# National Institute for Occupational Safety and Health (NIOSH)
# SEC Outreach Meeting for Simonds Saw and Steel Company

**Meeting Date:** Wednesday, May 5, 2010, 2:00 p.m.

**Meeting with:** Former Workers from Simonds Saw and Steel Company, Lockport, New York

## NIOSH Team:

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

Robert Coblentz, Oak Ridge Associated Universities Team (ORAU), Health Physicist

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

Mary Elliott, ATL, Technical Writer/Editor

## Also Attending:

John Stiver, Sanford Cohen & Associates (SC&A), Senior Health Physicist

Bob Barton, SC&A, Health Physicist

## Proceedings

Sam Glover opened the meeting at approximately 2:00 p.m. He explained that he works for NIOSH, the agency that performs dose reconstruction for claims filed under the Energy Employees Occupational Illness Compensation Program Act (EEOICPA). Dr. Glover thanked the attendees for coming to the meeting.

Dr. Glover stated that the purpose of the meeting was to get more information for the 1948 to 1956 time period when Simonds Saw and Steel rolled uranium and thorium for the Atomic Energy Commission (AEC). He stated that he would make a short presentation, but encouraged the attendees to make comments and ask questions as needed.

Dr. Glover introduced Mark Lewis of ATL, the contractor that facilitates worker outreach activities for NIOSH. He explained that Mr. Lewis helped to organize the meeting at the request of NIOSH. Dr. Glover also introduced Robert Coblentz, a health physicist with the Oak Ridge Associated Universities (ORAU), who is assisting NIOSH with the evaluation of the Special Exposure Cohort (SEC) petition for Simonds Saw and Steel.

Dr. Glover stated that the Advisory Board on Radiation and Worker Health (ABRWH or "the Board") is appointed by the President of the United States to oversee the work of NIOSH. He introduced John Stiver and Bob Barton of Sanford Cohen and Associates (SC&A), a contractor to the Board.

Dr. Glover stated that he and the others had taken a tour of radiological area of the Simonds Saw and Steel facility where the attendees worked during the AEC contract period. He stated that they had used a Geiger counter during the tour and had found the area still to be radioactive. Dr. Glover added that he had taken photographs of the facility that he would share with them during the presentation.

Dr. Glover introduced Mary Elliott of ATL. Ms. Elliott stated that she was recording the meeting to capture the attendees' comments about their work experiences at Simonds Saw and Steel. She explained that she will use the recording to develop accurate minutes of the meeting. The minutes will be reviewed by DOE and will be redacted according to NIOSH privacy policy prior to being posted on the NIOSH Web site. Ms. Elliott explained that any information the attendees provided on the sign-in sheet would be protected under the Privacy Act.

Dr. Glover asked the participants to identify themselves as they spoke so Ms. Elliott could attribute their statements correctly in the draft minutes, even though their names will not appear in the final minutes. He explained that the NIOSH Team would allow as much time as necessary to hear what the former workers had to say about their work experiences at Simonds Saw and Steel.

Mr. Stiver read SC&A's confidentiality and disclosure statement. He explained that a draft summary of his meeting notes will be provided to interviewees for review. Mr. Stiver stated that he also had developed questions to ask during the meeting in addition to the questions that Dr. Glover had provided to the former workers prior to the meeting.

Dr. Glover stated that the NIOSH policy differs from that of SC&A for meetings related to SEC petition evaluations. He reiterated that the attendees' names will be redacted from the minutes when they are posted on the NIOSH Web site. Dr. Glover reminded the attendees that the meeting was a public forum about their work experiences. He stated that questions or comments about individual EEOICPA claims would not be addressed during the meeting due to Privacy Act concerns, but that he could talk with them individually about claims after the meeting concluded.

***Former worker #1:***
Simonds Saw and Steel was the best place to work. We had more fun there. Everybody was friendly. We used to have a very good time. We worked hard, but at the end of the day everybody was happy. [Name redacted] was one of the best guys that you'd ever want to meet. Everybody knew everyone else's name. Everything was perfect. My only regret is that we didn't know how dangerous the radioactive stuff was until twenty or thirty years later. Other than that, we had a lot of good times. If I had it to do over again, I probably would. I remember that I had a very good time. I worked in the mill for four or five years, and then I went to work in the chemistry lab. When I found out later [about the hazards], I was kind of down in the dumps.

***Former worker #2:***
At the time, they really did not fully understand the long-term effects of radiation. The procedures that we used then were according to the knowledge we had at that time on the long-term effects of radiation. So we did things then that we would not do now. We know more now.

**Dr. Glover:**
NIOSH is not trying to judge the past or what you did at Simonds Saw and Steel. We just want to give you a fair chance.

***Former worker #2:***
The top guys in the company probably didn't even know the dangers. We rolled whatever steel was available. We really didn't know anything about the radioactive stuff.

Dr. Glover began the presentation by restating that the purpose of the meeting was to gain the workers' perspective of the uranium and thorium rolling operations during the contract period. He stated that the dose reconstruction program at NIOSH deals only with the radiation. NIOSH understands that there were other hazardous materials present, such as lead, bismuth, and cobalt.

Dr. Glover stated that NIOSH received a petition to add a class of workers from Simonds Saw and Steel to the SEC. The petition was qualified and is now under evaluation to determine whether the petition will be added to the SEC. If the petition is added, workers who developed one of 22 specific cancers and worked at Simonds Saw and Steel for 250 days could be automatically compensated without having a dose reconstruction.

Dr. Glover explained that understanding the working conditions at the site may help not only in evaluating the SEC petition, but also to improve the dose reconstruction methods used for Simonds Saw workers. He added that this meeting was the first outreach effort for the site.

***Former worker #3:***
That place was no place to work. We had no ventilation or heating system. We had to get warm right next to the furnace. It was the pits. The money was good, but we worked hard for every penny we made. Our health care was good, too. But in the 20 years I worked there, I never saw them put in any new equipment that might improve our health, such as ventilation or heat. I saw a guy get his arm wrapped right around the mill. The mill is still there. They never bought a new machine while I was there.

Dr. Glover stated he would like to keep the focus of the meeting on the early years of the AEC contract. He explained that AEC records documented dust control measures that the company put in place between 1948 and 1950:

- Ventilation hoods over the rolling equipment,
- Plexiglas shields,
- Ventilation hood over quencher,
- Central vacuum system,
- Floor grating to reduce the resuspension of dust from foot traffic,
- Exhaust stack dust collectors, and
- Personal respirators.

Dr. Glover asked if any of the attendees who worked between 1948 and 1956 recalled using any of these measures, and whether the controls were effective and in use at all times. He stated that NIOSH also has documents that indicate that the dust controls were removed during cleanup in

1953. Dr. Glover asked if anyone recalled the controls being removed. He stated that since Simonds Saw and Steel continued to roll uranium between 1953 and 1956, it is important for NIOSH to understand if and when the controls were put back into place following the cleanup. Dr. Glover explained that all these factors could affect dose reconstructions.

Dr. Glover stated that NIOSH also wants to know whether dust controls were in place on the 10-inch thorium mill, noting that there appeared to be several different 10-inch mills. He asked the attendees which 10-inch mill was used for thorium rolling.

***Former worker #1:***
The entire mill had sliding doors. In the summer when the mills were running, all those doors were wide open for ventilation. In the winter, when everything was closed, it was a little bit worse. In the summer, it was just like you were outside.

***Former worker #3:***
I worked at the 16-inch mill for 12 years. The stuff we put into the mill was 2,000 degrees Fahrenheit. The open air didn't do much then. We had fans as big as this room that would blow that dust right into your face, and we would breathe the whole thing.

***Former worker #2:***
The dust was there. It was impossible not to breathe it.

**Dr. Glover:**
NIOSH needs information from former workers to answer these questions:

- What were the working conditions during the rolling of uranium and thorium?
- How dusty was the workplace?
- Was the dust fine or coarse?
- Was there a difference in dust levels between rolling thorium and uranium?
- Were other materials, such as steel, rolled between the rolling of the uranium and thorium?
- How – and how often – was the thorium and uranium dust cleaned up?
- Did the workers wear radiation monitoring badges?
- Did they recall urinalysis sampling?
- Did they wear protective clothing?
- How often did they change out their work clothing?
- Where was the laundry done?
- Did they wear respirators or other personal protection?
- Did they recall any accidents or incidents involving radioactive materials?

***Former worker #2:***
There were three hoods over the 16-inch mills.

***Former worker #3:***
We took showers every night and changed into our street clothes, but we wore the same work clothes every day for a week and then took them home to be washed.

***Former worker #1:***
We were so dirty after our shift that we didn't want to go home without showering. Maybe five percent of the guys didn't shower after their shift.

**Mr. Stiver:**
So, showering was not a company policy.

***Former worker #2:***
At first, they sent us to the doctor every three or six months. I think it was every three months at first. Then it was once a year. There had to have been a reason for them to send us to the doctor that often. They had to know something.

**Mr. Stiver:**
Did the doctor take X rays during the exams?

***Former worker #4:***
We had one X ray per year when I started in 1951, but we had a physical every six months.

**Dr. Glover:**
The government mandated one X ray per year during the early years of the nuclear weapons program.

Dr. Glover explained that the next slides would give the workers an idea of the information that NIOSH has regarding the layout of the operation, the documented engineering controls, and the effectiveness of the engineering controls on reducing the workers' exposure to radiation. He stated that he would like to hear anything they had to say about the operations or any incidents that they may remember.

Dr. Glover stated that he had toured the building that morning and had seen the layout of the rolling operations area. They had taken pictures of the 16-inch mills and the 10-inch mills. He stated that the workers' perspective on the layout of the equipment in Building 8 and how long the uranium and thorium were stored on site would be useful information.

***Former worker #1:***
There were the 16-inch and the 10-inch mills, and then there was the bar mill shipment area in the back. Everything was stored there after it came off the 16- and 10-inch mills.

**Dr. Glover:**
How many people worked as rollers?

***Former worker #2:***
I worked in the 16-inch mill. We had 16 guys.

***Former worker #5:***
I worked in the 30-inch mill and the 90-inch mill. I worked for 24 years on the mill. Do you know anything about the molybdenum that we rolled here? It came in six-foot rods and we rolled it down to a certain gauge – about one inch. Then they shipped it out to another place where they rolled it again. That stuff was slippery so we had to step out of the way when we put it in the mill. When we rolled it, we couldn't even see the other end of the building. The whole plant was filled with smoke. We didn't have any protective gear except for a steel helmet and safety shoes.

***Former worker #3:***
That molybdenum was really hard. We could only reduce it a little at a time. If you bumped the rollers, it wouldn't grab.

***Former worker #2:***
That's why we had to step back. If we didn't set it just right between the rollers, it would kick the molybdenum back out.

**Mr. Stiver:**
Was that pure molybdenum or chromoly steel? Chromoly steel is very hard.

***Former worker #2:***
We could only reduce it a certain amount for each pass.

***Former worker #5:***
We rolled it down to an inch or an inch-and-a-half. Then we took it down to the scales and they shipped it somewhere else. That whole plant was covered with dust. I wrapped and I heated and I did pretty much every job except roller.

**Mr. Stiver:**
After rolling like that, did you clean up afterwards or would that be ongoing? Was there a standard process for that?

***Former worker #5:***
We rolled steel to get the molybdenum off the rollers.

***Former worker #2:***
How many times did you break on molybdenum as compared to other materials? I remember that it was quite a bit more.

***Former worker #5:***
That was mostly on the roughing stand.

**Dr. Glover**:
In our program, we can only deal with the radioactive materials – the uranium and thorium. Your exposures were significant and I don't want to trivialize that at all. You were in the middle of an operating mill and you suffered a lot of different kinds of exposures. Let me show you the pictures we took and we can get a feel for where you worked.

These are the uranium processing steps as we understand them. The materials were brought on site and stored. They were weighed. They were heated in an open furnace until about 1950, and in a lead furnace. They were rolled in a 16-inch mill, where they were sheared and water-quenched. Then they were packaged, weighed, and shipped.

We have some pictures of the rolling operations. This is where they documented that the air concentration was over 500 times the maximum permissible level. They said that they implemented a Plexiglas hood and floor grating as dust control measure. You see the trend line as the air concentration goes down. NIOSH needs to know if these measures actually happened. I have seen documents where they would come back to find that the measures were not being used. Your perspective on this is very important.

***Former worker #2:***
Most of the billets that came into the plant were the right size for the mill. Others billets were seven- to eight-feet long when they came in and were too long for the mill. We had to take those to the Finishing Department and they were cut into three pieces with saws so the mill could handle them – so there's another part of the process that you don't show.

**Dr. Glover:**
At Bethlehem Steel they had an automatic mill. They had cobbles that would have to be cut out. Did you have cobbles here or is that an automatic mill problem? They talked about having to cut the cobble out of the uranium rolls with torches so they would not get wedged in the mills.

***Former worker #2:***
We didn't have an automatic mill for uranium rolling. First, the uranium was heated in a lead furnace. It got hotter as we rolled it so we had to put it aside on 4x4s to cool. We would run 10 to12 more bars and then go back to the first 10 or 12 bars when they were cool. It was the nature of the material to get hotter as we rolled it.

**Mr. Stiver:**
How many times did the uranium billet go through the roughing rollers before the rolling was complete?

***Former worker #2:***
Once they got eight to ten feet long, we had to set it aside to cool

**Dr. Glover:**
The reports say that you ran three passes and then would have to set the material aside to cool. The water quench was obviously very dirty and so was cutting these things up. This is the air concentration. We were there. It's obviously still very radioactive. They have done numerous studies of the gamma ray measurements and the contamination on the floors.

Here are the pictures from today. The first one is the entrance to Building 2, where we entered. Here is the early heating furnace, and then the lead bath. We walked all the way through Building 2 and then came back down through Buildings 3 through 6. This is Building 8, where the 10- and 16-inch mills were located. Then we walked down through this area, this being the most radioactive. Then there was an add-on area where some sort of additional milling was done.

***Former worker #2:***
I'm looking at #2 in the drawing. Is Pb the elemental symbol for lead?

**Dr. Glover:**
I assume that is the lead bath and that those are covers for it.

***Former worker #2:***
That's where they put the bars to cool. It was part of the annealing process.

**Dr. Glover:**
Here is a picture of the quench tank and 16-inch mills. Here are some different pictures of the rollers from the 16-inch mill. Does anyone remember when they installed this hood? Was it always there?

***Former worker #3:***
It was there to remove dust and smoke. It could be raised and lowered.

***Former workers #1 and #2:***
It could be raised and lowered. They put it in there when we started rolling the uranium in 1949.

**Dr. Glover:**
We have a couple of pictures of the back of the building with the cooling bed and the big fan at the 10-inch rolling mill.

***Former worker #6:***
They called those fans the "man coolers." They blew dust all over the place.

Dr. Glover concluded his presentation and requested that the former workers share their memories of their work experiences in the uranium operations from 1948 through 1956. When Dr. Glover asked how many attendees had worked during that period, 10 former workers raised their hands in response. He expressed his appreciation that so many had come to the meeting. Dr. Glover indicated that he would leave the slide with the questions up for reference.

***Former worker #6:***
I started working in 1956. I was in the labor pool. I worked on both mills, going back and forth wherever they needed me. I was also dragging down to the cooling beds, quench tank, and different things. I can't say exactly what they were rolling at that time. A lot of the floor was just wooden planks. The dust underneath those planks would come up when you walked on them. It was a mess.

**Dr. Glover:**
Let's start with the dust control measures. Do you remember when these dust controls were added?

***Former worker #2:***
I worked on the 16-inch mills. I was the union representative. Those hoods were there when I started in 1950. The floor grating to reduce the foot traffic dust was actually steel plates. They

did not change the floor grating to roll uranium. They didn't use grating because when the bar came off the mill there was a good chance of it catching in the grating.

**Mr. Stiver:**
Are you saying that there were never any grates put down to control the dust from those rollers?

***Former worker #1:***
It was my job to wash down the floor with a water hose between the heats. The dirt would go down into the pits and they would pick it up the next day.

The consensus response from the former workers was that there were no floor grates in place.

***Former worker #1:***
The reason why it is still radioactive today is the steel plates on the floor. When they rolled uranium or anything else over there, it slid right through the plates. You were there today and the steel plates are still there. They did not change the plates out after they rolled the radioactive material. We walked right on it. Nobody knew how bad the stuff was then.

***Former worker #2:***
The personal respirators were only given to the mill operators. The rundowns did not have respirators, only the men who were actually doing the rolling.

***Former worker #3:***
I had the broom in my hands. There were respirators in three different places. The 10-inch rolls went down to 7-inch rolls, then to 6-inch, and finally to 5-inch. Every pass through the mill made dust.

***Former worker #2:***
Not everyone on the crew had respirators. Only the roughers had respirators.

***Former worker #3:***
My brother-in-law worked there for more than thirty years as a heater. He never wore a respirator. Every time he opened the furnace there was smoke and dust.

**Mr. Stiver:**
This picture from 1951 shows that there were actually gratings placed in front and behind the 16-inch rollers. Are you saying the grates weren't there?

***Former workers #1 and #2:***
They were not there.

**Mr. Stiver:**
In the documentation, they stated that they installed grates because the foot traffic would kick up and resuspend the dust. Did the dust settle on the steel plates?

***Former worker #1:***
There wasn't so much dust that you would notice, but you would see it on your shoes.

***Former worker #2:***
All the dust that was created during the rolling process went on the solid plates. We walked on it.

***Former worker #1:***
After every heat, we swept the floor and then hosed down plates on both sides of the mill. Those plates got so hot.

**Mr. Stiver:**
Let me get this straight. Every time the material went through the mill, you used a vacuum system or a broom to sweep the floor and then hosed it down?

**Dr. Glover:**
Do you remember if you used a central vacuum system after every rolling? They often documented that the floor had to be swept with a broom.

***Former worker #4:***
That was my first job when I started in November 1951. We used a vacuum system and it went into a suction cylinder.

**Mr. Stiver:**
Where was that located? Was it in main area around the mill?

***Former worker #4:***
As I remember, it was down here where the two buildings combined.

**Mr. Stiver:**
Do you remember them taking the vacuum system out at a given time?

***Former worker #4:***
No, I don't remember that. When I first went to work, I was on afternoon shift from 3:30 p.m. to 1:30 p.m. – 9 ½ hour shifts. Yes, on both sides. Pulled smoke and dust up

**Mr. Stiver:**
Do you remember if there were Plexiglas shields around the rollers?

***Former worker #2:***
Yes, it was like a cap that came right down to the mill. It came down on both sides so that it would pull it right up.

***Former worker #2:***
I remember places where they had Plexiglas, but I don't remember exactly where. I guess in position to protect the roller. I remember that it was a limited amount of Plexiglas.

**Mr. Stiver:**
Do you remember any sharp pieces coming off the bars?

***Former worker #3:***
No, not unless they broke.

***Former Worker #2:***
On your schematic of the 16-inch mill (#7), that is where the long ingots came in. That is roughly where the big circular saws were. The bars that came into the plant that were too long to roll had to be cut into three pieces. Then they went back to storage

***Former worker #1:***
The drag down took care of that.

***Former worker #2:***
No, they used to come in seven- or eight-foot pieces strapped down – two per skid.

***Former worker #5:***
I came to work in 1951. I was a swing grinder. I don't know whether I worked on the ingots of uranium. Did they grind those?

***Former worker #2:***
No, the uranium billets were never ground.

**Dr. Glover:**
How often was uranium or thorium rolled on the 10-inch mill?

***Former worker #2:***
The 10-inch mill was only used for special runs of small amounts that would be rolled into ¾-inch diameter rods. I'm not sure exactly when this was. We had to cut the ends off with saws, and then we laid rods on steel horses at least 20 inches apart. We couldn't put them together.

**Dr. Glover:**
Did they tell you why you couldn't put them together?

***Former worker #2:***
No. I knew they were radioactive, but I didn't know what would happen if we put them together.

**Mr. Stiver:**
Did you do that just a few times?

***Former worker #2:***
Yes, just a few times. I can only guess that it was experimental. There were only a few bars. We cut off ends with an old hacksaw.

***Former worker #3:***
Did that material come through the melt shop or did it come in like that?

***Former Worker #2:***
The material came into the plant on boxcars. It was under 24-hour watch by armed guards.

**Mr. Stiver:**
Do you remember where that material was shipped?

***Former Worker #2:***
No.

***Former worker #3:***
Sooner or later, everybody handled the material. One guy would check to see if it was the right stuff, then someone else would cut it. Everybody had their hands on it.

**Mr. Stiver:**
So basically, you would move among the mills. You didn't get stuck on one particular task.

***Former worker #3:***
That's right.

***Former worker #2:***
The material would come off the mills and then it was stacked up four- or five-feet high in the #7 area. There were probably 100 tons stored there until they were ready to ship it. They used to store it right near the saws where I worked.

**Mr. Stiver:**
Do you remember if there any ventilation controls or any other controls on the 10-inch rolling mill?

***Former worker #2:***
The 10-inch mill was only used for the special rolling.

**Mr. Stiver:**
When was the hood installed?

***Former worker #3:***
There was a hood on the first one pass. After that, there wasn't much smoke because there wasn't much scale left.

***Former worker #1:***
Over in the buildings where the mills were, there were windows all the way across the top. The windows were open during the summer and the winter. That was the only pure ventilation in the buildings. There was some ventilation over the mills.

***Former worker #3:***
The 10-inch mill had about eight or ten rollers. They even rolled spark plugs. That's how small they could roll. They started with one inch and rolled down to a quarter of an inch.

***Former worker #7:***
We rolled even smaller than that.

**Mr. Stiver:**
Do you remember when they put that vent on the 10-inch mill?

***Former worker #3***
It was there when I started in 1956.

**Mr. Stiver:**
In one of the health and safety reports, it says that there were no ventilation controls on the 10-inch mill. It must have been added between 1954 and 1956.

***Former worker #3:***
There was only one vent there on the first two or three passes. Most of scale came off on the first three or four passes.

***Former worker #2:***
The uranium didn't have scale. The steel had scale.

**Dr. Glover:**
Was it clean uranium?

***Former worker #2:***
It didn't have any scale. It didn't go through the swing grinders. It came already machined into billets about seven inches in diameter and about 20 inches long so it could be milled into the right length.

**Mr. Stiver:**
Did you use a hammer forge on the thorium or uranium in the early days?

***Former worker #2:***
They used the old hammer forge before the press was installed. That was before I came to work. They may have had some experimental material that they ran over there, but I don't know of anything. None of the uranium that they ran on the 16-inch mill ever went to the hammer.

**Mr. Stiver:**
Before 1951, they may have had some odd-shaped billets that had to go to the hammer forge first to pound it into the right form

***Former worker #7:***
The hammer forge was in back of Building 2. [Name redacted] operated the hammer forge and may have worked on some of it.

**Dr. Glover:**
Were there access controls in place? Were there any measures to keep people from coming into the area? Who could come in?

***Former worker #3:***
They had to sign to come into the area. If I wanted to work at the 16-inch mill, I had to put my name in and wait until my seniority was high enough before I could work there. I couldn't just walk in there to work.

**Mr. Stiver:**
I am asking if personnel could come in from other areas. Did they have access controls to keep other people from walking in there?

***Former worker #5:***
They could come in from the labor pool.

***Former worker #2:***
People from the office could come into the plant at any time.

**Dr. Glover:**
It was obvious that there are still records at Simonds Saw and Steel. Your employment records are still there. Some of the records are still legible. It is obvious that you did a lot of jobs.

***Former worker #8:***
I had to load the rods on boxcars when they were ready to ship. If it was cold, we were not allowed to come back inside if there was anything on the cars. We had to stay in the boxcars while they were waiting for another load to come.

**Dr. Glover:**
How long were the loaded boxcars on site before they were picked up?

***Former Worker #2:***
It took about a week to run an order through the 16-inch mill. They let it accumulate in the storage area (#7 on your diagram) until it was ready to ship. It was probably in the plant one or two weeks. They had 24-hour guards from Pinkerton's on watch as long as the uranium was in the plant.

***Former workers #2 and #3:***
We ran six to eight heats per day until the order was finished.

***Former worker #1:***
First it went into the furnace. Then we took one piece at a time from the furnace, put it into the mill, and ran it to size. Then we set that piece aside and put another one into the mill. We did that until the order was complete.

***Former worker #2:***
That was regular steel. The uranium came out of the lead pot. It didn't come out of the furnace.

***Former worker #9:***
We ran uranium for two weeks and then steel for two weeks. I started at the end of 1950. If it was too long when it came out of the mill, we had to take it to shears and cut it in two pieces. Then we took it to the rollers, to the water tank, to the cart for shipping.

**Dr. Glover:**
Did anyone ever tell you what happened to the material when it left the plant? Hanford could not make the material to make the nuclear weapons. Hanford would have had to shut its reactors down so we would not have had the plutonium to make nuclear bombs or to supply nuclear

plants. You deserve to know what it was you were doing. If you had not rolled the uranium, Hanford would have shut down. The government could not have continued to make nuclear weapons.

***Former worker #3:***
Bethlehem Steel did the same thing. There were a lot of steel mills that did this.

**Dr. Glover:**
Vulcan and Bliss & Laughlin also rolled uranium. But from 1948 through 1953, Simonds Saw rolled the nation's stockpile. Your efforts kept it running.

***Former worker #2:***
The rods we rolled were sent to the Oak Ridge Project.

**Dr. Glover:**
They went to Hanford as well. Simonds Saw had contracts through Oak Ridge, which was in charge of uranium production.

***Former worker #1:***
Simonds Saw made the best specialty steel in the world at the time.

**Dr. Glover:**
I think it is important for you to know what you did. If nobody has told you before, then we should tell you. There are always health concerns. Many people in the early years did not know the risks. You were part of the war effort and you were exposed at 500 times the limit of exposure. The law was written to compensate people who became ill because of that exposure. If you have a cancer that is radiation related, then you may be compensated as part of this process.

***Former worker #3:***
I sat beside a man who had three cancers at a meeting, but he wasn't paid because they weren't the right cancers.

***Former worker #2:***
I would like to point out an irony here. Many of us were in World War II overseas in combat. When we came back, we started working with uranium for the Oak Ridge project.

**Mr. Stiver:**
You were fighting in the Cold War, too. If it hadn't been for you, the project wouldn't have been successful.

***Former worker #2:***
I was in the Air Force as a bomber pilot with 47 missions. When I came back, I was involved in the uranium production to defend the country. Many of us were in that category. We came back from the war to work in the plants.

***Former worker #1:***
In all our cases, we have had cancer and applied. They come back with all this information in our reports. How do they come up with the radiation dose?

**Dr. Glover:**
In the plant, they were taking air samples at different stations as these different controls were implemented. We take that air concentration data and use that. For example, we have a worker on the roller. The eastside roller on the 16-inch mill was very dirty at 500 times the limit for uranium. We understand how uranium goes into the body, so we can calculate a dose. Not all cancers will be in organs where uranium tends to go. Uranium can go to your bones and your bladder, but not to your prostate. The rest of the organs would have to receive a fatal dose in order for the radiation to cause the cancer. Skin cancers are a different story. Those are from external exposure and can sometimes be compensated.

***Former worker #8:***
I have had skin cancers removed three times. I'm going again to have another one taken off.

**Dr. Glover:**
You should report every cancer to the Department of Labor. NIOSH has to evaluate every cancer. The exposures are added together, so every cancer adds to your changes of compensation.

***Former worker #7:***
I read an article in the VFW magazine that said that prostate cancer is caused by radiation.

**Dr. Glover:**
NIOSH does dose calculations for prostate cancer. Some cases have been compensated, but it takes a very high dose, usually from radiation outside the body. NIOSH has to do what is legally required. There is a mandate that tells us how to do the dose reconstructions.

***Former worker #7:***
Radiation affects different people in different ways. Two people can do the same job. One will get cancer and the other will not.

**Mr. Stiver:**
Different types of radiation affect different organs. The chemical effects of uranium exceed the radiation effects.

***Former worker #1:***
We all worked the line and the radiation is still there today. Why should one cancer be compensated and others not?

***Former Worker #7:***
I'm the only male in my family in four or five generations to have had cancer.

***Former worker #10:***
I have had prostate and skin cancer. One guy walked through the mill once a month and he got paid for cancer.

**Dr. Glover:**
You know who worked in the mill. We give the claimant the benefit of the doubt. Sometimes it's

a lung cancer and uranium is a very high dose to the lung. Almost all lung cancers get compensated.

***Former worker #1:***
This guy worked in the office and he wasn't there that long. He probably went through the mill maybe five times.

***Former worker #2:***
We were talking about rolling. There is another aspect of this and I think it would be interesting for everyone to know. This was in the area that you have marked as #7 where we cut the long billets with a circular saw. It probably had a 40-inch diameter. We used a coolant to keep the uranium cool. If the coolant slowed down for some reason, those chips would be so hot that they glowed orange. They would start burning when they fell into the pit underneath the saw and start burning.

**Dr. Glover:**
Did that happen often?

***Former worker #2:***
If the coolant slowed down for some reason, the coolant would get so hot that it gave off steam. I'm sure that there were microscopic particles of uranium during the cutting process. You could also take one of those chips and light a match and the pointed side of that chip would get red hot. When you rolled it, it got hotter but when you cut it, if you weren't careful it would set the chip bin on fire.

**Mr. Stiver:**
Did this happen frequently?

***Former worker #2:***
The chips were so hot where it was being cut that they generated heat and steam. That's why #7 is there. We had gloves on but they were soaking wet with the cutting liquid. I'm sure that we breathed some of that and absorbed it in our skin.

**Mr. Stiver:**
I'm curious about this whole issue of fires and chips and turnings. This was a pretty common issue at Fernald, especially with thorium. It catches on fire pretty quickly when it oxidizes.

***Former worker #2:***
It was so important when you were cutting that to have a full flow of coolant. If the flow got reduced, the heat built up and the chips could get red hot – especially the feathered edge – and fall into the chip area.

**Mr. Stiver:**
That comes right up into the breathing zone of the operator. Those people probably did not typically wear respirators.

***Former worker #2:***
No, only guys at the mills had respirators.

**Dr. Glover:**
You said you wore gloves when you were handling the material.

***Former worker #2:***
We had to because the edges of the material were sharp.

**Dr. Glover:**
The AEC wanted to keep the fines from the uranium because it was expensive. What did you do with the fines?

***Former worker #2:***
We put them into a barrel. They wanted to take back all that they could so we scraped up all that we could. The cutting and heating released a lot of uranium into the environment.

**Mr. Stiver:**
The AEC was interested in capturing the inventories. So many pounds or tons would go out the vent stacks as dust or fumes. It was a fairly substantial amount. That is one reason they put the dust collectors in place – to recapture this material and bring it back into the supply.

***Former worker #8:***
When we loaded the material on the boxcars, they used oil paper to cover it. If we screwed the covers down too hard, they would spark and the paper would catch on fire. We had to put the fire out.

**Mr. Lewis to former worker #2:**
How did you put the fire out when the chips caught on fire?

***Former worker #2:***
We just put more coolant on the fire. It would bring down the temperature and the fire would go out.

**Mr. Lewis to former worker #2:**
That would cause even more steam.

**Mr. Barton:**
What did you use for coolant?

***Former worker #2:***
We use the same cutting oil that we did when we ran steel. We may have changed the oil after we ran the uranium, but I am not sure.

**Mr. Stiver:**
Let's talk about the controls again. The records we have show that they decided to do a decontamination project in 1953. They pulled out the ventilation and the lead bath and all of the controls around the 16-inch mill so they could decontaminate the area more thoroughly. The documentation shows that the controls had not been put back in place when they rolled uranium and thorium again in August 1954.

***Former worker #2:***
I think you're right.

**Mr. Stiver:**
Do you remember when they pulled those things out?

***Former worker #2:***
I remember when they pulled out the lead pot and all that. They tried to clean it up as best they could under the mill, but it was still contaminated.

**Mr. Stiver:**
Do you remember when the controls were put back in? It looks like the hoods were put back into place, but I'm not sure about the lead bath. We know that they put the hood over the 10-inch mill between 1954 and 1956. If they did that, they probably put things back.

***Former worker #7:***
What did they do about the beams? I heard that they were wiped down.

**Mr. Stiver:**
That was part of the cleanup project.

***Former worker #3:***
When they used a torch to cut the steel, it would fill up the whole building with smoke and we had to work our 8-hour shift like that.

***Former worker #5:***
If one of the mills was down, the guys might get put in the labor gang and be sent to work somewhere else in the plant.

Dr. Glover asked if there were any further questions or statements. He thanked the attendees for coming to the meeting and concluded the meeting at 3:30 p.m.