

# National Institute for Occupational Safety and Health (NIOSH)

## Brookhaven National Laboratory

**Meeting Date:** Tuesday, September 23, 2008, 2:00 pm

**Meeting with:** International Brotherhood of Electrical Workers (IBEW) Local 2230 Executive Board Members, Coram, NY

### NIOSH Worker Outreach Team:

Grady Calhoun (by telephone), National Institute for Occupational Safety and Health (NIOSH), Office of Compensation Analysis and Support (OCAS), Health Physicist

Mark Lewis, Advanced Technologies and Laboratories International, Inc. (ATL), Senior Outreach Specialist

Wilfrid "Buck" Cameron, ATL, Senior Outreach Specialist

Mary Elliott, ATL, Writer/Editor

### Also Present:

Nancy Adams, NIOSH, Office of the Director (Contractor)

### Proceedings:

Mark Lewis opened the meeting at 2:00 p.m. by introducing Grady Calhoun, who attended the meeting via telephone. Mr. Calhoun stated that he is a health physics (HP) supervisor in the National Institute for Occupational Safety and Health (NIOSH) Office of Compensation Analysis and Support (OCAS). He has been working with OCAS since the group began receiving claims under the Energy Employees Occupational Illness Compensation Program Act (EEOICPA). He sees about 80 to 90% of the claims that require radiation dose reconstruction. He is also involved in the development of the technical basis documents that are used in the dose reconstruction process. He explained that he has spent several days examining records at Brookhaven National Laboratory (BNL or "the Lab") and he will be returning to the site to review more records later in the week. Mr. Calhoun stated that he will also attend two public meetings that NIOSH is holding on Wednesday, September 24 for BNL employees and their families.

Mr. Lewis asked if Mr. Calhoun is also evaluating the Special Exposure Cohort (SEC) petition that has been filed for BNL. Mr. Calhoun responded that he is the point of contact for the petition Evaluation Report that will be drafted by NIOSH and the Oak Ridge Associated Universities (ORAU) team.

[Name redacted] introduced himself as [identifying information redacted] of International Brotherhood of Electricians (IBEW) Local 2230. He has worked at the Lab for approximately 35 years in the Air Conditioning Division. He has served as the [identifying information redacted] for about 15 years.

[Name redacted] stated that he began working at the Lab in 1965, working his way up to a supervisory position. He witnessed many things during his long career.

[Name redacted] stated that he came to the Brookhaven in 1964, starting in Supplies. After completing the apprentice program, he worked in the Refrigeration and Air Conditioning Division. He was working as a lead person when he retired in 1995.

[Name redacted] works at the Lab as a Water Treatment Officer. He started at the Lab in 1990 and now serves as [identifying information redacted] of IBEW Local 2230.

[Name redacted] has worked in the Carpentry Shop at Brookhaven Lab for about 20 years. He attended the NIOSH SEC Workshop in Cincinnati in April 2008.

Nancy Adams is a Contractor in the NIOSH Office of the Director.

[Name redacted] is [identifying information redacted] for IBEW Local 2230. He works at Brookhaven in refrigeration and heating and air conditioning. He came to the Lab in 1993.

Mr. Lewis introduced Buck Cameron and Mary Elliott.

Mr. Lewis asked Mr. Calhoun to explain the types of information that NIOSH needs to evaluate the SEC petition.

**Mr. Calhoun:**

When NIOSH receives a claim for dose reconstruction, we make a request to Brookhaven for the worker's internal monitoring records, external monitoring, any incidents that they were involved in, and records of medical X rays that were taken as a condition of employment.

In addition to that, because an SEC petition has been filed, we need area monitoring. We need to know what kind of area airborne monitoring may have been done, what kind of area radiation surveys were done, what kind of work was done with what types of material, etc. We use that kind of information for individuals for whom we don't have any monitoring records and they may have been exposed while at the site. We also look through the environmental monitoring records. We use those records to assign dose to individuals who were not monitored and were not working directly with radioactive materials. So even if you are not a rad worker, you will still be covered under this program.

We are always interested in incidents that occurred at the site. During our visit at the site, we did see some documented incident reports. That is the kind of information we need to bound the dose.

When we do an SEC evaluation report, we are trying to get as much data as we can to prepare dose reconstructions. We can assign an unrealistically high dose (a bounding dose) based on information that we obtain. If we cannot bound the dose (an individual received no more than X rem), we need to consider the site becoming an SEC up to a certain year, for certain types of work, in certain areas. That's where we are right now. That's the kind of information we need to do this evaluation.

Is everybody aware of the SEC process?

**Mr. Lewis:**

Two people here attended the NIOSH SEC Workshop in Cincinnati.

**Mr. Calhoun:**

It is important to mention that when NIOSH decides that a proposed class should be added to the SEC, we have determined that dose reconstructions cannot be done for that class. If the Department of Labor (DOL) verifies that a worker had one of the 22 covered cancers and worked at the site for 250 days, the claim is automatically eligible for the lump sum compensation

without having to have a dose reconstruction. But it is also important to remember that approximately 40% of the cases that NIOSH receives for dose reconstruction are for prostate cancers and skin cancers, which are not eligible cancers under the SEC. That means that if the proposed class is added to the SEC, 40% of the cases will still require dose reconstruction and will be assigned a lower dose because the petition states that there is a reason why accurate dose reconstructions cannot be done for the class.

**Worker:**

Right now, the site is cleaned up but in the 1960s there was asbestos was all over the place. Everywhere you went, you came in contact with it.

**Mr. Lewis:**

What about radiation?

**Worker:**

We came in contact with radiation, but my film badge always showed “0”.

**Worker:**

Most of the time, we didn't wear film badges. We didn't know it was a necessity. They issued film badges that hung on the wall. Unless we were working someplace that we knew was a “hot” area, we didn't wear our film badges. It was common for only one worker in a group of guys on the job to wear a dosimeter. The dosimeter recorded his dose, but there are no records for everyone else.

**Worker:**

I worked in the AGS area for 5 or 6 years. My film badge report always came back “0” but the log book entry was at least 20 mrem per day.

**Mr. Cameron:**

What areas did you go to that you knew were “hot” areas? Did you work in other areas that were not considered “hot,” but you think may have been?

**Worker:**

The AGS Ring and the fan houses that cooled the AGS Ring were “hot” spots. We were periodically sent in there for maintenance jobs when the ring was not running; we were told it was okay to go in there when the ring was off. We found out later that there was residual radiation there and we didn't have film badges. In one instance, [name redacted] and I were assigned to the F-10 house to do a maintenance job. We worked there all morning, went to lunch, came back and worked a couple more hours. Then an HP guy came by, questioned us, and told us to limit our exposure to 15 minutes a day. We had already been in there for six hours without film badges because we didn't know that we needed them. That was common back then.

**Worker:**

After the Graphite Reactor was shut down, the Lab made it into a museum that school children visited. We went into the building to perform maintenance. Dosimetry was not required until about eight years ago. They decided that it was a contaminated area and moved the museum out. Now the area is restricted.

**Worker:**

Back in the 1980s, we changed the filters and air handlers on the third floor. Suddenly, they told us to wear a dust mask. Later, they told us to suit up when we worked in there. Eventually, they stopped asking us to change the filters and told us to stay out.

**Worker:**

There were lapses in all of the reactors—the medical reactors, the High Flux Beam Reactor (HFBR).

**Worker:**

We had to clear the sump pumps in the medical reactor by opening the steam valve, which blew the water out. Other mechanics told us to stay away from a certain air handler that was “hot.” That was all we were told.

**Worker:**

We get the best information from other workers in the building or guys that have worked in the building—there aren’t great postings. Still today, film badges are an afterthought. Everybody has one, but nobody cares if you wear it. In our shop, film badges usually stay on the film badge board, but they receive a dose each month. Nobody knows how that’s happening.

**Worker:**

All of the major buildings, especially in the radiation areas, had somebody assigned to that building. Any service or maintenance work was done by a crew that was sent in from the plumbing shop, the AC shop, the electric shop, or the steam shop. The assigned person in the building would know where all of the hot spots were and wear a film badge. The people that were sent to work with him or in the building did not know where the hot spots were or if they needed a film badge. That’s how it worked.

**Mr. Lewis:**

We are trying to take a snapshot of the past so NIOSH can understand the monitoring program.

**Worker:**

There was no monitoring program. I guess there was at a certain point, but no one told you which areas were hot and what precautions to take.

**Worker:**

It wasn’t only radiation safety; it was safety in general back then. I don’t think the Laboratory got serious on safety until the early 1990s, after the Tiger Team came in. Then things started to change. Little by little, you saw improvements in safety and recordkeeping, and you heard people saying “Safety First.” (which were words they didn’t mean). Today, they are actually pushing safety first.

**Worker:**

Back in the 1960s, 1970s, and 1980s, they used the lead containers used for holding radioactive materials for doorstops. Scientists took radioactive materials home in these containers to do experiments.

**Mr. Lewis:**

Did they have a count on them?

**Worker:**

I only know that the containers were marked with radioactive symbols on the sides and were used for door stops at the Lab.

**Worker:**

I can remember working in AGS and they were doing something with neutrons. Everybody had a neutron badge except me.

**Mr. Lewis:**

How long has that been?

**Worker:**

That was a long time ago—probably about 1995.

**Worker:**

I think most people knew what radiation was and that radiation was at the Laboratory, but didn't respect or fear it. They didn't feel that it involved them even though they were in areas where radiation was present. They didn't know how to measure it, didn't know what the measurement was, and they didn't know what it meant to be irradiated.

**Mr. Lewis:**

Did you have any rad worker training in those days?

**Worker:**

Not for us, but maybe for the rad workers. After the Tiger Team came in, they started rules and a different kind of training.

**Worker:**

There was training, but it wasn't taken seriously. It was just a class you had to go through.

**Worker:**

It only explained the types of radiation. It didn't describe certain areas or requirements for film badges.

**Worker:**

It wasn't training to educate you. It was training to document that they did training. You didn't know any more when you left the training than you did before you arrived. You just received a piece of paper that said you were trained.

**Mr. Lewis:**

How many radiological control people or HPs did you have back then compared to now?

**Worker:**

There was always a shortage. If you wanted an HP guy, you had to sit and wait, sometimes up to an hour.

**Worker:**

My supervisor sent me to change the oil in a horizontal compressor in the HFBR reactor. He said it was not hot, so I went in my civilian clothes. After I finished changing the oil, I was getting ready to leave the building and I walked through one of the monitors and all of the bells went off. They took my tools and my clothes. I came back in a pair of coveralls because everything I touched was hot. Nothing was supposed to be hot, and if I had not walked through that monitor, all of that would have been with me.

**Worker:**

A lot of the radiation is carried out to people's homes. The houses have to be decontaminated.

**Mr. Calhoun:**

When you had an event like that, they took your clothes because they were contaminated. Did they monitor your skin? Did you have to pass through the monitor again?

**Worker:**

I don't remember.

**Mr. Calhoun:**

Did they do any follow-up?

**Worker:**

Going through that monitor was something I just did, it wasn't a requirement. I decided to walk through it rather than walk around it like normal.

**Mr. Calhoun:**

Was there any bioassay urinalysis or whole body counts?

**Worker:**

I never heard of it back then.

**Mr. Calhoun:**

Do you recall when you had to start peeing in jars or when whole body counts started?

**Worker:**

I've been there 35 years and have never done that. But ever since those incidents, I have avoided the radiation. Back then when I was contaminated, nobody told me to pee in a jar or go for a skin test.

**Worker:**

I had that a long time ago. They would give you bottles to take home, pee in, and bring back.

**Worker:**

There was no consistency. It depended on the HP guy you were working with. I had an HP guy at another job. My supervisor sent me to change the HEPA filters on the roof of the Hot Machine Shop. He said the HP would meet me down there. I got down there and asked HP if the filters were hot and he said he wouldn't know until I took them out. I told him he is supposed to check them before I pull them to see if they are hot or contaminated. He wanted me to pull the filters and I told him I wouldn't until he checked them to see if they were hot first so I know if I need to get suited up. I stopped the job, but that was common. You were the guinea pig. You pulled it out so the HP guy could smear it once you got it on the ground. In the meantime, the roof was crapped up, the ladder was crapped up, the ground was crapped up, and nobody ever went back to check that kind of stuff.

**Worker:**

They did that with the filters in all the fan houses also. HP wouldn't go in there because the background was so high they couldn't measure any contamination on the filters. We would have to take all the filters out and drive them to the 4-way stop because the background was so high in that area, only to find out that they were all crapped up. We drove around with them sometimes in a plastic bag, sometimes not.

**Mr. Cameron:**

You mentioned taking them out, stuff getting on the roof, stuff getting in the van. How was that cleaned up?

**Worker:**

I don't know that it was cleaned up.

**Mr. Cameron:**

So a roofer could go up on the roof and there would be no way of knowing if that person was exposed. Somebody else could use the van.

**Worker:**

Absolutely. You work in one building and you're crapped up and then you have to go to another building to get checked out. You get messed up in a tank farm and it's really contaminated down there.

**Worker:**

That actually happened to me. I left the tank farm and went to get checked out and my truck was contaminated. Every place that my feet had touched was contaminated.

**Worker:**

But they didn't do anything to the trucks. Somebody else just took the truck and drove away.

**Worker:**

We were told to get checked by HP. He said the filters were okay but there is something in your truck. There was a lead brick that had been in the truck for six months that was screaming hot. He took it.

**Mr. Lewis:**

Do you remember what type of radiation that it was putting out – alpha or beta?

**Worker:**

I have no idea.

**Worker:**

Again, what you are hearing isn't the exception. It's the rule – an every day occurrence.

**Worker:**

When it came to bioassays and whole body counts, I remember that one time we had to do it. If you didn't fill the urine cup, no one cared. No one followed up. When we were doing whole body counts, they said it was required. But for some reason they said, "We can't afford to have it done so we're not doing it." It was four years between my whole body counts when I was working there.

**Mr. Lewis:**

When was that?

**Worker:**

That was in the 1990s when the reactor was still going.

**Mr. Calhoun:**

The first record for whole body counts that I have seen so far was from 1962. It was in Building 703, which is being renovated. I didn't have a lot of time to look there.

**Worker:**

Building 703 is connected to the old Graphite Reactor.

**Mr. Calhoun:**

There was a roomful of records up there.

**Worker:**

If you really study, you will see that there has been a big hiatus between when whole body

counts were done. At one point they did them, and then they stopped them because they couldn't afford it.

**Mr. Calhoun:**

About what year would you say was the big spread?

**Worker:**

It depended on the budget. If they had money, they did it; if they didn't have money, they didn't do it. I have been there for 35 years, I have been in every single building on this site, and I have never had a whole body count or a bioassay urinalysis. The yearly physical was voluntary also.

**Mr. Calhoun:**

Did you have to do respirator work?

**Worker:**

I was respirator fitted; respirator tested; and probably didn't wear it twice in the 35 years.

**Mr. Calhoun:**

Do you have much in the way of external dose?

**Worker:**

I don't know.

**Mr. Calhoun:**

Don't you get annual reports?

**Worker:**

I'm not in the field anymore. I work in an office now, so for the last 15 years my annual report is "0." Prior to that, I have no idea.

**Worker:**

Mine was always "0." When I retired, my final report said "0." I worked with other guys that had a dose, but you can't tell me that they got it and I didn't. Even if it wasn't a high dose, they got it.

**Mr. Lewis:**

Do you remember any incidents?

**Worker:**

I can remember them, but they were never vouched for.

**Mr. Lewis:**

That still counts.

**Worker:**

One man [name redacted] was working in Old Chemistry. There was a beaker on a water fountain. He put water in it and drank it. It was crapped up, so he died of cancer shortly thereafter.

**Worker:**

The whole building was hot, then they tore the building down, and contractors took the wood. The brick part was disposed of. The ground area was hot for a long time behind what used to be Personnel.

**Worker:**

We had a group leader named [name redacted]. He was the type of guy that would take any job.

It didn't matter where it was or if it was crapped up. He just jumped in and did it. Every time there was a job in a hot area, he would dive in while everyone else stood back. He retired in 1988 and died of cancer in 1990.

**Worker:**

You used to be able to walk through the old igloo area all the time.

**Mr. Lewis:**

The igloo area?

**Worker:**

The old hazardous waste area. Don't walk on the grass.

**Mr. Lewis:**

Grady, do you know what they are referring to?

**Mr. Calhoun:**

No.

**Worker:**

You won't see any buildings anymore because they knocked them down, but there is still a lot of remediation going on.

**Mr. Calhoun:**

Are the folks there aware of Part E? I keep hearing a lot of talk about hazardous waste and asbestos. I just want to make sure people are aware of this part as well.

**Mr. Lewis:**

Part E that he is referring to is the part about chemicals.

**Worker:**

I was told I would probably come under the Part E.

**Mr. Lewis:**

You've filed a claim, haven't you?

**Worker:**

Yes, I have had cancer twice. The first time it was colon cancer, this time it's sacral cancer. It's the same type of cancer, just in a different spot.

**Mr. Lewis:**

Grady, will you be at the public meeting tomorrow?

**Mr. Calhoun:**

Yes, I will be there at 2:00 and 6:00. I'll be in 535 most of the day on Thursday.

**Mr. Lewis:**

Maybe a couple of these gentlemen would be able to meet you at the public meeting.

**Mr. Calhoun:**

Sure. If somebody wants to hook up with me, they can come to the public meeting on Wednesday. I'll be in 535 all day Thursday; and there's a conference room where we'll be scanning and reviewing records.

**Ms. Adams:**

Have you met or talked to [name redacted]?

**Mr. Calhoun:**

I have talked to [name redacted] on the phone several times. Last week, I met with [name redacted], [name redacted], an HP named [name redacted], and [name redacted]. Sorry, I don't know the last names.

**Mr. Lewis:**

Can you think of some of these names?

**Worker:**

[Name redacted.]

**Ms. Adams:**

[Name redacted] is supposed to be the EEOICPA contact and he's at the National Safety Council this week.

**Mr. Calhoun:**

I talked to him, but I found it more useful right now to actually talk to the people who worked there and were involved in the records management. One of our biggest challenges right now is that even though there are a lot of records, we are having a hard time finding them. I am finding bits and pieces of them here and there. The recordkeeping system was not real good. I have found stuff; I have urinalyses records from the pile from the early 1950s. Finding the stuff has been a challenge because it hasn't been filed away by year or individual or by project. A lot of it is just stacked. We are putting a lot of time into reviewing these records.

**Mr. Lewis:**

Grady, what kind of reaction are you getting from these people you are talking to? Are they helping you out?

**Mr. Calhoun:**

[Name redacted] has been wonderful. She has some good "tribal knowledge." She has been there for a long time and knows who to get answers from. For the most part, all the rad con folks have been very helpful. I think their biggest problem is that they cannot be as helpful as they want to be because the records are unorganized. We ran into that at Idaho Falls, too. They had all the records stored by year, not by person.

**Worker:**

You say you found a urinalysis from the 1950s. I'm sure it's not consistent with everybody. How does that work out? Is that considered as being monitored?

**Mr. Calhoun:**

Right now, I am referring to one report that I have. It is from 1954 and talks about what kind of urinalyses that they are seeing at the pile and the average that they are seeing from the workers with a high that they have seen. So, if we found somebody that worked during that period, at that place, we would determine the high dose that could be assigned to anybody, which would be an overestimate for that time if they worked at that specific facility. One difficulty is that we have many different facilities, so a scenario like this would apply to one particular facility.

We also found a report from 1962 that says something like "Please schedule these guys for whole body counts because they have been exposed to dispersible contamination." It actually lists the radioisotopes that they were potentially exposed to. The next step is to find the records. This report is of no benefit unless I have the results of the whole body counts. We have to go beyond individual dosimetry since this is an SEC petition.

**Worker:**

Grady, please keep in mind that in any one of these facilities, there will be people that were assigned primarily to that facility, but the people that work for our union will be assigned to those specific facilities as well as everywhere else on the site. Our guys could be in any of the buildings on site on any given day.

**Mr. Calhoun:**

During the course of a typical dose reconstruction, anybody who is involved with the dose reconstruction will be interviewed. We will ask where you worked and what kind of things you did. We won't pigeon-hole somebody into one area if they have given us information about where they worked.

**Worker:**

My point was that if you had something high in one building, there was a good chance that the bargaining unit members were going to be exposed to it at some point because they are going to get in that building. I work in the water treatment facility. Most people would think that I have no need to get into any building because most of my stuff is outside, but I have been in almost every building on site. We take care of sump pumps in the basements. In my case, it is really unnerving because I am not familiar with what is going on in those buildings because I don't have as much time in them as others.

**Mr. Lewis:**

We're talking about the difference between a dose reconstruction and a SEC evaluation, too.

**Worker:**

I have had cancer twice. They told me it is the same type of cancer. The first time it was the colon and they operated and removed part of the colon. This time it's in the sacral area, which they can't touch. What is the prognosis of that? Will I be covered or is this a waste of time?

**Mr. Calhoun:**

If you worked 250 days, and they find that your particular group or area or time period is covered in the SEC, you will be covered. Have you had a dose reconstruction yet?

**Worker:**

I'm not familiar with that.

**Mr. Lewis:**

Have they sent you something that says, "This is all we've got, sign here?"

**Worker:**

No.

**Mr. Calhoun:**

Have you filed a Part B claim?

**Worker:**

I've got a lawyer on it. Everything goes through her.

**Mr. Calhoun:**

Has she filed a Part B claim?

**Worker:**

Yes, she has.

**Mr. Calhoun:**

You haven't got a dose reconstruction back yet?

**Worker:**

Not as far as I know.

**Mr. Calhoun:**

You would get a dose reconstruction, and if we could find enough dose to get you over, that's what we'll assign. If you are found to be part of the SEC, you would be covered as well. With the SEC, it's automatic as long as you have the covered cancer, have worked 250 days, and with colon cancer, you have to have 5 years between the date of diagnosis and the date of first exposure. With a dose reconstruction, compensation is not automatic; it is based on the dose that we assign.

**Worker:**

What is the status of the SEC petition at this point?

**Mr. Calhoun:**

The petition has been filed. We are in the data gathering process and we are trying to determine if dose reconstruction is feasible. Our ultimate product is a decision: Do we believe it is feasible to put an upper bound on the doses received by people at that site? We can section it off by dates or areas based on our findings.

**Worker:**

Who makes that final decision?

**Mr. Calhoun:**

NIOSH makes the recommendation. That recommendation is presented to the Advisory Board on Radiation and Worker Health (ABRWH). The Advisory Board will have somebody else look into it, and then we will go back and forth. The final authority rests with the Secretary of the Department of Health and Human Services (HHS), which is based on recommendations from NIOSH and the Advisory Board.

**Worker:**

When is all of this expected to come to fruition?

**Mr. Calhoun:**

I don't have the timeline in front of me, but I think it is supposed to be 180 days from the time the petition was filed. We are going to ask for an extension because the records are in such disorder. We need to make this decision based on good information, so I think it will be a few more months at least – maybe February or March.

**Worker:**

What are the chances that this will go through for us?

**Mr. Calhoun:**

I can't say based on the data that I've seen. There are some big data gaps in internal dosimetry for the early years; however, we are closing those gaps. We are finding more information than many of the people at the site knew they had. We are putting a lot of effort into finding that information because that is the fairest way to do this so that people with non-SEC cancers will have an equal opportunity for compensation as the people with SEC cancers. Right now our primary focus is on data capture. We will write an Evaluation Report based on the data that we find.

**Worker:**

What about asbestos? I think most of this stuff has been on radiation.

**Mr. Lewis:**

That will be under Part E. We are dealing with Part B for radiation.

**Worker:**

Okay.

**Mr. Lewis:**

Can you guys think of anyone Grady should talk to, who may be able to provide data or procedures, or somebody who was in charge of the Medical Program or the Health Monitoring?

**Worker:**

[Name redacted] retired a couple of years ago.

**Ms. Adams:**

He's in North Carolina. He was not an HP. He was the head of Environmental Safety and Health. I will find his address.

**Mr. Calhoun:**

Please send me his information via email or catch me at the Lab office this week.

**Ms. Adams:**

What about [name redacted]?

**Worker:**

[Name redacted] is knowledgeable.

**Mr. Calhoun:**

Is he there or is he retired?

**Worker:**

Yes, but the Laboratory actually saved [name redacted]; so I don't know how much he would do to go against the Laboratory.

**Ms. Adams:**

This is not going against the Lab.

**Worker:**

That's not how they look at it.

**Ms. Adams:**

It can't hurt to talk to him.

**Mr. Calhoun:**

What did [name redacted] do?

**Ms. Adams:**

He was [identifying information redacted] of Health Physics.

**Mr. Calhoun:**

Does he still work with the Lab?

**Ms. Adams:**

Yes, he does.

**Worker:**

He was one of the people involved with the known ground water contamination that had the reactors shut down. The Laboratory didn't get rid of him. They just shifted him to the side, so I don't know if he would go against the Laboratory or spill any beans. I know [name redacted] would.

**Mr. Lewis:**

Is the perception that if someone talks to Grady, they are going against the Lab?

**Worker:**

Yes.

**Mr. Lewis:**

That is something we should address in the Town Hall meeting.

**Mr. Calhoun:**

The Lab doesn't pay for any of this. The DOL pays the bill for people who get paid in this program.

**Worker:**

The Lab is trying to keep face with the community.

**Ms. Adams:**

Grady, this is the only DOE facility that had its contractor yanked.

**Worker:**

So they are trying to keep face with the local people and trying to make it look like they have never done anything wrong.

**Mr. Calhoun:**

Why was the contractor yanked?

**Ms. Adams:**

Because of the tritium in the groundwater from the old Graphite Reactor and the lack of response by the contractor (AUI) that ran the Lab when all of this happened.

**Worker:**

Plus, everything was thrown down the drain.

**Mr. Calhoun:**

When did that happen?

**Ms. Adams:**

That happened in 1996 or 1997. The other person you might need to track down is [name redacted].

**Mr. Calhoun:**

I've heard that name already.

**Ms. Adams:**

[Name redacted] was [identifying information redacted] HP before [name redacted].

**Worker:**

Grady, I don't think a lot of people at the Laboratory realize that the Laboratory itself is not held responsible and does not have to pay the bill on this.

**Mr. Calhoun:**

The standards that we use are so claimant-favorable that you can follow all the rules and get a legal dose. We can still find that the radiation caused your cancer because the probability of causation is 50% (at 50% you get paid). We do that at the 99<sup>th</sup> percentile, which means that there is a 99% chance that your probability of causation is less than 50% and your cancer wasn't caused by that radiation, but we do that to make sure that we pay everybody who needs to be paid. It's a very high standard. Operating contractors should not feel like they made mistakes because we are paying people through this process.

**Worker:**

I understand that, and I believe that everybody in the room understands that, but that information has never trickled down to the people at the Laboratory who are being questioned.

**Mr. Calhoun:**

Right now, I don't seem to be getting a lot of push back. They have to give us this information because it's required by law. We have run into problems with people at other sites, and we only needed to tell DOE Headquarters that they were not responding. We also typically hear that it's not in their budget, which is true. They can be very cost-sensitive, but because of this program and how it is written, DOE will funnel money to the site to take care of the data retrieval, organization, etc. so they can be responsive to us in a timely manner.

This site doesn't have a lot of claimants. It has not impacted them hugely as far as responding to individual claims that they get, so this SEC thing is probably hitting them a little bit harder. You have only 61 claimants right now.

**Worker:**

That's because a lot of them are dead.

**Worker:**

Either they are not around any longer or they are not aware of this.

**Mr. Calhoun:**

Keep in mind that if you know of anybody who has passed and hasn't filed a claim, their survivors (spouses, children, or grandchildren) can file claims.

**Worker:**

The first time I heard about this was when I went to Cincinnati. I remember talking to Larry Elliott, who made it very clear that the Laboratory was not cooperating with getting the information to NIOSH. That was in April. If you are getting the cooperation now, then there has been a lot of progress in the past couple of months.

**Mr. Calhoun:**

It's not that they were intentionally stonewalling us. I believe it is because their records are in such disarray. Here's the specific that's raising the flag: We are getting information sometimes that says there are no monitoring records for a particular person. What happened is the monitoring records (like the external monitoring records – film badges) were kept by an organization called Personnel Monitoring. We typically get that information, but we weren't getting anything internal. What we found out in the past few months is that the people at Personnel Monitoring didn't know that they did have that information somewhere; it was in the medical records. So now any time we make a request, the folks responding need to go through the Personnel Monitoring group as well as the Medical Monitoring group. Now we are starting to see some of the internal records come because they were in Medical. It may have been

perceived that they were intentionally stonewalling us, but it is more likely because they have a terrible records management system. I like to give them the benefit of the doubt.

**Mr. Cameron:**

I heard two things that sound like significant exposures where you didn't have monitoring. One was changing the filters, and the other was going into the buildings, working on the sump pumps. Were there other things like that, like in the ventilation systems? Did you open up the ducts?

**Worker:**

I'm sure what happened to us happened to a number of other people also.

**Mr. Cameron:**

What type of things?

**Worker:**

The same types of things, just in different places. There are 300 buildings on the site. There are more than 30 AC guys, all doing the same thing in different buildings. There are more than 20 plumbers and steamfitters doing the same types of things in different buildings.

**Mr. Cameron:**

Would plumbers be breaking pipes, opening them up? Are the ventilation people opening ducts and casings?

**Worker:**

We were taking duct down and replacing it. We were in there with no airflow.

**Worker:**

We were replacing barriers in air handlers.

**Worker:**

We were working in the air handlers, changing filters.

**Worker:**

We used to change chilled water valves with no gloves, and all the water was tritiated.

**Mr. Cameron:**

When you change a duct or take it apart, do you blind it off and seal it as you work on it?

**Worker:**

Years ago, we didn't do anything.

**Worker:**

If it's a known hot duct, probably, but we didn't know what was hot and what wasn't. We just took the duct down, did what we had to do, and put it back up.

**Mr. Lewis:**

So you guys were exposed to a lot of tritium without being monitored – right?

**Worker:**

That's right.

**Worker:**

There is one guy you should talk to: [name redacted] was in charge of the contractors.

**Mr. Lewis:**

Did he do the orientation for the contractors that come in?

**Worker:**

No.

**Worker:**

He started out as a plumber.

I was in charge of the steamfitters. One day, I had a steam leak in a place where there was a little hatch to crawl into. I went there with a mechanic and opened up the door. He told me "If I were you, I wouldn't go in there." I asked him why, and he said "I just wouldn't go in there." I told him he needed to tell me why because I had a steam leak in there and had to do something. He told me that when [name redacted] was a mechanic, he went in and busted all the cast iron out of there and it was full of mercury. He was swimming in mercury. Since that time, they operated on him for a hernia. When they opened his stomach up, they found he was full of tumors. They took all his insides out, cleaned them up, and put them back again. They did that to him twice. He is still alive, but he is not working anymore.

They didn't put a sign or anything up at that hatch. I was just lucky a guy came through there. When I went to Health Physics to complain, they said they cleaned that up. I asked them how they know it was cleaned up well. They should have at least put a sign up to contact somebody.

**Worker:**

There was a machine shop behind Graphic Arts. They cleaned all the vacuum pumps in the lower level. Later we found out that the floor in that area was loaded with mercury.

**Mr. Lewis:**

Was any radiation mixed with that?

**Worker:**

It was just mercury. It was in the p-traps.

**Mr. Lewis:**

We are dealing with the radiological part. I know it's valid, but mercury falls under Part E for chemicals.

**Worker:**

Asbestos is going to be a big one. It was all over the pipes and around the pumps.

**Worker:**

The pile was turned into a museum. It's closed now, but it was open for many years. Whole families went through that museum. They're talking about decommissioning it, but they haven't dented it yet. There were stairs that went up and around the pile where kids would hang out and get their pictures taken.

**Mr. Lewis:**

How many hours a day did people work around the pile? Did people work 40 hours a week there?

**Worker:**

There were museum people who worked there. They had a little store to buy goodies to bring home.

**Mr. Lewis:**

Were they employees of the site?

**Worker:**

Yes, some of them are still there.

**Worker:**

I started at the Lab in the early 1970s as a custodian. I was sent up to that pile on a weekend to strip a floor. I walked into the building (and like I said, I have been in almost every building on site), I looked around, and I thought that I had been there before, but it was my first time in that building. I went down a flight of stairs, and looked down at the pile where the fuel rods are, and I felt like I had been there before and then it dawned on me. Back in the 1950s when they were running the reactor, I came there with my school as a kid. We watched them work. The place was wide open to everybody.

**Worker:**

I think they closed it in 1968.

**Worker:**

I was here in the 1950s when it was actually a running reactor – in the same areas, down the same flight of stairs, watching what they were doing.

**Worker:**

If you were on watch, you would have to check every building, so you were in every area and every building in your section. At one time, there were four watches, and then there were three watches in three different areas. So you might be at a different area at a different time.

**Mr. Lewis:**

There was no monitoring?

**Worker:**

You might have a film badge on, but that's about it.

**Worker:**

Back then when you came to the Lab, they gave you a film badge and you stuck it in your pocket or whatever. In later years when the Tiger Team came, they started giving you classes. The badges are supposed to be worn in the middle of your chest, facing out so it can read. For the last 20 years, it's been in my pocket or on the wall.

*[Several people were talking at the same time about various places they stored their film badges.]*

**Worker:**

There was no formal training on how to wear your badge. Badges were borrowed, and if you needed to enter an area that required a film badge, you would just grab one off the board.

**Mr. Lewis:**

Were they assigned numbers?

**Worker:**

They were signed out.

**Mr. Lewis:**

So you didn't borrow your buddy's film badge.

**Worker:**

That happened, too. You took the badge just to go in and do the job.

**Mr. Lewis:**

If the procedure said you need a badge, you took a badge?

**Worker:**

The procedure also told us which type of badge to use.

**Mr. Calhoun:**

They weren't assigned to anybody in particular?

**Worker:**

No, they had visitor's badges.

**Mr. Lewis:**

Sometimes you would just take it off your buddy's collar and put it on yours to walk in there. Or the thing would fall apart and you would put it back together.

**Worker:**

There was no close supervision from Health Physics at the time.

**Worker:**

You didn't know what it was, you didn't fear it. You didn't respect it.

**Worker:**

It was explained to you to wear it, but you didn't always do it. Rather than go back to the shop, we would just pop one off the wall, put it on, and go do the job.

**Ms. Adams:**

Did they have the wooden racks in all of the buildings?

**Worker:**

Yes. They still have them.

**Worker:**

When I first started there, the supervisor was adding a Cosmotron. There was a big sign that said "Do Not Enter: Radiation." He said, "They won't catch me." He took off his badge, hung it up, and did the job. We wouldn't go in there.

**Mr. Lewis:**

Those are the kind of things that are important to Grady as far as your SEC evaluation goes.

**Worker:**

You probably wouldn't do that anymore.

**Worker:**

You were only allowed to go in there for 20 minutes, but the scientist or experimenter would spend the entire day in there every day, sometimes seven days a week.

**Mr. Calhoun:**

They would make you guys leave after 20 minutes?

**Worker:**

We left on our own accord. Nobody checked us. They just told us that if we go in that area we should not stay for more than 20 minutes.

**Worker:**

I was talking to a couple of guys in my shop about this and they were telling me stories about

when they were custodians. They would have to go into hot buildings to clean them. The supervisor would come and get them because they were good workers or quick workers. They told them they had to take the film badge off and they could only stay in for 30 to 45 minutes. They would come in, get it all done, and get out of there. That was a common practice back in the day. I have two guys who work in my shop that came up through the custodial ranks and are now water treatment operators. Both of them told me almost the same story, on different days, about the same supervisor and the same assignments. So, it was very common back in the day.

**Mr. Cameron:**

People would go to work without their badge?

**Worker:**

They were told to get in there, get it done, and get out quick.

**Mr. Lewis:**

What year was that, do you remember?

**Worker:**

That was probably no more than 15 or 17 years ago.

**Worker:**

You can ask people "When was that?" But it might not be accurate.

**Mr. Lewis:**

I'm sure Mr. Calhoun understands that, but it gives a timeframe to work with.

**Worker:**

It was [name redacted] and [name redacted] that told me those stories.

**Worker:**

I was interviewed when the Tiger Team came 15 or 20 years ago. They asked me if I felt the place was safe, and I told them that I would not let anybody in my family get a job here. Since then, my daughter started working here [identifying information redacted] years ago. I have no problem with my daughter working here now because that much of a change has taken place over the past 15 to 20 years.

**Mr. Lewis:**

We hear that at all the sites – that there is a culture change.

I wanted to mention that this meeting is being recorded. For privacy reasons, your name won't be on the NIOSH Web site or anything like that.

**Mr. Cameron:**

I have a question about where you cut off the ventilation work you did as inside employees and the jobs that were done by outside trades workers. Were there regular guidelines?

**Worker:**

We actually did it all. Outside trades are mostly used for new installations. After that, we took care of the refurbishing.

**Worker:**

They would do a lot of work in buildings that were classified and they would do reconstruction.

**Worker:**

If there was a major overhaul, the outside trades might be involved. Other than that, it was all in-

house stuff.

**Ms. Adams:**

The buzz word I think is 'Central Shops' for BNL. All the trades came out of Central Shops.

**Worker:**

No, Central Shops was the Machine Shop. Plant Engineering is where all the trades are.

**Ms. Adams:**

That's only the Machine Shop? Okay. I'm sorry.

**Worker:**

Maintenance work at the site is done with the in-house local. We do all the maintenance work on the stuff that's already being used. Outside trades come in for the Davis-Bacon work. The whole plant is basically maintained by Plant Engineering – from the bottom custodian right up to the highest paid electrician.

*[In a sidebar discussion, an attendee stated that the Fire Department at BNL is represented by IBEW Local 2230, but the Police Department has its own representation.]*

**Worker:**

Our local represents the custodians who do the housing as well as custodians in the scientific buildings. We represent all the different trades – plumbers, electricians, carpenters, steamfitters, tin knockers, the asbestos removal guys, and the steam plant guys. We represent everybody who does the onsite maintenance work for the Laboratory who are paid by the Laboratory in-house.

**Mr. Lewis:**

I want to make sure that I am reaching out to everyone involved. You have given us some pretty good contact names. I know memories kick in as we go along. We have mentioned some instances, situations, and monitoring practices. What about X rays? When you had a physical every year, did you have X rays?

**Worker:**

We had chest X rays.

**Worker:**

We didn't always have it. Years ago you did, but towards the end we didn't. They weren't read by experts. Not only that, they were optional. Even the physical was optional.

**Worker:**

Some of the AGS wells were contaminated, too. We were told not to drink the water. We drank bottled water, but for years we drank out of the water fountains.

**Mr. Lewis:**

Was that because of the tritium concern?

**Worker:**

Probably. It started in a couple of the AGS wells that were contaminated. They shut them down.

**Worker:**

The high lead content caused a lot of it, too. The drinking fountains had lead chambers where the water was stored and cooled. They got rid of them.

**Worker:**

In AGS, they also had a beam that was contaminated with some of the ground water. They

won't let us run Well #10, except for a couple of hours a month for sampling purposes because they are concerned about changing the direction of the plume.

**Mr. Lewis:**

What's in the plume?

**Worker:**

It was called Experiment G-2. It went awry and contaminated some ground water. They cut back the amount of time we could run the onsite drinking water wells in the area because they didn't want to change the direction of the plume.

**Worker:**

We were never officially told not to drink the water, but our supervisor's son worked in the water plant and told him not to drink the water. Our supervisor told us not to drink the water. We were never officially told not to drink the water.

**Worker:**

They said the Lab water was better than the outside water.

**Mr. Lewis:**

Can you think of anything else that Grady should hear?

**Worker:**

A lot of the problems came from experimenters doing an experiment, throwing the experiment down the sink, and it going down to the waste treatment area. An alarm goes off and they have to bypass the water to a certain area.

**Worker:**

That's what that big cleanup was for out East.

**Mr. Lewis:**

So, do you think we should check into some of the waste treatment records from the effluent at the plant?

**Worker:**

Yes, that would be good to check into. You will get some readings from that. [Name redacted] used to take samples from the leaching field home to his garden. When they went overhead to check all the areas for radiation, they found his garden. They told him not to put it in the garden, but he could put it around the shrubs.

**Mr. Lewis:**

Were there any fires? Should we talk to anybody in the Fire Department?

**Worker:**

The worst fire the Fire Department fought was right outside their firehouse. They lost a building.

**Mr. Lewis:**

What about radiological incidents, does the Fire Department respond?

**Worker:**

They respond to everything.

**Worker:**

Didn't they have something in 725 or 750?

**Mr. Calhoun:**

Did they leave a hotplate on? I found a fire incident where they left a hotplate on.

**Worker:**

This was called the Tristan experiment. I don't know what it was, but it put out radiation.

**Mr. Lewis:**

Did the Fire Department respond to a plume in the air? What year do you think that was?

**Worker:**

Not that long ago, it was some time after 2000.

**Mr. Calhoun:**

That was an experiment with a fire?

**Worker:**

Yes, it was in the reactor building (HFBR).

**Ms. Adams:**

Is [name redacted] still at the Fire Department? He would be a good person.

**Worker:**

No, he retired.

**Worker:**

[Name redacted] and [name redacted] would know.

**Mr. Calhoun:**

Is that the same [name redacted] that I am dealing with?

**Worker:**

Yes, she would know about it.

**Mr. Lewis:**

If anything else comes to mind, let us know.

**Worker:**

What about the logs from the single-reading dosimeters (SRDs) and the pencil dosimeters? Why was there such a discrepancy?

**Mr. Calhoun:**

NIOSH will use SRD readings if we don't have the film badge or TLD records because the SRDs aren't very accurate. We will use data from SRDs as a last resort, but we prefer to use readings from TLDs and film badges.

**Worker:**

Do you usually find a big difference when you compare the SRDs in the same person?

**Mr. Calhoun:**

SRDs can't legally be used for dose of record. You have drift that occurs, you can bump them, and they never go down – they always go up. Those are just indications that help keep a real-time track of the area they are in and the dose they are receiving. They don't use them that often anymore, especially in the reactor facilities. They have electronic ones that chirp. We can't use them. It's kind of a last resort.

**Worker:**

I worked at the Laboratory as an outside contractor in 1987, installing the pipes for the chilled water facility. We were out in the back by the reactor and we were crossing a D waste line, a hot waste line that took waste to Building 811. When we came across the line, I told them I was concerned about the men that worked for me and I wanted an HP to come and read it. The HP came out, stood 5 or 10 feet away from the hole, scanned it, and said it was fine. He had an instrument that was on a stick. I took the stick and brought it down to where my men and I were working, and it went off the scale. That was a very common practice back then. They said it was good from where they were, but it wasn't necessarily good where you were. I had them put lead blankets across the pipe and secure it because we actually had to go underneath that line with the chilled water piping.

**Mr. Lewis:**

Did you have a lot of lackadaisical attitude like that from HPs?

**Worker:**

Oh yes, that was commonplace.

**Mr. Lewis:**

Were they called HPs or radcon techs?

**Worker:**

HP, Health Physics.

**Mr. Lewis:**

Grady, can you think of anything else you are interested in?

**Mr. Calhoun:**

Don't tell me over the phone, but was there much in the way of classified work done, where records would have been stored in a classified area?

**Worker:**

Not to my knowledge.

**Mr. Calhoun:**

I'm surprised that this is what everybody is telling me. There are a lot of people there with Q clearances, and I've got one. I always want to make sure that people know that we have ways to look at the classified information. What I am hearing is that not a whole lot went on relative to weapons production and radiation.

**Worker:**

I think what was classified were the results of the experiments, not the experiments. Police Headquarters was a Q clearance building. There was one building by Photography that was a Q clearance building. There were no experiments going on, there was just office space and information. The only Q clearance work area that I know of was the Star Wars Building (939). They were supposedly working on the electronics for Star Wars.

**Worker:**

When I worked at AGS, they had a mercury target. There was talk that they were doing weapons research, but you really couldn't find out much information about that. That was about 1995 or 1996.

**Mr. Lewis:**

If you think of any incidents that may have happened that would be classified, you can talk about in a secured area. We can get a secured room, with secured people if you have classified information to share. Grady has a Q clearance.

**Worker:**

At one time, we all had clearances. They took them away because of the cost. Now very few people have clearances. We had clearances mainly because we had to service those buildings.

**Mr. Lewis:**

I had a Q for years, and then it went to an L before I retired.

**Worker:**

What about machinists? In the 1960s, the Lab installed lathes and equipment from General Electric (GE) in the Hot Machine Shop across from the old theater. Then the building collapsed, and they moved it all out and stored it in the garage across from Supply.

**Mr. Lewis:**

Do you know any machinists who worked at that time that he could talk to? Someone who worked the lathes, or knew what the monitoring practices and filtering systems were?

**Worker:**

There was one guy who worked down in the old Cosmotron area as a machinist.

**Mr. Lewis:**

Grady, they have some concerns with machinists and what they were machining.

**Worker:**

Not what they were machining, but the machines they were working on were surplus from GE and they were hot. A lot of the machines were stored at the labs over by the railroad tracks; and it wasn't until this last decade that the building was taken down and all the machines were disposed of. They just sat there for 20 or 25 years.

**Mr. Lewis:**

Do you have a building number?

*[The participants opened a map and pinpointed specific areas on the site.]*

**Worker:**

Building 196 was where they stored the machines that they got from GE that were contaminated.

**Mr. Calhoun:**

Do you know if the equipment came from GE-Evendale in Cincinnati?

**Worker:**

They came from wherever GE did their hot work.

**Mr. Calhoun:**

There are several GE facilities.

**Worker:**

The Lab records may be able to tell you where they came from.

**Worker:**

The Hot Machine Shop was Building 462 on the west end.

**Mr. Calhoun:**

Did they machine radioactive material on those GE machines once they got to your place?

**Worker:**

I'm not sure.

**Mr. Calhoun:**

My guess is that it was fixed contamination or contamination in the grease, but I'm not sure how dispersible that would be. I'm not sure how much information we can get on that.

**Mr. Lewis:**

Right now they are looking at the map and contemplating other places that may have rad exposure.

**Mr. Calhoun:**

Do you mean unmonitored rad exposure?

**Mr. Lewis:**

I guess so.

**Worker:**

[Name redacted] is retired, but his son, [name redacted], still works at the Lab, so you should be able to get in touch through him. [Name redacted] worked in the Hot Laundry in Building 650. Behind the Hot Laundry was the Hot Hazardous Waste Shop – they were attached. That's the building where they asked me to go on the roof to pull the filters down. You could walk around in the laundry place, no one would bother you, but you couldn't go into the hot end that he is talking about.

**Worker:**

When I came to the Lab in 1990 as an employee, the first job I was assigned was across the street from 650. There were two tanks that came out of 650 that had to be cut up. I was assured they were empty. I took a gas-powered chop saw and started to cut the tanks up. When stuff started oozing out of them, I stopped. They had them surveyed and I was never allowed to go back and finish them. I don't know how they came off the property, but nobody took them apart in house.

**Worker:**

That was Building 356, which is across the street from Building 650.

*[Conversation regarding buildings and building numbers – several people were speaking at the same time.]*

**Worker:**

That's the way most stuff happened years ago and it still happens today, though not on a grand scale. Let's go off the record for a minute...

**Mr. Lewis:**

If you would like to meet Grady, he will be at the public meetings tomorrow and in Building 535 on Thursday until 5:00 p.m.

Mr. Calhoun thanked the union representatives for talking with him and concluded the telephone conference at approximately 3:15 p.m.