



NIOSH Dose Reconstruction Project Meeting On Pantex Site Profile

Date:

June 3, 2004

Meeting with:

Metal Trades Council

Pantex Guards Union Attendees:

Henry Bagwell	President /Chief Steward: Metal Trades Council
Leo T. Salazar	Pantex Guards Union
Mike Stumbo	Pantex Guards Union, Safety Officer
Sofia Delos Santos	Metal Trades Council Safety
David Pompa	Metal Trades Council Safety
Clarence Rashada	Vice-President, Metal Trades Council
Arthur L. Frank, MD	Drexel University

NIOSH and ORAU Team Representatives:

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

William Murray – Oak Ridge Associated Universities (ORAU)

Dillard Shipler – Pantex Site Profile Team Leader

Mark Lewis – ATL International Inc.

Dawn Catalano – ATL International Inc.

Proceedings:

Mark Lewis opened the meeting at approximately noon by thanking all attendees for taking the time to meet with the National Institute for Occupational Safety and Health (NIOSH) and the Oak Ridge Associated Universities (ORAU). He introduced himself as the Union Outreach Specialist and gave an overview of his professional background and goals of the program. Each participant then introduced him/herself including their union affiliation. Mr. Lewis gave an overview of the dose reconstruction program and the purpose of the meeting, which is to gather information as well as describe the program. He then introduced Grady Calhoun, who told the participants his experience with both NIOSH and the dose reconstruction program, assuring them he would answer any questions they have to the best of his ability.

Mr. Calhoun turned the meeting over to William Murray to begin the presentation. Mr. Murray made a point of explaining how the minutes would be distributed to key union members for review, and then posted on the NIOSH website. He expressed his strong belief in the outreach program and how his professional background showed him how important it was. He again thanked everyone for coming and asked everyone to be sure to sign in. He also pointed out that the meeting would be recorded, not for direct quotation, but for completeness of records. He



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assured the attendees that the recording was not for public disclosure and that we did not want to inhibit discussion.

Mr. Murray started his presentation by outlining the Energy Employees Occupational Illness Compensation Act (EEOICPA) that provides compensation and medical benefits to employees of the Department of Energy (DOE), the Atomic Energy Commission (AEC), and Atomic Weapons Employers (AWE) for radiation-induced cancers. The Act includes provisions for other exposures to chemicals that NIOSH does not work on. NIOSH is responsible only for radiation exposures under Part B. NIOSH was instructed by Congress to reconstruct radiation doses for workers who have submitted claims for cancers. The program involves two government agencies: the Department of Labor (DOL) and the Department of Health and Human Services (HHS) which is where NIOSH is. The ORAU team, that includes several subcontractors, was hired by NIOSH to reconstruct doses because it is such a large project. DOL receives the claim and verifies employment at the site at specific times, and they determine probability of causation which is based on radiation dose reconstruction. This is accomplished with statistical information to determine if the cancer was related to radiation exposure. NIOSH is responsible for dose reconstruction and putting together regulations regarding the dose reconstructions and related issues. The ORAU Team does the dose reconstructions with oversight by NIOSH, as well as the outreach program.

Mr. Murray explained that dose reconstruction has to be completed for any claim submitted to DOL for cancer with the exception of four sites that have special exposure cohort status. These sites include the three gaseous diffusion plants in Oak Ridge, TN, Paducah, KY, and Piketon, OH, and Amchitka Island, AK, which was a DOD underground nuclear weapons test site back in the 60s and 70s. We use all available records to do the dose reconstructions, including personal records of the individual and the records used to put the Site Profiles together. We identify information gaps, and when we need to fill in the gaps, we make assumptions. They are, to the best of our ability, always favorable to the claimant or survivor to make sure they get the maximum dose level. This gives a better chance for the claim to be awarded.

The purpose of the meeting is to talk about Site Profile for the Pantex plant; it's not completed yet but we will share with you what kind of information is going into it. I will also describe how the Site Profile is used and answer any questions you have. The Site Profiles are used by the people (Health Physicists) who conduct the dose reconstructions as a technical handbook. The most important reason for today's meeting is to get input, issues and concerns from the people who have information that we may not have. We want to document all the concerns and issues raised and we will enter them in an electronic dbase. I encourage discussion as we go along; please ask questions as you think of them.

One of the most critical concerns from the NIOSH and ORAU point of view is protecting the privacy of the individuals involved. One goal of the program is to do everything possible to protect the confidentiality of the information we use for the dose reconstruction. All contractor employees receive mandatory training in the Privacy Act.

NIOSH and ORAU want to talk to people at the sites like you who have questions and information. We use this information to process claims consistently, fairly, and in a timely manner. We also want to avoid real and apparent conflicts of interest and we are establishing or already have policies to ensure this. There is a limited pool of Health Physicists (HPs) in this



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country. ORAU does not allow its HPs to do dose reconstructions for claimants who worked at a site where the HP worked. ORAU also does not allow HPs who were in a management position at a site to be the Team Leader for that site or the primary author of a Technical Basis Document (TBD) for that site. The latter is an issue that we didn't get sensitive to until recently. The early Site Profile teams were comprised of the best people available and we often ended up including people from the site. From a technical point of view it made sense, but more recently, the issue of a conflict of interest became more pronounced, and ORAU is establishing a new policy. It is not formally in place yet but the work is being conducted under the new policy. No Site Profile Team Leader or primary Site Profile authors can have been in the management at that Site. Some sections of the Pantex Site Profile that have been written by former Pantex managers were approved prior to this policy being implemented, but Mr. Shipler will be in charge of all work from now forward. We don't even want to give the appearance of a conflict of interest. Grady reiterated that the same policy holds for NIOSH on the dose reconstructions. He worked at Fernald so he can't do any of the dose reconstructions for claimants who worked there.

Mr. Murray explained that the Compensation Program is driven by a person's occupational radiation dose – that's what's being reconstructed in regard to the claims. There are four (4) dose components: medical dose, environmental dose, internal dose, and external dose. He explained the differences between doses. The medical dose results from employer-required X-rays. The occupational environmental is primarily used for unmonitored workers. The occupational internal and external doses are for monitored workers. Site Profiles are documents that contain info about what went on at the site, focusing on the radiation protection practices, e.g., how frequently badges were exchanged, what kinds of radiations were monitored and what not, etc.

A discussion ensued regarding security badges and whole body monitors. Mr. Murray noted that Mr. Shipler was taking copious notes on the discussion to look into the matter in more detail for future sections of the Site Profile.

Mr. Murray continued about information that is included in the Site Profile including potential radiation exposures that may have occurred on the site, radiation sources that were used at the site, and the dosimetry program. He explained that Site Profiles are broken into chapters called Technical Basis Documents (TBDs) and that the information included in each TBD provides technical guidance in the dose reconstruction. He stressed that they are considered living documents and can be revised as needed. He also explained that the word facility is used as a general term to mean an area or building used for a specific purpose and does not mean or refer to an AWE or DOE facility as defined in the Act.

Site Profiles support dose reconstruction; the primary customer is the health physicist doing the dose reconstruction. They need site specific technical information to minimize interpretation of the data to ensure fairness and consistency in reconstructing doses.

Mr. Murray then said that any information they have about the site should be forwarded directly to NIOSH for tracking purposes. Site Profiles that are already approved are available online for review. Each document has been through an extensive review and approval process by NIOSH. But they continue to be subject to revision in response to any comments submitted. There is also an Advisory Board on Radiation and Worker Health that reports directly to the Secretary of HHS who works with NIOSH to oversee activities on the program.



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Mr. Murray explained that the Site Profile Team was put together about a year ago. Jerry Martin was the original team leader, but as mentioned in the discussion about conflict of interest, Dill Shipler has taken over. People with expertise in particular disciplines are writing those sections or TBDs. He outlined what the sections contain and the status of the NIOSH approval process for the Pantex Site Profile. He further mentioned the process of dose reconstruction emphasizing again that NIOSH is claimant-favorable whenever possible. He said that medical doses are from employer-required X-rays that are a condition of employment. Virtually all are chest x-rays. He stated further that the X-ray equipment has changed over time, and that is considered in the dose reconstruction. Furthermore, these doses are not included in the employee's DOE dose record, and have not been considered occupational doses in the past. But NIOSH is now including this dose in the dose reconstruction.

Following a discussion of dosimeter reading problems and several questions, Mr. Murray completed his discussion of external and internal dosimetry program, including the bioassay program that he described as event driven. To counter any problems with unreliable internal dose information, NIOSH will have to make up for this lack of information. The experts did not consider the data suitable for dose reconstruction and will make suggestions regarding how it should be handled. He went on to say that occupational external dosimetry is based more on dosimeter readings and instructions for reconstructing external dose are provided also.

Mr. Murray concluded his presentation by stating again that developing a useful Site Profile is an important that is evolving. He restated that they are living documents and are subject to revision as additional information is received. He specified where comments should be sent and what information is required for formal comments or questions. He asked if there were any other questions or topics of continued discussion. Mr. Calhoun offered to show some of his slides on the dose reconstruction process and everyone agreed to take a short break then resume with the impromptu extension of the presentation.

Mr. Calhoun explained that one of the items considered in the probability of causation (POC) is how much dose it takes to a particular organ. He presented slides showing his analysis of how much dose is necessary for the POC to reach 50%. He said that gender, age, race, and dose are all contributing factors. For example, a younger man is less likely to get prostate cancer than an older man. So a 60 year-old has a 40% chance to get it anyway. For the same radiation dose, a 40 year-old man would have a higher POC. Similarly, a non-smoker needs 25 rem to get to a 50% POC. Smokers (2 packs a day at the time of diagnosis) can have 80 rem and not meet the eligibility because it is known that smoking causes cancer. A female smoker has the same risk as a male non-smoker. These are some of the factors that go into calculating the POC. The models that are used in this analysis came from the National Cancer Institute.

Mr. Grady also described the differences between the use of overestimates and underestimates, and how they are used with models for dose reconstruction. He explained that as soon as the POC reaches 50%, when individual circumstances meet requirements of the models, NIOSH can approve the claim as part of the efficiency process. This process enables the maximum number of claims to be completed. For example, if the internal dose makes the POC 50%, there is no need to look at the other dose components.

He offered a high-level outline of the dose reconstruction process as follows: within a day of receiving a claim from DOL, NIOSH sends a response to DOE asking for dosimetry records.



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DOE verifies employment and has 60 days to respond. The claim is reviewed during that time, and the claimant or survivor is contacted to schedule the computer assisted telephone interview. Dose reconstruction can be started once this information is obtained and the analysis is run using the recorded doses and the highest possible assumption based on DOE records. Claimants also are allotted time to review the results. By law, the program NIOSH uses IREP, the Interactive Radioepidemiological Program which is based on studies that link amount of radiation to cancer risk. He also explained 'relative excess risk,' a comparison between the amount and type of cancers in people who were never exposed to people after they were exposed. The higher the incidence of cancer in the general population, the higher the dose required to reach a 50% POC. The relative excess risk is what is caused by the radiation dose over and above what you are likely to get without any radiation exposure. One of the other factors that helps people get paid is when people have multiple cancers, we have to calculate dose for each cancer and the doses are combined.

Discussion Session

Question:

Is this program covered under HIPAA (the Health Insurance Portability and Accountability Act of 1996) since medical records are involved?

Arthur Frank:

The Privacy Act passed in 1974 relates to information the government can collect that includes personal identifiers associated and how they can protect it, under what conditions info can be released, etc. If a claimant went to a health care provider or pharmacist, that would be under HIPAA. The only information NIOSH receives is certification that there is a cancer. It's a different slant on similar type of information. Information that we use is on a secure network and only people authorized, who have had Privacy Act training, have access to it.

Question:

Where does the information regarding activities at the site used in the site Profiles come from? Workers have information that is not necessarily on the records or reports.

William Murray:

Mostly from records out of the Department of Energy (DOE); a historical document covering everything at Pantex from day one in 1951 to present, such as descriptions written by contractors regarding what went on in various buildings, what kind of work and materials were present, as well as DOE reports and records generated by the site. This is not the only source of information. At Y-12, the Site Profile Team used information published by people who worked at Y-12 in the health physics literature. NIOSH and ORAU recognize that there is a lot of information that the workers at the Sites have and one of the goals of the outreach program is to get that information to help us develop a more accurate, more complete document. NIOSH has had to rely heavily on information from records but they know the workers have different experiences. This is the 6th meeting with the unions at the sites. The unions at the Portsmouth site and Hanford have entered extensive comments that we are reviewing.



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Question:

What were you referring to the possibilities of something existing for a short period of time – can you clarify that?

William Murray:

During the time when the Atomic Energy Commission (AEC) took over the activity of the Manhattan Engineering District in the late 40's, the Sites did work for the Atomic Energy Commission.

Question/Concern:

Is it just a courtesy for NIOSH to be here meeting with the leadership when we are not part of the review process?

William Murray:

Unfortunately, that's the way it started out. NIOSH did not realize the importance of working with the people at the site. People were hired to go out and get the records but the concerns raised by the Advisory Board on Radiation and Worker Health led to the development of an outreach program. The Board made a formal consensus recommendation to NIOSH to implement an outreach program. Members of the board are very concerned about occupational health and that the workers have the opportunity to provide input.

Concern:

Some of the areas that may be the most problematic would pertain more to the people who actually worked on the site. They would know more specifics than the leadership who attend the meetings.

Mark Lewis:

What I'm doing to address this issue out at Muscle Shoals, Alabama is a good example. I called to introduce myself as the Outreach Specialist. I explained the purpose of the meetings a few months in advance. I wanted to give people the opportunity to look at the website and to get in touch with retirees. I make a general attempt to have all participants fully aware and as informed as possible for maximum participation when the actual meeting takes place. It's a problem and I am open to any suggestions you may have.

Concern:

One of the things that would help is for the union leadership to take responsibility to get those lists out as part of the outreach for workers to review so they have a chance to see what the most important topics of discussion should be beforehand.

Mark Lewis

I call it risk mapping – take a snapshot of who was working where at a specific time.

William Murray:

PACE leadership helped a lot on the INEEL site by getting several of the retirees together for the meeting. For now NIOSH has to rely on the present union leadership to direct us to those folks who would be able to provide more input.



Question/Concern:

The internal/external dose is a bit confusing. Is there a more detailed explanation you can provide?

Grady Calhoun

I have a presentation with me that might help and would be happy to share some examples with you following Mr. Murray's presentation.

Question/Concern:

Records are not always accurate; bioassay records in particular are often incomplete.

Dillard Shipler:

We go back to all the records we can find – there can be 50 boxes of records – and we have had a difficult time finding bioassay data. Some microfilms were found but everything that's been recorded has most likely been found by this time. We have to make an expert judgment about what assumptions should go into the dose reconstruction.

Concern:

There were instances where entire buildings were monitored, but by the time the radioactive materials got to the monitoring system, they had been ventilated. Therefore the doses would not be read at levels they must have been at in the room.

Issue/Concern:

Despite all the knowledge and experts, there were still injuries when workers would go into an area and the dosimeters have a higher dose. Yet the calculations say the workers received a dose that is not consistent with what they were told to do. When we talked to workers they told us 'this is what we did.' So we still have a little bit of doubt about how they do calculations. We believe this puts workers in a dangerous situation since the records do not appear to match the work assignments as far as the doses they received for performing work as instructed. This leaves us with little faith in the system if those things are still occurring today.

Dillard Shipler:

Part of the system for external dose is to determine what kind of dosimeter you have and how they were calibrated and read. Over the years the dosimeters have changed. Understanding those uncertainties and how they ought to be dealt with in terms of exposure to a particular organ is part of what we're dealing with in these technical basis documents.

Grady Calhoun:

One thing we have found in the dose reconstruction reports is that many times the dosimetry reports have a lot of zeros. Almost without exception, when a dose reconstruction report comes back, those numbers won't be zeros when NIOSH is done with it. A particular dosimeter – say number 29 – may not be able to see anything under 20 millirem with statistical validity. So we'll assign some dose above zero to account for what would happen if they were continually receiving 19. This is an example of the claimant-favorable techniques that are used which are very prevalent throughout the entire process.

This was followed by a discussion on how repeated mistakes or miscalculations such as these could cause overall mistrust of the system and of specific cases that would be discussed later



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outside the meeting when more details could be provided for Radiation Incident Reports required by NIOSH.

Issue/Concern:

What happens if you come back with another kind of cancer 2 years after an initial claim?
Would it be necessary to reapply?

Grady Calhoun:

This can be handled in two ways. If a claimant gets a second cancer diagnosis after filing, NIOSH can either redo the reconstruction or add the new cancer back into the original dose reconstruction. This has happened before and NIOSH has started over, not always from the beginning but to add the new cancer in.

Question:

What studies are the Interactive RadioEpidemiological Program (IREP) based on?

William Murray: This program is based primarily on epidemiological studies of the Japanese survivors of the atomic bombs dropped in World War II and on epidemiological studies of workers and medical patients exposed to radiation. These studies are summarized in the reports of the National Academy of Science Committee on the Biological Effects of Ionizing Radiation (BEIR). The records of all epidemiological studies of workers at DOE sites are maintained by the Lawrence Berkeley National Laboratory and can be found on their Comprehensive Epidemiologic Data Resource (CEDR) website (<http://cedr.lbl.gov/>).

Grady Calhoun:

Any information from new studies will be used to revise the Site Profile.

Question:

What information do you have to determine that someone else got Special Exposure Cohort (SEC) status but Pantex did not?

Grady Calhoun:

That was a Congressional decision on the sites that were designated as an SEC. A new rule was established to add sites and workers to the SEC. But the primary factor is that NIOSH can not do a dose reconstruction on individual workers. This means NIOSH can not credit the highest dose a person got and set an upper bound. There are only 22 listed cancers as part of the SEC and prostate and skin cancers are not included. If you worked at an SEC facility and got prostate or skin cancer, then the claim goes to NIOSH for dose reconstruction. Radiation affects rapidly dividing cells. One of the organs that is least radiosensitive is the brain but brain cancer is covered under SEC. It takes a tremendous dose to result in a brain cancer.

Question:

If someone works in an SEC plant and gets a listed cancer, what would the process be?

Grady Calhoun:

NIOSH would not even see the claim; DOL verifies if the claimant worked 250 days during the specified period and that there is an appropriate latency (time between when you worked and



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when the cancer was diagnosed.. As long as those criteria are met, NIOSH doesn't even get a report.

Concern/Question:

Pantex is not in the SEC program, what does the Site Profile for Pantex give us? How does it help a claimant?

Grady Calhoun:

The Site Profile helps us do the dose reconstructions by providing information missing from individual records.

Concern/Question:

Where does the cohort come in?

Grady Calhoun:

An application would have to state a reason why NIOSH can not do a dose reconstruction. If NIOSH disagrees and thinks dose reconstructions can be done, the recommendation would be not to approve for the application for SEC status and will continue to do dose reconstructions. If NIOSH can't come up with an upper level dose that workers received, NIOSH would recommend they become an SEC. The Advisory Board on Radiation and Worker Health has to approve and make recommendations to secretary of Health and Human Services to add any group as an SEC. Once that group is added to the SEC, any claimant who has one of the 22 listed cancers is automatically approved. To apply a site needs to consider if there is a group of people who, for some reason, can not have dose reconstructions done for them, for example unmonitored workers. Only the people in that group would be part of the SEC; everyone else would have to have dose reconstructions.

Mr. Murray thanked everyone for coming, offered extra copies of the handouts if anyone needed them, and the meeting was adjourned at 3:30 p.m.

Attachments:

Comments submitted Worker Outreach meeting participants.



**Pantex Worker Outreach Meeting
Comments Compiled by a Meeting Participant
From Discussions with Former Workers**

I have contacted several former employees who worked with the weapons during the 1950s up to their retirement during the eighties and nineties. I questioned these employees in regards to occupational internal dose, occupational external dose, PPE/lead aprons, and radiation air monitoring (RAMS). I also received comments concerning the methods that were used during those times. This information could be similar to what ORAU already has and could possibly be used to support their findings.

The following information will detail my questions and answers:

Internal dosimeter:

When I asked the employees about the bioassays they said that prior to 1991 the bioassay requirements were event driven. The type of material the workers were exposed to during the event determined if the bioassay would consist of a fecal or urine sample. The employees were unable to recall any bioassay requirements during the 1950s to 1970s.

One employee who was involved in work that required him entering cell one after the release in 1989 was provided a urine bioassay kit after exiting the area. Representatives from Savannah River who came to the plant after the incident made the comment that the bioassay kits should have been given 8 hours after the employees exited the cell, not immediately after. This caused the employees to question the method that was used to determine their exposure.

External dosimeter:

The following is another example of an experience with external dosimeter in the early nineties. Three employees were sent to the weapons/SNM containers staging area to complete a task. The project took approximately three months to complete. During the process all three employees were in close proximity to the source material. Two of the employees received high dose readings while the third did not. The employees were briefed by a Radiation Safety representative concerning their project and the results of the dose rate readings. The Radiations Safety representative was unable to explain the difference in the readings. The employee with the low dose reading was not away from the project for any length of time. If these employees had been working in the weapons area, they would have been removed due to the dose received; however because of their location, they were allowed to continue the project.

Employees involved in the 1961 incident said that they had no Radiation Safety support while cleaning the area and/or during the donning and doffing of the suits. No monitoring was done until after the clean up effort by the PTs was completed.



The employees at the plant during the 1950s did not recall any type of dosimeters but do recall wearing some type of plastic dosimeter during the early to middle 1960s.

After the 1960s, workers were provided film badges and they were told that the badge could detect both gamma and beta. The employees remember having their film badges read but no results were provided to the workers.

During the 60s and 70s, a select group of workers also used pencil dosimeters for cobalt operations. These dosimeters were placed on the workers chest level. They were instructed to check the readings at the end of the shift. They did this by looking into the end of the pencil dosimeters. The measurements went for 0 to 10 scale and were measured in REMS. They were adjusted to zero at the beginning of the shift and used during the shift. The data was not documented and/or recorded.

The workers were not aware of personal neutron dosimeter being worn until the early 1990s.

PPE/Lead aprons:

Employees stated that lead aprons were available for use as early as the 1980s. Although aprons were available, there was not any emphasis placed on their use and they were not required by the procedures at that time. Workers were not trained on the proper care of the aprons. Many of the processes used lead shields for protection but there were occasions when it was necessary for the workers to move around the shield in an effort to facilitate assembly. In the early nineties, the use of lead aprons was required and encouraged due to the increase of radiation awareness and training. During the mid 1990s the lead aprons used on the weapons processes were x-rayed and many were found to be defective and were replaced. A maintenance process for all aprons was developed at that time.

One other issue for discussion is the items that were taken into the weapons work area during working hours. For many years, we would bring in beverages and/or food items into the facility. It was not unusual for the workers to perform work on the weapons while their coffee and/or food was located on the table with the parts. This was common practice for many years. Other items taken into the work areas were chewing gum, hard candy, mints, cosmetics and chewing tobacco.