FRANGAS (by Telephone): Well, I think in order to make sense on this discussion, we've got to get ourselves a time. In 1958 people like myself that came out of, I came out of the copper mines and that was the, in the copper mines we just believed in putting the air on suction and putting the, suck the good air in and put the bad air in a pipe.

In 1958 the laboratory is underground for the first time. You know, Rainier was shot in 1957, in September of '57, and then the big effort to get off of Tamalpais and Evans that took place because of the Eisenhower moratoriums coming up on Halloween on October 31st of '57, so in terms of the coordination of the laboratory and the contractor and the air movements and whatnot was pretty primitive.

As time went on and the tunnels became bigger and the equipment and ventilation and

whatnot became adequate, there were significant changes made. So in, I think in the fall of 1958 the coordination between laboratory and the so-called users, experimenters and the contractors, we were all getting acquainted with one another.

And I would judge that much of the efforts that took place there were misunderstood by both parties. It took awhile for us to ^ what the laboratory wanted, and the laboratory had a certain amount of arrogance as to getting their experiments done. I'm just giving you kind of a historical point.

Now after the reentry was made in Tamalpais, and the explosion took place, one day after that the entire systems was no longer free-wheeling. And at that time procedures and everything was tightened down, and the entire system then became a totally, completely controlled effort. So you still are following me.

MR. CHEW: Thank you, Bill.

MR. CLAWSON: My question was I'm trying to picture in my mind, we're getting ready to be

able to do a shot and so forth like that. We go back there. I presume we'd shut down the ventilation system. We'd get everything all set up for that. Then we'd do the blast. And the initial reentry, it seems like to me that before they'd turn the ventilation or anything on, they'd make the initial reentry to see what they've got. Or would they turn that on before or -- because, you know, you could damage an awful lot of stuff.

MR. CHEW: Well, one of the things is that there could be an explosive mixture in there. If you turn that -- I think that's where you're going with that.

MR. CLAWSON: Right.

MR. CHEW: And if you turn the ventilation on, you're going to go boom possibly.

MR. CLAWSON: Right.

MR. CHEW: Bill, I don't remember. Can you maybe recall, the question is that right after the event and the initial reentry team to go in to survey the condition of the tunnel, were the ventilation systems turned on prior to them going in or shortly thereafter when they assessed that there will not be any damage

that may occur if the ventilation was turned on. I think that's the question.

MR. CLAWSON: Yeah, I'm just trying to picture how they'd --

MR. CHEW: Do you recall that?

MR. FRANGAS (by Telephone): In 1958 terms, all of the above.

MR. CHEW: How about in the '60s here?

MR. FRANGAS (by Telephone): By the '60s the system was pretty well sophisticated.

MR. CHEW: And is it safe to say the ventilation systems were turned on immediately after the event so to ventilate the initial reentry team can go in safely?

MR. FRANGAS (by Telephone): Yes. As a case in point, Tamalpais was shot -- I don't remember, October 9, 10, something like that in '58.

MR. CHEW: Yes, October.

MR. FRANGAS (by Telephone): There were some monitoring devices outside the portal. And if I recall right, there were some notions that the airborne contaminants were up in the 10,000 R range. And so for people like myself who'd been on the Test Site at that time about

three months and just getting acquainted with this business of, you know, that indicated to me that that tunnel was through. It was out of the picture. And we still had another shot called Evans to follow that.

After the event was executed, and I heard those numbers, I went home because I'd been on that job 24/7 for weeks on end. There were some times that I didn't get, I was in that tunnel almost 24 hours, and the only time I got some sleep is when I slept on my desk out at the portal. They was hell bent to get these shots off before that moratorium kicked in. Well, we execute the shot. We wind up with those airborne contaminants up in that high range, so I go home.

The afternoon, the following afternoon the day after the shot, I get a call and says hustle on back, we want to make a reentry. So I hustled on back. At that time the levels were down in the 400 MR range which was permissible for reentry. Prior to my coming there, there are some people, and there was no one totally in charge of the entire operation.

If I recall correctly, some of the

Livermore people went into the tunnel a few feet. They took some measurements. Some of my guys were being rounded up. And the point I'm making there was not a formal process for reentry. A lot of anxiety, you know, like, well, we've got to get in there and see what's happening. And then, of course, on that afternoon is where that infamous hydrogen explosion took place.

Following that experiment both the laboratories and the contractor sat down and put together and said there will never again be a reentry that is not totally identified, totally controlled under the command of one person. There's an old saying in my business that when there's more than one guy in charge, in reality, nobody's in charge. And so those were the learning curves, those were the points we put on the curve. And from then on, you know, following Tamalpais, from then on there never was again a reentry that wasn't under total control.

Now in terms of when did you turn the ventilation on and off and et cetera, conditions and readings from monitors inside

and outside and judgments were made on actual conditions. But they were under the purview and under the control of knowledgeable people at all times after that first situation.

MR. CHEW: Thank you, Bill.

MR. ROLFES: This is Mark Rolfes from NIOSH, and I do have a procedure from November 9th, 1961. It's titled "The Lawrence Radiation Laboratory General Reentry Procedure for Underground Nuclear Events" and does describe a little bit about the summary of reentry operations. And I just wanted to point out that some of the initial steps, it indicates remote reading radiation monitors including one at the ventilation stack, TV coverage of the tunnel portal and shaft collar, survey with geophones, with direct reading recorders, tunnel condition indicators and communications with photo and sample aircraft in the area.

It goes on to say that ventilation into the tunnel or shaft complex will be started at the earliest possible time. Tunnel reentry will not be made until the vent lines are monitored for gas and it is determined by the test group director that it is safe to

start actual tunnel or shaft reentry. I believe I provided this previous and put it on the O drive for people's review. I can also send it again if everyone would like, but it does have additional details regarding the actual procedures for the reentry.

MR. CHEW: But I think that's pretty general to answer your question. I mean, they looked at the conditions here before they took a risk of turning the ventilation on. I think that's important.

MR. CLAWSON: Well, and also a lot of times I'm sure that when these blasts went off, you did lose some of your instrumentation. So that's what I was trying to figure out was, is how because I read what you were saying there, and I was wondering how they got that information.

MR. CHEW: I think I lost one of mine, and somebody said, well, you go get mine.

MR. CLAWSON: I looked at some of your photos, and it looked like they were restringing instrumentation wires.

MR. CHEW: That's communication wire.

Bryce, do you want to make a comment

on that?

MR. RICH: You need to understand that as Bill has indicated, after the first learning curve, it was always under the, these events were always under the command of a test group director, and the equipment laboratory appointed a test group director who was responsible for reentry and the safety of people associated, using the Site's contractor, REECO, the tunnel people, the people that really had expertise. And he reported directly to the DOE test manager. And so there was that chain of command. After the recovery, which could have gone on for months, then it was passed back to the tunnel superintendent for control.

DR. ROESSLER: Bryce, can you give us a date -- or maybe Bill can -- at what point did this control and all the changes take place?

MR. RICH: It depended upon the event.

MR. CHEW: Oh, you mean when they transferred from the test director to the tunnel entry --

DR. ROESSLER: At what point did things become under much better control and --

MR. RICH: Oh, you mean in the history.

MR. FRANGAS (by Telephone): There's a simple answer for that. The day after Tamalpais.

DR. ROESSLER: And give me the date on that.

MR. CHEW: That's 10/8/1958. But then we went to the moratorium, and then things got, when resumption of the testing was under this procedure, it was dated November 1961. ^ was December of '61.

DR. ROESSLER: I think it's important to have dates associated with the information that we're receiving.

MR. CHEW: I'd like to, there's a picture, you saw the people there wearing a pack. And that's called a McKay Pack. I think in this room I think Bryce and I are the two ones who were certified to wear a McKay Pack. We had to go through a considerable amount of training. This is a re-breather that allows you to go in to breathe for two hours, different than the scuba gear for 20, 30 minutes.

And what they did is they took your carbon dioxide that you breathe out and

basically pass it through some calcium hydroxide. And it takes out the CO2 and then gives us about another ten or 15 percent of oxygen. So we carry this bottle. When the carbon dioxide actually got into the calcium hydroxide, it got hot, but I always remember seeing Bryce for the first time because he was getting certified for his McKay, and he was playing baseball. They set them up to play baseball wearing a McKay Pack.

MR. RICH: And the sweat was right up to there on my mask.

MR. CHEW: This is all mine safety equipment you all know. Our certification only lasted for a year, so we had to get re-certified.

MR. CLAWSON: Are you still certified?

MR. CHEW: No, I think there’s an age limit. I think you have to be young.

Let me continue here because I want to focus in on what the data shows. If you can follow with me here, we’re going to talk about the air activity where it was migrated and controlled at the tunnels through pre-installed ventilation as we talked about. Generally, a minimum of 2/10,000 CFM positive

pressure blowers were used in the base flow driving ventilation.

Post-shot venting of gases, radioactive, toxic and explosive, probably the latter two were more important as you can now imagine here, through charcoal filters and HEPA filters were performed at these shots as needed, generally, just prior to reentry or in unusual seepage problems that developed here. The remote radiation, toxic, explosive gas monitoring devices in the test strip in several locations by which conditions in the tunnel can be determined remotely following the tests and prior to personnel reentry activity.

Initial reentry teams consist of Health and Safety personnel to address the radiological and toxic conditions here, Mine Safety personnel to address tunnel integrity and safety in addition to other experimental technical personnel as needed here. We were very anxious to get back and get our experiments obviously, but they held us back.

The protection of workers during reentry into the test chamber and other known

suspected high-level condition including full protective gear, respiratory protection as I've shown you with air re-breathing equipment here for high-level workers. These protective measurements were applied preventively, and protection measures were used in situations where you're going to anticipate potential significant levels of air activity as evidenced from the known surface contamination.

But if you went back in a monitor, I mean, your instruments told you a lot. And the people were very, very experienced. They could put it on the ground ^ taking air samples you can tell a lot. If you take an air sample and put an instrument right away, and then based on some of the counts, you can get a kind of a gross feeling where you are. You also know by just, you walk into a highly contaminated, you got contaminated. I mean, your survey showed that.

And so there was a lot of indicators other than just the air sampling. And that's a kind of important note. When do you actually end up relaxing those conditions here

and when the air samplings are representative. The group that we're talking about was the group who went in without bioassay.

DR. MAURO: It sounds as if though one of the action levels was your millirem per hour reading as being a primary indicator of it's time to leave --

MR. CHEW: Sure.

DR. MAURO: -- as opposed to, let's say, some gross alpha character or air sample. That would be your first trigger.

MR. CHEW: They did both. As a matter of fact, the picture I showed you with the person kneeling down, that's a Pack 3G, and it looks for alphas. It's a depth-proportional detector.

MR. RICH: Brad raised the question about the remote monitors that were fed through the gas stevedore and the overburden they called it. And they monitored several of those remote monitors, both for ^ and for radiation levels, and the results on the remote monitor. They lost one or two ^ so they didn't lose those monitors so they knew ahead of time the conditions in those tunnels. And then the

ventilator --

DR. BRANCHE: Excuse me. There's a participant by phone, you will need to mute your phone. I'm sure it's disturbing the other people online. Thank you.

MR. RICH: -- and then they could watch the decrease and how effective the ventilation was before. An entry team went to the gas-sealed door and opened up doors and then this was a manned reentry to look at the condition of the tunnel as well as the radiological conditions after they went into the tunnel. But as Bill said, they had an experiment situation where an explosive mixture went off in the tunnel so they were extraordinarily careful after that.

MR. CHEW: Thanks, Bryce.

I think you can follow along with me in the written text. I'm going to scroll down about two or three bullets because some of those particular points that are on those were discussed already. And I'm going to go down to the area where it says a suspect or known highly contaminated areas were reentered when the first task was to check and be sure that the vent lines were intact and functioning and

install new vent lines at the head of the work and newly-opened test chambers contaminated ^.

Example, sometimes you ^ activity where some of the experiments getting to that particular entry point -- but remember, this is kind of convoluted, the particular drifts in here -- that they were so highly contaminated that you'd have to make a side trip. So they had to kind of bring in people to dig a new drift to access one of the other drifts that you put the experiments in. You couldn't possibly go in because of the contamination directly into the one that you had put your experiment in. So we kind of relied on that ourselves.

MR. CLAWSON: This is Brad. Would they take and seal off that tunnel?

MR. CHEW: Yes, they did. They sealed it off.

MR. CLAWSON: After the tunnel and come around from another direction.

MR. CHEW: There was a lot of that.

MR. RICH: That's why the recoveries took weeks and months sometimes.

MR. ROLLINS: And, Mel, that picture that

you showed us with all the holes in the wall, was that a clean drift trying to recover experiments from a sealed tunnel? Was that the activity that was going on there?

MR. CHEW: Where the person was? That's additional holes that they had pre-drilled there, and I think the monitor was just really checking the condition of that one. I don't know specifically what the shot there was, Gene, but they were just looking for, I wanted to show the picture that they look in every one of the holes because that's where the seepage will occur.

MR. SMITH (by Telephone): Mel, this is Billy. That picture that you're talking about where the guy, all those holes are drilled into the face, they're getting ready to shoot some rounds. They're actually doing mining there. Those holes are drilled, and then they pack those with explosive charges and they move out and blow that up, and then they come and muck that stuff out of there and put it on train cars and get it out and continue on forward.

So what he's surveying is to make sure

that during that, you know, going in and then cross-cutting, they aren't going into any contamination that they don't know about. So he's monitoring the face or the cuttings that came out of those holes before they put charges in them.

MR. CHEW: These are emplacement holes for charges. I think that's what you were asking.

MR. CLAWSON: They're tunneling on and making sure they haven't drilled ^, and also shows on the front of this.

MR. CHEW: The document and detail project event reports contaminated tunnels were immediately sprayed or washed down with water to settle the dust and create a wet surface and to obviously lessen resuspension. Water glass or a heavy oil spray was applied to a more permanent fixture of measurable contaminants.

I think, Bill, I forgot to ask you. I don't remember the water glass. What was the constituent of water glass? Do you recall that? I think I'm catching you off guard here. What was water glass made out of?

MR. FRANGAS (by Telephone): That's been a

long time ago.

MR. CHEW: Obviously when they would spray this down it kind of held things in. I just did not recall what the material, that was what you folks did to help us in the tunnels here. Okay, let me move on.

Heavy oil --

MR. PRESLEY: Mel, excuse me just a minute.

MR. FRANGAS (by Telephone): Just to get a perspective here. Once an event was executed, all the major effort was to make the initial reentry, turn on the ventilation, determine where the contaminants are, if any, what protection has to be taken place. And that generally took a day or two.

And then once all of that was established, when the inspection team went in wearing the McKays, which were a four-hour breathing apparatus, determined -- you know, there were a lot of other things besides contaminants. Had to make sure that there wasn't any loose rock in the back. The back is called the ceiling of the tunnel. And after all of that had been taken care of, then the complexion of the reentry changed to

letting the so-called users get back to their experiments.

And a lot of those experiments were time sensitive and so you had to get them as soon as you could. So the point I'm making here is that although reentries generally have a lot of similarities, no two of them were ever totally alike. And those penetrations back into the tunnel had to be judged by the actual conditions as we knew them.

Now, as time went on we got pretty well sophisticated. We wound up with monitors inside the tunnel that were connected to the CP, the control point, and decisions could be made from the control point 30 miles away as to whether or not to turn on a particular fan or all the fans or whatever. And so this was the way that the system operated there. At the portal, portal control was maintained 110 percent.

MR. CHEW: Bill, thank you very much here. We're going to have to interrupt our discussion here for a few minutes. I'm going to turn it back over to Christine because have a speaker from Senator Reid's office.

DR. BRANCHE: Yes, Mr. Presley and the work group.

Ms. Oh, are you on the line?

MS. OH: Yes, I am.

DR. BRANCHE: Okay, great. Ms. Katherine Oh is the Legislative Assistant to Senator Harry Reid. And she has a letter that's been addressed to the Board and to this work group.

Ms. Oh, I'm also going to submit your letter so that it can be entered in its entirety into the record. But please go ahead and read your letter.

MS. OH: Thank you for this opportunity.

Dear Dr. Ziemer, Dr. Branche, and Members of the Advisory Board: I write to express my strong support for Petition SEC-00084 to include Nevada Test Site workers employed from January 1, 1963 to September 30th, 1992 in the special exposure cohort. For the reasons explained in the petition, as well as concerns described elsewhere, I urge you to recommend giving these men and women the expedited and streamlined eligibility that is available only through SEC membership under the Energy Employees Occupational Illness

Compensation Program Act.

As a member of Congress who was involved in the passage of this law, I know firsthand that we intended for this landmark law to ensure timely, uniform and adequate compensation for our nation's Cold War veterans who sickened on the job. While a limited number of Nevada's claimants have received benefits under the Act, I am deeply troubled by the failure of the program to fulfill this promise for so many other deserving NTS workers. They are among the individuals covered by the petition pending before the Advisory Board's Work Group on the Nevada Test Site.

Unfortunately, these individuals now face an unreasonable and excessive burden of proof arising from the problems unique to NTS. Due to the numerous flaws in the data and methodologies used by the Department of Labor and the National Institute for Occupational Safety and Health, I continue to hear from my constituents that the eligibility hurdles and bureaucratic red tape are extremely difficult, if not impossible, to overcome. The dose

reconstructions estimated by NIOSH are especially problematic for NTS workers as the petition explains. Although NIOSH's evaluation of the petition is largely dismissive, I appreciate that members of the Advisory Board and its contractor Sanford, Cohen and Associates continue to pursue these serious and legitimate concerns.

Among the issues that deserve your continued scrutiny are NIOSH's unwarranted conclusions and flawed assumptions about the integrity of the external dose record, internal dose monitoring coverage, Iodine-131 data, hot particles exposure, air-concentration data, neutron doses, and resuspension of airborne materials. As numerous NTS workers have testified, it is important to keep in mind that radiation monitoring protocols often did not match up to reality. The adequacy, validity, and reliability of key parts of NIOSH's Technical Basis Documents for NTS also remain in doubt. Not only are the NTS site profile documents still unfinished, future editions are not expected to address key shortcomings,

including unplanned releases of radioactive materials and exposures associated with classified programs. Serious flaws in the methods themselves, not just the data used in the calculations, should give you pause as well.

The Energy Employees Occupational Illness Compensation Program Act created the Special Exposure Cohort in anticipation of such weaknesses in the standard eligibility process. When the necessary information is inaccurate, incomplete or simply nonexistent, the SEC option ensures that gravely ill workers and their loved ones can still be given some measure of recognition for their sacrifices. In the case of the NTS petition pending before the Advisory Board, over 400 filed claims could potentially qualify for the SEC designation. Given these high stakes, I respectfully ask you to give Nevada Test Site workers' petition every consideration and recommend approval to the U.S. Secretary of Health and Human Services. Sincerely, Harry Reid.

MR. PRESLEY: Katherine, thank you very

much.

MS. OH: Thank you.

MR. CHEW: Do you want to take a break?

MR. PRESLEY: That's what I was going to say. While we're stopped, I want to take about a ten-minute break. Be back in here please at 15 after ten. Is that all right?

DR. BRANCHE: And we'll mute the phones.

(Whereupon, the working group took a break until 10:15 a.m.)

DR. BRANCHE: I think we're just about on time so can someone who's participating by phone let me know that you can hear me?

(no response)

DR. BRANCHE: I know you're probably on mute because I've asked you so nicely so many times, but could someone let me know that they're participating by phone?

UNIDENTIFIED SPEAKER (by Telephone): We're here.

DR. BRANCHE: Thanks so much. I appreciate it.

Mr. Presley.

MR. PRESLEY: Mel.

MR. CHEW: Thank you very much.

While we wait for everybody to gather back into the room, I just want to go back to the wall that showed, I described the B Tunnel. And the reason for that later on is that many of the information that I'm going to ^ on radiation activity post-shot is going to be from the B Tunnel because of the five previous shots it's probably the representative tunnel area, John.

The one Pile Driver, and the Pile Driver was a very interesting experiment and that was executed on 6/2/66 and was from U-15A, another tunnel complex here. You can turn around and look at this one. This one was a shaft that went down from the top of the surface of the mesa down to almost about 1,400 feet. So here is the shaft that they built. And the shaft was roughly, I remember it's about five or six feet in diameter. It's not much more than that.

Then they had a skid and you can put about three people, or maybe four if you jam or squeeze everybody in on top of each other, and the skid brought us down. So we all went down in the tunnel and then going back into

this particular, then they went down to the 1,400 foot level and dug a drift.

And the drift came all the way out from this particular point, and here's what the drift looked like. Here's coming down the excess draft, and this drift is now, we're down at 1,500 ^, not just per portal. So there's a couple of other little safety issues that they had to face, too.

Brad, I think you can imagine making sure that people were down there.

And then this experiment was called Pile Driver. These were structures that were actually built into the drifts for the experiment. And the experiment at that time was to determine how the survivability of some of our missile silos were. And that was the experiment. And so they were looking at the effects, the blast effects, from this particular shot. How it affected actual structures. We built structures there to assimilate some of our containment for our missile silos and obviously some of the information that was used at NORAD for the protection of the, that particular tunnel. I

just want to show you the different way of actually executing the shot here. So here was the shot down here. The working point where we looked at the effects of what happened to those particular structures. Then we went back down and looked at them.

MR. CLAWSON: Now that is tied into the B Tunnel ventilation system though, isn't it?

MR. CHEW: There's another picture that shows the ventilation. This is the Gumdrop Tunnel.

MR. RICH: However, a different part of the site.

MR. CLAWSON: Okay, so Pile Driver was standing all by itself.

MR. CHEW: Yes.

MR. CLAWSON: It had its own ventilation system.

MR. CHEW: Yes, it was 15A. It was a different, but I just wanted to show you a different kind of configuration where people had to go down the shaft and then go back into the drift that's mined already 1,400 foot down.

DR. MAURO: Where's the supply air? I mean,

I know the air's coming out. Where's the air coming in?

MR. CHEW: They bring in ventilation ducts along the side.

DR. MAURO: So there are other holes?

MR. CHEW: Yeah, there are other holes here, ductwork.

DR. MAURO: And they're somehow sealed during the test and then they're unsealed --

MR. CHEW: Yeah, with grout and things like this. And they blow air in and blow it back out this way.

DR. MAURO: Is the negative pressure inside?

MR. CHEW: Yes.

DR. MAURO: I imagine. That makes sense.

MR. RICH: Many of these shots had other vents.

MR. ROLLINS: Did the muck come out of the shaft?

MR. CHEW: Out of these shafts? When they went back in for ^.

MR. ROLLINS: Just when they built all of these structures, I mean, how did they get the muck out?

MR. CLAWSON: They have to blow out the

shaft.

MR. ROLLINS: Okay, up the shaft.

MR. CHEW: This main access draft.

MR. ROLLINS: They had a system that would take it up.

MR. CHEW: I remember the ventilation duct because I remember there was an issue about some of the gases that part of the laboratory experiment, I guess however you want to say that, that we had to be concerned just in case it got loose inside the tunnels and people were there. I did some analysis making sure what we can do to have to make sure that people can evacuate properly. And so that also limited the amount of people under the ground when we were doing that.

Okay? Let me go on. I do want to, since I have these up on the wall, and this is Gumdrop, which is 16A. This is the Gumdrop Tunnel, and this is the portal. And I brought this picture along because it showed where the RAM stations were marked off here. RAM stations here, explosimeter and the pumping station, and this is the working point for the Gumdrop event.

And so this will show you a different tunnel diagram. So it's not just a simple B Tunnel one. But this is the one that we mainly used quite often here. Now I'm going to concentrate on this discussion because there were five other events prior to it. The pictures and timeframe now, again, this is the timeframe line.

We have shots that happened in '58, and then we had a moratorium. And then we have two shots, Feather and Cheena that happened in 1961. Now there was a very important event, the experiment done called Yuba. And it was at this end here. The shots went along here. So this is a clean drift in here where the people have to pass by to go back into the tunnel. That's the group of people we're talking about. This is after -- this happened quite often. They went back and started -- these happened in '61. Yuba didn't happen until late '62. So there was a time period, about quite a few months, that they were preparing the tunnel for the Yuba event.

MR. RICH: The better part of a year.

MR. CHEW: Yes, a better part of the year.

Thanks, Bryce.

And so, John, I think it was important that after these particular events and after the initial reentries under full protective gear, that now the miners went back in the tunnel. So you're going to say to people that I went back into the tunnel, and there's no question. I went back in the tunnel to help prepare the Yuba event. Well, fortunately, air compare samples were continually taken afterwards.

And so I think this leads me to -- and I'm not going to go on any more of the little points that talks about the process because I think you can read along. I'd like to draw the attention immediately to the few graphs that I'm going to show here.

John, I think the first one, we can talk about that. This is the air activity graph. You can go to your attachment here.

MR. PRESLEY: Six N.

MR. CHEW: Six N, thank you.

The air activity graph. Be sure everybody stays with me because I think this is the meat of the discussion here.

MR. ROLFES: Attachment 6LN Air Activity Graphs, PC Reference-dot-W.

MR. RICH: Lognormal distributions.

MR. CHEW: Well, as I said, Bryce and Billy went and collected the particular samples and you can read along. There are seven airborne and reactivity concentration datasets were developed and listed in Table 2. And we're going to go there. And each of the datasets apparently were fit in lognormal distribution and did some analysis to show that it is lognormal, and this was put onto a spreadsheet. And then I thought we can give you the data, but I think the best way to show it is graphically.

And I think the very first one you can see is going to be called NTS-12B-Airborne Alpha Activity Post-Shot Tunnel. Is everybody with me?

(affirmative response)

MR. CHEW: Well, we took the liberty of also putting a comparison to the DAC, and that's using ICRP-30 as a comparison for the DAC. And if you look at alpha, and as you all know, the people who've been in the tunnels, even if

you go into a regular tunnel, you're going to take air samples, you're going to get radon ^. And so some of these activities is going to be biased high because if they read, for instance, ^ on an alpha probe or ^ meter, and you see it's below the DAC level and you took it immediately, you don't need to really have to wait four or five days because ^ long life. But even then they still did that.

But that gives you an immediate indication that the people who work in operational output contamination understand that. And this represents at least 500 samples. Now the shot that we're talking about happened in December 22nd, 1961. This is many months afterwards which would be representing when people would be going in without all of the radiological radax* conditions because now the concentration, air concentration, they had in the tunnel has reached to this particular point.

DR. MAURO: Well, when you say you have a DAC, I guess you're assuming certain isotopes?

MR. CHEW: Yes, this is assuming -- you read the text, John -- it's assuming Pu-239.

DR. MAURO: So you made your worst possible --

MR. CHEW: Make the worst possible case. Probably uranium is going to be there, too --

DR. MAURO: And you're saying the short-lived radon daughters, since you didn't wait for decay --

MR. CHEW: Some did and some didn't. We just had to make sure because --

MR. RICH: Most of them are decayed. They did, the laboratory did a long-lived analysis --

DR. MAURO: Okay, so it's safe.

MR. RICH: -- they did a midday count, a day count, and up to five-day counts.

DR. MAURO: And the ones we're looking at, these have been decayed, allowed to decay so --

MR. RICH: Most have, however there were some that were I just opted to leave the first count in, so these are biased high.

DR. MAURO: I think I understand now.

MR. CHEW: From an operational standpoint we always had to play, when you work in plutonium facilities in a situation, you have a few

tricks in your back pocket. You look at the alpha-beta ratio very quickly. You took a general air sample and looked at the alpha-beta ratio, and then you go back in and you take an immediate air sample. Rather than waiting for the decay time, you go ahead and count it right away. Then you kind of know that you really have something or not.

DR. MAURO: Given the time that passed, certainly what you're saying is we're really looking at the relatively long-lived radionuclides that are alpha emitters. And I gather from this that you're not too concerned about tritium, certainly not concerned --

MR. CHEW: We have data here.

DR. MAURO: Oh, you do.

MR. CHEW: You're ahead of me, John.

DR. MAURO: So right now what we're saying is, listen, we've got a pretty good handle on their possible exposures to Plutonium-239 that may have been airborne --

MR. CHEW: ^ here where we ^ out these tubes. We're getting ready for Yuba. We're taking these kind of air concentrations here for the people going back in. They went back

in without respiratory, and also most likely represent the people who were not on a routine bioassay. I think that's real key.

Well, since you're moving ahead, I think you can look at this one and make good sense out of that one here. You can go to the next slide which shows the beta activity. And if you look at it, the DAC levels were, look at it, and I think you can read what the activity we're looking at. We're looking at some of the ruthenium wells three, well six. Those are the shorter ones. There's zirconium, Niobium-95, Strontium-90 and --

DR. MAURO: So you're not assuming this is all Strontium-90.

MR. CHEW: Right, we're not. And we do chemical analysis to show only a small percentage of Strontium-90. But as you know, because you know DAC levels, and you and I have discussed this at many different locations here, John, the Strontium-90 DAC is right about in here. It's going to be in the order of three times ten to the minus eight ^. And this is the DAC level concentration.

And you can see, and what I expected

because we're talking about quite a few months afterwards, that the airborne beta activity representing longer-lived ^ fission products here would be at least two or three orders of magnitude below the DAC level.

MR. RICH: All the DACs for strontium and zirconium and niobium and iodine are all in the queue of ^ minus ten range, or it's a magnitude higher than the, along with alpha concern. And for that reason there were some of the beta samples they didn't count twice. They just simply get a single count. So these samples are also biased levels.

MR. ROLLINS: Gene Rollins. When we worked on, when I worked on the Savannah River TBD, environment TBD, what we learned was that ambient measurements of beta activities did not track with stack releases. What that told us was that there were a lot of constituents in that air that are not the result of the activities that are going on inside that tunnel. And if we assume that's all strontium, that's going to be extremely conservative in my way of thinking. But you say that we have radiochemical analysis that

will allow us to make some judgment about how much there actually was of Strontium-90.

MR. CHEW: Yes.

MR. ROLLINS: Something we would probably need to look at and take advantage of.

MR. CHEW: And those samples of radiochemistry was not only done by the Reynolds Electric legal folks, but also those samples were sent back to the respective labs like Livermore and Los Alamos because we were very interested technically in the data here.

MR. ROLLINS: And it would be interesting to find out exactly what the constituents that were contributing to that activity actually were.

MR. CHEW: And I think a very important point to show here is that, I think the key point is that even if they went after, a significant time after the shot when it’s kind of, relatively supposed to be clean and people ^, they continued to take air samples at that ^. And we have the data.

MR. RICH: One other thing, in any tunnel environment obviously you’re going to get, as Mel’s indicated, radon and thoron daughters.

Barometric pressure makes a huge difference by an order of magnitude or more. And so as a consequence this is data over a year's period of time and those fluctuations you see are probably fundamentally and primarily barometric pressure associated, natural radon daughters.

DR. MAURO: But not in this case. This is you're not looking for radon progeny. I mean, I heard you did some radiochemistry, and you understand the mix, more or less, of what they're dealing with here.

MR. RICH: They did some additional analyses on these samples to determine if there was anything else present. That was way, way down below ^. These levels are gross beta. And by the way, the filters that they took normally are charcoal filters with a free filter. And so they did beta and alpha on the free filter and gross gamma on the charcoal filter so you see ^.

MR. CHEW: Let me just go on. The next one -- you can just follow this. The next line is the tritium concentration like you asked, John. And we use obviously the most

conservative tritium without being HTO and that's probably true ^. So we're probably an order of magnitude or thereabout below the DAC level. You've got to remember the DAC levels also represent the people in continuous exposure, and you know they didn't go into the tunnels continuously, so you know that.

DR. MAURO: My reaction is that what you're saying here is when testing resumed in the early '60s, and you were getting ready to go back into these tunnels, measurements made to determine if there was some residue of airborne particulates, and certainly I'm sure, external exposure that was of such a level that we had to be concerned.

So I think that, at least in this case, what you -- I mean, I read that pretty quickly. Is that clearly they had a good handle for the reentry following, years following the initial set of tests and get an understanding of what are we about to walk into. I guess when we started this I had in my head the story went more toward, okay, why do we have to do the test. There was, people went in shortly thereafter to retrieve.

I guess I was a little bit more concerned about that part of the process. But I could see here, I didn't even, quite frankly, I didn't even think in terms of three year old drifts and making sure that there's nothing there of concern. And I think there's a good point --

MR. CHEW: Well, I think the question comes, these were the unmonitored folks. And so as a person who was a regular tunnel worker, I went back into installed new ventilation ducts. I was unmonitored, and we don't have any record or bioassay and here are some ways that we can now assign some exposure.

Let me go an, I'm going to go on to the next --

DR. MAURO: Before we leave this. Now you've done your, basically what was done here, the folks did their homework before they let people go back in to get ready for some new shots. During them, those activities where they were unprotected, was there ongoing -- now you're in there disturbing. You're drilling, I assume, you're setting up. You're building; you're doing things. And now you're

going to create more dust. Are these samples taken while those activities were going on?

MR. CHEW: The answer is definitely yes, exactly right. That's exactly right on. It is going to do –- obviously concerns as they dig new drifts and experiment doing disturbances ^ activities.

We're going to just for comparison go to the next set of slides which is Dormis*. And Dormis, I want to focus in on these concentrations were taken shortly after the event here. And these concentrations represent different -- it's the next slide down. And it's U-12G Dormis here. And the reason for bringing this up here -- and thanks, Bryce -- is that we want to show you what kinds of activities were there during, immediately during recovery entry. And these people were not only protected but were also bioassayed. This represents a group that were bioassayed. Now we've already talked about the group that were not bioassayed, so --

MR. RICH: Let me just add one thing, Mel. During recovery all of these operations are under the directions of the Weapons Laboratory

Testing Director. And after the recoveries were done, after the experimental drifts had been entered and all of the known high radiological jobs were done, the tunnel was sealed off and repaired and turned back over to the tunnel superintendent for future use and preparation. And so an evaluation was done before it was turned back over to them.

DR. MAURO: And this data --

MR. RICH: And this gives you an idea of activities during recovery, during recovery.

DR. MAURO: But this was after the radiation safety folks cleared it so to speak?

MR. RICH: No, no --

DR. MAURO: This is while the --

MR. RICH: This is the initial --

DR. MAURO: This is the initial --

MULTIPLE SPEAKERS: (Indiscernable)

MR. RICH: There's a delay you hadn't noticed here. There is a delay.

MR. CHEW: Let me read you a little bit about Dormis. And, John, the point of bringing this one out is this is about the worst you've got. I think that's the whole point, and I think that's why we want to show

that particular data, recognizing we're focusing on the unmonitored worker, which I thought I showed you at an earlier time.

DR. ROESSLER: On this data then the people were bioassayed. You have these measurements, so supposedly you could make some comparison between the bioassay and the conditions in the tunnel.

MR. CHEW: Sure. We did that.

DR. ROESSLER: If you were to take it to the next step.

MR. CHEW: Yeah, you can.

MR. RICH: Quantitatively, they didn't get much activity detection in bioassay --

DR. ROESSLER: So you can bound something then.

MR. RICH: -- except for episodic. There were events, incidents that occurred during recovery that surprised people. And then they knew about it.

MR. CHEW: They were wearing this. They were taking the air concentrations, but they were wearing this. So to answer your question is a very good one. When we take the bioassay it will basically tell what the protection

factor would be.

MR. RICH: And a lot of them were covered with full-face respirators.

MR. CHEW: And full-face respirators.

Dormis, I'm just going to read about Dormis here. You can actually, I'll just give you a little background. This event was detonated on August the 31st, 1967 at 0900 hours at Tunnel U-12G, Drift 7. A previous event, Red Hot, was conducted in the same tunnel complex. Stemming and containment failed on this particular resulting in damage to and to contamination of experiments here.

The uncontrolled effluent was released into the atmosphere and minor levels of radioactive effluents was detected offsite. This came directly from the DNA report. The initial surveys through the portal occurred on September 1 with a maximum exposure of about an R per hour was measured. After this survey no further attempts to enter U-12G until September 5th. They let some of the short-lived fission products decay.

Upon reentering the team encountered water on the tunnel floor inside the gas-

sealed door, and the exposure rates were as high as ten R per hour and made toxic and explosive gas mixtures and exited the tunnel after ten minutes inside the gas-sealed door.

Water was pumped from inside the, water was pumped from inside the gas-sealed door within weeks following the initial reentry. Entry beyond the overburden plug began on October the 5th. The tunnel was so damaged and wet inside that the overburden plug and the temperature exceeded 130 degrees F. It was decided to abort the reentry mission.

All reentry and recovery operations became concentrated on mining through the U12-G zero four drift into the 07 drift. Recovery was made through via this particular route. Some of the contact exposure, quick-exposed readings was like as much as 25 R per hour. The highest accumulated personal exposure during the 4,250 individual logged reentries into Dormis from August 31st to January 31st, was 1,625 millirem. During this recovery operation more than 500 operational air samples were collected and processed, and this

is what the data represents if you're looking at Dormis.

MR. RICH: But there's an extended delay before they begin recovery so this gives you a feeling for that --

UNIDENTIFIED SPEAKER: Reentry ^

MR. CHEW: The Dormis was 8/31/57. The first kinds of activity we saw was in the mid-October, about a month, about six weeks after. And I read this report to tell you what they really did here.

DR. MAURO: Is that typical, a two-month delay before you entered?

MR. CHEW: No, no.

DR. MAURO: I didn't think so.

MR. CHEW: So some we never got back into.

So you can look at the Dormis and alpha activity. I think we're trying to say that this is the worst it could have got during the ^ and what personnel were there. You can see the DAC levels as compared to plutonium, you know, an order of magnitude or so thereabouts here, John, if you look at the data.

MR. RICH: This reflects access into areas

where there was actual bomb debris, refractory elements there. And so even with ventilation you had ambient levels and long-lived activity above DAC levels. So as a consequence, they were ^.

DR. MAURO: In August the test went off.

MR. CHEW: Uh-huh.

DR. MAURO: Then some time after that test there may have been some ventilation started or there may not.

MR. RICH: They did.

DR. MAURO: They did. They started up some ventilation. And simultaneously, they were pulling air samples remotely.

MR. RICH: And the initial reentry to the gas-sealed door and tunnel conditions of what they wanted to ^ and then they started the bypass operation.

DR. MAURO: But they continued to monitor the airborne activity remotely with some kind of air sampling device?

MR. RICH: Yes, anytime they went in they monitored ahead of the teams.

DR. MAURO: So these dots, microcurie per centimeter cubed, these are the results of an

air particulate sample --

MR. CHEW: Yes, sir.

DR. MAURO: -- that was somehow collected from the location. How did you get it?

MR. RICH: These represent activities measured in the tunnels by individual members.

DR. MAURO: Oh, so people went in --

MR. RICH: Yes.

DR. MAURO: -- in full gear, went in, pulled samples, and this was some brief sample, a few minutes --

MR. CHEW: They take ten cubic meters of air and things like this.

DR. MAURO: Bring it back out --

MR. CHEW: As a gram sample.

DR. MAURO: -- and then this case would be a gross alpha --

MR. CHEW: Yes.

MR. RICH: It’s gross alpha, but these are also decayed. These are the ones where they determine long-lived activity.

DR. MAURO: Got it.

DR. MAKHIJANI (by Telephone): This is Arjun. I have a question about this. How do you relate the timing and location of these

air samples with where the workers were working and what they were doing?

MR. CHEW: We sample where they are working, Arjun. Remember during these --

DR. MAKHIJANI (by Telephone): Were these fixed-head samplers or --

MR. CHEW: Pardon me? I'm sorry.

DR. MAKHIJANI (by Telephone): They were area samplers, right? They were not lapel samplers.

MR. RICH: No, they were --

MR. CHEW: They were graph samples that they were taking in that like Stay Flex air samplers. And the monitors went in with the workers that do the initial entry, and that's what they were sampling, right where they were working.

MR. RICH: They were high volume.

MR. CHEW: High volume air samplers. They were pulling about a CFM 35 meters.

MR. RICH: Five to 15.

MR. CHEW: No, no, they were measuring about 35 CFM a cubic meter. I remember.

No, they were not lapel samplers, if that's what you're -- but remember, Arjun,

these people are completely suited up.

MR. ROLFES: And they were participating in the bioassay program as well.

MR. CHEW: We just want to give you a little perspective of how, what the worst case would look like here. We can also see the beta activity in the next slide over. As you can well imagine the event was 8/31, and these samples probably represent some of the decay. And that's why they're way below DAC levels here as a concentration. We would expect that though, John, from the early fission products.

And here's some of the gamma concentration here which is the island.

MR. RICH: The next one down is the island where you're still close enough in that you see the volatiles and the islands.

DR. MAURO: So this is a couple of months later and you're picking up --

MR. CHEW: Six weeks.

DR. MAURO: Six weeks later.

MR. RICH: As you would expect.

DR. MAURO: So the iodine levels shortly after were off the charts.

MR. CHEW: So I think what I'd like to come

back to what the point and the purpose was of this particular discussion was to, the question came up was what about the unmonitored workers that went back into the tunnels to help prepare the tunnels for new events here.

And I want to focus back on some of the early -- well, I won't show that again, but the samples from U12-B, which we feel are representative. And then I'm going to say just to conclude my technical presentation, I'm going to ask Gene, who is the document owner, to maybe draw some conclusions from, and I'd like to propose this to the working group.

Gene.

MR. ROLLINS: This data collection effort that we can thank Bryce and Billy and the presentation, we can thank Mel for that. He's done a great job doing this. But what these data show us actually is that we now have enough information on the quality of the air in which these people typically worked. Again, we're focusing on the people that were in the tunnel routinely that were not

bioassayed.

I think the data does show that there was some exposure there that was above what they would have gotten had they not been in that tunnel. And so the program, well, that would require us to make some effort to capture what that potential would be.

But the data that we have gathered, and the quantity of the data that we gathered together, we can now assign a claimant favorable, reasonably claimant favorable, intake for these individuals. And with the amount of data that we have, we can develop the statistical analysis that will allow us to provide reasonable assurance that we're not going to underestimate that dose to those unmonitored individuals.

DR. MAURO: How does that play back on Table 7.1 in the evaluation report where you make reference to these 100 workers that were polled based on ^. There's a table in the evaluation report dealing with there were 100 workers that had relatively high external exposures, and then you looked at the bioassay data.

And that bioassay data, and some subset of that 100 did have bioassay data. And in theory it was our understanding that that represented a convenient dataset upon which to build a coworker model. How does that relate back to this?

MR. ROLLINS: We haven't had a chance to look at that yet.

MR. CHEW: Well, I think we supplied that. That came from NOCTS, I think the top 100 of data. We chose the bioassay results because those people, especially a good number of them with the radiological monitors, that that particular data is to show the people who needed to be monitored. And they showed higher exposures here. This is a group that showed the people that they went back into the tunnels that's why they were not monitored.

And if they demonstrated later on that they went back and they didn't, then they needed to be monitored because of some reentry that we can pull up in the log, not during an initial reentry, we could use this particular dataset. The top 100 probably consists of those people who actually went back in during

the initial reentry.

MR. ROLFES: This was also put together to demonstrate. Because NTS controlled doses to personnel, they controlled external doses. And there was research that was done that showed that if external doses were controlled, internal doses would not be an issue with regulatory requirements.

And what we had done for the table in the evaluation report, we had identified some of the highest external exposed individuals to determine what kind of bioassay or what kind of internal exposures they were potentially subjected to. And this information is slightly different than what we're referring to in the current presentation.

In the current presentation we're more focused on the people that didn't participate in the bioassay program to determine what levels of radioactivity they were exposed to following the initial reentry.

DR. MAKHIJANI (by Telephone): This is Arjun. I have a question. I mean, this is recently collected data. How have the dose reconstructions been done without this data so

far?

MR. ROLFES: For internal dose we have been using efficiency methods such as the Technical Information Bulletin-0002 or some various other methods that likely overestimate internal doses. We also always commit to make sure that whenever we find additional data, we want to make sure that if the data exceeds what we have previously assigned in a dose reconstruction, that we're committed to going back and making sure that any new information wouldn't affect a previous compensation decision or dose reconstruction.

DR. MAURO: Was -0002 being used both to grant and deny? OTIB-0002.

MR. ROLFES: No, it was typically for an overestimate-type case.

MR. ROLLINS: And OTIB-0018 also was used in a number of cases that have already been --

DR. MAURO: That's the MPC. Eighteen is the one where you base things on MPCs and then the adjustments were -0033?

MR. ROLLINS: Right.

DR. MAURO: So now what you're saying is that was almost like a default approach until

you had better data, and now you're saying, well, we have the 100 cases which are a platform to build on. And you've got these data to supplement that. I'm just trying to think of there are 1,500 cases, as I understand, that are of implied, of concern here of those post-'62, I believe so.

Out of those 1,500, which is your universe of people of concern that you'd like to be able to reconstruct internal dose, 100 of them were selected based on some criteria related to external exposure that was based on the judgment that there was a relationship, that if you pick the high external, you probably picked up at least some of the high internal.

MR. CHEW: We looked at the occupation, too.

DR. MAURO: And the occupation, yeah, because one of the things that we've been planning -- we haven't talked about this -- is that we see that there is a need for stratification. That is, there are a lot of different categories of workers that may or may not have had their own metrics, that is, tunnel workers, welders, carpenters. In other

words categories of workers that really don't come out of, are not represented by one distribution, but have their own distribution.

And the question that we've been asking ourselves is, is it possible that there may be some subset of workers of the 1,500 where their distribution -- let's say, I have some subset of 300 workers that had a particular job category. All worked on a particular tunnel or test series. Has a distribution for the data that you do have that is markedly different than the distribution of the bio that you get from your 100?

I'm picturing how I look at things. It was pretty simple. Okay, you've got a single distribution of 100 workers subset that you can build some kind of coworker model around. I know you haven't done that yet, but in theory you have the data to do that.

Then I ask myself the question, okay, but if we were to go in and take those 1,500 and start to sample based on some stratification, based on job description, perhaps test series, perhaps year -- I'm not

sure yet -- and pull 20. The statistician says once you get your strata, let's say you've got six or seven categories that you're ^. The statistician says it'd be nice if we had 20 and has something to do with normal distributions and 20 would be sufficient to give you a robust geometric mean standard deviation.

One of the things that we're concerned about is if we were to do that, or if you were to do that, would, in fact, the upper 95th percentile of these other population groups, these other strata of samples, would they be bounded by the upper 95th percentile of the 100? And I guess, I've been thinking about this last night. This is really my thinking about this last night saying how would I try to convince myself.

It's really a weight of evidence kind of argument saying, listen, is there anything else that I would think that would be reasonable to do to convince me that the group of 100 that you picked does, in fact, do the trick. And I guess I'm communicating to you, and this, you know, everyone at the table it

would be nice if we found out that we did some other sampling, and based on some other sampling criteria, and this would be a judgment call what those strata -- I call them strata -- would be.

Whether or not the statistics that characterize the tritium intake -- I'll just use tritium as an example -- and we start to have an understanding of what the distribution is for that group for the intake of tritium per year let's say. How does that stack up against the upper 95th percentile of the tritium intake for your group of 100?

And then if a story emerges that consistently your upper 95th percentile for your group of 100, the tritium intake, bounds or is close to or comparable to the upper 95th percentile for these other strata, now you're building a lot of weight. That is because you're coming at the problem from different directions.

See, right now it's almost as if there are some assumptions. You grab this 100 based on external dose. Not too much consideration -- maybe you did; maybe you didn't -- to what

tests they were involved in, what their job responsibilities were.

The way I look at it, and I might be oversimplifying this, we're going to grab 100 of the highest external exposure, and I think that's going to do it for us, and it might. But our concern, everyone on the phone and the other SC&A people, is that how else do you come at this thing, the dataset, in a way that starts to provide a high level of assurance that, yeah, we've got this thing in a box.

So I wanted to communicate that to everyone around the table to let you know how SC&A's thinking about this and what might need to be done. And, Arjun, I may not --

DR. MAKHIJANI (by Telephone): This is Arjun.

DR. MAURO: Sure, go ahead.

DR. MAKHIJANI (by Telephone): I have another question going back to Mark Rolfes' earlier comment. One of our points in our site profile review was that TIB-0002, first of all, applies to non-tunnel workers after 1971. I thought we have resolved that NIOSH was going to --

MR. ROLFES: Yes, Arjun --

DR. MAKHIJANI (by Telephone): -- wait a minute. We reviewed some earlier dose reconstructions in which TIB-0002 was improperly used at NTS. And I thought we'd settled this issue, but now I hear that TIB-0002 is still in use. And we also understood that maybe TIB-0018 and TIB-0033 were not going to be used for NTS, but maybe that understanding is not correct. So I'm a little confused about how you're doing dose reconstructions.

MR. ROLFES: I'll clarify that for you, Arjun. John Mauro had asked how we were completing dose reconstructions, and I took that to mean historically for Nevada Test Site. We had been using TIB-0002, but based on your review of the site profile, SC&A's review of the site profile, we did indicate that we would not be using TIB-0002 any more so we decided to use TIB-0018 in lieu of TIB-0002.

There was nothing that I was aware of that would indicate that doses could have been higher at the Nevada Test Site than what we

would be assigning in TIB-0002. It was simply a requirement to document why TIB-0002, we needed to provide justification for why TIB-0002 might have been used in a dose reconstruction.

It wasn't an issue that doses could have been higher than TIB-0002. It was more of a requirement for us to provide the justification within an individual's dose reconstruction as to why it was being used prior to 1971.

DR. MAKHIJANI (by Telephone): This is not correct. I mean, the observation that we made in our review was use of TIB-0002 by the rules of TIB-0002 was prohibited, not allowed, before 1971, and not for tunnel workers at all. And so since we're talking about tunnel workers, it would appear the use of TIB-0002 was improper. Now, I'm not talking about whether justification was provided or not. And so I don't know what is being done about those cases and what alternative methods have been used before this current data has been collected.

MR. ROLFES: Well, as I indicated, we did

say that TIB-0002 would not be used, and we would use TIB-0018 instead.

DR. MAKHIJANI (by Telephone): Well, what happened to all those old cases?

MR. ROLFES: What's that?

DR. MAKHIJANI (by Telephone): What happened to all those old cases?

MR. ROLFES: Well, TIB-0018 actually results in lower calculated internal doses than does TIB-0002.

DR. MAKHIJANI (by Telephone): Well, we also -- in my conversation with Kathy Behling we understood that you said at some point that TIB-0018 and TIB-0033 are not going to be used for Nevada Test Site, but maybe that understanding is incorrect. These are general procedures not oriented to the uniqueness of Nevada Test Site. But I haven't been doing individual dose reconstruction audits, so I'm not familiar with all your worksheets and so on. But I'm quite confused about the state of dose reconstruction in the specific case of NTS and the application of these procedures without NTS-specific justification especially in light of the data that you've just come up

with.

MR. ROLFES: TIB-0002 calculated internal doses would likely exceed the information that we presented today.

DR. MAKHIJANI (by Telephone): TIB-0002 is irrelevant.

MR. ROLFES: Or TIB-0018, excuse me.

DR. MAKHIJANI (by Telephone): We cannot allow it to be used. I mean, that's the point.

MR. ROLFES: Right. TIB-0002 we are no longer using. We are instead using TIB-0018, and there's nothing that prevents us from using TIB-0018 for dose reconstructions at NTS, correct, because they are based on the maximum permissible concentrations or some fraction thereof which we have indicated in our presentation today that the air sampling indicates that much lower internal doses were observed than what we would be assigning from TIB-0018.

DR. MAKHIJANI (by Telephone): Have you done a comparison?

MR. ROLFES: I believe that we just indicated this information in this

presentation.

DR. MAURO: Let me help out a little. We reviewed TIB-0018 and -0033, and for those not familiar with it, what it really boils down to is the concept that says, listen, starting in the ‘60s and moving on, the concept of MPCs and controlling access to areas that had elevated airborne activity, if there’s a comprehensive health physics program in place, you had control over access and egress from areas that have elevated levels of airborne radioactivity.

Given that that’s the case, that is, you can trust that, yes, there was this degree of control, then one could argue that people aren’t going to be allowed to go into areas for extended periods of time where the concentrations of airborne are above the MPCs. And so therefore, what TIB-0018 does is say, okay, under worst case conditions, if we do know that a facility has a comprehensive health physics oversight controls, we can say with a degree of confidence no one’s going to go, unless there’s an accident, of course, no one’s going to go into an area where airborne

concentrations are above the MPCs without proper respiratory protection and access and egress controls so that we always have that degree of control.

MR. ROLLINS: And bioassay.

DR. MAURO: And of your bioassay program. And superimposed on that, and everyone agreed that that was a good way to place a plausible upper bound given the set of conditions just described. You've got a well controlled oversight radiation protection program. And when we looked at that, we were looking at it more from the point of view of an engineer facility, a Hanford or a Savannah River or another facility where it was designed, built and under some kind of direct control with institutionalized, well-established designs and health physics controls.

That in itself -- and then the next fear that came in and said, well, that represents, well, it's a bounding situation. In effect what TIB-0018 does says we're going to assume that you're at the MPC for the worst possible radionuclide, usually Strontium-90. There's a complicated workbook, but it really

is off the charts. And I would agree.

If you've got a well established radiation protection program, and you assume that there's no transient or accident that's going to result in some large problem where people could be exposed. You have direct control over access. I think it's reasonable to say -- well, it's unlikely that you're going to be exposed to levels above an MPC.

Then along comes OTIB-0033 which says, you know, that may be a little bit too conservative. Let's tweak it. As a function of the number of parameters you could apply an adjustment factor and be at 0.5 an MPC annually, a chronic exposure of 0.5, maybe a 0.1. So this construct came out that I see as -- and this is really a judgment that the Board and the work group has to make -- is that that construct almost becomes an approach that says, well, under other circumstances are we ever going to have airborne problems that we can't reconstruct. We could always do that.

In other words we could always say, well, we know for sure it's not above the MPC,

and we also know that as you move on in time for different facilities, we could even say we know for sure it's not above 0.5 an MPC claim or 0.1 MPC. Now, that approach sort of bypasses the whole concern about having realistic airborne samples representative of the breathing zone and associated bioassay samples for the purpose of dose reconstruction.

And I guess our concern was that is that strategy for doing dose reconstruction reasonable consistent with the letter and intent of the rule. And second, a big problem that Hans Behling brought up is that in general those samples were general air samples. And we have a ton of evidence that depending on the circumstances, the difference between general air samples and breathing zone samples, very often the breathing zone samples are a factor of ten higher easily on many occasions, not all occasions.

So I guess what I'm saying is that that platform, especially as applied to an NTS situation, seems to be pretty far removed from the original intent of -0018 and -0033. And

applying it to this setting, I guess we have a bit of concern about that applying it to this setting. But now to a degree now you have resolved some of that concern because you're saying, well, we don't really think we're going to do it that way any more.

What we have now is this group of 100 where we have real bioassay data, and somehow that bioassay data can be used to build a new platform. And you made some comparisons apparently between that platform and the old 18/33 approach and convinced yourself that -0018 and -0033 were off the charts as compared to your bioassay data. So this is a story that I believe is unfolding.

So what I'm hearing is, I think rightly so, moving away from what I consider to be a fundamentally questionable concept. And I'm speaking just for myself as a health physicist. The 18/33 approach as a default fix for all problems when you don't have good air sampling or bioassay data for a particular facility. I'm sort of glad that that's sort of, we're moving away from that and moving into something that's more site specific and

data specific, let's say in this case, NTS.

So I told you that long story because I think that it's a rich problem. I think there's just some fundamental problems with the whole idea of using 18/33. What I'm hearing though is you -- I don't know whether you would agree or not agree with that, and that's fine. But I'm hearing is it's really no longer relevant. What really is relevant now is you're leaving that behind and moving on to a new platform upon which to build your coworker models. Is that true?

MR. ROLFES: Well, it depends on the specific case as well. For example, if you have an individual that never entered a radioactively controlled area, I would certainly say that TIB-0018, the application of TIB-0018 and -0033 would be a bounding scenario. However, for an individual that was participating in reentries, no, we would look at bioassay data. That would -- so it depends upon the specifics of the case.

DR. MAURO: Now, I foresee what you've just described as being reasonable for a bounding off-the-charts approach. If a person who

never entered a radiation controlled area, why would you ever believe he was chronically exposed to an MPC. That brings us to sufficient accuracy.

I'm throwing this right on the table because for the purpose of denial for a person, you have a person who's doing a dose reconstruction. You don't have any bioassay data. You have evidence that he nearly never entered a controlled area. We're going to assign to him the MPC of Strontium-90 as if he was breathing that all the time and do the dose calculation.

The probability of causation comes back at 30 percent ^. But can you use that same argument to say that meets the test of sufficient accuracy for an SEC? And I think now we're entering into a new arena, and obviously it doesn't. I mean, as a health physicist you just invented a number that clearly was impossible to be that high for this person.

MR. RICH: Profoundly.

DR. MAURO: Well, this is now where the judgment comes in of the working group and the

Board. At what point does the conservatism inherent in your bounding analysis become so off the charts that it does not meet the test of sufficient accuracy? Because I think within the context of Part 82, where you are doing it for the purpose of denial, you're on great solid ground.

But when you're using that same approach and argument as the basis for judging that you do meet the criteria of sufficient accuracy for Part 83, I think you've got a problem. Now that's sort of like an overarching concern within which we're talking about Nevada Test Site now. So within that concept that I just sort of laid out, now we're going to come at, all right, we're going to -- and I know we primarily started this as a site profile issue.

And that's fine, but I think it's important to keep in mind that we blended the site profile with SEC on this particular project, and that's going to be part of this issue. And so this new platform that you're building, whether it's robust enough in terms of that group of 100 to be, what I would say,

claimant favorable and scientifically valid for all workers that were not bioassayed, and whether or not -- that's question number one.

And secondly, whether that new platform meets the criteria for sufficient accuracy is something that I think we all have to think about. And I know that's what we've been thinking about.

MR. ROLFES: In those best estimate-type cases what we would do is go back and look at the, for example, whether there was an episodic release. We would go back and look at those air samples that were taken for that specific episodic release. Rather than apply 2,000 hours per year of exposure to that particular air concentration, we could refine that as the actual time that the individual was involved in that.

We can certainly make things more sufficiently accurate, if you will. I guess we can certainly make our dose estimate more precise. However, when we do that it typically results in a lower internal dose, and it takes a lot more time. Also, the number of cases that we need to complete a

best estimate-type dose reconstruction for are very few.

DR. ROESSLER: John, what you're bringing up, if I understand you right, is that it's a really broader issue, and it applies to all --

DR. MAURO: But, yeah, and the funny thing about it is when you engage Nevada Test Site and the issues that we're talking about today, it's within this broader context. So it's almost after you've got to go there, and then you've got to come back, and say, okay, does this platform that's being built, the 100 cases, and the dataset, the bioassay data that is contained within it which is being used --

-- and I don't know how you plan to use that dataset because I don't think you've actually developed your coworker model yet. Your basic argument says, listen, we've got a lot of good bioassay data from these 100 workers that had high external exposure. And from that we have confidence that intakes these people experienced represent the upper end that anyone might experience --

MR. ROLFES: You're getting into a couple of separate issues, and I want to try to make

sure we stay on course to address the site profile issues, and then we'll transition into SEC issues. I think that it's important that we can resolve this portion before we continue on with the SEC portion.

DR. MAURO: Well, then I'll leave you with this. The fundamental question is if the new platform of the 100 cases in Table 7.1, you've got to sort of turn it upside down and look at it from different directions to make sure that that distribution is, in fact, claimant favorable for all different groups of workers that might have worked under different circumstances, settings and time periods. And that if you decide to pick the upper 95th percentile ^ emerges from that dataset that, in fact, there's a high level of confidence that that's going to be ^. Other work groups ^.

DR. BRANCHE: There's someone participating by phone who will need to mute their line. Thank you.

DR. MAKHIJANI (by Telephone): This is Arjun. I have one more question. Can you all hear me?

DR. BRANCHE: Well, we think we can. Keep talking, Arjun.

DR. MAKHIJANI (by Telephone): ^.

DR. BRANCHE: Arjun, I think actually it's your phone that might be the problem. We're getting an awful lot of static.

(no response)

DR. BRANCHE: Arjun?

(no response)

DR. BRANCHE: Is there someone else who isn't muted?

(no response)

DR. BRANCHE: If everyone on the phone could please check to make certain that you're muted unless you're Dr. Makhijani. Thank you.

Dr. Makhijani, are you still there?

DR. MAKHIJANI (by Telephone): Yeah, I'm here. Just one more question about this. If TIB-0018 and TIB-0033 do not include radioiodine, that has to be separately added. So how is that being dealt with?

MR. ROLFES: I can't answer that off the top of my head right now. Maybe Gene Rollins might be able to.

MR. ROLLINS: The issue came up earlier, the

item that's been closed, was how had we accounted for iodine intakes from containment breaches events. And we included a model calculation in the Chapter Five of the TBD that showed what the dose to the thyroid would be if the individual had been exposed to the highest concentrations of iodine that were measured as a result of that event and the doses were trivial.

DR. MAKHIJANI (by Telephone): We haven't seen a revised version of Volume Five yet, at least I haven't.

MR. ROLFES: That's correct. NIOSH does have all of the information. And the very last page of the NTS site profile matrix that I sent out, the entire matrix was essentially unchanged except for the final page, which shows that NIOSH has received from ORAU four separate sections of the Nevada Test Site site profile.

These contain the revisions resulting from our discussions with the working group. These are all currently at OCAS for approval and final signature to be put up on the internet once any SEC issues have been fully

discussed as well. So the information is documented and as part of the SEC discussions additional information may come up which would require additional information to be added to the site profile.

So the information is, in fact, documented within the site profile at this time. However, it has not been put up on the internet and finalized and put on the internet.

DR. MAKHIJANI (by Telephone): Thank you.

MR. CHEW: Gene, do you want to, any closing comments where you can close this discussion? This is focusing on the unmonitored worker in the tunnel.

MR. ROLLINS: John, in your response to your idea of building a platform, yes, we're going to use the 100 highest; we're going to use this data that was captured from actual air sampling information in the tunnels themselves to build a method that will allow, using statistical analysis, to give us the required accuracy to develop a method to assign best estimate intakes for tunnel workers. That work is ongoing, and when we complete it, of

course, and OCAS approves it, then you will have a chance to review it. That's our path forward.

MR. PRESLEY: As I understand it that won't change the site profile one bit.

MR. ELLIOTT: It will.

MR. ROLLINS: It could.

MR. PRESLEY: It could.

MR. ROLLINS: Correct.

MR. PRESLEY: There's a possibility.

MR. ROLFES: However, it would likely be for a very low number of claimants.

MR. ROLLINS: That's correct. But it would be a factor.

MR. ELLIOTT: Right.

DR. ANSPAUGH (by Telephone): This is Lyn Anspaugh. I'd like to ask a couple of questions about the Tunnel B data. And I think, Mel Chew, you said that the data were taken because you were getting ready for Shot Yuba?

MR. CHEW: That's correct, Lyn.

DR. ANSPAUGH (by Telephone): My question is Yuba was shot on June 5th, 1963, and it appears like Figure 1, the data basically ended in

December of ’62. So is that because you didn’t seek out that data or were there no data for that time period?

MR. ROLFES: It’s figure B and we have air sampling data between June 3rd of 1962 through, the majority of it is through really the end of the year, 1962. And I think Lyn’s question was why did the air monitoring data stop at the end of 1962.

DR. ANSPAUGH (by Telephone): Good.

MR. CHEW: That’s because you didn’t go back and pull those sets. Is that right, Bryce? Because I want to make sure.

MR. RICH: The data start in June of ’62 and go through, we’ve got data into February of ’63, yeah, ’63.

MR. ROLFES: The majority of the data is really for a six months’ period in 1962. And I would suspect that it’s very unlikely for the air concentrations to rapidly increase once air sampling stopped, that that might be where you’re --

MR. RICH: This is the dataset associated with the preparation of the Yuba Tunnel. And that represents the time period when that data

was available and collected.

MR. SMITH (by Telephone): Hey, Bryce, this is Billy Smith.

MR. CHEW: Lyn, Lyn, I think Bryce has --

-- I don't want to put words in your mouth.

-- this is what Bryce collected. It does not necessarily mean, and we know that there is data beyond the point that it shows on the graph here that brings us up to the Yuba event here. So we just did not collect it because we thought we thought we had enough representative information to show you what was in the tunnel.

DR. ANSPAUGH (by Telephone): Okay, well, my other question goes to the Shot Yuba itself, and there was one person who had a thyroid dose that was measured and calculated to be 593 rem.

MR. RICH: That's correct. There was a, during reentry, and that's listed in the summary on the Yuba, but that's post-Yuba --

MR. CHEW: That's post-Yuba event --

MR. RICH: Yuba.

MR. CHEW: Remember, Lyn, this is an attempt

to show you what the unmonitored worker in preparation for, that's the questions on the table, not what was the people doing after the shot here. And you're absolutely correct. There was a thyroid exposure for the Yuba event, but that was executed on 6/5/63.

DR. ANSPAUGH (by Telephone): Well, my other comment about Yuba was it appears that many of these air monitoring procedures failed during this particular event. The air sample wasn't taken when it was supposed to have been.

MR. RICH: There was a mistake made that, and an incident report developed, and dose reconstruction done because there were thyroid exposures. What happened was they were grouting the -- on the Yuba event they developed a bypass drift and were in the process of driving a cross-drift from the bypass into the end of the experimental tunnel. The shuttle face they had sampled before, but the shuttle face did not resample. That was a mistake. And as a consequence, as the tunnel workers were leaving after a couple hours of exposure, they were able to read the thyroid uptake directly with a meter.

MR. CHEW: Let's stay focused. This discussion is primarily to talk about the person that we do not have bioassay, who is the unmonitored worker.

MR. ROLFES: The people that were involved -- excuse me, Mel, just for a second.

The people that were involved in the Yuba event, that was an usual occurrence not typical of normal operations. That was an extremely separate issue from what we're discussing. The individuals, to address the Yuba incident, the individuals that participated in the drill back, those individuals did participate in the bioassay program and were given thyroid counts following their exposures that occurred. What we are trying to focus on are the individuals that did not have bioassay.

DR. ANSPAUGH (by Telephone): I understand that. I just wanted to point out that not everything went perfectly. And I think we all realize that.

MR. CHEW: We know that. That's correct.

MR. RICH: Most of the internal exposures were the result of episodic occurrences.

DR. MAKHIJANI (by Telephone): This is Arjun. So when we look at those 100 cases in Table 7-1 for tunnel workers and so on post-shot entry, we should expect to find iodine monitoring?

(no response)

DR. MAKHIJANI (by Telephone): Isn't that the implication of what you just said, Mark?

MR. ROLFES: Some of the individuals that are contained within Table 7-1 were, in fact, shifters and miners and, yes, I would certainly believe that there would be radioiodine bioassay results within that top 100 in Table 7-1.

MR. CHEW: For the people specifically designated as miners and ^. Remember, quite a few of those events happened at the flats there, and they were not inside tunnels which created the additional problems of containment in tritium, as you know.

But, yes, the answer to your question is yes, Arjun.

MR. PRESLEY: We're at a point where I feel we probably ought to stop, get some lunch, because the people from Nevada are coming on

board here shortly.

MR. CHEW: It's 8:22 right now.

MR. PRESLEY: So, Mel, are we at a point, or Mark, where in our presentations we can stop and pick up what we need to, wrap this portion. Let's get on with Comment 11 when we come back.

MR. ROLFES: I think we've said everything that can be said for this particular issue regarding to basically reconstructing unmonitored internal exposures. Well, I wouldn't say unmonitored, but basically bounding internal exposures or coming up with a method to assign internal exposures to unmonitored, meaning not participants in the bioassay program tunnel workers. I think that we've said everything that we can. And I believe that the outstanding issue that we would be discussing is pertaining to issue number 11 of the site profile matrix. And that is the external environmental exposures.

MR. PRESLEY: When we come back do you want to say a few words about the security people? You all did study that and have some slides on that. Did you want to, that's one of the

things that has come up in the past is were these people monitored or unmonitored, where they worked, such like this. Do you want to say some words about the guard doses?

MR. ROLFES: I think when we get back if you're ready to take a break, I think we can continue on with that or if you're ready to do it now, we certainly can.

MR. PRESLEY: Let's take a break. Give these people time to eat, and then we'll come right back in to where they will be on board hopefully. Can we eat in an hour, or do we need an hour and a half?

DR. ROESSLER: We can't really go anywhere I don't think.

DR. MAKHIJANI (by Telephone): What time are we reconvening? Sorry, I missed that.

DR. BRANCHE: We're establishing that right now, Dr. Makhijani.

MR. PRESLEY: It's up to you all. Do you all want to meet at 12:30 or do we want...

MR. SCHOFIELD: I think one hour's plenty.

MR. PRESLEY: All right, so everybody be back here at 12:30.

DR. BRANCHE: So 12:30 eastern daylight

time.

DR. MAKHIJANI (by Telephone): Thank you very much, Dr. Branche.

(Whereupon, the work group meeting took a lunch break between 11:30 a.m. and 12:30 p.m.)

DR. BRANCHE: We are rejoining the Nevada Test Site site profile work group. Mr. Presley is Chair. Would someone who's on the line please indicate that they can hear me?

DR. MAKHIJANI (by Telephone): This is Arjun. I can.

DR. BRANCHE: Thank you.

I remind everyone if you could please mute your phones. If you do not have a mute button, then please dial star six to mute your phones. It's important so that everyone participating by phone can hear and maintain the quality of the sound that you mute your phones unless you're speaking. If you use the star six to mute your phones, then you can use that same star six to unmute your phones when you're ready to speak. Thank you so much.

Mr. Presley.

MR. PRESLEY: What we're going to do is we're going to digress just a minute. John

Mauro has asked for a few minutes to explain SC&A's position of what we were discussing this morning. Once we get that done then I'm going to turn it over to Gene Rollins. And Gene is going to start working on Comment 11.

John.

DR. MAURO: Well, the only point I wanted to make is that this morning we got into the drifts in reconstructing internal exposures to workers who were in an occupational setting under an environment with potential for inhalation exposure can occur. And the bottom line is that we do have concerns about how the set of 100 cases somehow is going to be used along with the new data that we've seen and to reconstruct the doses to all workers who might have been exposed in the tunnels and under what I would call occupational access-controlled conditions who may not have been bioassayed but perhaps should have been bioassayed.

And it's not clear that the group of 100 and the subset of that which has bioassay data is, in fact, a good foundation upon which to build a coworker model for its ^. This is

completely different than ambient exposures that Gene and I were talking about over lunch. That's a subject that I believe that is one of the open items on the site profile.

So, in effect, we really dove into an internal exposure issue, certainly relevant to the site profile, and very much relevant to the SEC petition. But apparently, we never really got to what I believe Robert Presley was hoping we'd address which is ambient exposures. Our understanding is that there is a chapter in the site profile, Chapter Four, that is currently being rewritten.

We have seen a white paper that was prepared by Gene that describes the fundamental approach or strategy for reconstructing doses to people who are outdoors, not under occupational exposure conditions, but they're outdoors doing whatever jobs they're doing and not people that were sort of like enter the tunnels or enter a controlled area where the access and egress controls are in place. But more toward people who worked on the site in general and you want to assign ambient exposures to them

because there are airborne dust loadings that are out there from resuspension and dispersion.

And, I guess, Gene has a strategy that he's writing up right now for Chapter Four, and we have our list of issues, but I understand there has been some developments in that white paper that go beyond what was in the original white paper. So I guess with that as by way of introduction we're prepared to discuss the concerns we have with the original white paper and perhaps we can have a dialogue regarding each of the issues that we originally had with the original white paper and perhaps the degree to which those issues are being dealt with and will be dealt with in your new Chapter Four.

MR. ROLLINS: And the reason that we would want to do that at this time is because I think we're in agreement that tunnel workers were in a controlled environment. Those that were unmonitored are going to be dealt with with coworker models to be developed. But ambient to those workers, internal ambient to those workers would not be necessary over and

above what we give surface workers because they're basically breathing the same air that the people on the surface are breathing because it's being pulled in.

And so I think that was where we kind of got disjointed a little bit, and so we'll be in agreement right now is that we're going to modify Chapter Four. And basically, we're going to develop those ambient intakes for surface workers and apply them both to surface workers and tunnel workers. And that's going to end the issues that we have related to internal ambient.

Is that correct?

DR. MAURO: Yeah, my understanding is that it's important to make a distinction between workers who enter areas that are under direct access control where there's a significant concern regarding potential airborne exposure and also to external exposure. And all the other workers that are onsite that are not gaining access to these controlled areas but are working for various purposes at the site outdoors and exposed to residual ambient exposures that are due to the fact that there

was residual activity on the soil throughout the site.

That soil is being resuspended, dispersed and the lots and lots of people out here could be inhaling it. And the potential for that exposure is much smaller, of course, than the potential of people who entered tunnels or who entered an access-controlled area where there is deliberate controls in place concerned about airborne activity.

So it's important to separate the two because the models and approach and assumptions being made in Chapter Four dealing with ambient exposure is a lot different than how we would come at the problem of exposures to people who were entering tunnels, for example. It's a different problem. So unfortunately, I think that there's a little bit of combining of the two that was not intended.

DR. ROESSLER: So we're done with the tunnel workers then.

DR. MAURO: No, I'm saying we're done with the tunnel workers --

MR. ROLLINS: For ambient.

DR. MAURO: -- the ambient aspect.

MR. ROLLINS: Not occupational but ambient.

DR. MAURO: Well, to the extent your new ambient section addresses the various issues that we were concerned about. And I guess maybe to the extent to which we can go over our issues. Maybe -- I don't know how best to start, but perhaps Lyn Anspaugh could itemize some of the original concerns we had in the original white paper and the degree to which those issues, your position regarding those issues at this time.

MR. ROLLINS: Okay.

DR. MAURO: Lyn, are you on the line?

(no response)

DR. BRANCHE: There's someone on the line who needs to mute their phone. Apparently, you're in a public place. Star six will be very helpful.

Excuse me. This is Dr. Christine Branche. There's someone on the line who's in a public place, and we're having difficulty hearing because you are in a public place and have not muted your phone. If you could please do so, we would appreciate it.

Go ahead, John.

DR. MAURO: Lyn, is Lyn Anspaugh on the line?

DR. ANSPAUGH (by Telephone): I am on the line. Like everyone else right now I'm having trouble hearing.

DR. MAURO: Would you want to take a run at trying to itemize some of the specific concerns that you had with the original white paper? It goes back quite some time so that everyone can benefit from at least SC&A's concerns. And then that will give Gene a chance to talk about those issues.

DR. ANSPAUGH (by Telephone): Okay, well, we've been through several versions of how Gene has proposed to calculate the ambient environmental exposures. And I think the most recent one was more or less going back to an earlier proposal to use the air samplers that were operated on the Nevada Test Site.

A previous version had suggested using mass loading which frankly we sort of liked better than the present one. If that's still where you are, Gene, could you just make a comment or two about which of those approaches

you're planning on using?

MR. ROLLINS: Lyn, the latest version we're going to go with the air sampling data. We looked at mass loading, and my opinion was it was far too conservative.

DR. ANSPAUGH (by Telephone): Okay, well --

MR. ROLFES: I think SC&A also shared the same opinion.

MR. ROLLINS: And since we have the empirical data, we decided it best to use empirical data as opposed to modeling.

DR. ANSPAUGH (by Telephone): Okay, and your empirical data that you intend to use begins in 1971. Is that still correct?

MR. ROLLINS: That's correct.

DR. ANSPAUGH (by Telephone): Okay. I have two major points I'd like to make about that and then two minor points. The first major point gets back to the question, do air samplers represent the material that people were really breathing. And that gets back to an issue of why were the air samplers located where they were.

And as I have gone back and looked and asked questions of Martha DeMarre and other

people, my impression is that these air samplers were not placed in order to look at exposure to people, they were placed more in the interest of knowing what kind of effluents might be moving off the test site and what some of the general activities were that might be influencing concentrations. And in general, there is not an attempt to place these samplers, as I understand it, where they would be representative of exposure to people.

And let me just give one example, probably an extreme example, but nevertheless it's a real case. And that is there was frequently times when it was necessary to move a drill rig from one location to another. And they did not disassemble the drill rig, but what they did was they jacked it up, put coasters under it, and then attached seven or eight large bulldozers to it and drug this thing across the desert. So this is one example where there would have been enormous air concentrations that would not be considered, as near as I can tell, were never reflected in these ambient air monitors.

But my second major concern is that

there's great difficulty in knowing how to take a measurement made in 1971 and back extrapolate it to 1963. And there are two problems with that is, one is, of course, we have radioactive decay taking place. And on the other hand we also have some fresh inputs that occurred between 1963 and 1971 which would have added a lot of short-term or short-lived radionuclide activities.

Again, an extreme example would be the Schooner event which was a large cratering event. We had other cratering events like Buggy and some others. So I think there's a great deal of difficulty in terms of trying to take air concentration data from 1971 and back extrapolate it.

The other, a couple of minor points was that there are earlier data that were taken, and I believe they started in 1965, but they're not nicely tabulated in environmental reports. But Martha told me that these data were available on microfiche, and she had, in fact, printed these data out and given them to NIOSH. And so I think if you're going to use this approach, you really need to go back and

look at the earlier data as well which would get you back at least to 1965.

And then the last minor point is I think we have some fundamental disagreement on how you were proposing to make some corrections regarding fractionation. And I don't think that, I don't know if you've done something since we last talked on that issue or not, but that was unresolved the last time we discussed it.

So that's basically where we are. We have two major concerns and two minor ones.

MR. ROLLINS: I tried to jot these down as best I could, Lyn, so let me try to address them from the hip if you will. I think your comment was that the air sampling results as presented in the annual environmental reports, which is what I have produced and used in the Technical Basis Document, may have been not from where people were working.

If that's true, then it would be in direct conflict with the words that were used when those data were presented in those reports, and I have those very words in the Technical Basis Document but I'm having a hard

time pulling it up. But it was to the effect was that the vast majority of these samples were taken in areas where individuals were currently working. And it was to assess potential intakes from their activities.

MR. ROLFES: There were air samplers set up around the site, around the perimeter of the site, and there were also air samplers that were set up, for example, on a drill rig when actual work was being done. So there were both types of air samples being taken.

DR. MAURO: I'm sorry, Lyn. Could you start again? We ran into a little problem here. Could you start again, please?

DR. ANSPAUGH (by Telephone): Any air sampler that was on a drill rig is not part of this dataset that's listed in the environmental reports as I understand it. And I also have a basic disagreement with why the sampler locations were picked. But I don't think that there was any sampler that could represent what people were exposed to when they were dragging their drill rig across the desert with several large bulldozers, for example.

MR. SMITH (by Telephone): Lyn, this is Billy. As you well know, they never drug drill rigs across the desert pavement. They used the roads that were there, and they took them down the roads. And when they took them across the desert pavement, they were taking them directly from the road to the site where they were going to be using them to drill. So it was not as if they were taking drill rigs and dragging them across the desert pavement creating fugitive dust that may have been resuspended.

DR. ANSPAUGH (by Telephone): Well, that's not what other people have told us, Billy. In fact, --

MR. SMITH (by Telephone): Well, Lyn, I was there. I was there.

DR. ANSPAUGH (by Telephone): There were people that I talked to who were driving the bulldozers, too, and they give me a remarkably different story. But the other point, Billy, even if they were on a dirt road, there'd still be an enormous amount of resuspension.

MR. SMITH (by Telephone): How much material was on that dirt road? Had it been used

frequently or not? Lyn, we shot shots using drill rigs in places where the activity was not on the ground. We didn't drill it back in the contaminated areas.

DR. ANSPAUGH (by Telephone): Well, I think that's, if you want to talk about a highly contaminated area that may be true because you would have scraped it off. But I think all the areas are contaminated to a certain extent, and we're not talking about occupational exposures; we're talking about ambient environmental. And I think that the contamination that it takes to create a ambient environmental exposure is certainly within the realm of where these drill rigs were.

MR. SMITH (by Telephone): Well, these areas were certainly not posted.

DR. ANSPAUGH (by Telephone): Yeah, okay.

MR. ROLFES: From our site profile -- this is Mark Rolfes. This is information that's been drafted in the environmental Technical Basis Document for the Nevada Test Site. It does indicate that equipment at fixed locations continually sampled the ambient air

to monitor radioactive materials.

The locations were chosen to provide representative samples from the populated areas on the site as well as to monitor resuspension of low-fired plutonium that was spread by safety experiments before 1960 in Areas 2, 3, 4, 7, 9 and 10. Access worker population, geographical coverage, presence of radioactivity and availability of electric power were considerations in the site selection for air samplers. And this is pulled from a reference Black and Townsend 1997.

DR. ANSPAUGH (by Telephone): Okay, well, there are several things about that statement that you just read. Number one is that they want to be where electric power is, and these stations are also permanent so that that means they weren't going to be out there on drill rigs on a permanent basis. And they weren't going to be monitoring specific activities that could have been the ones raising the dust.

MR. ROLLINS: Electrical was a consideration, Lyn, not a requirement.

DR. ANSPAUGH (by Telephone): Pardon? I'm sorry. I didn't hear --

MR. ROLLINS: Electrical, the availability of electricity was a consideration not a requirement. Every Health Physics Department has methods to pull remote samples using gasoline powered samplers and generators.

DR. ANSPAUGH (by Telephone): The question is did they?

DR. BRANCHE: Excuse me. This is Dr. Branche again. Again, I ask that those of you who are participating by phone mute your lines if you're not speaking. And I'm concerned that there's someone on the line who is in a public place or in a car, and you're not muting your phone.

And unfortunately, your participation is actually making it difficult for everyone on the phone to hear the conversation. I would encourage you if you cannot mute your phone to then perhaps join us at another time. Thank you, or I'll have to have the operator cut you off. Thank you.

I'm sorry, those of you who are on the phone, Mr. Anspaugh and Dr. Makhijani, please

continue.

(no response)

MR. PRESLEY: This is Bob Presley.

DR. ANSPAUGH (by Telephone): I'm sorry. I'm still having a very hard time hearing.

MR. PRESLEY: Lyn, we've heard you all's concerns, and Gene has written down the concerns.

Do you have any more --

MR. ROLLINS: A couple more we want to talk about if we can get off the air sampling idea. I think Dr. Anspaugh said taking '71 data and back calculating to '63 has problems associated with it, and I don't disagree with that. But the example that he used was breaching containment events. And my understanding when the containment breaches occurred -- and Billy Smith's on the line. Maybe he can elaborate on this a little bit. But the footprints from the fallout from those containment breaches were very well characterized. And people were not allowed to work inside those footprints.

Billy, could you add something to that?

(no response)

MR. ROLLINS: Have we lost Billy?

DR. ANSPAUGH (by Telephone): Let me just make another comment. That was not my only concern.

MR. ROLLINS: I'm going to talk to the others if you just give me a second.

DR. ANSPAUGH (by Telephone): Okay.

MR. ROLLINS: You also made a comment that there was earlier air sampling data available. Now, that may be true, but the earlier air sampling data that I was able to obtain, that that was provided by Martha, related more to tracking the fallout plumes rather than trying to measure ambient air concentrations. And it would certainly not be appropriate to use that type of data to develop ambient intakes.

And the last point that you made was the refractories and how we go about putting those back in where Harry Hicks took them out. I think the paper that you currently have, I think it puts -- I'm not sure which iteration you have, but, of course, the first iteration that you reviewed did not have the refractories put back in for the near field

environment.

Then there's an iteration where I just put them back in so they would be neutral, and then when I got to thinking about it, I thought, well, really if you're going to deplete them in the far field, then you need to enrich them in the near field. So the last iteration, which I do not believe you have a copy of, actually has the refractories enriched by a factor of four in the near field environment. I don't think you have a copy of that work yet.

DR. ANSPAUGH (by Telephone): Well, you're absolutely right. I do not have a copy of your draft after four or any version that attempts to compensate for the refractories.

Some of the earlier data, by the way, do include measurements made at Mercury, so that I'm not familiar with that data because Martha was very reluctant to print it out for me. If somebody could dump it off the O drive for me and send it to me, I'd certainly like to see it.

MR. ROLLINS: I would too. Lyn, I guess we'll have to get with Martha and find out

what she's talking about. Because like I said the only -- in fact, the 1971 annual environmental report, they were pretty clear about what the purpose of that report was. And they kind of implied that it was something they hadn't done before because the reason they were putting out the annual environmental report, and the reason they were making these measurements as opposed to just tracking the plumes and tracking the fallout was that they were trying to develop a baseline for the site.

And they realized they hadn't developed a baseline. They were out there doing all this testing and they were seeing what the effects of the tests were, but they had not developed a baseline. These days you go into a nuclear facility, for example, we're going to build a nuclear power plant. The first thing we do is characterize the unaffected environment. And they realized in '71 -- they might have realized it sooner than that but they actually published their realization in '71.

It says we need to start doing this so

we can determine what the long-term effects are going to be on the surrounding environment. So I'm not saying there's not ambient data out there prior to 1971. I'm just saying that the air sampling data that I have seen prior to 1971 were basically attempts to characterize the fallout plumes.

DR. ANSPAUGH (by Telephone): Well, I don't think that's true. And I read -- you know, there is an annual environmental report that's published in 1965. I believe it may have been the first one.

MR. ROLLINS: Actually, it goes back to 1963, but if you go into those reports, you're not going to find air sampling data like you find in 1971. It's just not there.

DR. ANSPAUGH (by Telephone): Well, what you're going to find are plots of the data. You're not going find digital tabulations, but the data are available from Martha not from me. And she says she gave all that stuff to you guys.

MR. ROLLINS: We have those reports.

DR. ANSPAUGH (by Telephone): I'm not talking about the reports. I'm talking about

the digital data.

MR. ROLFES: Please also keep in mind for this discussion that we're having, the internal doses resulting from environmental ambient exposures are very, very unlikely to affect the compensation decisions. We're talking about maybe a millirem, two millirem in some cases. It could be higher for certain organs, but these doses from environmental intakes at Nevada Test Site were very, very low and are very unlikely to affect the outcome of a compensation decision.

DR. ANSPAUGH (by Telephone): Well, I agree that's probably true according to the way you've done it. I don't agree it's true for the exposures that some people might have received while they were dragging drill rigs across the site, for example.

MR. PRESLEY: Gene, do you have anything else?

MR. ROLLINS: No.

DR. ANSPAUGH (by Telephone): My other point, Mark, is that I don't think it's appropriate to just dismiss some pathway out of hand because you think it doesn't matter.

MR. PRESLEY: It's not that it doesn't matter. And I think we actually have enough data to say that they have sampled the areas that the plumes from anything that might have been dragged across the desert. If people were working in an area, and they received some fallout, there would be data or air monitors in that area where those people worked.

DR. ANSPAUGH (by Telephone): Well, that's a very generous presumption. I'm not at all convinced that's true.

MR. PRESLEY: Does anybody have anything else on this?

(no response)

MR. PRESLEY: We can -- I hate to say it, but this could be discussed for the next 150 years. So at this time I would like to call a halt to this, and let's pick up with Comment 11.

ISSUE 11: ENVIRONMENTAL RADIATION EXPOSURES

MR. ROLLINS: Are you turning that over to me, Mr. Presley?

MR. PRESLEY: Yes, I am.

MR. ROLLINS: I want to be sure that we're

all on the same page here, and so what I would like to do if it's okay with John, could I get John to restate the problem so that I can make sure that we're addressing the problem that's of his concern.

DR. MAURO: This is the problem that was just raised by --

MR. ROLLINS: No, no, we're on to a geometric correction factors for ambient external.

DR. MAURO: Oh, the external --

MR. ROLLINS: Issue 11.

MR. PRESLEY: Issue 11.

DR. MAURO: Okay, now I'm hearing you.

This is a problem that we've encountered many times before, and it's certainly a tractable problem we've evaluated. In effect, a person is standing on the ground that is a source of contamination, a photon emitter, on the ground relatively localized.

What happens is the radiation's coming up and striking the badge. It's coming up at an angle. And not only that, it's being detected on a film badge that might be sitting on the lapel. If you're concerned about

exposures to the bottom half, the lower part of the body, that exposure is going to, that you see on your film badge, is going to underestimate the exposure to the lower part of the body so there's an adjustment that's needed there.

In addition, very often film badges, the way they're calibrated is the radiation is striking it perpendicular. If it's coming up like this, what happens is it's passing through effectively a thicker layer of cadmium or whatever the shield attenuation is. And what happens is you result in a readout on the film badge which might be underestimating the dose to the lower organs for those two reasons. We've evaluated that on a number of occasions, and depending on the energy of the photon, the angle, the adjustment factors on the order of two to maybe six or seven are needed.

So the way I see it this is very much a tractable problem. I think that it's been addressed in other venues on at least two or three other occasions. There's been general agreement on the fundamental approach on how

to deal with that. So I see this as -- now, I'm not quite sure of how you folks are planning to deal with that.

Are any provisions being made in your -- now, if you're dealing with an effectively infinite plane, then there is no problem any longer. For all intents and purposes the radiation that's being experienced by the badge now is the dose from the material that's pretty far away to right up close.

So the significance of the adjustment factor diminishes when you're dealing with a surface that has widespread contamination because you're getting, radiation's coming in from all angles and so it's not as much of an issue. It's of greatest concern when material is close by like at your feet.

Then you might -- and we talked about that, I believe, on Mallinckrodt for exposures, how to adjust for that so the numbers have been done. And so what I'm getting at is that I'm not sure the degree to which that particular issue has been engaged as applied to the Nevada Test Site.

MR. ROLLINS: The last time we discussed

this, I think it was back in February, we ended up realizing that we needed to make a distinction between occupational versus environmental exposures. And after some discussion you agreed that after looking at the values for elevated ambience that are currently in the TBD, which are typically around 100 millirem per year, that it's not likely that the badge could have even picked up an exposure like that. I mean it would not have detected something that small.

DR. MAURO: That's correct.

MR. ROLLINS: And so you looked at the data from '71 forward and said, well, we don't have an ambient geometry problem out there. But then you said, well, what about prior to 1971 and what are we going to do about that. Because I think the hypothesis is as we get closer to the period of atmospheric testing that there could have been significant ambient out there that even though the badges picked it up -- and we've decided now that's not an issue because everybody's getting ambient because it's included on their badge -- but now was the ambience high enough that a

geometry factor might needed to have been applied during those early years.

Well, we thought about how we might want to go back and try to determine whether there was significant elevated ambient in the years beginning in 1963 up to 1970, through 1970. And we got -– by the way on the talking points now for Security force exposures as an indicator of background and possible changes.

We could not find evidence -- even though some of the documents talked about using pressurized ionization chambers to measure ambient radiation, we could not find the results of those measurements. And I'm sure they're there somewhere, but they were not readily available to us.

What we decided to do was to go look at a cohort group of individuals that were all badged, that were not considered typical radiation workers, and that they would be assigned to an RWP to go in and handle radioactive material, but were required to be in all areas of the site. And the logical group there was the Security force.

So we got the data from 300 Security,

that's the entire force, and we looked at their data from 1963 to 1970. The idea being here that we know most of their badges are going to be zeros, which means by the time you pull the control out, you've got nothing left. Now if we hypothesize that there was measurable, elevated ambient in those early years, then it seems to me you would expect the number of zero reads to decrease in that cohort group.

When you look at the data we see that the lowest number of this 300 people, the lowest number of zero reads, 12. I mean, the highest number of zero reads -- let me get this right. The highest number of zero reads was in 1963. In fact, of that 300-member cohort group, there were only 12 positive radiation doses assigned to those people. In 1964 there were 27 positives out of 323. In 1965 there were 45, '66 there were 70, '67 there were 60, '68 there were 95, '69, 14, fourteen positives. That means there 315 zeros.

I submit to you that if there had been measurable elevated ambient that we would have

seen more zeros in 1963 than we would have in these other years.

And, I don't know. Did you have a chance to see that, John?

(no response)

MR. RICH: (Inaudible)

MR. ROLLINS: Security guards. They patrolled all the roads, provided security for nuclear weapons.

MR. PRESLEY: There was at least one at every drill site, at least one all over the site.

DR. MAURO: So the number of individuals with positive doses from 1960, out of the total monitored individuals which was on the order of 300, what in effect you're saying is, well, we have data back to 1963 though 1970 consistently on the order of about 300 individuals that were monitored.

A number of individuals with positive doses detectable above background was, the highest number was in '67, 60. And the lowest number was interestingly in 1963, which was 12. So what we get from this is that whatever the ambient radiation exposure levels were

that this population of workers experienced from ’63 to ’70 really didn’t change very much.

MR. ROLLINS: No.

DR. MAURO: If anything there might have been some slight increase in the potential for exposure in 1967. That’s when you had your highest in 1966, but that’s a little higher. Now as it goes toward this issue -- I’m trying to connect the dots but I’m having, but I can’t get my head around right now. Somehow you feel that that really puts to bed this geometry correction factor problem.

MR. ROLLINS: Because you would have to have -- okay, we’ve got to connect the dots.

DR. MAURO: Yeah, help me out here.

MR. ROLLINS: In order for this to be important, there would have to be enough ambient out there that people were being unknowingly exposed to. And this would be the group that would be unknowingly exposed to it, not the radiation workers. That’s why we chose these people.

DR. MAURO: From an ambient perspective.

MR. ROLLINS: From an ambient perspective.

DR. MAURO: I'm going to go out on a limb, and I always get myself in trouble when I do. I do think this is a tempest in a teapot. There's no issue here.

MR. ROLLINS: Thank you.

MR. PRESLEY: So we can say that Comment 11 has been closed. Everybody agrees? All right, Gene, I appreciate that.

At this time I would like the whole working group to discuss what we want to do as far as whether we want to recommend or not recommend the site profile. And if you have some other discussion on this issue that came up about the resuspension of particles when the drilling rigs would be drug across the desert floor, we will take that up at that time.

My inclination is on that that, yes, there could have been some dust. I've been out there. I've seen those drilling rigs. Yes, there were small -- where they turned off of their -- if I remember --

Mel, you all correct me.

-- there was a road right down the middle of the test site, and that's what we

drug those drilling rigs on. And then to go from the road where they actually put the, set the drilling rig up, then if there was not a road there, yeah, they would have cut a road with a bulldozer, and they would have drug those things up to the site. That's what I remember.

And that's where I remember seeing some plumage. But I also know from my experience on the Test Site that every area that was being worked, whether it be putting a weapon on hold, back scanning a smaller drilling rig, or whatever it was, that there were air monitors and people from Industrial Hygiene onsite when I was there.

Now, Bryce, you and Mel were out there more than I was, but that is what I remember. Because we were checked when we would, we would wear our street clothes to work. We were checked by somebody from Health Physics that afternoon when we walked off that site and either got in a truck to come back to work or else went somewhere else. That's what I remember, and if I'm not right on that or if there was something in the earlier days, you

ought to correct me.

MR. CHEW: Sure.

MR. PRESLEY: Has anybody on the working group got anything else that we need to discuss before we discuss what we're going to do with the site profile?

MS. MUNN: My only question would be whether or not there is any source of documentation for the concerns that were just raised. I can't imagine that there's documentation that we haven't pursued in some way. Is anyone aware of any existing documents that someone has not located, gone through, reviewed and reported on?

(no response)

MS. MUNN: There's always the implication that there's some sort of data that's been overlooked, and I just would like us all to agree that any data that exists with respect to NTS has been very thoroughly vetted by both the agency and by the contractor.

MR. PRESLEY: Realizing that we're not going to come up with 100 percent of the data.

MS. MUNN: No, I understand that. The question is not whether we looked at 100

percent of it. The question is, are we relatively sure that there's no other existing data. There's always implications being placed before us that there's something out there we haven't seen.

And I just am asking verification from the people sitting around this table to the best of our knowledge we are aware of as much existing data as possible within human capability to review. We've pretty much done that, have we not?

MR. PRESLEY: John, you sent your people out there. You're on your own site.

DR. MAURO: What I'm hearing is that when it comes to the ambient dose reconstruction issue, the protocol that's being developed and has been developed, Chapter Four, using the 1971 data, there are a number of concerns related to extrapolating back. Concerns that have a degree of legitimacy because going back in time from '71 to '63, you know, you get a little nervous when you do things like that.

But I also heard that it sounds like there may be data in '65. Now, I'm not quite sure whether the data that was referred to by

Martha to Lyn is the same data that Gene, that you had made reference to regarding plume tracking. Certainly, I agree with you. If the data in ’65 that we’re referring to is plume tracking data where you deliberately went in and sampled ventings or whatever else may have become airborne, and you’re tracking a plume, that is not ambient.

MR. ROLLINS: I have --

DR. MAURO: Now, if we have, if that data somehow, ’65 data is out there, somehow could be used to validate the back calculation that is based on ’71 data, even if it’s limited, it would be very useful to say it looks like Gene’s model would predict in 1965 using ’71 data going backwards in time using the protocol being developed, we’d get these kinds of, these levels of activity. Granted they’re probably small.

And if it turns out there actually is some 1965 data out there, it would be a way to, in terms of due diligence, say, okay, if there are data out there -- and I’m not quite sure there is or there isn’t -- it sure would be a good idea to turn over that rock and put

this thing to bed because we've looked at the data. We've confirmed that it's the plume tracking data and really isn't relevant to the particular ambient model, and that's the end of it.

Well, if it turns out it is, and we look at it, I think that we could be criticized for that for not taking one look at that particular source. So my recommendation would be let's, if there is such a dataset, and it's readily available and can be accessed, and we can use it to some benefit to validate the models that Gene has developed that would put to bed a lot of the questions that we've been talking about today.

MS. MUNN: My question then would be and if your premise is validated, and there is something that perhaps due diligence would expect us to take a look at, can that be done in an expedient manner and resolved with a technical communication between the parties rather than another meeting of the work group. Because if you're talking about this kind of plume data, obviously, this is episodic and would certainly, one would think the data

that's just been presented with respect to the guards would be adequate to cover anything other than a very clear, unexpected episode that would undoubtedly be of record somewhere.

MR. CHEW: John, I'm just thinking aloud here. The plume data that we have especially Lyn is familiar, there was a couple of events that were concerns in 1965. They were cratering events. It was very important that plume data was to demonstrate the levels of activity that had gone beyond the site boundaries --

DR. MAURO: So it's not useful for this.

MR. CHEW: -- and also to the limits of the continental United States because there was a test ban of not contaminating another country, Canada. So I am familiar with that kind of plume data. And so the question I'm having difficulty is that where do you cut off the plume data to make it --

DR. MAURO: No, no, I'd be the first to --

MR. CHEW: -- where do you --

DR. MAURO: If that's what it is, it's not going to help us.

MR. CHEW: Yeah, those particular data was

very, very important to assure that we are not violating any test ban conditions here, test ban plume data.

MS. MUNN: It still appears to me that it would be adequately covered by the guard data that we just looked at.

DR. MAURO: Well, keep in mind the guard data is the external exposure. And what we're concerned about is that there's going to be, that is, there's a protocol that's been developed, back calculate airborne dust loading of a variety of radionuclides with a function of five from '63 to '71. And granted that -- I agree completely. That contribution to exposure is probably negligible or small certainly compared to the other exposures, what I would call the occupational exposure in controlled areas.

But there's a whole Chapter Four dealing with this. A protocol has been developed based on extrapolating '71. And I would argue that I don't know whether I would use the external records for security guards as a good way to get a handle on this and put that issue to bed. I'd sooner say to try to

come to grips with some of the issues that were raised by Lyn.

It seems to me the only real action item here, if there's any, is if, in fact, you say it's correct, it's over. I mean, there's really not much more we can do. We squeeze as much out of the data that we can. But if it turns out that some of those measurements were made -- and I guess Martha apparently knows about this. Apparently, you do, too. If you're correct, it doesn't bias anything because that's not ambient.

MR. CHEW: Yes, that's not representative. You're right.

DR. MAURO: So I guess that's as far as I can carry it. I don't know what else to say.

DR. ANSPAUGH (by Telephone): Let me make a --

MR. SMITH (by Telephone): Hey, John. John, this is Billy Smith. You're absolutely right. The data that Gene has talked about is direct to gamma exposure. But there were two sets of people that were on the routine bioassay program that was sampled every quarter and whole body counted annually whether or not

they needed it or not.

Those were the RAD Safe monitors and those were the WSI Guards. So therefore, the WSI Guards, the doses that they had, is representative of both internal and external exposures because they were part of the routine bioassay program.

DR. MAURO: Well, that's excellent. I mean, I hadn't heard that. What you're saying is we actually have some bioassay data from workers that were there not under control, under the access controls but are working in the ambient environment where there's bioassay data, 300 people. I don't know how many of them were actually bioassayed. Well, now we're talking. I mean, I'd much rather look at that than look at air sampling data. I mean, --

MR. SMITH (by Telephone): John, one of the things that is true is that there is no indication that WSI Guards got any positive doses from internal exposures. So therefore, I mean, only a few episodic occasions. But in those cases where they did, then that would be in their personnel dosimetry records.

Otherwise, we're having to go through

tons and tons and tons of paper to try and find the laboratory data that would tie a result back to a person. And that is very, very difficult to do. And with Martha's constraints of personnel and funding, she just can't support us in doing that right now. But I do know that all of the guards were on a regular bioassay program.

DR. MAKHIJANI (by Telephone): This is Arjun. A question about that. We've looked at some of these internal monitoring records, and in regard to plutonium, when you say the WSI Guards were routinely bioassayed or a part of the bioassay program, were they monitored for plutonium? Because we have found other than the Health Physics RAD Safe workers, plutonium data are somewhat more scarce.

MR. SMITH (by Telephone): Well, Arjun, one of the sayings about the bioassay program, you typically on a quarterly basis took large sets of urine samples. There was about three or four 16 ounce bottles of urine that were actually processed and counted for gamma activity, beta activity, and then run through chemistry where plutonium was actually

analyzed and alpha counted. It was done by alpha spectrometry.

In addition, those same people were analyzed on an annual basis with either whole body and/or lung counts. So there was no picking and choosing as to what analysis you were going to do on routine bioassay samples. You did a gamma spec analysis, a gross beta count and a plutonium analysis, which was done by alpha spectroscopy. And also lung counting and whole body counting, done with spectroscopy methods.

DR. MAKHIJANI (by Telephone): Thanks, Billy.

DR. ANSPAUGH (by Telephone): This is Lyn Anspaugh again. Let me make two suggestions for your consideration. One is Gene Rollins and I perhaps could take a quick look to look at a couple of issues. One is it should be easy to plot where the air sampler locations were relative to where we know people were working. That's one issue.

The other one is the air concentrations measured in 1965 I'm quite sure were not plume tracking data. They were at

six locations although they were smaller in number than they were in ’71. But I think we should be able to quickly look at that, and like John Mauro’s suggestion of validate the model, so to speak, would be an excellent thing that shouldn’t take much effort to do.

MR. CHEW: Lyn’s question is that the air sample data is representative of where people were working; is that the bottom line?

DR. MAURO: We checked that. We checked that. In other words right now, remember, the two issues. One is the air sampling locations from 1971, the degree to which one could say that those locations are pretty good for the purpose of predicting what ambient exposures might have been onsite from 1963 to ’71.

Now in terms of ^, that would be a location issue. And I think just looking at where those samples were collected, probably tell us a lot, and you may already have a map showing, there they are. And then a judgment could be made, yeah, it looks like it’s a lot more than just peripheral, that there’s a very real possibility that some of the samples that were collected in 1965 might have been ambient

measurements and not necessarily plume tracking.

MR. ROLLINS: May I make a comment on that? May I make a comment right now? I just wanted to look that up in ’65. I just pulled it up but I lost my connection, so it’s gone now. And Dr. Anspaugh is right. There are some plots back there, but those plots are gross beta activity, which doesn’t help me much. And then they did not detect alpha.

DR. MAURO: But think about it like this. Okay, you’re going to come up from your model with some gross beta activity as a function of time. I mean, in theory you can do that, say, what would your model predict --

MR. ROLLINS: We do have gross beta activity.

DR. MAURO: Right, and what would you estimate would be earlier of the gross beta, you know, picocuries per cubic meter at various locations at various times.

MR. ROLLINS: Well, let me ask you this. If we look at the gross beta in 1971 forward and compare it to the little bit of gross beta activity that we have in 1965, ’66, ’67, ’68,

and we don't see statistical differences, would that make the problem go away?

DR. MAURO: I think that's the weight of evidence. In other words the way I look at what we're doing now is, you come up with a line of attack on a problem, and you come at it in this direction. And when you're done, say, that's pretty reasonable. But is there any way we could come at it from another direction which will confirm that that is, in fact, reasonable? Time and again we run into this. What I'm hearing is you've come up with a line of attack. Certainly, it sounds reasonable, but there are certain weaknesses to it that it sounds to me that one way to perhaps reinforce that your approach is, in fact, robust would be to take advantage of, well, two things that Lyn just suggested. Let's go and check where those locations are and see, yeah, it looks like that they were sprinkled very deliberately to evaluate airborne dust loadings onsite where the workers worked. That may happen pretty easy I think. And the other is, okay, the gross beta activity. Now if it turns out the gross beta

measurements that were made come in at a level that is not incompatible with what Gene's models predict, now we've got a weight of evidence. We're building a body of evidence that is compelling. And we could all sit around and say, listen, we did everything we can to really turn this rock and look at this thing. And I think in the end of the process the weight of evidence is such that, yeah, I think we've got a good handle on it, and Gene's models work.

MR. CHEW: You're actually proposing two things, John, if I hear you correctly. One, to look at the sample locations to see if they represent where people were working. And actually, secondly, look at the data to see if it fits the model.

DR. MAURO: Or at least rings true. You know, I know they're not going to nail each other, but they've got to ring true. Time and again we run into this. Every time an approach is taken in a site profile, and we see that theoretically there may be certain places where there's some weaknesses, what SC&A always does, is there another way to come

at this that would help us substantiate that approach is robust.

And that's all I'm saying. And I think that what we heard from Lyn is that he identified two things we can do to help reinforce and determine the degree to which we'll hang our hat on Gene's model. It may be inconclusive.

I mean, one of the problems we always have when we do this is we build this whole idea in our head that, listen, if we do this, this and this, when we're done we're going to have some real answers. And if this is inconclusive, it's inconclusive, but we did do everything what I consider to be reasonable to try to come to grips with this thing.

MR. CHEW: I'd like to get into the status of the probably few events in 1965 timeframe where we were doing some crater experiments here that those particular samples would show an elevated level, and it's not plume data, but it's really ambient. So we have to understand that. But we do know when those events occurred. And so there is some, we can visualize. I just want to let you know.

DR. MAURO: I agree. If we're concerned with ambient, I don't want to be fooled by looking at data which is not ambient.

MR. CHEW: That's exactly right.

DR. MAURO: And we have to be very careful of that.

MR. CHEW: That's right.

DR. MAURO: I agree with that.

MR. ROLLINS: Just a point that Wanda wanted me to make, and I wanted everybody to understand. In each of the annual reports, even starting back as early as 1965, there is a map very similar to the one that is currently in the TBD that shows the precise locations of each of the air sampling stations, or precise as they can be on a page that big representing 300 miles. But there's a similar map in every ^ that shows where the stations were. And they moved them around, and they changed the number from year to year for various reasons.

MR. CHEW: They moved around where people were working.

MR. ROLLINS: Why would they want to sample air where nobody's working?

MS. MUNN: Yeah, there isn't any point.

MR. CLAWSON: Well, wait a minute. Let me pull up a little other map for you. It's called downwinders. But you know what's real interesting? Nevada Test Site shows zero airborne, but everything around it, most of that stuff -- and this is what I have the problem with -- most of that stuff was implemented in there because they were trying to figure out what was blowing offsite.

MR. ROLFES: True. Keep in mind that during atmospheric time period when you have an above-ground detonation, that's really the focus of the offsite exposures. Because the super heated gas is traveling offsite, there isn't really going to be much fallout onsite. It's going to travel because of the heat of ^ expanding, rising gases.

MR. CLAWSON: Right, but as the years went by and so forth like that, and as they started doing below-ground testing, as we've all understood, they were still monitoring with airplanes and so forth like that taking air sample data to make sure that we didn't have anything going offsite again. And this is

what a lot of that air sampling data was. Because when it did go off it shook the living heck out of a lot of stuff for a long way.

MR. CHEW: There were some cratering experiments, Plow Share.

MR. CLAWSON: Plow Share was a good example. Baneberry was ^ and from there.

MR. ROLFES: With those exceptions though there are bioassay results for the individuals that were involved directly with those.

DR. MAURO: I think that's a great ^. I didn't know that we had a set of bioassay data for people that only were exposed under ambient conditions. And that goes back to before 1971. That is another nice way to say, okay, let's, do we have any detectable activity. And let's say you come back zero, zero. What does that mean? They're all less than this. Is that compatible with the model? In other words in effect would your model predict, you would expect to see any, and we didn't see any.

I mean, see, to me we're building a weight of evidence that in the end says, listen, everything that this data speaks to us

says that it rings true or it doesn't. All of a sudden you have a bunch of bioassay data, and you're seeing positive hits on the numbers of these workers that are incompatible with the model, you have to ask yourself why is that occurring.

Now, there may be a good reason for it. They may have been exposed to some transient situation that was associated with an event or it's not really ambient. But as I said, you like to turn over those, go as far as you can reasonably go. How far that is, you know, that's a judgment call.

But it sounds to me that if you've got some '65 data, you got some bioassay data that somehow could be useful to let us know how robust or reliable Gene's extrapolation model is, it wouldn't hurt to take a look at it.

MR. CHEW: There's some logistics concern because I think, John, that we've talked about this before because we picked the top 100 because they were available in NOCTS. But other data was because the logistics was funding for NOCTS to support that in ^.

DR. MAURO: I thought the top 100 had

nothing to do with the ambient. I thought the top 100 was designed to capture exposures to people who were exposed in a serious way. So I have those two in my head.

MR. PRESLEY: Anybody else have any more questions?

MS. MUNN: My only question is that we resolve the question adequately. Is there another exchange that needs to go on with respect to the placement of the sampling equipment and ^ the questions that were being raised by telephone as we just discussed.

DR. MAURO: Well, Wanda, since you're looking at me, I would say that if it's not an inordinate burden that would be, you know, that's going to tie us up for six months or something that can be done -- it looks like we just about did it on the first item.

Now, when you look at it from the point of view, okay, here's where the air samples were collected. You go back to '71 and see where the air samples are, see where workers were working, and here's where workers were working in 1963 to '61. Here's where the 1971 air samples were. Here's the way the

wind was blowing. It seems like that you've got the samples in the place where if there was elevated ambient levels, these samples would have picked them up, and they would be applicable to workers who were working on the site as a way to predict ambient exposures. Now I think that should be done. I don't think it's very difficult to do.

This other question regarding either the bioassay data from the workers or the air sampling in '65 data -- I said the bioassay, I'm talking about not the 100 but the security guard data. Now, it seems to me that if someone would ask me, well, I'd like to look at that and convince myself that those data are compatible with Gene's model, and they ring true, I think that's worth doing. I don't know how large an effort that is. So when you were looking at me that's why I, that's what I would do.

MS. MUNN: And that's what I'm trying to determine. Is the possibility of fairly straightforward, brief white paper addressing those specific points adequate do you believe?

DR. MAURO: In my mind, absolutely.

MS. MUNN: And is such a paper feasible?

MR. ROLFES: This information may already be partially contained within the method that's described by Gene in the current draft ambient Technical Basis Document.

MS. MUNN: It sounds to me as though the data is out there. It's a question of pulling those data together in one spot so that they can be viewed from the perspective that the contractor's asking for.

MR. ROLLINS: I think what we need, we need some kind of structure here; otherwise I end up answering the wrong question.

MR. PRESLEY: Number one, Larry, if you did, and we ask the contractor -- or not the contractor, ask your contractor -- to go back and take a look, to come up with a white paper on these two items.

MR. ELLIOTT: Well, I'm sitting here wondering whether or not it would be most efficient if we finalized the revision of the chapters of our site profile, or at least this one on environmental ambient and issued it. If we're that confident we understand the issues that have been raised, and we feel that

we have reacted appropriately and responded appropriately to those issues, and we're confident that this chapter will address them, perhaps maybe the best way, instead of a white paper, let's issue this revised technical basis document that would be used.

And then if that's what the working group wants to evaluate, I think that's what should be evaluated. I don't know. And I really am at risk here of getting my head chopped off by staff because I'm not sure if staff is ready to pull the trigger and issue this.

In order for us to issue it, we would want to make sure that we have had all of the peer and technical review comments addressed including what we think may have been new today in the discussion we heard. And so I can't commit that, but I would say that should be easier for us than reproducing a white paper, which would just simply be maybe cut and paste or -- I don't know.

MR. PRESLEY: Larry, if you cannot do that, then can we ask them to produce -- I'm almost certain that y'all have got the majority of

this data. We know where, there's all kinds of data at the test site about where the samples were, when they were taken. Y'all probably have it. If we cannot come up with a technical basis document, then come up with some type of a paper that discusses that, yes, number one, we had 14 million samples or however many it was, and where the locations of the samples were, and here are the locations where the workers were working, and take into effect the location of where the workers worked changed almost monthly. Is that not right? Because we put one down a hole; we shot it. We moved on to the next one. So that's going to change tremendously especially with the workers that worked down Yucca and ^.

MR. ELLIOTT: Well, can I ask another question?

MR. PRESLEY: Go ahead.

MR. ELLIOTT: It's not clear, have we provided access to all of the data that we have used to make the revisions to the site profile? Does SC&A have access to that? Have we called their attention to it or not?

MR. ROLFES: Everything that we have previously discussed has been put onto the O drive. I do have a number of RAD Safe reports and things that have been put for specific projects, et cetera, onto the O drive for SC&A's review.

Off the top of my head I don't recall if there's ambient monitoring data that have been put up there as well, but it may have been discussed. I can probably take a look. I may have some of it with me here.

MR. ELLIOTT: Well, I just wanted your general sense. We either have shared all or we may not have shared all. We should share all of that.

MR. ROLFES: What's been discussed should have been put up onto the O drive. So if we had it and referenced it during one of these discussions of the working group, it was made available for review.

MR. ELLIOTT: Let me commit to this. I'll check with staff and our fine support contract folks and see if we're ready to pull the trigger on this chapter. I think there's four chapters that have been revised.

We've been holding the issuance of those up until we get to a threshold of understanding where we think we've got all of the issues captured in these revisions. Because once we issue these, we recognize that there will be increases in certain types of dose to certain individuals, not everybody, not in all instances.

Where there is, we'll have to have a program evaluation review, go back and revisit claims previously done. But we don't want to start new dose reconstructions under a document, a series of documents, that have just been revised and yet have to do another PER on those in six months, eight months, a year's time. So that's why we've been holding out on issuing this.

And I think it puts Gene at a disadvantage I think because he's got to talk about a draft that he can't talk about or share in great length and detail. So is that, will that -- I will commit to get back to you, the Chair, and the full working group and John with how soon we think we can issue this. And if we can't issue it in an expeditious way,

then we'll give you something that explains what we have talked about doing here. Is that fair?

MR. PRESLEY: Wanda?

MS. MUNN: That seems a reasonable approach to me. My hope would be that we could have identified in a relatively short time whether or not we're going to be able to release the new documents and then what needs to happen once those documents are on the street whether we can get a fairly expeditious response regarding their sufficiency to address the two issues.

NTS SEC PETITION

MR. PRESLEY: Let me ask you something. Can we as a working group discuss at this point whether we think that the site profile can be taken to the Board, that we think it's complete and ready to use or if we think it's not complete and ready to use. There's a caveat on that that at some point in time before we meet on the 24th, or if we have to have a meeting sometime the afternoon of the 23rd to go ahead and ratify this thing, and say, yeah, this is what NIOSH has come up with

and SC&A has looked at this and agrees. And then we at that point go on down the road.

What I would like to do today is see if we are ready. We've heard a tremendous amount of data and stuff on this. If we're ready to say, yes, we think that the site profile is good and it's workable, and that we will, the working group, will say, yes, to the site profile. And then we will recommend to the Board, full Board, that the site profile be used.

Or, no, we don't think it is, and we'll go back and discuss and whatever your issues are that you have, we'll go back and get either SC&A or HHS to come in and help us rectify the problem that we have here. But I think that we really ought to talk about this today, what we plan on doing going down the road.

I'd rather do it face to face than us have some kind of a conference call where we can't hear or we all can't get there. We're really lucky today. We are all five here. We have some experts here with us that can discuss any of the problems that you might

have.

DR. ROESSLER: Bob, I like your idea of the 23rd in the afternoon. We'd all be there I assume or could be there. But it would depend on the schedule that's being developed for the Mallinckrodt.

MR. CLAWSON: Well, I know Josie and myself are coming in a day early so we could still keep the morning.

DR. BRANCHE: A lot of other people have since responded so we're going for, I've arranged for 1:30. But it's only supposed to be like an hour. So if you wanted to --

Isn't that right, Nancy?

MS. ADAMS: Well, it's an hour at the site. It'll probably be half an hour, 45 minutes each way coming and going.

DR. BRANCHE: If you wanted to have a 4:30, depending upon how long you think the meeting would require.

MR. PRESLEY: Or any people coming in the morning of the 23rd or the night of the 22nd. I plan on being up there the night of the 22nd.

DR. ROESSLER: I haven't made arrangements yet. I can --

MR. CLAWSON: I'm going to be there the 22nd.

MR. PRESLEY: Then why don't we at this time we say, that gives SC&A and HHS ample time, I believe, that gives them a month to look at this and see where we stand. And that gives us the last little bit to look at what we've got and say yes or no.

But I want to say yes or no today. I want to get a straw vote that says we have no problems except this issue, these two issues. Or, yes, we've got some issues, and then we can't vote on it and go on down the road.

MR. CLAWSON: Well, Bob -- and this is just my personal opinion -- I really hate putting out a product at the end that I can't say totally, 100 percent yes or no, this is what it is. And if you're to be looking from the outside in, yeah, we all agree this site profile is good except for this chunk over here. That's one of my primary concerns that I have. Is just the perception that we're leaving something undone.

MR. PRESLEY: Well, Brad. We're trying to get everybody's, you know, it's kind of a straw man vote I guess is why I'm asking. Do

we want to do this or do we not want to do it?

Larry, you have a question.

MR. ELLIOTT: Well, do you say in your proposal that you're either okay with the site profile being used or not being used? I take that to mean the revised site profile that is revisions that are based upon all of the discussion that you've had as a working group.

MR. PRESLEY: That's correct.

MR. ELLIOTT: And so how can you say that unless you see it? And so I pulled Mel and Mark aside for a sidebar here to verify in my mind where they thought we were at on these four chapters. And they say they think we've covered the bases, and we're ready to issue this.

And I'm going to say let's go ahead and issue them so that if you want to task SC&A with evaluating a piece of it, they'll have that piece to look at. And they have the data available on the shared drive to confirm what we say. Is that okay? So that means we can make that happen within the next couple of days, right?

MR. PRESLEY: How about it, working group?

DR. ROESSLER: Well, then I --

MR. ROLFES: It would be Jim's signature that would, so I can't speak --

MR. ELLIOTT: Well, I can make sure Jim will sign it.

DR. ROESSLER: Then I think we need the equal response from SC&A that they would have the opportunity to look at it. And if we're proposing this meeting on the 23rd as the time we would make this decision, I think we need to know if John can be there or somebody --

MR. PRESLEY: Yes, John would tie into this also.

MR. ELLIOTT: Well, I'm trying to get it to him as quick as I can.

DR. MAURO: As far as the issues we've been talking about, namely, this ambient exposure, as far as I'm concerned this is very tractable, very doable, and we'd certainly regroup at the time it's convenient for anyone and go over those two analyses and readily come to a conclusion regarding Gene's extrapolation model. I'm not concerned about that.

Okay, Arjun, go ahead.

DR. MAKHIJANI (by Telephone): You know, John, the ambient is in your bailiwick and Lyn, and so I don't have a worry about that. I just think I heard Larry say that all four would be published, and I'm not clear what we would be tasked to do. And I understand there are quite a few internal dose issues that we've raised that would be reflected presumably in the new site profile. And I think the internal dose issues are rather complex. And if that's what the working group is asking us to look at, I think you have to first see the site profile revision to give an estimate of how long it might take to do it. Because ambient dose we've looked at a lot and debated them a lot. But the internal dose revision has been a long time in coming, and I imagine it will have a complex series of ^.

DR. MAURO: I'll take that a little step further, and I was mentioning this to Wanda, I know that we're trying to separate site profile from SEC. And I understand if at all desirable that would be great. And I think that there are two looming issues that we've been talking about as SEC issues. But I have

a hard time seeing them as not also site profile issues.

MR. PRESLEY: That's correct.

DR. MAURO: And so I guess all I could say to this is that certainly regarding ambient, we're going to take care of that. That's a done deal. I know we're going to get home on that. I'm much, much more concerned about the issue we started talking about earlier today which has to do with being able to reconstruct internal doses using the 100 cases as a platform and the new data we've seen. This is fundamental for the site profile and, of course, the SEC. So I'm having trouble separating SEC issues from site profile issues.

The same thing goes with external. Looming is the issue of badges left behind. We all are right now, SC&A's right now in the middle of putting together a plan, and we're ready to implement as soon as it's approved by the work group to look into records to evaluate, look at the weight of evidence of this concern about badges left behind and the degree to which if that practice did indeed

take place, that it could undermine the ability to construct a coworker model.

Now both of those issues, to boil it all down, to me are looming large, fundamental to the SEC. I have a hard time separating them from the site profile. Because some place in the site profile you're going to talk about how we're going to reconstruct doses, internal doses. Well, what you're telling me is the way you're going to do it is not the old way but some new way. And we haven't even scratched the surface of that.

The same thing goes with the badges left behind. What happens if we find out that the badges left behind was very pervasive, and it does affect the upper end of the tail of the distribution of the external exposures such that the upper 95th percentile that you pluck off from the distribution of external exposures has been compromised for the reasons we all understand? Or maybe it wasn't. But we haven't engaged that yet. We haven't gathered that data yet. We haven't looked at it.

Mel, you certainly did a great job the

last time you sat down and looked up the mine cases, and that really kicked off this process. The process now needs to be completed. You were the first to admit that, listen, we took a look at it, and we think it's a tractable problem because the records are out there. And remember we talked about you would look at the film badge and the PICC and survey meter readings and the radiation work from that.

Well, we got a handle on trying to, compiling a weight of evidence argument the degree to which this badges left behind was not only pervasive but possibly could undermine the reliability of the distribution we built. In my mind those go to the heart of the site profile as well as, of course, the SEC.

MR. PRESLEY: I kind of disagree. The site profile is a document on the site itself. It says that Building A was here, and they did check in here, and we have data here. Now, when you get into the SEC petition, that is when we're going to cuss and discuss whether or not everybody wore their badge, and if they

didn't wear their badge, and we find out that they didn't, then, yes, that's more of a issue that has to do with an SEC petition or an SEC evaluation going on. I see right now that the site profile is pretty well, we've kicked that around.

Now, everybody tell me on the working group if I'm not, you know, if I'm wrong here, we'll go back and start all over again. But whether they didn't wear their badges or whether they did wear their badges, that's more of a special exposure cohort problem than it is a site profile problem, to me.

DR. ROESSLER: I think your question brings up this whole broader picture, and John was starting to get into it earlier, is just what do we mean when we approve a site profile. I mean, how does that apply then to a possible SEC evaluation, and how are they tied together. And I think this applies to every --

MR. ELLIOTT: You've seen it in Bethlehem Steel. You all approved the Bethlehem Steel exposure model that we've used. Yet we qualified a petition based on the necessary

criteria for evaluation, and we are still awaiting the Board's decision on Bethlehem Steel as a class, but yet we have an approved exposure model.

DR. BRANCHE: Do you have another example that is --

MR. ELLIOTT: Well, do you want me to go down a list?

DR. BRANCHE: No, just one.

MR. ELLIOTT: I think Bethlehem Steel is the prime one. But there are certainly others where you have a petition underway, and you have either an approved exposure, a dose reconstruction approach or you have a set of review comments about that approach that have not yet been resolved. But I don't see any difference here.

DR. BRANCHE: So approving a site profile does not mean that there's an automatic approval or anything else about an SEC petition. It's just one step among many.

MR. ELLIOTT: I think it's best to have an approved site profile in play to do dose reconstructions although we don't have to have a site profile at all to do dose

reconstructions. I think that whenever we have an SEC petition that meets the basis required in the rule, we owe the petitioner an answer to those bases that are spoken about.

And my hope has always been that at some point we'll find ourselves at a state where we have these reviewed documents, if you will, on the shelf that have no issues with them. And we can say they're still living documents, but, gee, we don't know what will change now because we don't know what's left to be done with them. We're not there yet. So when we have a petition, we need to answer the basis for the petition.

MR. PRESLEY: To me a site profile is very much a living document.

MR. ELLIOTT: Would somebody tell me what the SEC-related issues are with NTS versus, you know, aside from the site profile issues? Because that's of concern to us because that's another reason why we've held up on issuing the site profile revision. Because it's going to result in two PERs at least if we have major SEC issues that are not attended to in the site profile review.

DR. MAKHIJANI (by Telephone): Larry, could I respond just on behalf of where our team is, being the task manager for the SEC. We did send in mid-March a document to the working group which was our preliminary take on what the SEC issues were with NTS based on, you know, the site profile revisions that we had not seen yet so we have not reviewed what changes might happen based on the evaluation report and some new things that were there and the related discussions.

Like Table 7-1 is a major example because it really defines a very large part of the internal dose problem. NIOSH took a certain approach that cumulative external doses are indicative of high exposure potential for internal dose. We've got cumulative data for external dose. We've got the internal dose data. We can make a coworker model. And we're in the process of reviewing that.

As Mr. Presley and the work group know, we've initiated a look at a very significant fraction of those hundred cases. And so from the point of view of internal dose

we couldn't sign off on a site profile that said we're going to use a coworker model in the way the ER says without completing that work. And so that's -- but at the same time, I mean, if NIOSH wants to use its existing, I mean, there's nothing for SC&A to say if NIOSH is using the revised site profile to do dose reconstruction.

Maybe I'm not clear on what your internal process is there. At least from my point of view looking over SEC issues, we're in the middle of looking at those things, and it looks like a little bit of a difficult thing to come to a conclusion very soon.

MR. PRESLEY: Arjun, this is Bob. You all sent out a revised draft on May the 6th.

DR. MAKHIJANI (by Telephone): Mr. Presley, that was not a revised draft. It was essentially the same. The one on May the 6th was PA cleared so that it could be given to Mr. Reid's office before we briefed them. Because that was going to follow that in the briefing and it had not been PA cleared. There were a couple of typos or something that were corrected, but it's the same, and maybe

there was a redaction or two, but it's the same document as you had in mid-March.

MR. PRESLEY: Thank you, Arjun.

DR. MAKHIJANI (by Telephone): You're welcome.

MS. MUNN: This question of what constitutes a site profile is one that I think bothers a great many people. It would really help if we could clarify in our minds here exactly what a site profile is. I do believe that Bob has a strong point.

It can be argued that a site profile should be a full description of what constituted the site, what structures and activities occurred on the site, and when those occurred. If we expect a site profile to address the issues that we encounter when we get into dose reconstruction or special exposure cohort issues, then it would be very difficult to ever resolve what a site profile is.

Clearly, how work is performed and the monitoring data that is of record on a site is a reasonable part of a site profile, and one would expect to see it there. But how those

data are used in dose reconstruction cannot be resolved prior to the acceptance of a site profile else we would never have a document unless we are looking at a site profile where there are no claimants.

If we're going to identify what a site profile for NTS is, then we have to segregate in our minds what the functions of other people outside this work group are. If I understand the work group's charter correctly, it is for us to approve a site profile for the Nevada Test Site.

If it is more than what I've just described, we need to say so right here and reconcile ourselves to the fact that we're likely never going to have a completed site profile.

MR. CLAWSON: Isn't that why we call that a living document? I guess -- and I understand your frustration because I have the same frustration. As far as the TBD, it bothers me to hear a claimant say, well, they denied me this because according to the TBD this wasn't there. What are we using the TBD for but for dose reconstruction? They're calling out that

these people were in these areas. They were doing these things. And this is what we use this for is dose reconstruction.

So in my mind's eye we've got to make sure that this TBD is as clear and direct as possible for all these things. Because this is what the -- and this is just my opinion -- this is what the dose reconstructors are using to be able to do this with. And this is why I guess I put so much emphasis on that it's got to be done.

We've got to cover every, uncover every rock and make sure that this technical database is correct for them. Because if we're just saying what a site profile is, that's all well and fine because basically these TBDs are like flying over any site at 40,000 feet. It's not getting into the nitty-gritty. But they're still using this to be able to reconstruct dose.

MR. ROLFES: But the most important piece of data that we would use for a specific dose reconstruction would be that individual's information within in their bioassay and/or dosimetry records. That information would be

the number one most valuable piece of information over and above the site profile.

As part of the dose reconstruction process we would use that dosimetry information and also evaluate the completeness of that data. If there was a determination made that that data was not complete, then we would consult the site profile to give us additional guidance on how to essentially fill in any gaps and make sure that we do it in a claimant favorable manner.

MR. CLAWSON: And, Mark, I understand that, and I just last week had an individual come up to me that worked in this building for 25 years. And he says, Brad, what do they say that I can't be exposed to this because this building doesn't exist? This was a chemical storage facility. So I had him take a picture and send back to you guys that this is a part of the building.

Because -- and I understand what you're saying. I really do. I understand that it's actually the people's dose records and so forth like that. But in a lot of cases, and we hear it time and time again,

that they're using the site profile for this. And this is why I put so much, such a personal emphasis on that I want to make sure that when we do approve these site profiles that it does have the correct information and so forth.

And as [Identifying Information Redacted] has pointed out, we've got a lot of little flaws. And you know what? Nine times out of ten maybe they really won't affect it because the boom tower was moved or calling out a different area or so forth like that. But we've got to make sure that this is the right product. And I know. It's frustrating to me, too. I want to make sure that we get there though, and that's my only concern.

DR. ROESSLER: Brad, if we -- and I think you're going in the right direction, but I'm thinking the next step. If we look at the site profile and we, as a working group, say it's adequate, and one of the criteria is that it's adequate for doing dose reconstruction, then haven't we taken a big step toward the determination on the SEC?

MR. CLAWSON: Well, you know --

DR. ROESSLER: Where does one stop and the

other begin?

MR. CLAWSON: -- you know, that's been an interesting one to me, too. Where do they begin and so forth like that? And I do. I agree with you on that point there. The thing that's interesting to me and that I really hate to see, but it's going to go on forever as long as we do this, is that we approve the site profile and then we start going down in it, and as everybody has said, the TBD is a living document. All of a sudden we're having to change things because all of a sudden some new information came in that we didn't see, which is a glorious thing, but it also makes it look like why wasn't this done in the first place. And I'm looking at it somewhat from a kind of a claimant.

MR. ELLIOTT: Because we couldn't do all 315 sites in a year.

MR. CLAWSON: And I realize that, Larry. And I'm not saying anything like that. We've got a large --

MR. ELLIOTT: I know you didn't. But I would remind -- and I'm not trying to lecture here -- but remind the Board members that an

SEC really has a two-part test that is couched in the rule, in the language, and dose reconstruction is covered under another rule, of course, but we talk about in dose reconstruction the different approaches that we use.

And if, as we proceed in refining our abilities to reconstruct dose, and a variety of doses, we run across situations where we recognize in our site profile or a technical basis document that we need to bolster that section. We need to build it up. We need to beef it up. It doesn't have enough detail reminding you all that site profiles, technical basis documents really are intended for an audience of health physicists to give a consistent approach in interpreting what happened at the site.

And we don't claim that we have all there is that should be interpreted in those documents. That's why we call them living documents. And we want to get there some day but, you know, when we identify or when a claimant or a petitioner identifies, here's a dose that you haven't covered in your site

profile that you can't reconstruct, that's where the SEC rule comes to bear. Can we?

We have to evaluate it. We have to look at it. You have to review it. Can we reconstruct dose with sufficient accuracy? The rule for special exposure cohort petitions says that is defined as an ability to compound the dose or more precisely estimate the dose. Those are the words in the rule.

And I think -- again, not trying to lecture or preach here, but I think we have to all go back and touch that stone once in awhile and say can we bound the dose or more precisely estimate the dose? If not, that truly is an SEC criteria that's met, to add a class.

MS. MUNN: And the capability of doing that is based in documentary evidence well outside of the site profile. The site profile is the platform, is the platform from which the dose reconstructor begins their understanding of what transpired at that place during those years. It's just a platform. The information that's necessary for dose reconstruction is over and above this platform. We need to

establish a platform.

DR. BRANCHE: But as Mark said, the site profile is one piece, and perhaps not the most central piece of information that's used. I've been listening intently. I want to make certain that we all are not letting -- I don't know how to say this because everyone's brought up some very sensitive information -- but I think we owe the claimants moving forward.

And I'm concerned that part of what I heard, Mr. Presley, is that we're waiting for perfect, and a living document is always going to have, you're always going to be able to add some information to improve what you know. And as you move into your responsibilities now to review the information for the SEC, and you find that something from the site profile or any other piece of evidence at your disposal is wanting, it'll raise questions.

If you had been given this task only as an SEC, you would have been reviewing information, and the site profile may not have been perfect then either. I'm not trying to rush you. I think you all have raised some

very important issues, but the claimants are moving forward. They filed an SEC. You guys have been meeting according to the information that Mr. Presley put together since 2006.

I just want to make certain that we're, I'm concerned that I'm hearing -- I don't mean to be repetitive -- but I'm concerned that I'm hearing waiting for something perfect, and I don't think that if you use the word living document, that is ever going to be final. At least not, I don't think there's a criterion for it to be final.

If we have site profiles that have always been improved upon, is that my understanding? More information, new evidence has always been added to every site profile. A site profile's just one piece of information that all layers of this organism use to move forward in their work.

DR. ROESSLER: I think the bottom line really is the issues we have left that we're going to look at before we get together again, are they site profile issues or are they really SEC issues? And I'm tending now through this discussion to think they're SEC

issues.

MR. PRESLEY: A lot of them are.

DR. ROESSLER: And if that's the case, then it seems like we could actually say --

MR. PRESLEY: If you go through SC&A's working draft, I mean, look at what they have commented on, --

John, this is yours.

-- you will see that a lot of what we have talked about pertains to SEC petitions. A lot of this we've gone over. It's been kicked around. We're going to have to kick this dog two or three more times. But there are things that are in this that are SEC issues. It's not going to make one bit of difference to the site profile. It's going to make a difference to the issue whether we accept it or we reject it.

DR. BRANCHE: Well, and again, I go back actually to what I believe are your draft words. Unfortunately, I was not around when the work group was formed to first deal with the site profile, so I don't have at my disposal what your charge was. But if Mr. Presley's captured it accurately, your charge

was to document accuracy and authenticity. I don't know if that's always taken as approve or disapprove. And so given that the site profile can change is it accurate with the best of the information that you have now. It might be your central question.

DR. MAKHIJANI (by Telephone): this is Arjun. Could I ask a clarifying question?

MR. PRESLEY: Arjun, speak up.

DR. MAKHIJANI (by Telephone): Can you hear me?

DR. BRANCHE: Dr. Makhijani, you'll need to speak up, please.

DR. MAKHIJANI (by Telephone): Can you hear me?

DR. BRANCHE: Now.

DR. MAKHIJANI (by Telephone): As I recall the Board appointed the same working group to look over the SEC issues and also authorized SC&A to start the process of SEC review which is why we've done a number of things and initiated a number so we're proceeding in parallel. And I just wanted to make sure, you know, a number of these issues are being covered under our SEC review.

And I just wanted to make that explicit in this context, that we are proceeding in parallel to examine a number of these issues. All of you know what those issues are. You have the document of March 17th. And I just wanted to be clear about that in case any Board member has a comment about it for us for our guidance.

MR. PRESLEY: You're 100 percent correct, Arjun.

DR. MAURO: I have a bold statement I'd like to make. I believe that throughout the process we've been through for the last four years or so there are site profile issues that are not SEC issues. In other words what that means is that, yeah, there's a technical issue here on how you're going to solve this problem. We know it can be solved. It's just a matter of judgment of how conservative you want to be given that you have the data.

So there are always -- so the way I see it is you have site profile issues that some of which are also SEC issues but every SEC issue is a site profile issue. And that's what I mean by a bold statement. You, in

other words, it's a -- and that's what I see. I'd be more than happy to define that more, but that's how I see it.

MS. MUNN: Every SEC issue has some component in it that is a site profile issue, but it is not the basis for the SEC in most cases. I can probably dream up some fictional or potential cases where that might be true, but by and large SEC issues are dose reconstruction issues, not a question of where it was.

Now Brad had a very good example, an addition that needs to be made to a site profile. He gave us that. And that's a good thing. That's exactly the kind of issue that anyone that I know who's written a site profile would want to be made aware of. There's a building there that somehow has missed, been missed, in our process.

With the site profile, as I repeated, I'm repeating myself, was a platform from which both the SEC dose reconstruction and other issues have been built upon, not the reason for an SEC, not the part and parcel of it. So, yes, I agree partly with what John

said, but there is still the assertion that I believe to be accurate.

MR. CLAWSON: You know, Wanda, this is Brad. I agree. I think that part of the problems we get into is we start out with a site profile, and before we get the site profile, all of a sudden somebody throws an SEC on us. And it's very difficult for me to really divide from where this is an SEC issue or is this really a site profile issue. And I don't know if anybody else has that problem. Maybe I'm over too cautious or whatever. But I really do. I have a hard time figuring out because each little piece of that SEC that now we're looking at is also part of a site profile problem, too. And so that's why I have a problem, and maybe it's just my problem, but I really have a hard time distinguishing kind of where --

MR. ROLLINS: No, you're not alone.

MR. CLAWSON: I know, I'm -- and that's where I'm at on this.

MS. MUNN: It's difficult. And that's why the citizens of the United States are treating us so well. It's a hard decision.

MR. PRESLEY: You know, it's a hard thing to do, but at some point you have to draw that line between an SEC petition and that site profile. Say, we're going to stop the site profile work here. We're going to say yes or no. If we say no, then we're not going to stop the site profile. We're going to go on.

If we say yes, then we're going to start working on this SEC petition. And if something comes out of that SEC petition that needs to go back and let's take a look at that site profile or it needs to be reworked in the site profile, it can be done. We'll go forward. And all we've got to do is say item A, page 22, whatever it is, we had to rework this. Everybody looks at it. Now, this is my perception. And then we say that looks good or we agree with that, and the site profile revision goes on.

MR. CLAWSON: But sometimes when we take and change a site profile, we also create another problem for NIOSH and that's that they have to go back and reevaluate all the previous cases that they have just may have gone through.

MR. PRESLEY: They're going to have to do

that anyway if we find something on the SEC.

MR. ELLIOTT: But that's a good thing because if there's any change in compensation, that's what we're all here striving to do.

MR. ROLFES: It's our commitment to go back and revisit any cases that have been previously denied.

DR. BRANCHE: So you're saying, Larry, let's not, again, let's not wait to get it all right with the concern that it would force going back.

MR. ELLIOTT: Well, I have no idea -- here's my problem. If you want to talk about my problem, my problem is managing what he just mentioned, the consequences of this body's action. If this body says to us today that they want to take up and vote on the site profile and knock those issues down, and whatever issues are not knocked down, then you guys will have to comment to the Board about what they are and have to let the Board decide what they're going to do with them.

But if you say that, I'm happy because then we can move forward with our site profile and dose reconstructions under that site

profile and one PER for that, Program Evaluation Review, to evaluate what the changes might have done for others who have already had their dose reconstructions. I'm happy with that approach.

If you say, no, we're going to hold off, and we're going to work this site profile set of issues along with the SEC issues until we get it all resolved, then I'm going to tell you right here and now that's not a happy spot for me to be in because I'd have to tell claimants that we're not applying certain changes that we would apply. They'll have to wait. That's one message I have to deliver that's not very happy, not very satisfying for me to give but factual for me to give.

The other thing is, okay, yeah, we might only have to issue one PER on SEC issues and all of that, but it's going to be on more claims. So it's a trade off. I think you're better off if you deal with the site profile issues and let us put that to bed, and then we take that -- many of those, I believe, will go away in Arjun's list for the SEC, and what is left is what you have to discuss and resolve

for the petition. I just think it's a better approach.

DR. ROESSLER: It seems like it's more favorable to the claimants to just go ahead and do the --

MR. ELLIOTT: We know we're going to make changes. We've agreed to making changes.

DR. ROESSLER: And there's nothing negative really.

DR. BRANCHE: I think you should probably raise that because I was about to potentially take the risk with Larry of sounding a little crass. I'm a little less grateful what work it causes for NIOSH. I'm much more concerned about what it means for the claimants and the petitioners. So if you could put it more in that context than what it means for NIOSH, I think it then has the ring of a valuable question.

MR. ELLIOTT: To clear the site profile issues and for us to implement a revised site profile in accordance with what you discussed puts the claimants in the best advantage possible for getting a dose reconstruction, especially those individuals who require the

best estimate dose reconstruction we can provide a clear advantage. Otherwise, they're disadvantaged but get what we can provide them. We may hold their claim.

If they're a best estimate, we may pend their claim until all of this is done. While we're working on others, you know, our efficiency approaches would allow us to treat other claims under our existing site profile to get an answer, but then those would have to be reexamined. And so those people are going to get -- here's frustration for the claimant.

They're going to get a message that says we're going to reexamine your dose reconstruction because the site profile has changed and then they're going to have their hopes very high that they're going to get compensated out of that. And quite frankly, we don't know what the rate of compensation will be under these changes. For certain cancers it may be and other cancers it may not be feasible to get compensated.

So in the framework of the claimants perception, I think we're serving them best if we get the site profile. You're this close.

We issue the site profile to you all. You can see how we've revised it. You can react to that, and hopefully, you can come to closure on that.

And also, at the same time, it will knock down several -- I can't give you a number, of course -- of the issues that are relevant to the SEC petition leaving you with just what whatever remains to be discussed. And the petitioner gets a better, I think a better evaluation that way because you're not constantly, I hope, treading ground that's already been walked through many times in a site profile.

DR. MAKHIJANI (by Telephone): This is Arjun. Might I suggest something? If NIOSH publishes the new revised site profile that, at least so far as the SEC is concerned, we can go back and take a look at the list of issues we submitted and revise those issues and give you a work plan.

I mean, there are some things in that list that are based purely on the evaluation report and are not dependent on things that are related to the site profile revision

because they carried over awaiting the site profile republication.

So I think at least from the SEC point of view it may simplify matters, reduce the work potentially that we would do, and reduce the number of issues, and also maybe allow us to put some issues to bed and say this is not an SEC issue so it can be then dealt with purely in a site profile framework. It might disentangle things a little bit in my opinion.

MR. ELLIOTT: I've already given orders to issue the revisions to the site profile. So I don't think, but yes, I've already given those.

DR. MAKHIJANI (by Telephone): What I was simply saying is that on publication if in the SEC work we could -- I'm just clarifying that. I'd like to take on that review just from the point of view of revising the work plan to the extent that it needs to be revised based on the republication. That's all I wanted to say.

MR. PRESLEY: Arjun?

(no response)

MR. PRESLEY: Arjun?

(no response)

MR. PRESLEY: Arjun.

(no response)

DR. BRANCHE: Dr. Makhijani?

DR. MAKHIJANI (by Telephone): Yes, yes, sorry. I was unmuting.

MR. PRESLEY: What you're saying is you would like to revise the work plan that came out in March in the revision in May?

DR. MAKHIJANI (by Telephone): Well, it may or may not need revision, but there are some parts of that work plan that I think are dependent on the site profile revision. There are other parts that are not dependent. So those parts will not need to be revised, but some parts may need to be revised. We just have to look at the revision of the site profile, and then I can make a judgment for you and send you a memorandum.

MR. PRESLEY: Okay.

We've gone through this today. Does anybody have any stirring issues that this site profile cannot be accepted?

MS. MUNN: My only concern is our ability to take a look at the revision that's coming out

for Section Four and working on the assumption that that revision will be available for adequate review and technical discussion prior to our working group meeting. And it does not appear that either of the issues is intractable. And it would seem logical for us to make every effort and expectation to be able to approve this site profile as a recommendation to the Board in our upcoming Board meeting assuming that that is a decision following --

MR. PRESLEY: And there's no showstoppers in any way stopping us going ahead.

MS. MUNN: Correct.

MR. PRESLEY: And so we've got that to go through. Arjun's going to take a look at it and get back with us before then. If there are showstoppers, we stop right there and start all over again. If there are no showstoppers, in my estimation then I have no problems with accepting this thing as is and moving on to the SEC petition.

DR. ROESSLER: And are you suggesting that we should accept it today or --

MR. PRESLEY: No, no. No, no, the 23rd.

DR. ROESSLER: -- because I think that we --

MR. PRESLEY: I want to meet, if everybody can, I would like to meet the morning of the 23rd at nine o'clock at the hotel in St. Louis.

Christine, do we have time to set that meeting?

DR. BRANCHE: Yes, you do. Wait a minute, excuse me. There is time for it based on some of the information that I received from various people with my question about whether or not they wanted to go to Mallinckrodt. It was not clear that everyone from NIOSH, and I have no idea about the SC&A staff, were necessarily going to arrive the evening before they were going to come --

MR. PRESLEY: We're going to find that out right now.

DR. BRANCHE: So you can have it either the morning of or the afternoon of the 23rd.

MR. PRESLEY: I would rather have it in the morning if we possibly can, and I'll tell you why. Everybody's going to be fresh. If we go out and go through the Mallinckrodt thing, they may be hot and sweaty, and everybody may be tired by then. I would like to have it at

nine o'clock in the morning where everybody's fresh; we've got at least four hours to discuss this thing, and then if something, that don't work, then we've got that night to come back together again.

DR. BRANCHE: Unless somebody else wants a work group --

DR. ROESSLER: That's motivation.

MR. PRESLEY: Arjun.

(no response)

MR. PRESLEY: Arjun.

DR. MAKHIJANI (by Telephone): Yes, Mr. Presley.

MR. PRESLEY: Can you make it on the morning of the 23rd?

DR. MAKHIJANI (by Telephone): Yes, I believe I can do that.

MR. PRESLEY: All righty.

How's SC&A's -- I mean, not SC&A, NIOSH?

MR. ROLFES: As far as I'm aware I'll certainly be able to make myself available for the meetings.

MR. CLAWSON: Larry just said you would.

MS. MUNN: Bright and early Monday morning.

DR. BRANCHE: Monday, June 23rd.

DR. MAURO: We will be wherever you want us to be.

DR. BRANCHE: And I already know the court reporter will be there.

MR. CLAWSON: Bob, may I offer a suggestion, too. If this is the case, and as we go through this, you need to give yourself some time to be able to present this to the rest of the Board members.

MR. PRESLEY: We have to do that.

MR. CLAWSON: I realize that but not five or ten minutes because there's going to be --

MR. PRESLEY: I'll tell you what I'm going to do. I plan on writing some type of a draft presentation that says we accept or we don't accept. If we don't accept, it will deal with that. If we accept then we go through. But I plan on writing the draft and trying to get it to you all before we ever go to St Louis.

MR. CLAWSON: And I realize that. I just, I know that lots of the other Board members have asked numerous ones of us, because it's on any site profile and so forth like that, you know, questions of how are you guys addressing this

or so forth. And so these things come up. I just want to make sure you have adequate time to do it.

MR. PRESLEY: Yes.

DR. BRANCHE: And let me ask this because I think Brad raised it. He anticipated, certainly, my question. As you know there is a work group update, that there is a provision available. And Ms. Munn did this at that Tampa meeting where a specific time was set aside for her with Kathy Behling to go over specific issues in an isolated timeframe to deal only with Procedures.

Now is the time to tell me if you would like to have a special set-aside time to present to the Board. Do you want to use PowerPoint, that kind of thing, do all of that. I mean, I think this is a good recommendation. You can do it in 30 minutes. You can do it in 45 minutes. You can tell me how much time. But now is the time to tell me as I'm preparing the agenda.

MR. PRESLEY: I don't have PowerPoint. I'll have to make my notes up and give them to Gen, and Gen can -- if she doesn't mind doing that.

DR. ROESSLER: We could change it that day if we wanted to.

MR. PRESLEY: Yes.

DR. BRANCHE: So you want, that's fine. We can make provision for PowerPoint. Now the question is do you want 30 minutes, 45 minutes or an hour?

MR. PRESLEY: Why don't we shoot for 45 minutes?

Now, somebody said that they were not going to be there on some certain days. Is that a figment of my imagination or did somebody say --

MR. CLAWSON: I leave the very last day. I've got to leave by 12:30.

DR. BRANCHE: Oh, we wouldn't have this on the last day.

MR. PRESLEY: That's what it was. I'm sorry. So we need to make sure that Brad is there.

Now, the other thing was, Mark, if you're going to be there Monday, is there any way, do you have anything to do, anything coming up Tuesday?

MR. ROLFES: I'd have to check my calendar

back at work but off the top of my head I don't have anything that I'm aware of.

MR. PRESLEY: What I'm trying to say is, you know, other than hold Mark and other people, if we could have this thing, we're having our meeting on Monday, and then go into this Tuesday, then that would give Mark a chance to go home Wednesday.

MR. ROLFES: Don't worry about me.

DR. BRANCHE: I have to work with many issues.

MR. PRESLEY: That's an issue that's Larry's group.

DR. BRANCHE: Yeah, I can understand that, but there are a number of pushy people to get their stuff on the agenda when they want it. So I'm just going to -- but you know I love you, Bob, so -- actually, I love his wife, too, so that could help. But let me just make sure I'm understanding, Monday the 23rd you want to begin at 9:00 a.m., but how much time do you think they'll need? I'm looking for us to leave around 12:30 or 1:00.

MR. PRESLEY: That's what I was going to say. Why don't we go from 9:30 'til 11:00?

DR. BRANCHE: Nine to 11:30 or 9:30 to 11:00?

MR. PRESLEY: Nine to 11:30.

DR. BRANCHE: Yeah, that way people can grab some lunch.

MR. PRESLEY: And that will give us an hour and a half to grab lunch and get ready to go on the tour.

DR. BRANCHE: Okay, that'll be good.

MR. PRESLEY: And as I understand it the tour is going to be a facility tour also. Is that correct?

DR. BRANCHE: It should take one hour to do everything that we've been told is available to us.

MS. ADAMS: There's not a facility per se.

DR. BRANCHE: There's a museum center thing, but it's not a site tour like --

MR. PRESLEY: Right, right, I understand that. But somebody's going to explain what --

DR. BRANCHE: I'm trying to get all the particulars on that even today.

MR. PRESLEY: It's 20 minutes until 3:00. We have some people that have to catch planes. We have SC&A's working draft and Arjun has

just stated that he would like to go through what OCAS sends us and then come up with more comments. What I'm thinking about is let's not start into these SEC petition comments now, but wait until SC&A has had time to comment this and that the working group has had comment time to look at the information that we're going to get, and we will start on the SEC fresh down the road.

MR. CLAWSON: Well, that brings up a question. As we go from the site profile to the SEC, are we going to keep the same report group people?

MR. PRESLEY: Well, my understanding, yes.

DR. BRANCHE: We made that decision at the Board meeting when this work group was created. It was agreed at that time, yes.

MR. CLAWSON: I just want to make sure.

MR. PRESLEY: Everybody's got too much up here to stop and start all over again.

DR. BRANCHE: Do you have any concerns or objections you need to --

MR. CLAWSON: No, no, I just want to make --

MR. PRESLEY: No, let's don't do that. Let's keep the same people.

Does anybody have anything for the good of the work group?

DR. MAKHIJANI (by Telephone): I'd just like to clarify -- this is Arjun. I just want some clarification. As I said earlier everybody, the working group members do understand that we are proceeding, since my understanding and John's was we were authorized to look at the SEC. We've prepared the work plan, and we're proceeding on some of the items, not all of them.

But we are, for instance, putting a lot of work on understanding Table 7-1, compiling the data, seeing what internal data's available and things like that. So I just want to make sure that everybody understands that and is okay with it because otherwise things will get very dragged out. And, of course, it's the pleasure of the working group, but that's what we're currently doing.

MR. PRESLEY: As I understand it, you all were given permission to do that when we decided to, after the working group.

DR. MAKHIJANI (by Telephone): And if anyone

has comments on that work plan in the interim, therefore, you know, potentially ^ that they might have.

MR. PRESLEY: Thank you, Arjun.

Anybody else have anything?

(no response)

MR. PRESLEY: Mel, we appreciate you all's help very much.

MR. CHEW: You're very welcome.

MR. PRESLEY: Mark, all you do.

DR. BRANCHE: We didn't deal with this in the meeting today, but your write up of your work group that Dr. Ziemer requested, I believe that what has been requested, this is going to go on the website. So I would actually suggest something more along the lines of a paragraph to a half a page description of what the charge is and not so much what your history of working together is.

MR. CLAWSON: It's hard to believe Dr. Ziemer asked for three or four lines.

MS. MUNN: My instructions were three sentences.

MR. PRESLEY: We'll say what Wanda said, three lines, no more.

DR. BRANCHE: Are you finished, Mr. Presley?

MR. PRESLEY: Has anybody else got anything else?

(no response)

MR. PRESLEY: One thing I'd like to say is when we come together remember that this is a living document. When we come together on the 23rd if the issues, make sure that they pertain to what we are doing. I don't want to come in on the morning of the 23rd and there'll be 15 or 20 more issues and we just have to stop and beat the bushes on.

Yes, sir, Gene.

MR. ROLLINS: In regard to what you just said, if there are issues, and I can't imagine there wouldn't be some minor points of discussion, will we have an opportunity to see those prior to, I mean, the sooner that we could see them the more expedient our discussion would be.

MR. CLAWSON: Well, one of the issues is, falls under the Department of Labor that we kept hearing with Tonopah and other areas. Those I'd really like to be able to see something in writing that they explain, well,

that one's been taken care of. We've talked about, you and I, but there's nothing been official.

DR. ROESSLER: What was that, Brad?

MR. CLAWSON: One of the issues that came out of this was in the earlier years at Nevada Test Site, they used to take part of the workforce and go to Tonopah, but also they took some out to Area 51. As Area 51 doesn't exist, become more nonexistent, that stopped. But in the earlier years they were using Nevada Test Site people to be able to help perform a lot of the work and so forth out there, same as Tonopah Test Site. And I sent a letter to Jeff Kotsch on that. And he said that he was going to look into that and would get back with us. And I just wanted to make sure that --

MR. ELLIOTT: There is a letter also from Senator Reid's office to the Department of Energy, the Department of Labor and to us at NIOSH about this issue. And essentially, we're waiting to see DOL's letter about the facility coverage at Nevada Test Site. It's DOL's responsibility to --

MR. PRESLEY: I understand that DOL has been told to add the Tonopah facility, but that Area 51 does not exist.

MR. CLAWSON: Right, and I just want to make sure, you know, this is, to me this is a site profile issue.

MR. PRESLEY: It is, but let me explain something.

MR. CLAWSON: But it's also kind of --

MR. PRESLEY: Area 51 did not start off. It was all the Tonopah Test Range there in the early days. Area 51 really did not take off and get its name until they started doing classified --

MR. CLAWSON: The stuff we're not doing.

MR. PRESLEY: -- the stuff that they're not doing up there. And then it came into being an Area 51. In the early days, you know, to me if somebody went to Tonopah and worked, they could have been anywhere on the Tonopah Test Range working.

And, Larry, if I'm not right there, let me know.

MR. ELLIOTT: Well, I would just say that what's pertinent here is to the site profile,

Brad, what's pertinent here for this working group and its discussions about the site profile is that our site profile has to pass the covered facility designations. And that's what we get done. That's what we're all working toward a better version of. We cannot step out of that and say, well, what are we going to do about Area 51. What are we doing about Tonopah? We can't touch those until they become a legal covered facility designation.

MS. HOWELL: It's a determination that can only be made by the Department of Labor.

MR. CLAWSON: And through this process this is how we have to get the Department of Labor to make the determination. If not, we all understand being with these different entities is that problem. And it's hard for you guys to be able to implement something and then down the road, well, they might recognize that. And I've seen some of the e-mails back and forth. But that's just kind of some of the stuff I wanted to make sure that, because we've heard it so many times, I want the petitioners to be able to understand that it

has been addressed by this group.

MR. PRESLEY: Very much so.

FUTURE ACTIONS

MR. ELLIOTT: What actions are owed here? Did we commit anything from the discussion earlier today that --

Gene, did you have any action items that you committed to? I wasn't clear. You were going to do --

MR. ROLLINS: Before they knew that they were going to get a copy of the documents, we were going to look at a few things.

But I think it's my concern for having a structured back and forth dialogue would be let them look at the documents which you have now released. And then the concerns that they have, if they can get those to me, if I can be in a position to discuss those on the 23rd.

MR. PRESLEY: Well, that, too, or discuss them prior to the 23rd and try to iron out those issues so that when we get, you know, we need to know what the issues were. I would like for somebody to be able to say this is what the issue is. We've ironed the issue out. I don't want to get there on the 23rd and

find out that we're going to have to --

MR. ROLLINS: We need a dialogue prior to the 23rd, and your response to the documents. If they can get that back to us, then we can start the dialogue.

MR. ELLIOTT: The actions owed here is NIOSH to deliver the revised technical basis documents and chapters that we have right now. And then as soon as SC&A can identify any issues that they still have with them, let us know so that we can be prepared. And if not, have already talked through some of them and be able to express where we're at on those at your meeting.

MR. PRESLEY: That's correct.

MR. ELLIOTT: And then I understood that Arjun was going to take also the revised chapters and rub them against his SEC profile list and knock down what he could of, you know, expand upon what he needed to.

DR. MAKHIJANI (by Telephone): I hope that I can do that before the 23rd, but it depends on how many revisions there are, and what I have to do.

MR. PRESLEY: I have great faith in you,

Arjun.

MR. ELLIOTT: I think that's all that we --

MR. SCHOFIELD: Remember, you've got 24 hours a day to work.

MR. PRESLEY: Anybody else have anything?

(no response)

MR. PRESLEY: Thank you all for coming. We'll see you, we'll see some of you up here on the tenth.

DR. BRANCHE: Thank you very much. We're adjourned.

(Whereupon, the work group meeting was adjourned at 3:00 p.m.)

LETTERS SUBMITTED INTO THE RECORD

April 19, 2008, John Vance, Department of Labor, EEOICPA, Washington, D.C.

Dear John,

In response to your e-mail request of April 18, 2008, related to my issues with the TBD and the site profile of Nevada Test Site the following is the list of problems that presently exist.

1) There is no site expert. Information that was used to write the current site profile was acquired from Mr. William J. Brady, former head of RAD Safe NTS, from his death bed. There were numerous other sources that could have been used to obtain more accurate and better information. However, NIOSH chose to ignore those sources even though I actively attempted to gather that information for them. And even now it is only through efforts by myself and Dr. Lyn Anspaugh that this information is now being corrected at personal expense to myself, which NIOSH was paid handsomely to do.

2) Site profile fails to fully articulate the many and varied types of

experiments that were conducted at Nevada Test Site besides nuclear weapons testing there were many many other types of research that was conducted there, such as those tests at the Nuclear Rocket Development Site, EMAD and RMAD which was used for the purpose of developing nuclear rockets, nuclear jets and assorted types of nuclear reactor tests. Also the weapons testing which involved underground tunnel testing, underground shaft testing, and down hole testing, stemmed and unstemmed which pose all different problems. There were also numerous above ground testing which also created many re-suspension problems of above ground contaminents (sic) which have not been accurately addressed.

3) Site profile states there were no bomb assembly activities or machining of bomb components and parts. However, I have proven there were numerous sites and places including on-site bomb assembly and numerous locations where machining did take place throughout the testing period.

3a) The site profile states there were RADX yards at various locations where RADX

procedures were done to the building and equipment that were used for the testing. However, I have produced scientists who used those building and equipment who have testified that no such procedures took place or no such locations other than CP-6 and the Mercury disposal yard were ever used in any RADX purposes.

4) Site profile states that all contaminated areas at the Nevada Test Site were fenced and posted. However, I have produced documentation from the DOE from as late as 1996 that clearly states that no such posting or fencing had been done anywhere on the Test Site four full years after the testing period.

5) Job classifications being used on dose reconstructions are clearly dated post 1992, which was obviously not correct, as when Bechtel took over for REECO many of the job classifications had been changed and locations of support areas had been changed and last of all no weapons testing was done after 1992 as well, so any reference to post 1992 job classifications are totally inaccurate.

6) Site profile states that REECO initiated a very aggressive and active BIO ASSAY program and a medical full body count. However, I have proven that BIOASSAY was volunteer and only offered to those personnel who were least likely to be exposed, and full body count which was also volunteer was only done to very few people who left employment at the Test Site.

7) Site profile states that only those people with Q- clearance worked in areas where exposure was possible, however, I have proven this also to be untrue, as I have produced a REECO handbook which clearly states that red and orange badges did work in all of the areas along side Q- clearance badges as long as they were escorted by a Q- cleared person.

8) Site profile does not fully address areas of work and their importance in the scope of man power that worked in these areas examples: area 2 and area 3 shop areas, have been minimized by describing them as two small areas where a few butler buildings were located, when in fact areas 2 and 3 each encompassed over 80 acres a piece and had over

80 buildings each and was the daily work location of over 700 people. Well 3 drilling yard has not even been mentioned at all and well 3 drilling yard encompassed over 60 acres and was the work location of over 250 people.

9) Many areas such as the Tweezers, Atlas and Super Kukla facilities are mentioned by name in the site profile. However they are not given any consideration in the tables documents which the dose re-constructors use to reconstruct dose.

10) The old site profile tells dose re-constructors to ignore any neutron radiation after 1962 because after open air testing there were no sources of neutron radiation, however, there were many sources of neutron radiation after 1962, such as the BREN tower and the HENRE Experiments after it was relocated to area 25 and the BREN tower experiments located in area 4 which was in very close proximity to the Orange road which was the original road to area 12 and beyond, and was used daily by workers traveling back and forth.

11) Original site profile states that

the soils on NTS were hard and rocky and nothing grew there, however, the entire Yucca flat is a very soft aluvia (sic) formation that is soft enough to leave foot prints when walked upon and hundreds of millions of sage brush plants grow and are torn out of the ground by high winds every day of the year, which also contributes to the re-suspension.

12) Site profile does not address the amount of construction activity that took place on contaminated open air testing ground such as the Yucca flats testing pads which were all 30 acres a piece and usually 30 shots per year not to mention the miles of access roads and construction roads that were used in the building of the pads it also does not address the 1000 ton main drilling rig that was 15 stories tall and dragged through the desert by 6 bull dozers from one test hole to the other test hole on a weekly basis which required a 100 foot wide access roads to be graded out in front of it for passage which also contributed to the re-suspension.

13) Site profile describes post shot in a very sterile and controlled manner where

state of the art radiation detection and the extensive use of signs and in their description of post shot recovery as a singular one time only operation, when in fact re-entry was actually done in numerous phases as many as seven times. Example: 1st re-entry was done for assessment of damage and monitoring 2nd re-entry was done for quick recovery of critical data 3rd re-entry was done to stabilize building and leveling and total recovery of data, 4th re-entry was done to begin removing test buildings and trailers. 5th re-entry was done to set up post shot, 6th re-entry was done to remove post shot, there were no fencing other that the post shot drill area and there were no state of the art radiation detection until the post shot operation was set up which usually took place 4-5 weeks after the original re-entry had been done.

14) Site profile states that all the radiation detection was done with state of the art detection equipment however if you refer to the YUBA incident you will find out that the state of the art detection equipment was

actually broken and did not work and data had to be brought into Las Vegas and be processed through the EPA testing equipment to determine what levels of radiation had taken place at the NTS.

15) Site profile states that information on film badge exposures was unquestionable and accurate to a certainty. However, former area 3 Manager, Glenn Claytons [Identifying Information Redacted] upon acquiring his records found very clearly in writing on DOE and REECO documents that film badge information had been extensively modified to keep from laying people off from over-exposures. This was not an isolated event but had been a common on-going practice with many employees as attested to by the information she was given by the DOE.

16) Site Profile does not address the numerous toxins and chemical exposures employees were subject to as in example of my case that was uncovered by the DOL where it was discovered after 7 long years that I had been telling the truth of my exposures to Lithium Hydride, Mercuric Chloride, Arsenic,

Cyanide, Beryllium, Benzene and Asbestos based products. Even though it was admitted by the DOE that they had buried in the land fill all of the MDSD sheets and information related to the toxins and chemicals the site profile fails to address these exposures which people would have encountered in the work place.

17) Site profile fails to articulate the size and scope in acreage or square miles the size of the NTS, or the amount of testing that took place there. Examples: site profile does not mention area 2, area 3, area 12 and area 6 however they fail to fully explain how these four areas also encompassed the rest of the site which would have included area 5, 4, 1, 7, 8, 9, 10, 19, 20, 17, 15, 25, and 27 in all the areas not listed. Which are areas that nuclear testing also took place.

18) Information used by does re-constructors from the site profile also uses employee time cards, which do have an area of the card that denotes location of work. However, NTS has always used the positive cash flow system which ear marks funds to each individual test and using these time cards as

a source of location of employees work would be sufficient provided the work was done to perfection, but this was not the case. Example: If a drill rig in the course of drilling the main hole was to encounter what is termed a dog-leg or a bend in the hole this would require the drill rig to remain over the hole for an additional 2-3 weeks reaming out the hole so that the 160 foot rack could get by the dog-leg, if a drill was to remain on a hole 3-4 weeks past the allocated time period it would exhaust the funds for that test and the test would continue to go on, however it would be necessary to take money allocated from other tests and use it to conduct work on that site which would show an employee working at the site of the money rather than the site of where he was actually working. So in closing it is better said that a time card does not denote where an employee worked but rather the source of the money. Even in the tunnels there were many cases where tunnel shots went broke and funds were borrowed from the Yucca flats tests to finish the project.

19) Site profile on one page states

that tunnel environment was very dry so therefore no consideration should be taken for Trittiated water however four pages later when addressing the possibility of suspended radionuclides, the tunnels are described as very wet and water being used very liberally. These two statements are very conflicting in themselves and make no sense whatsoever.

20) Site profile describes the tunnels as mining operations and the employees there as all miners. (Facts) of what the tunnel environments really were the tunnels were only a mining operation when being constructed and when the test drifts were being mined out. The underground tunnels other than the test drifts were in fact underground laboratories, the main tunnel which was approximately 30 feet in diameter and the alcoves which could be 60 feet in diameter were used over and over again. The tests drifts which were run off of the main drift were used only once but the main tunnels and the main alcoves were used over and over again as many as 20 times. Site profile fails to articulate what the tunnels really were or what was type of people who

worked there which were in fact more than just miners, in fact there were Pipe Fitters, Sheet Metal Workers, Lineman, Electricians, Carpenters, Laborers, Operating Engineers, Set Up Men, Scientists, RAD safe personnel, Hygienists, Mechanics and many other personnel which would better be referred to as underground workers and not necessarily just miners which in fact were a minority of those personnel who worked underground.

21) Site profile does not address the practice of re-use of equipment and material which was re-used over and over as long as they would last until broken. And in some cases this equipment and material became contaminated with radiation or toxins, but were still used.

22) Site profile does not address the environmental dangers one might have been exposed to such as the raw diesel exhaust put off by diesel motors used underground prior to 1988 that were not equipped with catalytic converters which would have abundantly contaminated the air with Benzenes and Carbon Monoxides as well as the extensive use of PCB

for electrical transformers. Which some times exploded and the use of PCB in hydraulic systems where they were used. As well as the extensive use of Arsenic treated woods and Mercuric Chloride treated canvases and the wide use of Asbestos products and other substances such as Vistanex and unlabeled Beryllium alloyed metals and light bulbs.

23) Site profile does not address the time periods that people spent on-site. Examples: a tunnels test where people were often required to work double and triple shifts and this extra time was not taken into consideration for exposure times.

24) Site profile does not fully address the various noble gases that employees may have come into contact with nor the possibilities where noble gases might have been present. Such as Krypton, and Xeons which would have been near the floor of the tunnels because they are heavier than air and would not have been purged because the gas seal plugs has to be removed before the air supply lines that supplied the air used to purge the tunnels could be reconnected as the

air supply lines were disconnected by any where the gas seal plugs were located.

25) Site profile clearly states that no employees from Culinary or Clerical types could have encountered exposure, (Facts) Clerical types from Holmes and Narver and REECO and DNA and DOE and from assorted test labs often sent clerical types into the testing areas to deliver documents or forms and the NTS collective bargain agreement clearly stated that in the event any employee who was required to work in excess of 5 hours without a break would be served a hot lunch in place delivered and served by culinary personnel.

26) Site profile fails to address employees who worked in area 51 (the site that does not exist) however area 51 does exist and was part of the NTS until 1999 when the land realignment agreement changed the boundaries of the NTS which excluded area 51 All of the personnel working in area 51 were hired by REECO and were processed through Mercury and they wore DOE badges for two to three months before their area 51 clearance was granted.

They came and went to area 51 through the Mercury gate just like every one else, their paychecks were REECO paychecks funded by DOE appropriations funds and all the equipment used in area 51 was DOE REECO equipment and the general contractor for area 51 was REECO, and the General Managers name was [Identifying Information Redacted] who was a REECO general Manager who worked under [Identifying Information Redacted] and [Identifying Information Redacted] just like all the other area managers did. So therefore area 51 was very much a part of NTS and funded and operated by the DOE and REECO just like the rest of the NTS and therefore should be included in the EEOICPA.

27) Site profile lists ten tests that were known to vent but for some unexplained reasons are not allowed. I know for a fact that some of these tests are listed as incidents under investigation and I can understand in a court of law that no conclusion can be brought from an incident under investigation, however we are not trying to resolve an incident closure but we are

concerned about contamination and contamination was caused by these ten tests not listed. The site profile cannot be accurately built as long as these ten tests are not allowed. It is understandable that the results responsibilities cannot be determined at this time of who is at fault but we feel that any contamination of radioactivity should be allowed on the site profile in order for it to be totally accurate. So we would request that the exposures from these ten tests be included in the site profile.

28) Site profile has in various locations had drawings taken from billboards on the NTS that were not drawn to scale, however NIOSH has introduced to these drawings the scale to be used by dose re-constructors which are severely flawed because the drawings were not drawn to scale in the first place.

29) Site profile does not explain or understand the mechanics of the tunnel air supply, the air supply in the tunnels was unique in the fact that it is used no where else in the world other than the NTS. The

original air supply blowers on top of the Mesa were originally designed for a mile deep tunnel, however over the course of the years the tunnels expanded into many miles and the air supply was never up graded and as the tunnels became larger the air supply became less adequate and it would be a stretch to say that three air changes a day took place. The system used on these tunnels was the supply source pumped air to the back side of the drift forcing the air to migrate back out through the portal which as I said was done no where else other than the NTS.

30) Site profile does not take into consideration any possibilities of radiation exposure by way of air conditioning systems on the NTS, noble refrigeration gases are known gases that can become contaminated and could create exposure problems such as those discovered in the dismantling of Super Kukla.

In conclusion, I have attempted on numerous occasions from the beginning of EEOICPA program to bring this information to the attention of DOL and NIOSH during my interviews and numerous conversations by

telephone and in person to various personnel from the numerous entities involved in EEOICPA to no avail because no one really seems to want to resolve these errors and flaws in the Site Profile. Only recently has the Presidential Advisory Board assigned a site expert Dr. Lyn Anspaugh who I am presently working with to resolve these numerous problems contained in the Site Profile.

All of the above can be confirmed by contacting Dr. Lyn Anspaugh at (801) 558-9489 or (702) 616-0914.

I have made two appearances before the Presidential Advisory Board here in Las Vegas and one appearance before the NTS working board and attempted to resolve the issues I have mentioned, I have also sent letters and e-mails to Mr. Larry Elliott and have had articles in the Las Vegas Review Journal and have informed Nevada Senator Harry Reid. However, I have not been able to have these changes made in the Site Profile and TBD, even though all of the above has been proven and verified as fact.

All of the present applicants for

compensation under EEOICPA for dose reconstruction are being done based on the flawed information that presently is the Site Profile and TBD documents and unless these changes are not corrected these dose reconstructions will most assuredly have to be done many more times.

When Congress passed the EEOICPA Bill there was a spirit of good intent and fairness however, NIOSH has from the beginning been very mean spirited and possibly even criminal in their approach to doing dose reconstruction as attested to by the Shelby Hallmark E-mails between his office and the OMB where active discussions were carried out on how to stifle the process and delay payments as attested to by the hearings held by former Congressman Hostettler immigration and border security hearings where Shelby Hallmark explained away the discussions as brain storming rather than a real attempt at stopping payments to well deserving claimants.

John, I sincerely hope that you and Pete Turcic really want to get to the bottom of the problems that are presently delaying

the process of an accurate dose reconstruction of former Nevada Test Site applicants for compensation under EEOICPA and I thank you and Pete for the opportunity to bring these problems of the Site Profile to your attention and hopefully resolve this on going problem.

Sincerely, [Identifying Information Redacted] Representing claimants of Nevada Test Site.

(Whereupon, the second of four letters was entered into the record:)

April 27, 2008, John Vance, Department of Labor, EEOICPA, Washington, DC.

Dear John, Here are some more issues with the site profile of the Nevada Test Site.

31) 4 issues.

(a) Employee risk levels are not addressed -- EXAMPLE -- First responders like Fire fighters, paramedics and Guards, industrial hygienists, and Rad-safe safety inspectors all had open badges and were cleared to access any and all areas. Areas of worker access is not addressed.

(b) There is a difference of risk level difference between people who worked in

Mercury opposed to those who worked in the forward operations areas.

(c) There is even a risk level difference between support personnel like culinary and clerical who worked in Mercury and those who worked in area 12 facility doing the same jobs.

(d) There is a different risk level of clericals who worked in area 2 and area 3 between REECO and H&N and Lab personnel.

(e) There is even a difference between the crafts such as sheet metal and other crafts, because in the case of sheet metal. They had one shop to cover the entire site where as other crafts had dedicated shops for each area.

In short all test site employees need to have an assigned risk level based on areas of access and areas of work and possibilities of exposure based on location and travel that was required to arrive at their location of work.

32) Waste disposal and storage has not been fully addressed. There were numerous burial pits and waste storage areas that pose

environmental and health hazards that have not been fully identified by location or what risk they pose to workers.

33) 4 issues

The use of coworkers records to do DOSE where no records of worker exist is flawed as

(a) the coworkers name and job classification has been redacted from the individuals DOSE report. QUESTION--What defines a coworker?

(b) any one who comes through Mercury gate regardless of job classification?

(c) Some one who might have worked in the area regardless of job classification?

(d) Another worker from the same craft?

(e) The work partner of the worker?

All of these scenarios are flawed.

REASON-- None of these scenarios are acceptable unless the physical location of work is identified as each area such as 2 and 3 and 12 had ongoing test areas other than just 2 and 3 and 12, some times as many as 5 and 6 different test at different locations at

any given time In many areas other than area 2 or 3 or one tunnel. Posing different Risk levels. So how can NIOSH use coworkers records when it would require a perfect scenario of a full time partner from the same craft working in exact areas at the exact same time doing the exact same thing? Without such perfect scenario, any coworker information is strictly speculation.

34) True re-suspension risks. SC&A site review identifies many areas of the site to have higher levels of contamination than other areas. EXAMPLES--Area 2 and 3 shop areas show high levels of Cesium pools from open air testing. The site profile does not fully address the risk level of employees who worked in this highly radioactive area opposed to those who might have worked in cleaner areas such as Mercury camp.

35) 4 issues

Site description does not assign risk levels to employees of the Nevada Test Site.

EXAMPLES (a) Employees who worked in the Operations and NRDS areas were most assuredly at more risk than those who worked

in camp Mercury.

(b) Those culinary and Clerical and support personnel who worked carrying out the actual test.

(d) RESEARCH AND DEVELOPMENT SECTION--Labbs (sic) such as LLL, LANAL, SANDIA, GE, WESTINGHOUSE, JAYCORE, DNA, DOE, EG&G and PAN AM. All of the above mentioned sectors should have dedicated risk levels, however even this might be difficult as some workers from the identified sectors often cross over to other sectors in the course of their duties.

37) 5 issues--Environmental risks are not fully identified

EXAMPLES (a) The test site had many wells which were used for what ever water needs that were necessary from potable drinking waters to water needed for construction needs.

(b) Evaporator ponds were on site used to evaporate away trittiated contaminated waters, mostly from draining the tunnels

(c) Rain fall, snow and wind erosions have not been fully addressed as well as possible contributors to contamination.

(d) Problems of contamination that exist on dry lake beds which become unstable during the dry season have not been addressed in re suspension activities. Dry lake bed in area 5 was site of some above ground test.

(e) Animal studies from cattle such as cows and horses and wild life are not addressed, or reports included in site profile on animal Biological Studies that were done on site.

(f) Radiation hazards from grass fires such as polonium which is known to happen when plants of alkaloid species burns. All Nevada Test Site plants are of the alkaloid species, and when burned during grass fires they emit polonium contaminations. As well as very active re-suspensions of Plutonium and other radioactive Alpha and Beta solid particulates which could have been a hazard to those who were charged to bring them under control. Such as firemen.

38) Many types of operations have not been addressed or the risk they posed--EXAMPLES

(a) Pulling the pig--where LANAL used

a special device to pull the rack cables out of the test hole after the shoot, these cables were highly radioactive and required the services of people to cut them into lengths and box them up to ship to lab, the time one was allowed to work in this area was 2 minutes.

(b) Replacing truck beds that were used to transport radioactive drilling bits.

39) 2 issues

Waste storage burial or management sites not fully addressed or identified.

EXAMPLES--

(a) Old craters used as storage sites for contaminated materials.

(b) Storage yards for set up materials like cable storage and stairs landings and security screens, mud boxes, drilling bits for drilling both new drill sites and post shoot equipment set up.

40) Reuse of equipment and materials such as shock mounting alpha stations test trailers generators, Portable AC units, water tankers and rack assembly towers. NIOSH has disputed this risk based on information

provided by Martha DeMarre, who provided information that such equipment and materials were processed through nonexistent RADAX yards.

LANAL setup scientist Ron Sharp and REECO supervision who actually did the work and are testifying from first hand experience rather than archived library second hand information, have all testified that the ALPHA station and materials and test set up equipment was simply moved from one test area to the other without being processed through the RADAX yards claimed to exist by Martha DeMarre from the DOE library of records.

As required by EPA and DOE any RADAX yard requires a concrete slab with drains to a holding tank to collect and dispose of contaminated particulates and granules. Area 6 does have such a facility, but was never used for Yucca Flats down hole test trailers and ALPHA stations. One main reason being is that the door height to the facility was 12 feet. And the bay was barely 16 feet wide. ALPHA stations were 20 feet high and 20 feet wide which would have been impossible to pass

through such a bay. And there were no slabs or holding tanks in area 3 where RADAX could have been done in the area of area 3. Test set up buildings and equipment were simply moved from one site to the other. Shock mounting electromagnets pulse shields tie down ropes were moved back to the Carpenter shop. Stairs landings security screens and cable boxes were sent to the storage yard. Assembly towers were sent to the tower storage yard. ALPHA stations and test trailers were sent to their storage areas when not in use--which was rare--and none of them were ever RADAXED in any of these storage areas as their (sic) was no way to collect the contaminates. No RADAX was done on the test pads either---If it had been done it would have been an EPA violation. As post shoot would have had to walk through the contamination to perform their work.

41) 4 issues

Site history and different types of Nuclear bomb and reactor tests not fully identified--EXAMPLES

(a) Atomic Bomb, Hydrogen Bomb, or Neutron Bomb.

(b) Down Hole steamed, Down hole un-steamed.

(c) Pipe shot, Rack shoots, Shaft shoots or tunnel shoots from outside of mountain or from alcove inside of mountain.

(d) Atomic Jet reactor test, atomic rocket reactor test of bare and shielded reactor test, all of these types of reactors posed different challenges and created very different types of exposure risk.

42) 3 issues

Some tests like Tweezers, Super Kukla and HENRE test are mentioned by name only, But are not listed in the tables as to their risk value or what type of radiation they put off.

It was explained to me that the site profile and TBD was the base of information to do the DOSE reconstruction.

It stands to reason that the DOSE Re-constructors would use the tables within the documents to arrive at the total DOSE of an applicant.

The mere mention of a site by name only without supporting information does not provided (sic) the person doing DOSE any

tangible information to do DOSE reconstruction without supporting information within the tables that list such exposure information and value of Risk involved.

43) 3 issues

Tunnel and shaft descriptions are flawed, and very incomplete.

EXAMPLES-- (a) Shafts were sometimes in granite formations as opposed to volcanic formations such as the tunnels in area 12.

(b) some tunnels like “T” tunnel were very wet as opposed to “P” tunnel which might be described as very dry. Or “N” tunnel which had both wet and dry areas, depending what part of the tunnel you were in, and what time of the year you were there.

There is no one size fits all description when addressing the environs and water problems or re-suspension of radio-nuclides when doing DOSE Reconstruction for underground workers.

(c) The assay reports of the minerals of the shafts and tunnels are also missing such as volcanic of limestone or sandstone.

COMMENT--Each of the listed minerals

and earth substances react differently to radioactivity and each pose different types of problems such as volcanic ash containing levels of Beryllium and Asbestos which both pose additional problems along with radioactivity.

44) 3 issues

Radioactive hazard sites in Mercury have not been fully addressed such as:

(a) Replacement repair and disposal yard--Some times referred to as the REPO Depot--where equipment was refurbished sold or destroyed. This location would have been where dust particulates and granules would have been washed off the materials and equipment and where RADAX would have been carried out.

(b) The samples Building where core samples were brought and studied in Glove boxes and stored for records.

(c) There were also machine shops run by various labs in Mercury where Bomb and reactor repair and parts replacement were done and other machining of Nuclear Research and development metals was done.

45) The risk of Alpha and Beta has been severely minimized by explaining a thin piece of paper was sufficient to protect one from exposures from alpha and beta radiation. The statement that one could protect themselves from Alpha and Beta radiation with some thing as simple as a piece of paper grossly underscores the real risk of alpha and Beta radiation particles. True that the paper would be possibly sufficient shielding to one skin, but hardly addresses the risk of an oral intake of those same particles. If one was to breath into their lungs or ingest through the mouth to ones stomach of Alpha or Beta particles.

There was a very high risk of ingesting such radio-nuclides at the Nevada Test Site from re-suspended particles from wind and air lines and while eating ones lunch or even drinking the water from the water cans. The dangers of Alpha and Beta or trittiated water have not been fully addressed in the site profile.

(14 principals (sic) which explain 46 issues this letter)

Thank you signed [Identifying Information Redacted].

(Whereupon, the third of four letters was entered into the record:)

May 6, 2008, John Vance, Department of Labor, EEOICPA, Washington, DC.

Dear John, This is the last of the principle (sic) issues and will be following up in the future after Sanford and Cohens final report providing you with the technical issues.

46) Maps--Site profile and TBD does not have adequate maps to show the contaminated areas of site. SC&A has such maps contained in the 153 page overview they did, there are many very contaminated areas on the site where one could get much higher background readings. In order for the site profile to be accurate the maps should be part of the DOSE reconstructions process, especially where the base camps are located in such contaminated areas.

47) 4 issues--People Living on site, Site profile does not explain how many people lived on the site full time, their (sic) were

full time residences at (a) Mercury camp. (b) Area 12 camp (c) Tonopah Rocket test range and (d) Area 51. Addressing this would be a more accurate reading especially for those who resided at Area 12 where air born (sic) radio-nuclides would have been greater than Camp Mercury or radio-nuclides that would have been greater at Area 51 than Camp Mercury or radio-nuclides that would have been greater at Camp Mercury than the TTRTR site.

48) Weather conditions on the Nevada Test Site. Site profile does not have an accurate report of the rain fall snow fall tempteratures (sic) or wind conditions of the sit by site or by areas with in the site, this would address the problems that are caused by erosion from wind and rain and melting snow which could disturb contamination left behind by open air testing.

49) Schematic and Drawings. Site profile has some schematic drawings, but these drawings are lacking in scale and accuracy, unless drawings are to scale and accurate, they should not be used by DOSE re-constructors.

50) 3 issues--List of Rad safe staff, (a) Site profile and TBD does not have a roster of rad safe personnel or (b) their classifications such as fully qualified rad safe person or trainee rad safe personnel. Or (c) the amount of man power by numbers or a list of their duties and responsibilities on a day by day basis. This is necessary to prove REECO had the man power to do all they said they did on a day to day basis.

Nevada test site is almost as big as Rhode Island in size and would require a substantial force of man power to accomplish the daily operations of Rad safe that REECO claims they did, especially when 8 to 10 tests were going on simultaneously, not to mention the daily back ground reports that were required of the over all site conditions.

51) Open air Testing debris like towers and bunkers--Site profile does not address the amount of open air testing debris like towers and tower foundations, these areas are contaminated and people worked on clean up of these locations. This type of work did pose a risk and had time limits as to how long

you could work in area.

52) 3--issues--Tunnel drawings and schematics, Site profile and TBD does not have tunnel schematics, these are important as they explain just exactly what tunnels are and give an idea as to the threats of exposures like (a) trittated water and (b) Nobel (sic) gases during reentry, visual schematics are much better than written explanations as it will show how many (c) radiation gas seal plugs were used and where they were located in the tunnels. These drawings should also show the air supply migration routes from supply exit to the portal which would better explain the Purging capabilities of the air supply system.

53) 2 issues--Site Profile does not have a foot print drawing of down hole testing, this is important because it will show (a) the amount of ground that was disturbed during grading and what part was fenced during the post shot and (b) what part was fenced in general. It would also most important show the acreage and size of test pads. The generalized description of a couple graded off areas is totally false and very

misleading that exist in the site profile.

54) 2 issues--Site profile does not have any chronology on down hole tests and (b) It also has no chronology on shaft and tunnel tests as well. All three chronologies would address the time span and identify risk time points as well as to risk locations of exposure possibilities. Site profile is totally lacking in its description of what actually took place and exactly how it was accomplished.

55) 4 issues--Site profile (a) has no schematics on the tunnel and shaft air supply system. This is important because it will explain how the tunnels and shafts were purged and when the main air lines were disconnected and reconnected, and what the main air supply equipment capabilities were related to air changes.

Site profile explains how the tunnels and shafts were purged by stating that they were purged by the air supply system, (b) But do not give details about the capabilities of the sir (sic) supply system or what its cubic per minute were nor the amount of cubic

displacement the tunnels actually had.

(c) Site profile is severely lacking in details about tunnels environments as well as space they occupied. (d) Or exactly how water was removed that came through the roof and side walls and floors of tunnels.

56) Site profile does not have any drawings showing the foot print of a post shot and what parts were fenced and what parts were not fenced or where RADAX entry and exit change station were located or how they worked related to the mud box area and the change shacks and tool cribs and sleeping quarters and lunch room which was always on post shoot because post shoot was a 24/7 operation from start to completion. Post shoot operations were 24/7 and people worked sleep and ate from start to finish regardless of date, day, week or month, otherwise holidays included.

57) Site profile does not address the Evaporator ponds where trittiated water was sent to be evaporated off into the air and prevented from getting into the water table or how many and what acreage they encompassed.

58) 2 issues--Site profile does not

have any drawings on gas seal plugs, these are important because they will show (a) if any noble gases could have been trapped behind them and (b) just when they were purged from the tunnels. They will also show the height of the craw tubs related to the floor elevation of the tunnel which would be an obstacle for heavier than air Nobel (sic) gases to be purged from behind the gas seal plugs and fully explain just when Nobel (sic) gases might have been able to move.

59) 4--issues--Test site Fires--(a) Site profile lacks any reference to radiation hazards from assorted fires such as Machine shop and building fires (b) Records library at DOE indicate that records about building fire incidents are missing and all grass and forest fires only address the environmental aspects and (c) no reports of radiation monitoring were ever filed where grass and forest fires took place, even in areas known to be highly contaminated.

(d) Firemen who responded to these fires would have been exposed in both grass forest and Building fires, especially machine

shops and samples storage areas. (e) some firemen bio assay records are non-existent and some full body scans are missing even though their records claim they had full body scans and Bio Assays.

60) Site Profile and TBD documents do not have an information about drinking water supplies or reports on the wells and lagoons and ice houses that used local well water from the site wells.

61) Site profile does not address the open air site clean up of open air testing or why it was even attempted, although an attempt was made to clean up grounds soils--sand clay and loose rock--where open air testing took place, there is no report as to the findings of such an effort. Special equipment was developed to accomplish this task.

62) Special radiation clean up equipment. Site profile does not explain for what purpose the test site had remote control scoop equipped tractors at CP 6 or why they were necessary to have at all. Such equipment did exist it was remote control metal track like a bull dozer and had a television mounted

in the drivers window and was driven and controlled by remote control from a safe location. They were all painted white in color.

63) Crafts equipment and materials not under control of Radax procedures. Site profile does not address the equipment and materials provided by crafts.

EXAMPLES--Shock mounting material like Hexhale an aluminum alloy material that was originally designed as air craft fuel tank baffles was used as a shock absorber, 1-1/4 nylon inch rope used to tie down buildings and equipment, Visqueen covered ¾ inch plywood that was laid on the ground under shock mounting as a shield against electro magnetic pulse put off by bomb when it went off. All of this material was brought to and removed by the Carpenters, and it was refurbished and stored in the Carpenter shops and was never radsafed or even checked. As it was the first thing to be removed from the test pad after the test.

Other things that were brought on station and removed by crafts were portable AC

units used for the Alpha stations and test trailers, portable generators, air compressors, water tank--old gas tractor trailer--Porta-potties and step down station trailers used as step down stations and 440 switch gear electrical transmission lines used on step down trailers as well as what ever Coaxial and fiber optics that could be reused.

All of the items listed were brought to the test pad by the crafts and removed and stored by the crafts such as operating engineers sheet metal and pipe fitters specialty services and Carpenters shops. Many of these items had been contaminated and were removed and stored at designated shops with out been checked for contamination or cleaned.

64) Site profile and TBD documents uses the metric units to describe lengths, heights and distances. The Nevada Test Site prior to 1992 never used the metric unit for the following reasons, all units of measurements used prior to 1992 were the standard 12 inch unit foot and 16 unit inch, all survey and elevations and distances were surveyed in using the 10 units of a foot with

10 units of the 1/10 of a foot known as engineer scale--Example a foot and a half using standard English measure of a foot and a half were written down as 1 and ½ foot or one foot six inches (1 ft 6 in), engineer scale would write the same distance down as 1.5==one and a half foot or 1.50 one foot six inches = or 1.500.==one foot and 5/100's of a foot. However, when you write down a meter and a half it is also written down as 1.5 (one and a half meter) 1.50 (one meter and 50 centemeters (sic)) or 1.500. (one meter and 500 milli meters (sic)) because these units of measure (engineer scale and metric) are all written down exactly the same, this causes a lot of very big mistakes, especially when you consider one and a half foot in engineer scale = 18 inches and one and a half meters == 56 inches, over triple the distance.

The rounded numbers used in the metric and engineer scale can also cause confusion when referring to distances of exposures as well and should not be used in the site profile and TBD documents. NIOSH has used this confusion to distort the mental picture

of the site in the following manner--EXAMPLE--NIOSH describes the burn out cavity of a nuclear device as being 80 meters radius severely minimizes the mental picture of 500 feet in diameter which is eccentrically the same as 80 meters radius, 80 meters conjures up a far less metal (sic) picture than 500 feet in diameter which is equal to the height of a 50 story building, and many if not most of the distances written down in reports in engineer scale if misinterpreted as metric would increase distances by nearly 300% of what they actually were. If DOSE reconstructions were to translate the numerals in reports as metric instead of Engineer scale which it always is--(Survey maps prove this). Other distortion might happen in describing a distance from a contaminated area--EXAMPLE--It might say the distance from the contaminated site was 4.5 kilo meters (sic) (which would maximize the mental picture) when it should say 2 and 1/2 miles (minimized numbers) which would paint a better and much more accurate mental picture.

NIOSH has used the metric units to

maximize the mental picture where needed and minimize where it is also needed, and also used the one foot measure unit where it is useful. METRIC SCALE WAS NEVER USED PRIOR TO 1992 ANY WHERE I EVER WORKED, AND MY WORK REQUIRED WORKING WITH MEASUREMENTS 100% OF MY WORK DAY.

My work also required me to read the blue prints and survey maps and I never seen so much as one that was ever done in the Metric scale during all my time on the Nevada Test Site. All reports written were all engineer scale which is written exactly like metric so the accuracy of distances could be grossly misread in almost all cases if metric units were used instead of foot inches and engineer survey scale. Distance is very important in DOSE Reconstruction, So interjecting unit of measure like metric only adds more distortion to already existing deliberate distortion of the facts done by NIOSH.

18 principals (sic) and 33 issues for a grand total to date 105 issues that need to be addressed on the Nevada Test site Profile

and TBD documents. This does not include the problems related to the technical problems that exist with the site profile and TBD documents.

[Identifying Information Redacted]

(Whereupon, the fourth of four letters was entered into the record:)

Presidential Advisory Board NIOSH, May 12, 2008, Dear Nevada Test Site Work Group, Recently John Vance assistant to Peter Turcic, Director of DOL’s EEOICPA office called me and ask (sic) me why I have not made known to NIOSH, The flaws contained in the site profile and TBD documents. I explained to Mr. John Vance that I have for the past 3 years made numerous efforts to correct the mistakes as SC&A and myself have uncovered them. Also by addressing the board during open meetings, through emails and letters and faxes. I explained to Mr. John Vance that Mr. Larry Elliott from NIOSH has ignored my issues and explained them away as simple historical inaccuracies by NIOSH, Editorial mistakes, or insignificant and did not apply to DOSE Reconstruction.

However, Whatever one chooses to label these inaccuracies they are none the less (sic) flaws, as to what value they have related to DOSE reconstructions should best be determined by more qualified personnel than NIOSH office staff who are neither Site literate, Qualified Hygienist or Nuclear Health Physicists. EXAMPLES--such as my encounter with a Mr. David Chatou an unqualified and uncleared NIOSH office manager who did one of my interviews.

NIOSH has had 5 long years with unlimited manpower and unlimited funds to correct these flaws and has done little of nothing to correct these obvious flaws which comprise 64 Principle subjects which contain 108 separate issues, and this does not include the technical flaws contained in the site profile and TBD documents which could be of equal number of technical flaws if you include past and further overview reports of SC&A.

In the past I have made these issues known to the board and NIOSH by sending in the information as I have uncovered it, and this file now has a complete list of all the

Principle subject issues and I would like the Board to make sure the PAB working board of the Nevada test site addresses these issues in the very next meeting.

As you are aware the site profile and TBD document is supposed to be a living document subject to change as inaccuracies are uncovered, I have seen nowhere in the rules where inaccuracies have to be DOSE related only or a criteria of what determines what information is significant or insignificant related to DOSE reconstruction. Surely a US 107 page Government document written with unlimited funds and manpower could be written correctly in 5 long years with total accuracy regardless of what classifications of subjects and issues they address.

I would believe that NIOSH with 5 LONG YEARS unlimited manpower, millions of dollars in funding could do at least as good as I have in correcting a simple 107 page document.

My efforts are limited to a 2 years a couple volunteers, myself and my social security check which compared to NIOSH’s budget could not even qualify as pocket

change. In fact my finding would not even cover one second of NIOSH's expenses, let alone the expense of ORAU, NIOSH, OCAS, CDC, or DOL and the Presidential Advisory Board which all Operate on DOL--EEOICPA Appropriations. Surely all the entities involved could at least match my accomplishments if not surpass it In clearing up the mistakes contained in the Nevada test site Profile and TBD documents, I am sure OMB and Congress would agree if they knew about such efforts and flaws.

Regardless of what label NIOSH chooses to label my issues the fact still remains the site profile and TBD documents are flawed Garbage. And when it's garbage in, It is garbage out.

DOSE Reconstructions can not be done using the existing site profile and TBD documents, and as long as these inaccuracies are not corrected I will continue challenging the results of any final decisions of claims that DOL sends out to claimants based on the inaccuracies of the site profile and TBD documents.

We would like to have this letter and the 21 pages read into the record of the Nevada Test Site working board meeting.

Thank you signed [Identifying Information Redacted]

CC: Phillip Schofield, Bradley Clawson, Paul Ziemer, James Lockey, James Melius, Robert Presley, John Poston, Christine Branche, Lew Wade, Wanda Munn, Genevieve Roessler, Josie Beach, Michael Gibson, Mark Griffin (sic)

CC: Pete Turcic Director of EEOICPA DOL

CC: Nevada Test Site working Board

CC: Dr. (sic) Larry Elliott, CHP, NIOSH

(Whereupon, all four letters are officially entered into the record.)

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 May 21, 2008; 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 10th day of Feb., 2009.

_____

STEVEN RAY GREEN, CCR, CVR-CM, PNSC

CERTIFIED MERIT COURT REPORTER

CERTIFICATE NUMBER: A-2102