



# NIOSH Dose Reconstruction Project Meeting On Chapman Valve Site Profile

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**Date:**

February 14, 2005

**Meeting with:**

Chapman Valve Manufacturing, held at Western Massachusetts COSH office, Springfield, Massachusetts

**Attendees:**

Approximately 65 people in attendance, including the last vice president of United Electrical Radio Machine Workers (UE), one of the Chapman Valve unions.

Ed Pagnoni	Alfred LeMoine
Lucy Rivest	Allie Fisher
Ernest Heirsch	Diane Kubetin
Daniel J. Zalbo	Donnabelle Shaw Holch
Ellen Mislak	Eugene "Joe" Quaglini
Samuel Hie	Henderson Hines
Marianne Reale	Henry Dobek
Ellen Wilson	Isaiah Danning
Priscilla Bolden	John W. Hinson
Anthony Blazejowski	Linda Belben
Maurita Hinson Bledsoe	Nancy Fernandes
Russ Brassard	Paul Jerome
Albert Bolden, Jr.	Robert & Helen McClarty
Betty LeBoeuf	Shirley Sterling
Bob Duarte	Stanley E. Tupek
Aaron D. Wilson	Richard Miller

**NIOSH and ORAU Team Representatives:**

Mark Rolfes – National Institute of Occupational Safety and Health (NIOSH), Office of Compensation Analysis and Support (OCAS)

William Murray – Oak Ridge Associated Universities (ORAU)

Mark Lewis – Advanced Technologies Laboratories (ATL) International Inc.

Dawn Catalano – ATL International, Inc.

Cindy Bloom – MJW Corporation

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**Proceedings**

Mr. Mark Lewis began the meeting at approximately 5:15 p.m. by thanking everyone for taking the time to attend. He stated that the purpose of the meeting was to “take a snapshot of the past,” and gather their collective memories of their employment at Chapman Valve Manufacturing to add the workers’ perspective to the Site Profile. He introduced the ORAU team and pointed out to the participants that the meeting was being recorded for accuracy. He asked the former



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workers to introduce themselves and tell where they had worked. He then turned the meeting over to Bill Murray for the presentation.

Mr. Murray expressed his appreciation to the participants for giving the team the opportunity to learn more about the work that was done at Chapman Valve, and taking the time to share some of their work experiences. He stressed the importance of bringing forth additional information to supplement the Site Profile and giving the workers a voice in the matter.

Mr. Murray began the presentation by explaining the Energy Employees Occupational Illness Compensation Program Act (EEOICPA). He told the group that Chapman Valve Manufacturing is considered an Atomic Weapons Employer (AWE) site due to the uranium work the company performed under contract from the Manhattan Engineering District and Atomic Energy Commission. He explained that under Subtitle B of the Act, a claim can be filed by a worker who has contracted radiation-induced cancer, beryllium disease or silicosis (or the worker's survivors). The cancer claims go to the National Institute for Occupational Safety and Health (NIOSH) for radiation dose reconstruction based on records that have been provided by the contractors and government regarding operating procedures and radiation exposures that occurred at the site. He stated that NIOSH Office of Compensation Analysis and Support (OCAS) had been established to handle the dose reconstruction. Due to the high volume of claims, OCAS contracted Oak Ridge Associated Universities (ORAU) to perform dose reconstructions and related tasks including constructing Site Profiles, performing Worker Outreach, and assisting in the Special Exposure Cohorts process.

Mr. Murray stated that the purpose of the meeting was to discuss the Site Profile for Chapman Valve Manufacturing Plant. He described the Site Profile as an important document used by Health Physicists in the reconstruction of radiation doses received by workers at a specific site. The Site Profile undergoes an extensive review process. Since the Site Profile is a living document, it can be changed as new information becomes available. The Outreach Team was present at the meeting to gather information from the former workers regarding work procedures, monitoring programs, and incidents or accidents where workers were exposed to radiation.

The primary source of exposure at the Chapman Valve site occurred during 1948, when the company was under contract to machine uranium for the Atomic Energy Commission. The residual contamination exposure period was identified from 1949 and 1993 and does not include clean-up operations in 1994 and 1995. Only one incident was recorded -- a uranium fire in June 1948, but there were possibly other incidents. The primary focus for the meeting would be the machining operations in 1948 and how much contamination remained during the period from 1949 to 1993.

Cindy Bloom pointed out that the dates for exposure had been extended through April 30, 1949.

**Comment:**

We don't have an exact date for the fire. Do you have a document?



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***Cindy Bloom:***

Production work didn't start until May. We can't find documentation of when the fire occurred, but we used bioassay data to pinpoint it to June. On June 11, 1948, seven employees gave samples for urinalysis.

**Question:**

Did someone from inside the plant put out the fire? There is no documentation at the fire department.

***Response from audience:***

Station No. 5 responded to a fire there, but records disappeared when they moved. Something did happen in April, but that wasn't the only time they responded to calls from Chapman Valve. We are trying to get printed records from the captains. We know there were meticulous records at the time.

***Response from audience:***

Mr. Lee (the firefighter) may be able to shed some light.

***Mark Rolfes:***

Could the firefighter give a deposition?

**Response:**

We haven't been able to get in touch with the firefighters.

**Comment:**

Firefighters didn't have air-packs back then.

***Cindy Bloom:***

It did not appear to be a large fire because the records indicate that two guards put it out.

**Question:**

Is there a cumulative effect of uranium?

**Question:**

Is putting out a uranium fire different? Does technique make a difference?

***Cindy Bloom:***

In 1948, they would have put out the fire any way they could. If they did not use enough water, that would have created more oxygen to feed the fire. They would have had to use lots of water to put it out.

Mr. Murray continued with the presentation, explaining that the section in the Site Profile on occupational internal dosimetry was based on information from urinalyses of some of the workers. Also, some air sampling data had been made available. Based on this information, intakes were estimated for exposure during the uranium machining and for the June uranium fire.



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The section of the Site Profile on occupational external dosimetry was based on data recorded from the monitoring program using film badges which measured beta and gamma radiation. Up to 50 workers were monitored per week. The badges were exchanged weekly, but badges were worn only in the restricted area. Although the reporting limit was 50 millirads, often the data is less than 50, so NIOSH will assign the dose for each reporting period.

***Cindy Bloom:***

They sent 50 badges at a time. A worker used one badge all week, and then it was sent to be analyzed. There is also information on the hours workers were in the control area and the reported results of the exposure.

Mr. Murray continued: NIOSH takes into consideration the occupational medical dose, assuming that employees received a chest x ray during their pre-employment physicals and one annual chest x ray thereafter. This additional exposure is added so that NIOSH considers all possible sources when calculating the dose reconstruction.

In concluding his presentation, Mr. Murray emphasized the importance of developing a viable Technical Basis Document which could be changed based on workers' input. He asked that all comments on the Chapman Valve Profile should be sent directly to NIOSH.

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### Discussion Session

**Comment:**

None of the workers had protection. They had the workers wash the machines.

***Cindy Bloom:***

They collected all the material they could – the goal was to keep as much uranium as possible.

**Comment:**

The report says residues were burned and shipped off site. The map of Building 32 has a uranium chip burner.

They oxidized the turnings from the machining of the uranium. This process was used to burn the residue before shipping.

**Comment:**

There is no information on monitoring around the incinerator. The incinerator was vented out the windows, and it was in the same part of the building where they found 2.16% enriched uranium. Is that consistent with 1948-49 activities?

***Cindy Bloom:***

I haven't looked at this analysis to say if it is statistically significant but this will be evaluated. It is unlikely that Chapman Valve was handling enriched uranium in 1948 or 1949.

**Comment:**

In a July 1992 ORNL document, there was an activity level and a citation.



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**Comment:**

Two individuals remembered the incinerator, but one has since passed away. They mentioned uranium work during World War II. Radioactive ashes and poor ventilation (incinerator was vented out the windows) would increase the probability of higher levels of radiation. How do you determine dose?

***Cindy Bloom:***

We had some bioassay data. We used what we had.

**Comment:**

The report should mention the chip incinerator, and there is no data verified in the ORNL report.

**Comment:**

I carried uranium rods that were about 123 lbs. and 10 ft. long from the train car into the shop with my bare hands. There was a guard in this area that watched over the uranium. The workers would set the uranium down near a workbench and another worker would cut into the rod with a hacksaw which created sparks.

**Question:**

Do you have any information about Parker Street? A subcontractor did machining operations there.

***Cindy Bloom:***

A lot of AWE work was non-radioactive. They needed valves, too.

**Comment:**

Department 40 and Building 23, which was the building with the furnaces, both dumped product behind the old steel foundry. I don't know if it was surveyed, but in 1987-88 it was found to be contaminated.

**Question:**

If the Site Profile is important, why are our claims being denied?

***Mark Lewis:***

There could be several reasons for this: the work period could be outside the covered period; only certain cancers are covered because radiation only concentrates in specific organs, or maybe the information available doesn't produce a high enough dose. That's why we need your input – if the revised document raises the probability of causation over 50%, the claim will be opened again.

***Cindy Bloom:***

We attempt to expedite claims, but it takes time to get information. We used the information that was available to us at the time. Certain cancers are more likely to be compensable.

**Comment:**

Every claim was denied.



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***Cindy Bloom:***

We're as frustrated on the other side, trying to get information. People were encouraged to file and we appreciate your input.

**Question:**

My father's dose reconstruction was done before the Chapman Valve Site Profile was approved. How can NIOSH complete an accurate dose reconstruction without a Site Profile?

***Mark Rolfes:***

NIOSH uses an efficiency measure for some claims where we assign a much larger dose than what could have potentially been received by the employee. Certain cancers are less radiogenic than others, and using credible science and claimant-favorable assumptions to overestimate a person's radiation exposures, some claims can be processed prior to a published site profile.

NIOSH will also re-evaluate the dose reconstructions/probability of causation for any claims that have been completed prior to the approved Chapman Valve Site Profile; however, when this occurs, in most cases, the assigned doses and associated probabilities of causation decrease with information of greater accuracy.

**Question:**

A lot of government work was done there. Rumors have it that they worked on the bombs for World War II. Where did you look for records?

***Cindy Bloom:***

Several different groups looked for records at Oak Ridge and Brookhaven. Some documents are still classified. We did newspaper and internet searches. During the War, companies were working in their areas of expertise – Chapman Valve made valves for the submarines.

**Question:**

Before final clean up in 1983-84, there were files and pictures all over. How do we find out what happened to them?

***Bill Murray:***

Early records probably went to the Manhattan Engineer District.

**Comment:**

I have an affidavit from 1987. Records were kept in the second floor offices, but moved to another building. I believe they have been destroyed.

**Comment:**

Some of the records may have been moved to another state.

**Question:**

How does NIOSH determine what qualifies workers for certain cancers?



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***Response:***

If you're referring to cancers that are covered under the Special Exposure Cohort (SEC) status, people with skin cancer may be outside of the SEC guidelines. Information from the personal interview and Site Profile will help to determine qualification.

**Question:**

Records were destroyed in the 1970's. There is no documentation for radioactive contamination post-operation. What information do you use to determine exposure during that time?

***Cindy Bloom:***

Information was used from a survey that was done after that time, since we have no way of knowing what contamination was during that period.

**Question:**

Workers always did the same tasks. How is exposure determined?

***Cindy Bloom:***

Higher levels of radiation are assumed across the board. We have sign-in and job title records, but these did not include all work categories. All were given the same exposure.

**Question:**

Did you change the average internal dose when you plotted the seven results from the fire?

***Cindy Bloom:***

Internal dose data was scant.

**Question:**

Are you using an average instead of the upper 90% like Bethlehem Steel?

***Cindy Bloom:***

We had bioassay information from people in the fire – others were not as high. They weren't based on time-weighted air concentrations. The air sampling data taken in May was not useful. We looked at bioassay and air concentration data to see if it would resolve.

**Comment:**

We'll do our best for documentation, but we have to deal with the background. Workers remember changing departments and circulating. It's reasonable to believe that the majority were exposed in some way.

***Cindy Bloom:***

We made that assumption – everyone either gets individual dosimetry or surrogate dose, even though the actual dose is probably actually lower.

**Comment:**

Other potential sources of radiation have not been considered. There was x ray photography of a lead casket holding samples of 100 and 200 radium pills exposed in the center of a unit on a



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tripod. There was film around the outside. These were taken to check integrity of the valves that were being produced for the U.S. Navy.

The two rooms that were used for this purpose were at the end of the warehouse. The rooms had plywood walls with a 3-foot high steel lining. We were not told that the radiation hit the 15-foot high ceiling and bounced around.

The exposed film was sent to the hospital. This was in 1943-44. The Navy compiled the x rays. There were 12-inch concrete walls lined with steel. There was a control room (to prevent exposure). We didn't use film badges or TLD's because of the control room.

**Comment:**

They used a 1,000 kilovolt x-ray unit. The badge results always came back high (in the 1950s and 1960s). The boss said there were high radiation levels because it was from an open source. They kept the results in a log.

**Question:**

How were the garments taken care of that were worn in the room?

**Cindy Bloom:**

They were probably laundered – dust comes off.

**Comment:**

Indian Orchard had a radioactive laundry business.

**Comment:**

There is some mystery regarding reports of uranium processing during World War II. Workers during the period from 1942 to 1945 had no idea what was the nature of their work and had no protection from the radiation. They were not told until after the war that they were part of the Manhattan Project. Most first-hand accounts have been from workers who are already deceased.

**Bill Murray:**

This makes them eligible as an AWE site. The information goes in the system. It would help to find out what they made and what type of work they did.

**Comment:**

It was similar to later work. Trainloads of uranium rods were brought in to be finished and shipped out.

**Question:**

Have WW II documents and contracts been examined?

**Answer:**

They are still looking for some of those.

**Question:**

What about Brookhaven? Have you identified the boxes to search?



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***Cindy Bloom:***

Some information has been captured from Brookhaven and more will be captured. I have requested that data be captured from Brookhaven for the AEC contractors.

**Comment:**

The first reactor went into use in 1948, so earlier work is unlikely.

***Cindy Bloom:***

During WW II, they used the calutron for uranium enrichment. It wasn't efficient, so they went to gaseous diffusion plants.

**Question:**

How will it affect the Site Profile if we can document uranium work?

***Cindy Bloom:***

Specific data is the most helpful.

**Question:**

The Manhattan Project period is memorable, but difficult to document.

***Cindy Bloom:***

The Site Profile is approved, but it is not definitive. It can be revised as new information becomes available. We would appreciate any input you have.

**Comment:**

The Manhattan Project was run out of NY until 1948. Where was the contracting done? Who were the vendors and suppliers for the Manhattan Project?

***Bill Murray:***

We found a purchase order for the x ray machine in the Oak Ridge Operations vault. It's difficult to get information out due to classification issues – a Q clearance is required.

**Comment:**

There are about 140 people in the Chapman Valve group who will help out if they can. There is a lot of anger in the community. Of approximately 250 claims, 170 have been denied.

***Cindy Bloom:***

NIOSH has seen less than 100 claims. Those must have been denied at the Department of Labor, perhaps based on the type of disease, or length of employment.

**Question:**

Can you describe the limitations of data in the Site Profile? What is the basis for the dose reconstructions if you omit those involved in the fire? How is the data averaged?

***Cindy Bloom:***

There is a procedure on bioassay data on groups of people – we use the co-workers at Chapman Valve.



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**Question:**

You only have data from one date. What about the production activity?

**Cindy Bloom:**

We had bioassay analysis results for three dates and this was consistent with the type of data we have in current day programs. June to September was the most active production period.

**Question:**

Where was the uranium from the grinder and lathe operations sent?

**Cindy Bloom:**

Monthly reports state that the uranium was used in the Brookhaven reactor.

**Comments:**

There was a lot of uranium from the furnace going up the stack.

We have a memo discussing rolling operations.

The Site Profile could do more justice to each of the processes. If they were machining uranium on the lathe, there would have been heat and fire. How do you account for only one set of data with the above sources and factors?

**Question:**

The machines are probably still around. Would samples be useful if they can be obtained? They are in somebody's garage.

**Answer:**

The samples must be taken by certified lab personnel.

**Comment:**

The EPA found a hot spot in the soil next to one of the windows of Building 23. That's how we know the incinerator was vented out the window.

**Comment:**

The paperwork was shipped to Houston, Texas, then Carol Stream, then California, when our pension funds were moved by Crane Company.

**Bill Murray:**

AEC records may not be with the pension plan records; some of the information would be classified.

**Comments:**

Claimants have difficulty getting verification through Social Security.

The information was also put on microfiche. The Crane Company has been less forthcoming as more people call for sixty year old information.



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**Question:**

Is the limited data you have for Chapman Valve consistent with other sites doing the same type of work, especially the lathing (burnt uranium in the air)?

**Cindy Bloom:**

We would have to look at Co-Worker Data for Y-12. It is consistent with other sites so far. There must have been some machining. The numbers are fairly high. Based on that, some organs will be compensable. Over estimated exposure times, it is typically the lungs and skin that are most affected.

**Comment:**

Please look at other lathing operations – it would help for basis of comparison.

**Cindy Bloom:**

I have not seen much specific information on air sampling from lathing.

**Comment:**

The Internal Dose information is sparse, only relying on one set of samples. The other two were the limits of detection.

**Cindy Bloom:**

That means the results were low. In 1948, data was collected to document what was going on in the workplace. There were no compliance issues.

**Comment:**

We need a better sample of the representative workforce.

**Cindy Bloom:**

They had sets of 50 badges to assign, and all workers in the area were assigned a badge. Some workers were in the area for very short amounts of time, but some of the workers were in the area for full workdays.

**Comment:**

Most people worked overtime. The numbers don't sound right. The company didn't track employees closely.

**Comment:**

The work site was dirty, dangerous, and the workers were not well protected. Any information from management should be taken with a grain of salt. They ran a lousy site. The quality of reporting and the energy they put into safety programs was low.

**Cindy Bloom:**

We have handwritten records of job descriptions and time spent in certain areas. Should I not believe them?

**Comment:**

Regarding potential work on the Manhattan Project, everything was completely secret.



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**Comment:**

There was no safety program of any kind – they were literally bare-handed.

***Cindy Bloom:***

Standards and limitations in the 1940s were different, not as we see them today. Documentation is always someone's perspective – the records seem credible.

**Comment:**

Did you take into the consideration that there was no monitoring of the lunch and break rooms? Uranium dust found its way into these rooms because there was no special ventilation. The data you have was from the beginning of the production period. The concentration in the production area must have been higher. This casts doubt on the sampling, and the same for the urinalysis.

***Cindy Bloom:***

We are using the bioassay data to calculate internal dose so a lack of area or air monitoring data is not be an issue.

**Comment:**

The furnace in question was not a chip burner, it was a cracking furnace.

**Closing Comments by the Director of the Western Massachusetts Center for Occupational Safety and Health:**

We appreciate getting your input, and wish there was more hard data to give. Scientists need to be objective, but the system has limitations. The United States Government knowingly poisoned 100,000 people across the country.

Decisions or assents with the constraints will affect many lives. There is cynicism due to the credibility gap, but we can appreciate the hard spot you're in. My heart goes out to all of you. It's frustrating to have employers not be honest. The world keeps changing, keeps getting smarter. In the 1940s, many workers were not well educated and they couldn't afford to lose their jobs because there weren't many good jobs.

There were more than 300 retired employees on the list when we began to work on this issue three years ago. Many of them have died, and we're in a race against the clock. We appreciate any help you can give us.

Mr. Murray concluded the meeting at approximately 8:00 p.m., and thanked the attendees for their time.

Note: Attendees at the meeting provided two documents to the ORAU Team:

1. a floor plan of Building 23 showing the location of a chip incinerator, and
2. air sampling data from NUMEC concerning air sampling during incinerator operations.