



Date: June 19, 2007 6:00 pm

**Meeting with: Hanford SEC Petitioners and Union representatives**

**Attendees: No one signed the rosters for this meeting.**

**NIOSH and ORAU Team Representatives:**

Sam Glover: National Institute for Occupational Safety and Health (NIOSH), Office of Compensation Analysis and Support (OCAS)

Laurie Breyer, NIOSH/OCAS

Chuck Nelson NIOSH/OCAS

Ed Scalsky, Dade Moeller and Associates

Mike Kubiak, MJW Corporation

**Also Attending:** Kathy Robertson-Demers, Sanford Cohen & Associates

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### Proceedings

Sam Glover opened the meeting and explained that they had contacted the Department of Energy (DOE) about the logbooks that were maintained by the J.A. Jones Company and were trying to find out if those were available for the Dose Reconstruction Team to review.

#### Comment

Those guys that we were talking to you about, they were building trades or metal trades. You know that, right?

#### Sam Glover

I'm just letting you know.

#### Comment

See like when that one guy was talking last night and taking them guys to 500, like working it in, I don't know if they did or not, they might, but the bargaining unit on the metals trade side stated 300 unless you were exempt and then they took them to 500 when we were refueling.

#### Sam Glover

The weekly exposure rates? OK.

#### Comment

Ours stayed on the seven day thing. And when I was hired in 83 it was always that way, it stayed on the seven day thing because a lot of times when you got late in the year, like September on, the last two years we operated, I did not do squat because I had too much exposure. As soon as January came around you had a new deal. We all thought if the weeks moved rotating then the year should move too because we take a lot of exposure at the end of the year and than a bunch at the being of the year.



**Comment**

Sam since this is such a small group so we know who we are talking to could everyone introduce themselves.

**Sam Glover**

You just, want everybody to go around?  
Excellent suggestion.

**Introductions**

I'm **Brad Clawson**, Advisory Board and also on the Hanford working group advisory board.

I'm **Kathy Robertson-Demers**, I work with the SC&A Team as a Technical Contractor. I have worked out of Hanford for a short period.

**Laurie Breyer**

I did not catch your name.

**Response**

Kathy Robertson-DeMers

**Laurie Breyer**

Thank you.

My name is **[name redacted]**, and I am the [redacted] Steelworkers and we have the biggest group of the Nuclear Chemical operators out on the Hanford site.

I'm **[name redacted]**, I'm an NCO also a Steelworker and [redacted]. Been out there for twenty-four years, predominantly in the 100 areas.

I'm **[name redacted]**, we were invited to attend this meeting. I am a petitioner my father, our father, worked out at Hanford from 1942 – [redacted]. He was in the building trades and he was a carpenter and maintenance mechanic.

I'm **[name redacted]**, I am [redacted] and I am also a participant in SEC 57.

I'm **[name redacted]**, I'm a Nuclear Chemical Operator here. Before this, I was at Oak Ridge. I was very involved with the SEC there and I'm a Health and Safety Trainer for US Nuclear.

I'm **[name redacted]**, I'm an NCO and also do Occupational Health and Safety Training with the International and am a Rad Supervisor.

**Sam Glover**, Health Physicist with NIOSH

My name is **Mike Kubiak**, I'm a Health Physicist contractor to NIOSH with MJW Corporation.



I'm **Laurie Breyer**, I'm the Special Exposure Cohort Petition Counselor.

I'm **Ed Scalsky**, I work for Dade Moeller & Associates and I'm the Document Owner for the Hanford Site Profile.

Hello I'm **Chuck Nelson**, I work for NIOSH as well and I'm a Health Physicist.

Sam Glover began by explaining that there had been some changes and they were there as promised in the earlier meeting held on March 28<sup>th</sup> to discuss any issues that they might have with the SEC process. He explained that Mark Lewis had been following up with them but was unable to attend due to budget and contract issues but that those issues would be resolved soon. He let them know that this was not the only time for them to provide input and informed them of two previous public meetings that were held that week. He stated that this was an opportunity for the unions, in a separate forum, to give their input into the SEC 57 petition.

He recognized some of the individuals from the previous meetings and continued to explain that the purpose of the meeting was to get their input about some of the areas of interest and to answer some of their questions.

He discussed the attendance with one of the attendees and was informed that the leadership of HAMTC had been informed and they were expected to attend and could possibly show up later. It was also discussed that hopefully they would have more attendees at the meeting in July.

He asked them if they were familiar with SEC petition and opened the discussion up for comments.

### **Comment**

Well you were actually discussing the J. A. Jones logbooks as far as exposure goes. They are actually based behind B Plant and that is where they were pretty much centered at; in the 200 areas. We had some very interesting incidents that happened there. We had transfer pits that we used primarily to transfer liquid, liquid waste to the Tank Farms and these were concrete pits covered with concrete blocks. They would routinely go into the pits to the change valving lineups. There was a rule of thumb that you never went into the pits when the wind was greater than 10 miles per hour and reason being because they were extremely contaminated and they would routinely, I can, I could think of about four times in my... and the last one being as late as the 1990's. I don't know if you guys heard of or are familiar with the infamous fruit fly incident that happened here in Hanford. They tried to go in to fix that contamination in that transfer box, because when they pulled the block it would routinely spray contamination all through the J. A. Jones laydown yard. They had lunch room trailers and everything in there and what they did was they tried to apply a fixadent and this fixadent ended up being a sugar based fixadent and we had garbage dumpsters back behind B Plant and the fruit flies found the sugar and came back and went into the trash and ended up contaminating the trash and that trash ended up going to the land fill.

**Sam Glover**

From the fruit flies

**Comment**

What was name of the sub that brought the technology in because it wasn't Jones; they brought that in... it was another sub and I'm trying to remember their name because they did some stuff out at K.

**Comment**

But routinely, when we deactivated the plant in 98 we were routinely using the same fixadent.

**Comment**

What my point is because that company, if I could remember what the heck their name is, would be another company to get information from.

**Comment**

But there was a little track down on that because we were thinking that it was our stack releasing the contamination and we tracked it down to the actual transfer pit where they pulled the blocks and the wind was blowing a little too much and it would scatter right across from the laydown yards where people were eating, the lunch room was there and everything. We would go back there and dig-up the hot spot drums. That just came to my mind and I'm pretty sure those were incidents that were never really publicized too often.

**Mike Kubiak**

Now were the J. A. Jones workers in those areas during these times frames, were they badged already just by virtue of being on site?

**Comment**

Yeah they were badged, yeah that was 200 eastern.

**Sam Glover**

In the very earliest times, you often hear that the badges are key to getting into areas and I know that changed over time, but you guys may know, perhaps anecdotally, what or how things changed with time and the mobility of different workers. It seems in our records that when the guys are allowed to go in the 105 building it says in there on his badge that these are the places he's allowed to go.

**Comment**

You had like a 1 or 2 on your badge for 100 or 200 area and it would have, what might be, what your access was too. Just like last night when those guys were talking about neutron exposure. We never wore anything for neutron exposure and it was brought in, probably in the late 90's. It was on your badge because they wore it in the other areas and we used to see them wearing it but we did not know what it was because it used to be the patrol guys. But we never wore those and we only wore them for a short period of time but by then we were already shut-down. I think we were probably already de-fueled.

**Chuck Nelson**

You were wearing TLDs starting in 1972 weren't you?

**Comment**

Right.

**Chuck Nelson**

Those have a neutron chip in them.

**Comment**

I know, but it's just like what they are talking about where you get towards the end of the year and your exposure was already, always it would stay a certain level you know and they would round it down to try so that you could go into, so you keep working.

**Chuck Nelson**

Are you talking about pencil dosimeters or are you talking about TLDs?

**Comment**

Both.

**Chuck Nelson**

So you had a weekly and, did you have pencil dosimeters that were read daily?

**Comment**

Right .

**Chuck Nelson**

You had weekly total.

**Comment**

Right.

**Chuck Nelson**

And if you had approached your administrative limit then you'd have your badge read. Right? Your TLD badge would be read, right?

**Comment**

No, no, like if you were going in B11 for a charge, discharge and they haven't done a reactor decon for a long time you had to climb down ladders, lot of places did not have landings and they would always make sure you had on tennis shoes so you could stick your feet in between the risers and turn the B11's low flow by the time you get down to the bottom your padding and everything would be going off. You would be over 300 before you could even get out because once you go down you have to come up. So you're climbing forty feet and so I mean it was routine depending on what time of the year. Exposure was a premium. That's when they started

to bring those guys up from the 300 area and they were slow but because they were a separate job classification we made an agreement with them so they could come out because they were still a part of our local, that they could come out and work and they could use that for exposure. Because like I said there are a few years from September on I did not do much.

**Sam Glover**

Is that a later term practice, late term like in the late 70's or 80's or as far as with people coming from the 300 area, going to the reactor?

**Comment**

Mid 80's.

**Question**

Those were the fuel, metal operators?

**Comment**

Yeah metal operators. Those were the metal operators...1053. ..they fabricated the fuel rods. That agreement was probably made in 85, I would say...sometime around there.

**Question**

What difference did you see from what your pencil dosimeters read and *inaudible*, was there a big difference?

**Comment**

A lot of times there wasn't until they got towards the end of the calendar year, in toward the last quarter because it also affected overtime. See if they had one guy with say 50 hr left and all these other guys were burned out then they'd have to call all those other guys because it wasn't our fault that we got burned out. You know just to get to whoever.

And there were, as those guys were talking last night, there were certain jobs that people did or whatever, that varied by what exposure you had and what time of the year it came up. I mean because I hired in '83, so I'm the new guy and I could go in and do a new job that someone that's been at Hanford for 15 or 20 and has never done, just because of where the exposure rolled out. Because supervisors pay increases were based on in and out exposure across their shift. So their pay raise reflected and if they did a bad job doing it they didn't get much of a raise.

And then there is always like I said the 105 and 109, different buildings on the hot spots that you knew where not to go.

**Sam Glover**

So checking the N reactor....do we still have questions on the N reactor stuff? N Reactor and where else were you at?

**Comment**

N and K, N from 83 to 90 to Nov. 95 and I've at been K ever since.

**Comment**

The K reactor has not been operating for sometime?

**Comment**

Since '72, see but when I hired in a lot of the guys, the reactor operator guys, most of them were hired in the late 40's to '55 or '56. They were the old timers and we were the new guys so those guys predominately worked at K. When they were hired in they would go and re-fuel the reactors and they would spend a lot of time on K. You know 4 or 5 of those were on the original start up at N.

**Question**

So what year did you start?

**Comment**

'83...May of '83

**Question**

So you never worked around the operational K reactor?

**Comment**

No it was shut down when I was in high school. All those guys hated working at the K. There was something about the K reactors, some stigma or something, because nobody liked working at them.

**Comment**

You guys mentioned last night something about accidents or events that may have happened that you wanted to know about... is that correct?

**Sam Glover**

There was some discussion about when they had accidents, often time the badging was discarded. Accidents and incidents that are in the record we have taken into account but certainly if there are things that weren't in the record, yes I would be interested.

**Comment**

Which groups file incident reports?

**Comment**

Well I guess Operations because that is usually like on the weekend back shift and the Operations are the ones that are in charge of everything and it would have started from there.

**Comment**

And sometime would it have been the HPTs?

**Comment**

Well they would do that through the contamination level on a person but the official report would come from Operations. Theirs would just be a part of it.

**Comment**

What about the fire department?

**Comment**

You know they would respond to things but I really don't remember that coming up.

**Comment**

From what we have seen from other sites and also *inaudible* we have a pretty good report of times, we got an option for which they call now but in earlier years you wouldn't. The HPs, the Rad con, and so forth, hazmat and fire dept. actually all these are somewhat separate.

**Comment**

And to, because you had separate contractors so they would each have their own system, we were a union and UNC and then you have Rockwell in the 200 areas.

**Comment**

Another organization that often filed its reports of the security *inaudible*.

**Comment**

Usually the security stuff that we dealt with them was because of somebody bringing something in or crashing a door alarm or something I don't know, uh.

*Inaudible comment*

**Comment**

That would be mostly the 200 Area which, we got special nuclear material, but for us it wasn't a big secret because it made it to 300 and brought out to us and we ran it through the reactor. It wasn't a finished product so it's not like you could do anything with it.

*Inaudible comment*

**Sam Glover**

DOE was talking about some operations reports that they may not have sent us yet. There are a fairly significant number of reports so they are checking into that.

**Comment**

I know Rockwell did a compilation of all their incidents and of their unplanned and unscheduled releases dating back into the 40's and what was done to remediate the spills and releases. You remember last night the man talking about the release of ruthenium and REDOX plant that showed up in Spokane and Canada? That release was documented. It's about yeah thick. This document goes back into the 40's and upwards into the 70's and 80's.

**Sam Glover**

That was mostly stack releases.

**Comment**

Uh huh, yes.

**Comment**

Stack releases and other types of releases also. I think there were also liquid releases. Put six inches of dirt on top of it or that asphalt type stuff but that document, I got it from DOE reading Room here locally. I can go home tonight and get the exact document number and e-mail it to you.

**Sam Glover**

Yes, to make sure that we got it.

**Comment**

Do you know if they ever did any stack cleaning on those stacks?

**Comment**

Yes I can remember doing some clean up in the tunnel prior to going up the stack. That was down wind of the exhaust filters and heat clad and going in and doing some de-con. Of course that was after the filters so it was going up the stack, whatever contamination was there because we routinely...

**Comment**

We had what we called cornflakes there, we got burnt and *inaudible* throughout and can't see where it's at *inaudible* and we have to be ready to hold the stack down to take care of that. What was interesting about the *inaudible* question was the sampling of the water and what they found.

**Comment**

It would be nice to have someone here from tank farms.

**Sam Glover**

Understanding the tank farm monitoring would be certainly, I am sure there are some questions SC&A has raised about what were the practices in the tank farms and were the people monitored for internal dose. I don't know if we have anyone here today that could talk about that.

**Comment**

Not today, one of our guys is supposed to be here....

**Laurie Breyer**

You can always have them call me or anyone else and I can get them in touch with someone that can answer their questions, Sam or Chuck would talk to them.

**Comment**

With certain accidents that happened if we can give you the approximate date and time then you can go and ask for that report. How does that work?

**Sam Glover**

In an SEC what we are trying to find out is.... if you had or if there was an accident and you were monitored we can do dose reconstruction. While it impacts the individual claim it doesn't change our ability to make a determination of an SEC. Can you do dose reconstruction?

And so if you had accidents, thorium has typically been a problem because in the early years there was little monitoring. In the early years we didn't have plutonium monitoring pre 19...uh, so those are the kinds of things, like if we don't have monitoring data, that would mitigate or if the monitoring was inappropriate, that would drive...saying yeah, we had this stuff and it wasn't properly monitored and we had a lot of problems with it, that is what is going to drive our ability to do an SEC. If we have monitoring that shows you were badged and that added dose to a person, it affects their claim but it doesn't necessarily affect our ability to do and SEC.

**Comment**

But it also does a check, kind of a counter balance checking; especially if you know the individuals that are involved in the accident. When there is a major accident we go back and check their records and when the end up with a goose egg on it that is telling us there is a flaw in the system. Sometimes, I like to paraphrase, if there was an accident and their badges were burnt up and they just threw them away, well all that dose is now gone and that gives us the opportunity to go back and check into some of these incidents and do a counter check.

**Comment**

I think there are problems with some of the monitoring today and do we do a very accurate dose reconstruction. Just last week we got an operator that got a reading on a name but on the back of the TLD, over 407 mr, and they said that it would have happened with just a freak accident like a beam that hit it, and you know it's got a window just like this. So they wanted to write that off.

**Comment**

Well this is some of the stuff that we are looking at. If you would pull my records up they took a lot of my dose off and called it noise. They said it was where the badges were set and they would subtract so much a month off. There's a 5 to 1 ratio with the pencil dosimetry. *Inaudible*. And that's why I just laughed. Because I've been fighting with DOE because my gap on our monitoring program went like this, now we're bringing all these contractors on and we're going back to the 80s.

**Comment**

I know that is the same at least at the place I work now. They call it noise and if you have less than 10 mr on your TLD they put you down as zero.

**Sam Glover**

They administratively zero it out.

**Comment**

They zero it if it's less than 10 and we are using supplemental dosimetry now, you know finger rings, pencil, gamma pencils and bar dosimeters. They are there just in case you have an incident because they are not going to go by what your pencil reads but by what your Hanford TLD reads, not what your supplemental dosimeter reads.

**Comment**

What's the difference between monitoring in the different areas? You got to realize, I'm acting dumb on this but I was listening to a lot of the guys talking last night about, well...we didn't have any of this or in this area we had that.

**Comment**

There really wasn't anything defined they primarily went by a facility by facility basis. It wasn't until really 1993 when 10 CFR Part 835 when people issued that and said this is how it's going to be and issued the RadCon manual, was developed in '94 and prior to that it was pretty much a facility by facility basis.

**Comment**

I can remember in Oak Ridge you couldn't even find a rad tech and I am sure it was the same way out here. (Chatting back and forth) at K25 and Y12.

**Comment**

I asked an operator one time if you put your TLD in the microwave.....

**Comment**

And I know as far as the bioassay program we have some questions even today. There was an individual that worked with me on the deactivation of 223 S, which was a facility that was tied to the Rad ops facility, and he was bioassayed for plutonium and at the current facility where I work, which is a rad facility, we were picking up drums that were certified with a shipment to New Mexico. We reached the threshold for the bioassay monitoring requirements for uranium at our facility so everyone was bioassayed for uranium as well as plutonium and this gentleman had a hit on uranium.

**Comment**

And this was just recently!

**Comment**

This was in the past year and they did follow-up and said that it was just a false negative.

**Comment**

Do you guys remember when they started *inaudible* rigs at the tanks farms and whether or not *inaudible*.

**Comment**

Who does bioassays now? Is it an ACR, are they contracted..?

**Comment**

It's still Battelle

**Comment**

How long have they (Battelle) done the bioassay's out there? I guess what I am getting at is that....

**Comment**

Since they fired United Testing.

**Sam Glover**

Did Battelle take that over? I thought they still contracted that out. Anyway, I didn't think Battelle had a rad chem lab.

**Comment**

Battelle is responsible for the records but they actually have sub-contractors.

**Comment**

Battelle actually does do the bioassays – because they had an incident at their lab a year or two ago where people turned up positive with some ventilation problems and there were people that turned up positive for plutonium and they said “oh, it's just a ventilation problem in our building.”

**Comment**

That was just in the paper a few days ago that in the Battelle lab about 3 people got contaminated in one of the testing areas.

**Comment**

I have a question on reactors? They don't do any radon monitoring?

**Comment**

No

**Comment**

Was that PFP.....

**Comment**

No

**Comment**

No, what I was told, they made tritium out of there in 1968.

*Inaudible conversation*

**Comment**

It's just like they never started checking for alpha till, and that lasted for years because they said they never had it.

**Comment**

Sam, do you have the survey document that states what the facility has to survey here?

**Sam Glover**

I don't know, not that I know of, do we have, are you talking about the reactor areas?

**Comment**

No, this would be site wide, probably *inaudible*, this would be survey requirements and because, PFP only has to survey for alpha, certain facilities would have to survey for beta gamma.

**Sam Glover**

I don't know if we have it in our...we have an extensive list whether we have that or not I do not know but we will find out and ping you. If not, we will ping DOE.

You know, from the records there is tritium bioassay and tritium monitoring and I know that there are issues that they cannot find tritium monitoring until 1982. So we know there are issues. I know there are some issues on the bioassay on the tritium.

So the question about the accidents, I guess it sounds like if we had some specific instances that are listed it would serve as a QC task for the Board when it comes time to evaluate the appropriateness that these people had accidents and that their data was properly...how we choose that I do not know, when you have hundreds or potentially thousands of accidents over the course of time how to properly choose that, but thinking outside of the box it offers another way of looking at that.

**Comment**

I'll give you date help, make sure that I get it, because I'm going off the top of my head because I don't think it's an accurate date. The reason I ask is because this person received a lifetime dose. So I guess that would be a way to find out.

**Comment**

Also, *inaudible*... involved... *inaudible*

**Sam Glover**

What did you say – I couldn't hear what you said Brad.

**Brad**

*Inaudible response.*

**Comment**

I just want to get the accurate date and time because I want to give you the exact date and year that we're talking about.

**Sam Glover**

So we can address that in maybe a private forum or if you want to tell us, obviously they'll need names, it's easier if they're claimants, Hanford I think has been pretty quick about getting us stuff. The Rex database gives us a significant co-worker dataset so those things ought to be in there.

**Comment**

That brings up a question that I have on the co-worker. How do you, when there all these questions about the monitoring and unresolved questions from SC&A how do you do the co-worker? Because so many people, you are doing the worst case category, or I can't remember the exact name, there's three categories, one is the worst case, the actual monitoring and the minimum exposure; overexposure, exact and the minimum?

**Sam Glover**

For the way we do dose reconstructions?

**Comment**

Right, but how do you come up with co-worker data especially when it seems that so much of this data is missing?

**Sam Glover**

The concept is for someone who was not monitored; typically we use the ninety fifth percentile. You take the data from the folks that were monitored, and if you know that the highest exposed people were monitored and you use the ninety-fifth percentile of that than you should be overestimating everybody's dose. That you are basically assigning the unmonitored worker as if they were the highest exposed worker at the site.

**Comment**

I guess it is just not computing with me, there are several people that have been paid, that have gone over the 50% and yet it doesn't seem that they are included in the co-worker because they would seem to raise up the co-workers if you used - am I making sense?

**Sam Glover**

When they use co-worker they take all external dose data and would do that by quarter and what is the distribution and what is the ninety-fifth percentile, what is the average, what are the statistics that are associated with the data from everybody at the facility. The same thing that would be done for plutonium depends on site specific... but for Hanford I think we have internal and external co-worker data for Hanford. So they would take all workers at that entire site and develop a co-worker model based on all that data. And typically they use it for people that do not have any exposure records.

**Comment**

And who developed this program, there's got to be a software program for this?

**Sam Glover**

It's, I don't know that we have a particular software package for this, it can be done in Excel after you get the data together, it's probably the Rex database.

**Comment**

She's asking where the data from the Rex came from.

**Sam Glover**

The site provides and it is the responsibility of the Department of Energy to give us data. So they give us the external data, this is the data for everybody, so this is the Rex database.

**Question**

Is that what you were asking?

**Comment**

Well, that's part of it, I was reading that there was a man who used to work at Hanford for a long while and then retired, quit, moved on, whatever and now he is writing software programs to do dose reconstruction. And I know that ORAU and NIOSH have purchased software programs from this person. And I was wondering if that would be a conflict of interest and how that program is used? When I have listened to all the stories of inaccurate monitoring and you are still coming up with co-worker monitoring it just doesn't seem to make sense to me. So do you have any answers for me?

**Sam Glover**

Well if you take a certain person's dosimetry badge and there may be some inaccuracies but the largest number and you have thousands and thousands and thousands of measurements you are going to expect that distribution to reflect...certainly if you have people that were inappropriately monitored and there is a bias then it may need to be corrected.

**Comment**

What do you think [name redacted]?

**[name redacted]:** I understand what you are saying because last night when some of those guys were talking about pulling those red wagons and different stuff and when you worked N reactor, for instance, primarily your dose is coming from a lower level, that's like I know guys that would wear their badge at their waist or have a longer lanyard because if you were out in the base processing it and you stick a pencil down here the one that you are supposed to be wearing between your waist and chest the reading is going to be twice as high. And even like figuring your extremities, they can figure it a lot lower because I was on the reactor side and we stood in primary water and some of the times if we had a leak in the upper rupture room and we're up and operating and you're trying to squeeze your primary water into the drains and the dose that you

pick up from here to here; that dose is probably 3 or 4 times higher because sometimes we took extra pencils with us. Just ask for another one and click it down here just to see what you got.

**Comment**

I think it's interesting to hear why they changed to the red wagons, how they got there, because they used to stick them in their back pockets.

**Comment**

Yeah, tuna fish cans.

**Sam Glover**

So it was the standard practice to put them in their back pockets and walk them over there so that they would not have a criticality?

**Comment**

No separation, they were in the back pockets.

**Sam Glover**

Yeah, you don't have them together.

*Inaudible conversation*

**Comment**

Sam, I have to go, I have another appointment but one thing that I wanted to make sure... and that the workers realized, is this TBD, this site profile that has been put together as a living document and as we find more information... I think some of the things that I have been interested in is the leakage from these reactors and a lot of different *inaudible* went up there and a lot of different tests went up there and stuff so there's got to be information of what forced them into that situation. And that is something that I'm very interested in because usually there is a reason for what we've done and a lot of the changes in the reactor and so forth. I know in reading it and other documentation they talk about pencil shine, beams that came out and they didn't realize, because they didn't have shields and I guess there were ports or something like that?

**Comment**

They used a shuttle facility right out of the rod room but there was not a control rod in there, they used to send in for experiments you also had because of, over time where graphite started to grow and I remember that over time the graphite started to grow so you had certain tubes that were warped and used shorter fuel and at one of the outages it actually took graphite off the top of the reactor because it was getting too close to the shielding.

**Sam Glover**

The damages it makes would be larger because of the degradation. They thermally treated that to remove some of it but I am not sure how successful they were.

**Comment**

We actually cut it off. We blocked off hallways and whatever while they brought it out. Because you're talking about coming down from the forty foot level off the reactor then coming to the zero foot level to get out of the building. Then when you're talking about the shine, like out of the process tubes or out of the ball hopper on top of the reactor, there was a lot of shine out of that. The ball hopper was our safety system because you had slow rods in the column for shut down and you get balls for ...

**Sam Glover**

I remember you talking about that at the first meeting because they would do tests on that.

**Comment**

Yeah because like on scram rods that had to go in within a second and a half so if you had a slow rod or two slow rods in a column then you would have a ball trip on both sides. And you have the shine coming out of the ball hoppers like when *inaudible*, it's screaming hot. Just once in a while you ended up with those samarium balls in there that they used before they went to the barium carbide, those things didn't decay.

**Sam Glover**

You said some would get caught up at times and were hotter than a pistol?

**Comment**

Yeah, you go in and bang on it with a pipe and run around the corner. Stick a CP in and see what you got, run it through a vacuum system put in a cast and bring it out of room 19.

**Sam Glover**

And the samarium balls, that was early on?

**Comment**

Yeah I don't know, when I came on in '83 they weren't using them but they still did every now and then because the ball hoppers channels, they're almost like those ground columns that went up and down and with the graphite shifting you'd end up with a shelf and every now and then on a ball trip one would get hung on those shelves. Then until you got another trip or did some type of maintenance where you flushed other balls down there. The ball hopper held 5 gallons about the size of marbles, and it might knock it lose and you would know down in room 22, that's where the ball recovery room, was when you got a hot one. You tried to separate it, and then take it out with the vacuum and take it in this cast which was kept in another room, Room 19.

**Sam Glover**

Now would people get up and mess with these things while the reactor was on?

**Comment**

No! That's Zone 1.

**Sam Glover**  
Zone 1 – No?

**Comment**  
When we are up and operating it's probably 190°.

**Sam Glover**  
So that would be during an outage, this is an N reactor?

**Sam Glover**  
So it would be a gamma ray exposure circumstance for gammas.

**Comment**  
A samarium ball would read, I don't know how many mr, but several hundred if not more.

**Sam Glover**  
Especially if it got stuck in a reactor. Did they use those at the B reactor as well?

**Comment**  
I don't know.

**Sam Glover**  
I thought I heard you talk but that I guess that was the process engineer talking about the N reactor when we talked the last time. You were talking about the samarium balls.

**Comment**  
*Inaudible...* single pass reactors?

**Comment**  
No that was done before; 1972 and before – right, and those are sub-critical and we still have some old fuel from those old reactors. There's some of that floating around the basement. Most of it was shipped out by 2005 but there's some they found last year but I need to find out...those use a lot smaller fuel pieces and they are aluminum clad to try and identify what it was, so there is still some floating out there at K.

**Sam Glover**  
And those were refueled and they basically said go sub-critical, push out the next one?

**Comment**  
Yep.

**Sam Glover**  
We're going to see it tomorrow.

**Comment**

Are you all going to do dose reconstruction on the divers?

**Sam Glover**

On the what?

**Comment**

Divers

(Misc. talking to figure out what exactly this lady means by divers)

Pools

They are bringing divers into K

So you guys are going where tomorrow?

**Sam Glover**

B Reactor, Plutonium Finishing Plant, and T Plant. We have had a lot of discussion on B reactors so it will be good to go see what the different issues are and imagine where people can get dose; see what was going on.

**Comment**

You should stop at K on your way by.

**Sam Glover**

So K is still up?

**Comment**

K's only a couple of miles apart, you need to go by K to get to B. Because it's the same single pass style reactor, operating from '51, '52 through '72.

**Sam Glover**

What would we see different at K than at B?

**Comments**

*Inaudible*..... see where they are going to send the divers. They are still finding rods, different pieces.

**Sam Glover**

Yes, I saw some of the pictures of the degraded fuel at the bottom of the pool, it's not very pretty. I imagine it was a nasty shut down when they stopped everything.

**Comment**

See the fuel that they shipped from K East was not what they called encapsulated; the stuff from K West was. You actually had lids and you put a little chemical thing in there and that was in stainless steel cans and a lot of the stuff at east was, a lot was in aluminum and open to the water and they degraded and we had ruptures and that fuel would be there too and would be open and would degrade quicker.

**Sam Glover**

Remember the guy last time that had to bust out the ruptured fuel rod and get that stuff out, well that was from B Reactor I guess, some of the old reactor I guess.

**Ed Scalsky**

Kathy, you were asking if there was a listing of the bioassays at the different buildings. Is that what your question was?

**Kathy**

No, I was talking to *inaudible* about *inaudible*.

**Ed Scalsky**

Because they would have certain listing of what requirements were. I don't know if they have it in a specific place for all buildings but I am sure that they do have that.

**Sam Glover**

I think Kathy said she's got it.

This is just operational health physics.

**Comment**

When will your recommendation come out?

**Sam Glover**

We are coming out on July 17<sup>th</sup> and 19<sup>th</sup> to talk about the first period, the '43-'46 timeframe, and our report is due, that's when we will actually make our presentation to the board and the second period is due to the Board in late July.

**Comment**

I know there were some concerns that were brought up in the Hanford working group, one was Sodium 24, was there any resolution that came out of that?

**Sam Glover**

I believe the Sodium 24 issue was resolved to my understanding.

**Comment**

And what was the resolution?

**Chuck Nelson**

I guess what they were talking about was a possible activation of Sodium 24 and the way they do their neutrons and we found quite a bit of documentation on the bioassay program and there was a discussion in there that closed out their issues. I do not remember all of what the issue was because it was a few months ago but to my knowledge the working group was satisfied with the response.

**Comment**

It was the drinking water. I believe there was some concern that it was the drinking water.

**Chuck Nelson**

Well they were insinuating that it might come from neutron activation to the body and there was good documentation on the drinking water that it was actually good for the drinking water.

Sam Glover expressed his appreciation to those in attendance and continued a discussion about the upcoming Board meeting in July. He invited them to bring any information about the practices of the early time frames with them to the meeting and assured them it would be very helpful to the SEC process. He stated that other formats would be welcome and they were not restricted to a particular method for gathering information.

A question was raised about the particular agenda and flow of the upcoming meeting and if petitioners would have the opportunity to speak to the Board and he explained that NIOSH would give a presentation and then there would be a period for the petitioners to have their say. He encouraged anyone who wanted to address the Board at the meeting to make sure that they were on the agenda.

He explained that he believed that the petitioners would receive a copy of NIOSH's presentation prior to the July meeting and thanked them again for coming.

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