



NIOSH Dose Reconstruction Project Meeting On Pinellas Site Profile – Evening Session

Date:

September 2, 2004 (evening)

Meeting with:

Former Pinellas Plant workers invited via mass mailing for an information session regarding the Site Profile. This was the first meeting arranged prior to Site Profile development. The mailing was based on the mailing list of the “Quarter Century Club,” the only known organization or mailing list of former Pinellas workers. The invitational flyer, sent to known former workers, (approximately 600 sent) is attached.

Attendees:

Alan Marcott	Harry Strickland	Margaret Strickland	David Frisco
Bob Meals	Phil Lutz	Bruce Jansen	Tom Miller
Fred A. Maroney	Blanche Maroney	Eugene Leshore	Elizabeth Leshore
Henry Woods, Jr.	Sandra Clark	Brooks Hammac	Richard Stevens
James Hollen	Ray Williams		

NIOSH and ORAU Team Representatives:

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

William Murray – Oak Ridge Associated Universities (ORAU)

Mark Notich – Site Profile Team Leader

Mark Lewis – ATL International Inc.

Dawn Catalano – ATL International Inc.

Proceedings

Mark Lewis opened the meeting at approximately 6:00 p.m. by thanking everyone for coming, especially with hurricane Frances on the way. He explained that the ORAU team had notified as many people as possible about this meeting. While there had been a larger turn-out at the afternoon meeting, he was confident that there would be a good information exchange with this group tonight. Mr. Lewis explained that the purpose of the meeting was to discuss the Site Profile for the Pinellas Plant. This is a document used by health physicists as a tool to perform dose reconstructions. He said that it would not be written by anyone from the plant, as that would pose a potential conflict of interest.

Mr. Lewis described his background in health and safety as a union representative and plant worker. He also talked about his experiences in conducting public meetings to discuss radiation exposures and to help Cold War veterans. He said that this was an opportunity for the workers to give their input for the Site Profile for Pinellas. Pinellas was the first site at which the worker input would be considered before the Site Profile was written. The goal is to streamline the process and create a more accurate document. Mr. Lewis introduced Dr. Neton of NIOSH.



Dr. Neton also thanked attendees for coming and said that the outreach effort is a very important aspect of the NIOSH and ORAU project. He explained that NIOSH is the agency within the Centers for Disease Control and Protection (CDC) that is responsible for performing dose reconstruction and several other tasks under the Energy Employees Occupational Illness Compensation Program Act (EEOICPA), including the Outreach Program. He said that Team members present were not prepared to discuss individual claims, but he would be happy to do so after the meeting. Dr. Neton turned the meeting back to Mr. Lewis, who in turn introduced Mark Notich, Site Profile Team Leader, Dawn Catalano, who was attending to take minutes, and Bill Murray, ORAU, who would be giving the presentation.

Mr. Murray also thanked everyone for coming out to learn about what NIOSH and ORAU are doing on this project. He asked the attendees to introduce themselves and let him know if there was anyone who did not receive a hand-out. He also asked that everyone sign in.

Mr. Murray began the presentation by explaining that there are two different kinds of claims under EEOICPA. The Department of Labor (DOL) is responsible to process claims filed under Subpart B which are for radiation-induced cancers. These claims are forwarded to NIOSH and ORAU for dose reconstruction. The compensation awarded for approved claims is \$150,000 plus medical benefits for the cancer from the date of diagnosis. The other type of claim, under Subpart D, is administered by the Department of Energy (DOE) as a state workers' compensation program for toxic chemical exposures. He added that NIOSH and ORAU were there to discuss Subpart B only.

Mr. Murray explained that a project of this size requires a large team to do the work effectively and thoroughly. The group in NIOSH that is responsible for this project is the Office of Compensation Analysis and Support (OCAS). They contracted with ORAU and several subcontractors to assist with the development of Site Profiles, reconstruction of doses, and related tasks. Mr. Murray gave an overview of the program, stating that EEOICPA was signed into law in December of 2000, but at that time, no government agency was in place to handle it. In July of 2001, the first claims were filed with the Department of Labor (DOL). In September of 2002, ORAU was awarded the contract to assist with this work. The Outreach Program was not initiated until late 2003. Thus most of the meetings had been held after the Site Profile had already been written.

Mr. Murray explained that determining the probability that the worker's cancer is related to the work at a DOE site under this program is based on the worker's occupational radiation dose. Thus, the worker's dose is calculated to the specific organ where the cancer is. He said NIOSH and ORAU have radiation specialists, called Health Physicists, who need information on the occupational dose to process claims. The Site Profile provides site-specific information that serves as a technical handbook for the Health Physicists who are performing the dose reconstructions. This ensures consistency and fairness in reconstructing the dose and minimizes the need for interpretation of data.

Mr. Murray stated that the Site Profiles are living documents that can be revised as new information is obtained. He said that some Site Profiles are already being revised as a result of worker input from outreach meetings. The Site Profile is composed of six sections called Technical Basis Documents (TBDs):

- Introduction – an executive summary



- Site Description – describes the buildings, processes, materials, and activities as they relate to radiation work.
- Occupational Medical Dose – discusses the medical x rays required as a condition of employment.
- Occupational Environmental Dose – provides information on radiation exposures to workers who were not monitored.
- Occupational Internal and External Dosimetry – provides information on the radiation monitoring program.

The Site Profile Team has several members with expertise in specific areas of Health Physics, working under Mark Notich's direction.

The team has already compiled information that pertains to Atomic Energy Commission (AEC)/DOE activities that occurred between 1957 and 1994, and the environmental clean-up effort from 1994 to 1997. He said that the team was aware that radioisotope thermoelectric generators (RTGs) and neutron generators used in nuclear weapons were manufactured there.

Mr. Murray stated that occupational environmental and medical doses need to be determined. Radiation in the work environment can expose workers in all areas, not only production workers. The environmental dose includes both an internal dose from radioactive material that is breathed in or ingested, and an external dose from radiation sources on the site. The medical dose from employer-required x-rays depends on the type of equipment and the technique used since both factors can affect dose. The medical and the environmental doses are not found in the worker's DOE dose record but they are added into dose reconstruction to be claimant favorable.

Mr. Murray talked about the factors that are considered in internal and external dosimetry. He explained that the internal dosimetry program looks at the frequency of urinalysis, the techniques used, and the sensitivity of the techniques. The Team knows that the primary sources of exposure are tritium and plutonium-238. For external dosimetry, the known sources at Pinellas include neutron generators, calibration sources, and krypton-85. The types of badges used are researched to determine the minimum detection levels and badge exchange frequency is determined. For both the internal and external dose, a missed dose can be calculated when the actual doses were not detected because they were too small. This missed dose is added to the dose reconstruction.

In conclusion, Mr. Murray told the attendees how to contact NIOSH directly. He asked them to send any information that they think may be pertinent to the Site Profile, including their own experiences or practices. He said that a comprehensive, accurate Site Profiles is important in the dose reconstruction process. He added that more information about the EEOICPA is available on the NIOSH website and the Site Profile will be posted there upon NIOSH approval. He then turned the meeting over to Mr. Lewis to lead the discussion session. He thanked the participants for their time and attention.

Discussion Topics

Mr. Lewis expressed his appreciation to the attendees for sharing their experiences and said it would be a great help in writing a good Site Profile. He started the discussion by asking what



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they thought the Health Physicists should know about that would help in dose reconstructions. Since there were no general suggestions, Mr. Lewis moved to direct questions on specific topics:

External Dosimetry

Has anyone ever worn a ring or wrist badge?

No.

What types of badges were issued?

Attendees could only recall having film badges issued.

How often were the badges exchanged?

Management would call the badges in when an overdose was indicated.

Badges were exchanged every three months in the late 1980s. Maintenance staff who worked throughout the plant often wore badges on the chest. But they had to reach over the badge to make adjustments to the source so the badge was moved to the sleeve. For example, this was done while calibrating Geiger counters.

One attendee said he remembered one occasion when the badge was blasted beyond reading levels.

How were badges assigned?

Certain badges were only used in certain areas. Workers would pick them up before entering the area and then leave them when they exited.

Badge assignment depended on what job was to be done and in what area someone was working.

Like maintenance workers, electricians also had to go in and out of Area 8 with no film badges. The only protective measure taken was to issue a change of clothing. Part of the job was to crawl on hoods covered with dust that no one was supposed to touch.

Workers handled product for years and were never badged.

Liquid nitrogen handlers did not wear badges for six years. Alarms would go off and workers would be told to wear masks, but they were never given badges between 1959 and 1961.

From the late 1970s into the 1980s, the safety procedures started tightening up. However, this was not true in all cases. Welders went twenty-seven days without protection after Geiger counters detected a leak.

What was the procedure for lost badges?

The only procedure was to re-issue (a new badge) immediately.



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Radionuclides

NIOSH and ORAU are aware there was tritium present in the plant. Were there any other radionuclides?

There was Krypton-85 in the RadaFlow system.

Neutron tubs were pressurized to detect leaks.

Uranium-237 and ionic accelerators were used in building 800 to calibrate monitors.

Were the areas containing the radionuclides shielded?

There was high-energy diagnostic equipment (to check other equipment) in the lab that would emit x-ray type doses but at higher rates.

Equipment used to calibrate alpha meters could not be shielded.

Were the workers required to handle sealed or unsealed radiation sources or radiation-emitting equipment that may deliver a dose?

XRD (x-ray diffraction?) systems used to check cap and measure resistance. Workers were in there for 8-10 hour days running two machines. The readings varied so much that the system was deemed ineffective and they stopped using it.

Operators were rotated often so there was always someone new on the machine. Nobody stayed long enough to worry about the exposure.

It was known that there was x-ray leakage from some of the equipment, but protective devices were not available.

Were there unmonitored workers around?

Workers were likely monitored, but they were only there for a short time.

Workers in the hood rooms in area 108 gave urine samples daily

How were RTGs handled – was there a glove box?

RTGs were welded and encased in three different envelopes. They were delivered to the plant that way, incorporated into a product, then shipped.

Workers set them up, put them in glove boxes, and then put them in a presser. This had to be done in an isolated area and workers had to change clothes.

What was involved in the testing of neutron generators?

This was done in a compartment (PT39 unit tester). Workers did not know they were leaking until after the test was completed and the badge showed an overdose. Tubes were put in a chamber with frozen Freon causing chemical exposure as well.

Were workers monitored for gamma rays?

Workers were not aware of any gamma ray monitoring.

What kind of x-ray equipment was used?



There was a scanning electron microscope that was used on some of the equipment. There were workers in the room while the technician was operating it.

XRD produced x-rays that bombarded the cathodes at a specific angle.

Mark Notich: When were they brought to the plant?

Response: Around the 1980s

Mark Notich: Did they operate until the plant closed?

Response: As long as they were building tubes in the plant, the XRDs were probably used.

An e-beam welder was operated under vacuum to weld pieces of product. The welder operated at 250,000 volts to seal the product. It was the main piece of equipment and ran with four or five people in the room.

Internal Dosimetry

Were there any monitoring systems for contamination besides the tritium and krypton-85?

There were system breaks in Area 108. The nitrogen handlers would try to clean up, but it got tracked down the hallways. The halls would then be blocked off for cleaning, which consisted of nothing more than repeated washings. The water was dumped right into the drains to go into the tanks. There were no precautions for contaminated water.

Maintenance workers went everywhere – inside stacks and tanks, around the filters in the fan room. They were never badged. There were not many controls on second shift at all.

Workers in the vacuum pump area were told several times to go home and drink a lot of beer to flush out their kidneys following a high exposure. Most other workers were never monitored in any way.

What kinds of air samples were taken?

There were monitors all over the plant.

Crystals started growing on poles in the plating area. These were cleaned once but grew back right away. Workers were told not to worry about it.

Much of the work was done in the plant on a ‘need to know’ basis. Workers were not always told what materials they were working with.

If the neutron tubes broke, workers were told to call the health physicists.

There was no air sampling in the early years in the resin and casting area. Between 1958 and 1961, all workers were given a uniform to keep from tracking resin out.

How often were the workers given urinalysis?

Weekly in the potting area



Only nitrogen handlers were tested in Area 8.

Every 3 months in RTG areas.

Other protective measures were minimal – workers only got shoe covers, gloves, and were told to take showers in the 1970s.

Chef life (?) was analyzed and tested up to 20,000. Samples started in the late 1980s since there were no film badges then.

Occupational Environmental Dose

Was there any monitoring for plutonium?

The only known plutonium was in the heat sources and they were contained.

How often were x rays taken and what were the methods used?

X rays were taken every 5 years for workers younger than 40 and every 3 years thereafter.

Most x rays were done facing the wall (away from the machine); side x rays were taken occasionally.

What kind of x-rays machine was used?

Most likely the original GE model from 1958 – it was never replaced.

Was there any monitoring during clean-up operations?

In 1997, they used swabbing to determine if an area was contaminated. This work was contracted to Martin Marietta (Lockheed) so the plant workers were not involved

Badges were used during the clean-up phases.

In Area 8, workers had their hands checked before leaving the building.

Lab areas with generators running were too hot to work in, and were shut down around 1990-1991. They were cleaned right before closing the plant, but maintenance workers doing the work did not wear badges.

Were there any reports, such as from Tiger Teams, that might be useful? Is there anything you can add that was not asked today?

There was filtered methane chloride that produced a strong odor in the plant but there was no ventilation. Research showed that it was carcinogenic even though it would seem to fall under Subpart D. This occurred around the mid-1980s.

Building 400 had plutonium monitors on the walls that went off so frequently, they (management) just kept raising the levels.

Chemical cleaning workers were never monitored or badged.

The QA person in the hot tooling (Area 8) was heard to say that she felt sorry for people who had to work in there. The workers were not issued badges between 1978 and 1992.



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Q & A's

Question:

People were told that the dose reconstruction for Pinellas was over. Is that true?

Mr. Murray:

There have been 285 claims submitted from Pinellas workers, but only 15 have been processed since there is no Site Profile yet.

Question:

Are the NIOSH claims actually cancer claims?

Mr. Murray:

Yes, cancer-related claims are the only ones NIOSH gets.

Question:

How long does it take for a claim to be processed? Is physical approval necessary?

Mr. Murray:

This is a new compensation program. Processing the claims has been slow, but the process is improving. The first 1,000 claims took 14 months to be completed; the next 1,000 took only 14 weeks. ORAU has been working on claims only since September of 2002.

Attachments:

- Sign-in Sheets
- Presentation by William Murray Development of the Pinellas Plant Site Profile
- Invitational flyer (untitled)