

National Institute for Occupational Safety and Health (NIOSH) Special Exposure Cohort (SEC) Outreach Meeting for Rocky Flats Plant (SEC00192)

Meeting Date: Thursday, May 24, 2012, 10:00 a.m.

Meeting with: Former Workers from the Rocky Flats Plant, Golden, Colorado (First of two meetings)

NIOSH Team:

Grady Calhoun, NIOSH Division of Compensation Analysis and Support (DCAS), Health Physicist

Lara Hughes, PhD, NIOSH DCAS, Health Physicist (by telephone)

Josh Kinman, NIOSH DCAS, SEC Petition Counselor (by telephone)

James Bogard, 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:

Wanda Munn, Advisory Board on Radiation and Worker Health (ABRWH), Rocky Flats Plant Work Group and Worker Outreach Work Group, Member

Ted Katz, ABRWH Executive Secretary, Designated Federal Official

Carolyn Boller, Office of U. S. Representative Mark Udall, Congressional Aide, Denver office

Proceedings

James Bogard opened the meeting at 10:00 a.m. He introduced himself and explained that the purpose of the meeting was to gather information about tritium at Rocky Flats, including the tritium monitoring programs and incidents involving tritium, to evaluate the SEC petition for Rocky Flats workers for the period of 1972 to 1989.

Mark Lewis asked for the attendees' permission for the SEC petitioners to participate in the meeting by telephone. The attendees granted their permission

Rod Hoffman introduced himself as a classification officer with the Federal Records Center in Denver. He explained that there may be classification issues regarding certain production operations or major incidents that should not be discussed during the meeting. Mr. Hoffman

offered to arrange a meeting at the Federal Records Center for anyone having classified information to share.

Worker 1 asked if Mr. Hoffman was familiar with on the Site Exposure Matrix (SEM) database on the U. S. Department of Labor (DOL) Web site. Mr. Hoffman responded that he was not. Worker 1 stated that this lack of knowledge is a handicap because this is the information the government has posted that is accessible to all of the claimants and the employees. He provided the web address (www.sem.dol.gov) and stated that much of what he has to say is related to specific incidents in work areas at the Rocky Flats Plant.

Mr. Lewis introduced himself. He reminded the audience that the purpose of the focus group was to discuss tritium at Rocky Flats. Mr. Lewis also reiterated Mr. Hoffman's statement that a secure venue could be provided to discuss classified issues. At Mr. Lewis's request, the other members of the NIOSH team identified themselves. Mr. Kinman indicated that he was having difficulty hearing the proceedings over the telephone.

At this point in the meeting the digital voice recorder malfunctioned. The following minutes are prepared solely from notes.

Mary Elliott introduced herself and explained that a sign-in sheet was being circulated to collect the attendees' contact information in the event that NIOSH should need additional information. She stated that she was recording the meeting and taking notes to prepare an account of the meeting.

Carolyn Boller introduced herself.

Mr. Lewis then asked the former workers to introduce themselves and to comment on their experience at Rocky Flats:

Worker 1 was employed at Rocky Flats for [redacted] years. He worked as a Radiological Control Technician (RCT) for [redacted] years. Worker 1 served as [redacted] Steelworkers Local 8031 for [redacted], representing production and maintenance workers at Rocky Flats. During his career, he worked in most of the buildings on the site. He stated that he received a lifetime dose of 36 rem to his lungs (mostly from working around the high-fired oxides) but has no recorded tritium dose.

Worker 2 stated that he had worked as an RCT at Rocky Flats.

Worker 3 stated that he worked around tritium in Building 440.

Worker 4 stated that he worked as an engineer at Rocky Flats.

Worker 5 worked as a technician in Building 771.

Worker 6 worked from [redacted] as a chemical operator.

Worker 7 began working at Rocky Flats in [redacted] and was rehired in [redacted]. He worked around tritium in Building 777. Worker 7 was working as an RCT when he retired in [redacted].

Worker 8 worked from [redacted]. He began working as a [redacted], and eventually as a [redacted].

Worker 9 stated that he worked at Rocky Flats for [redacted] years in the process facilities. He worked on the cleanup for the 1969 fire in Building 776. Worker 9 worked in Health Physics monitoring, and then as an RCT. He retired in [redacted]. During his career, he worked extensively around tritium in Building 776/777 until [redacted], and then doing sampling in Buildings 776/777, 771, and 123.

Worker 10 worked from [redacted] as a [redacted], as a [redacted], as a [redacted], and for the final [redacted] years as an [redacted]. She worked around tritium as a [redacted].

Worker 11 worked at Rocky Flats for [redacted], from [redacted]. During his career, he worked as a [redacted]. He recalled alarms for tritium in Building 777, as well as surveys in Building 776 at the in-line box.

Worker 12 worked from [redacted]. He started in the [redacted], where he [redacted] Building 776 fire cleanup. After working in [redacted], he moved to [redacted]. He worked around tritium on the “hot side” and in the Build Room.

Worker 13 worked from [redacted]. He worked as a [redacted] of the 371 cooling tower.

Worker 14 stated he worked at Rocky Flats for [redacted]. He continues to serve former Rocky Flats workers as a [redacted].

Dr. Bogard explained to the former workers that NIOSH wanted to hear about the tritium operations at Rocky Flats. He asked them what work could have resulted in tritium exposure.

Worker 14 stated that there was a lot of tritium in the assembly operations area in Building 777/778. If there was an alarm for tritium, the area was cleared out and there was not much follow up. In the late 1980s and early 1990s, there would have been tritium present in the lab and in the main assembly area at the glove boxes.

Dr. Bogard asked if anyone recalled specific bioassay or air monitoring for tritium.

Following Dr. Bogard's question, a brief discussion ensued regarding the difference between routine monitoring for airborne contamination and monitoring for tritium contamination.

Worker 1 stated that tritium was present in both its gas and liquid forms in certain areas at Rocky Flats. He recalled basic monitoring in those areas. In 1974, management installed safety and monitoring equipment for areas with known tritium contamination: eye washes, desiccant samplers, and bubblers. In other areas, tritium monitoring was “hit-and-miss.”

Worker 8 explained that glove boxes were installed in Building 771 between 1963 and 1965 for increased production on Line 5, which handled site returns from Pantex. The “pits” were received in 777 for disassembly and then sent to 771. A monitoring system was installed in the 1960s. The parts went from 777 to 771 in 10-gallon containers on a cart, and then were placed in front of an exhaust duct that had a sampler (the gettering system). The sampler measured the

containers and parts on the cart... spray leach... went to the lab in 123 for analysis. If there was tritium present, personnel in 771 were notified that they had to go see the nurse in the medical department. The workers were told to drink a six-pack of beer to help them excrete any contamination. The workers did not receive smears, urinalysis, fecal or other sampling for tritium. Any tritium contamination detected by the gettering system was assumed to exit through the plenum in 771.

Dr. Bogard asked if the effluent from the plenum was monitored. Worker 8 responded that it was not monitored after it went through the plenum. Instead, the parts were placed near a sampler that was in front of the air duct, and then the cart was taken to Line 5 in the next room. Dr. Bogard then asked whether the parts were monitored for tritium after they were moved to Line 5. Worker 8 responded that only alpha sampling was done on Line 5. It was up to 771 to report any tritium contamination.

Worker 14 explained that the parts that came from Pantex went through a basic disassembly process when they arrived at Rocky Flats. The tritium monitoring system was in 771 and the results came back from the lab.

Worker 1 commented that although Rocky Flats was in operation for over 50 years, tritium was ignored until the mid-1970s. He handed Dr. Bogard a report outlining the chronology of operations at Rocky Flats. Dr. Bogard noted the title: *Reconstruction of Historical Rocky Flats Operations & Identification of Release Points*, which was prepared by Chem Risk in August 1992 for the Colorado Department of Public Health.

Dr. Bogard asked the former workers if they could recall specific tritium incidents.

Worker 7 stated that, as an RCT in [redacted], he was told to go into [redacted] to “bag out the bubblers.” He explained that the bubblers were tritium detectors inside the dry boxes. The bubblers were vials that were attached to pumps that pulled air from inside the boxes into the vials to detect tritium. RCTs routinely collected the bubblers in plastic bags and sent them to the lab to be checked. (There were also room alarms that detected tritium outside the boxes.) If the beta radiation was high enough to set off the room alarm system, their supervisors told them to reset the alarm.

Dr. Bogard asked whether the bubblers in the glove boxes contained gas. An unidentified worker responded that they contained hydrogen (?). Worker 8 further described the glove box system: The boxes were double-walled and the water between the walls served as a shield for neutron radiation. The boxes were also lined with lead glass to protect workers from gamma radiation.

Worker 7 explained that the gamma radiation came from the material in the glove box. He stated that there was no time sheet to record the alarms, and no procedure to follow if the alarms went off. EG&G expected the people in the room to know what to do.

When Dr. Bogard asked Worker 8 when that changed, he responded that it happened after Kaiser-Hill took over in 1990 after the FBI raid.

Worker 8 commented that the water in the 371 cooling tower became contaminated with tritium when the molten salt plutonium recovery facility operated between 1982 and 1986. He recalled

that the area was taped off and access to the facility was limited. He worked in the boiler house and maintained the condensate lines that went into the towers. Worker 12 added that contaminated steam was vented out into the air.

Worker 8 stated that 371 was the Molten Salt Recovery Area and was built to replace the molten salt facilities that were previously located in 771 and 776. The americium was removed from the site returns so the plutonium could be recycled. Worker 8 further stated that he had worked in 371 from the time the facility went online in 1980, and knew of no monitoring for tritium. Worker 12 added that there was also tritium contamination in 771 and 776/777.

Worker 1 stated that there was a yellow Air Force surplus tanker trailer that went around the Rocky Flats site “sucking up liquid waste” so the entire site had potential tritium contamination “in sloughs.” The trailer itself was contaminated.

Dr. Bogard asked who operated that tank truck. Worker 8 answered that Site Services operated the tank truck. When the tank was full, it was pumped into the waste treatment facility (374) and evaporated. Worker 1 added that there was no routine sampling for tritium in 374. Worker 8 said they were told that there was no cause to worry about radiation contamination in 374 because the waste water was diluted with “outside water.” Worker 1 disagreed, explaining that the tanker was also used to clean up water when there were leaks in the process areas. Worker 8 added that the tanker truck was also used to pump out the steam plenum because it leaked during rainy weather.

Worker 11 recalled an alarm that went off in a dry box in Building 776/777 one evening when he was working as an [redacted]. Tritium leaked out through the gloves and set off the room alarm. He explained that cigarette smoke ... beta radiation. The stationary operating engineer used the vacuum in the plenum to clear the contamination. Worker 1 commented that they would have used a Triton ion chamber to monitor the tritium level and that model was known to be “grossly unreliable” because it used a vacuum to pull air into the chamber. Worker 11 added that contaminants were exhausted through the stack to dilute the concentration before it was vented into the atmosphere.

A discussion ensued among several workers and Mr. Calhoun about the monitoring routine that RCTs would have used for a tritium release. Worker 7 stated that smears would have been taken from inside the box. Workers 11 and 12 commented that the RCT would have surveyed the line and would have bagged out the tritium in the box and sent it to the lab. Worker 12 added that the RCT would not have been wearing a respirator. Worker 1 commented that the RCTs took glycerin swipes in the 1980s and sent the smears to the labs, but the RCTs would not have been told the results.

Several workers stated that tritium had been found in the sanitary water supply at Rocky Flats (water fountains, showers and restrooms), as well as in the Denver water supply. Use of the drinking fountains was banned because they also found polonium, and a work order was issued to disconnect the fountains. One person recalled that workers were given salt tablets in the 1960, 1970s, and 1980s so they wouldn't become dehydrated.

Worker 3 stated that they had received drums from Oak Ridge that were contaminated with tritium when he worked in 440 on the “cold side.” He recalled that he had been asked to give a

urine sample and had received a letter with his urinalysis results. He handed Dr. Bogard a letter from NIOSH showing that they had used the urinalysis results during his dose reconstruction. Worker 3 added that he did not know what the background count would have been, but he knew that there were 36 people who had reported exposures in Bloomfield.

Dr. Bogard asked what technique was used to monitor for tritium. Worker 3 recalled that they used some type of instrument to check the culverts, but he didn't think that they had tested for tritium. They also did not wear protective clothing. Worker 1 stated that the Bioassay Lab used atomic absorption, as did the 881 Water Lab, but he was only aware of two areas that turned tritium samples into the Bio Lab. Worker 3 called the instrument "bogus." Worker 1 commented that they would have used the Triton monitor to check the area. Worker 11 added that cigarette smoke would set the machine off because it contained beta radiation.

Worker 1 recalled that the RCTs used to check the railroad cars (mail cars, bunkhouse/kitchen cars, and cargo cars) that came into Rocky Flats on the northwest side of the complex. He recalled in particular that they "sniffed" the cars from the Savannah River Site for tritium; but he did not recall a positive reading. Trucking eventually replaced the rail transport. Dr. Bogard asked him to describe where the train siding was located. Worker 1 replied that it was between the warehouse and 34. There was a steel dock where parts were shuffled in and out of the warehouse. Worker 8 stated that guards armed with machine guns kept workers away from the train cars.

Dr. Bogard asked the workers how people were chosen for bioassay. Worker 10 responded that the foremen chose who would participate. Worker 8 stated that there was a regular bioassay program but it was also driven by incidents. People would be given a bottle for a urine sample and told to bring it back. The lab would process the sample and send the employee a letter. Later, they used whole body counters. If a worker's sample was "hot" during a routine urinalysis, then they would be put on a more frequent screening cycle.

Dr. Bogard asked if anyone was aware of any tritium monitoring incidents. The collective response was "No."

Worker 8 stated that a tritium release in 777 would go to the bubblers in 771, and notification would come from the lab in 123. If there was tritium in the sample, the workers would be sent home to give urine samples. Dr. Bogard asked who made the decision to order urinalysis. Worker 11 responded that it was standard procedure when there was an incident.

Worker 1 stated that in most buildings the air recirculated a fair amount back through the ventilation alarm system and there was a lack of awareness. The stationary operating engineers detail... In production, the air was dehumidified. If there was a spill, workers might be breathing a lot of airborne contamination. Worker 1 said that the regular urinalysis for RCTs or chemical operators would have checked for thorium, americium, plutonium, and uranium, but not for tritium. Worker 11 commented that he had his records and there was never anything about tritium.

Worker 10 stated that Worker 10 was a [redacted]. When the vessels from Pantex came into the J Line, the alarms went off regularly. [redacted] would tell them to leave the area if the alarms

went off frequently. There were fewer RCTs on the evening shift, so the SOE (stationary operating engineer) would reset the alarms after the gas passed through.

Worker 8 explained that the SOE would have been responsible for monitoring the HVAC system: ventilation, cooling water, process water, air flow, breaches, etc.

Dr. Bogard asked if the RCTs were directed by the rad ops managers. The workers responded that they were.

Worker 13 commented that they had been told during a shift managers' meeting that there was no beryllium on site, but they were required to take a beryllium class. There was a map at the front door of 334 that showed that beryllium was "everywhere."

Dr. Bogard asked if there were rad ops managers on the evening shift. Worker 10 responded, "Yes."

Dr. Bogard asked where the bioassay results were stored or maintained. Worker 10 responded that was "need to know" information. A worker received a card from the supervisor and then would go pick up bottles and return them with the card inside. Worker 9 replied that the results were kept in filing cabinets.

Dr. Bogard asked where the radiation monitoring records were kept. Worker 11 responded that they were kept in a trailer office that was "half full" of stacked records (personnel, incident, etc.). Within three weeks of the FBI raid, the records were gone. He recalled that a truck driver told them that he had been instructed to take them up to the landfill.

Worker 1 stated that Rocky Flats also had an autopsy lab where deceased workers' bodies and organs were dissected and analyzed radiometrically as one of the functions of the Bioassay Lab. Worker 1 believes that the results should be made available. "Dr. Bistline harvested the information for the plutonium registry and the uranium registry. . . Ron Kathren. . . The data and results... dove-tailing."

Worker 1 continued: The half-life of tritium outside the body is 10 to 12 days, but as a contaminant it can last for 10 to 12 years. There is gaseous tritium in liquids. Rocky Flats had a unique operation. No one was aware that it was even in the weapons stream in gaseous form.

Dr. Bogard ... 1972 tritium incident in surface water.

A lengthy discussion ensued among the workers regarding their personal experiences in obtaining their medical and radiological records from the site and/or DOE:

- Worker 7 asked where the records were for all the urinalyses, fecal samples, and body counts if they weren't at the Federal Records Center.
- Worker 14 stated that he had been told that DOE could not find his records using his employee number or any information that could prove he worked at Rocky Flats.
- Worker 8 had received both his medical and radiological records from DOE within six weeks of sending in his request.

- Worker 13 did not receive his records from the site after multiple requests over a number of years. DOE provided the records approximately six weeks after he asked for them.

Worker 8 commented that he had urinalysis records that showed he had received a high dose. He noted that the “oversight committee” had debated about the difference between gamma and neutron exposures at Rocky Flats. The letter from ORAU regarding his dose reconstruction said there had been changes because of flawed documents and mistakes in 1950s film badges. This was based on government-provided numbers.

Worker 3 commented that he had gotten a letter from Queens College for a medical screening. They told him that he could call Oak Ridge to get his records. Oak Ridge told him to call the Department of Labor District Office in Seattle. They told him to call National Jewish Hospital. Worker 8 suggested that he call National Jewish Hospital or the University of Pennsylvania.

Worker 1 commented that it was rare for workers to be made aware of the studies that were conducted using government grants. For example, workers still don’t know the outcome of the Rutenber study.

Worker 12 asked, “If a worker’s records aren’t available, does it count against them?” Dr. Bogard responded that NIOSH can make conclusions in the worker’s favor.

Worker 12 related that he and Worker 11 had made a survey of the tritium bubblers and had never received the reports. Worker 9 added that the RCTs never heard the results. Dr. Bogard responded that NIOSH continues to search for information.

Worker 9 asked if anyone could confirm that records had been buried. Worker 12 reiterated that he had heard that they were taken to the landfill. Worker 9 said that he had often been frustrated over the years because he didn’t have a “need to know” and was not provided with answers.

Worker 8 stated that the managing director of Plutonium Operations had told him that tritium was not an issue at Rocky Flats because the tritium was pumped out of the units; there were never any results because there were such minute amounts. Worker 8 commented that there was a document with three sample results – 57, 40, and 29 curies over a 20-year period, the only results he ever saw.

Worker 11 stated that there had been a 100 curie release in the gettering system. Dr. Bogard asked what monitoring technique was used in the getter. Worker 1 responded that he did not know. Worker 11 responded that the RCTs did not have an instrument to measure beta radiation.

Worker 1 stated that there would have been sources of tritium in both the Hydride Laboratory in 779A and in Inertial Fusion in 881, but there was no routine monitoring for tritium. He recalled that there were Sigma II monitors (glass balls), but he did not know quantities.

Dr. Bogard asked the attendees if they had any additional tritium information. Mr. Calhoun asked if anyone knew of reports on tritium incidents or releases. Several of the workers responded that they recalled alarms on a regular basis, either frequently or infrequently depending on the area (mentioned earlier in meeting).

Worker 9 recalled an incident when Worker 9 was working as an RCT on the [redacted] in [redacted]. The contamination control monitor did not respond to an alarm. The workers were pulled out of [redacted] and told to go to [redacted]. Worker 8 commented that there was a tunnel going between the two areas to transport materials.

Worker 9 recalled another incident in [redacted] in [redacted] when Worker 9 and two or three other workers were doing a survey of a dry box. [redacted] reported alarms and the rad ops foreman had come into the room and told the clerks to assemble outside the showers (stand by between [redacted]). Worker 9 reported that the survey results had been routine for removable alpha. Worker 7 explained that the [redacted] would have been handling plutonium parts. Dr. Bogard asked if the workers in the incident would have been monitored. Worker 9 stated that he had the records and would have to look.

Dr. Bogard stated that if no one had anything else to add about tritium, he would like to hear from anyone who had knowledge of the fire in Building 371 in 2003.

Worker 4 stated that there had been many tritium incidents at Rocky Flats over the years. He noted that the current SEC classes cover only production years, as does the petition that NIOSH is currently evaluating. He added that NIOSH should be aware that some of the contractor records during the Kaiser-Hill D&D period may not be accurate because corners were cut that put workers in unsafe conditions.

Worker 4 commented that workers tried to fight the fire in [redacted] themselves before they called the fire department. When the fire department arrived, they were told that the fire was under control and that they could leave. After the fire restarted, the fire department had to come back to put out the fire. Documentation shows that the actions of the building management delayed the fire department response to the fire. Some workers were not evacuated as they should have been. There is a lack of information about the incident. Worker 4 stated that he wanted to submit an SEC petition for workers during the D&D period because there are many incidents and changes that are not well-documented. The labor categories changed and there was less oversight. The senior employees were pushed out and replaced by younger workers with less experience.

Worker 9 stated that he was working as an [redacted]. He recalled that he was told numerous times to ignore issues that might hinder cleanup. Worker 9 recalled that he was actually threatened at one point.

Worker 12 stated that he and Worker 11 were working were working on the [redacted] with [redacted] when the [redacted] fire started. He recalled that he smelled smoke and then saw smoke in the hallway. They exited the building and the fire alarm went off, maybe before 11:00 a.m. The foreman told them to stand in the hallway. He recalled using a step off pad in the hallway and being checked off the list.

Dr. Bogard asked if the contaminated smoke was radioactive. Worker 12 responded that the fire occurred in the "hot" area of the basement in 371 where workers were dismantling a dry box which contained particulate material (not high-fired oxides). The workers were wearing supplied

air suits. Worker 12 explained that the glove boxes were located in airlock rooms and workers wore protective clothing suitable for the type of work that they were performing.

Worker 10 stated that she was draining tanks in 371 (not wearing a respirator) when the fire broke out. They were told to report to their designated areas, but they were told to go back to work after 10 or 15 minutes. She recalled walking through a plume of smoke to go back into her work area. Ten minutes later, there was another announcement to evacuate the building and report to the designated area. At quitting time, they were told to shower and go home.

Worker 8 stated that the company had to report to Washington, D. C.

Worker 13 stated that the report said that the building was not evacuated when it should have been. The first announcement said that there was a “small fire” up above and the workers were told to stay in the building. Finally, the manager gave the evacuation notice and then sent the Control Board in to assess the situation. It took the Control Board six or seven minutes to determine the problem. A short time later, both HVAC systems were put on emergency dump.

Dr. Bogard asked Worker 13 to explain what he meant by “dump.” Worker 13 responded that the emergency dump would have evacuated the air from the building. He explained that the building had been under differential pressure: the tank group and the glove box rooms were under negative pressure to the hallways, and the hallways were in turn under negative pressure to the outside. The D&D work on the glove box in Room 2325 was being done under negative pressure to contain any contamination within the work area. The box had been inspected and the work order had not included instructions for working around special nuclear materials because the boxes were empty and the building had not been used since it was shut down in 1989. The fire may have started when sparks from the torch ignited chem wipes in the bottom of the box. Worker 13 stated that the workers may have used as many as 23 fire extinguishers trying to fight the fire. Since the workers initially thought that they had the fire under control, it was 12 minutes before the Fire Department actually arrived on the scene. He added that a news team did a flyover during the incident.

Worker 13 explained that Room 3701 had been the plutonium stabilization area. The box that ignited in Room 2325 had been used as an elevator to move plutonium upstairs to Room 3701, so there was plutonium residue in the box.

Dr. Bogard stated that he had read the Defense Nuclear Facilities Safety Board’s (DNFSB) report of the incident. NIOSH had found the document during data capture.

Worker 13 explained that ... ventilation ... had run to the control room. There were no personnel present from either DOE or DNFSB during the incident... didn’t ask what happened. They sent the manager to get printouts.

Worker 1 commented that Kaiser-Hill had issued 25 reports with the emphasis on supervisors avoiding reporting incidents with paperwork. If the number of incidents was excessive, the company would lose points from the contract and would not receive their bonus. So the emphasis was on downgrading or ignoring incidents. An unidentified attendee added that because of the large bonuses involved, the emphasis was not on safety. Worker 1 stated that Integrated Safety Management (ISM) went out the door and the work environment suffered.

Dr. Bogard asked the workers to talk about the radiological issues – the contamination – when the last radioactive material was taken offsite. Worker 1 said that he had been injured during the 779 building D&D project that sent the last of the plutonium “down the road.” Worker 13 commented that 60 pounds of plutonium had been removed during the D&D of 779. Worker 1 added that there had been 16 tons of nuclear material removed from the entire plant site.

Dr. Bogard asked the workers about monitoring during the D&D and how radiological problems at the site were addressed during that time. Worker 12 responded that the monitoring systems were disabled during D&D when the electrical systems were taken out. Worker 1 added that sampling and bioassay continued. Worker 12 clarified that he meant the air samplers – the stationary air monitors and continuous air monitors.

Worker 1 stated that Denver West Remediation brought in prisoners to work on the 779 Building D&D project. Worker 10 added that the prisoners were escorted by armed guards.

Worker 13 stated that following the fire in 371, DOE ordered the site management to leave the scene “as is” for the investigation; but the building management cleaned it up and removed the box. Five months after the incident, the work package could not be located.

Worker 1 commented that after the radiological control guide was implemented, the radiation work permits (RWPs) could be either generic or specific in nature. For example, a generic permit could be issued for “indoor work,” while a specific permit might be issued to Siemens describing the industrial hygiene hazards and specific work details. The former workers concurred when Worker 1 asked if they agreed that the rules no longer applied during D&D.

Mr. Lewis asked the workers if any of them had been personally involved in the 371 fire incident. The workers said that they were not directly involved but expected that some of the attendees coming to the afternoon session had been involved.

Worker 7 recalled air samplers in an area posted for high radiation. He said that the samples decayed out in 20 minutes. Worker 8 stated that radon gas would have caused those high readings. Worker 7 commented that work conditions in the early years weren’t safe by modern safety standards.

Worker 11 stated that some of the firemen involved in the 371 incident were taken to the Medical Department because of alpha contamination to their skin. The workers who were directly involved were not contaminated because of their protective clothing.

Worker 7 asked if there had been corrective action against management. Worker 11 responded that a supervisor had been fired because someone in building management had lied. Worker 8 stated that the details were in the DNFSB report.

Dr. Bogard asked if there were any additional pressing tritium issues.

Worker 7 recalled that he had picked up 55-gallon barrels of water after the 1969 fire and that there had been problems because there were no Raschig rings. Worker 6 stated that she had been told to be careful when she was working in the 440 areas because there was tritium contaminated armor buried there. She explained that the 440 area was the warehouse (landfill?) for the “hot

areas” such as 776/777 and 778. Worker 5 confirmed that there was tritium contamination in the landfill areas. Worker 6 explained that there had also been issues in the Mod Center when they modified semi-trailers to transport stored armor contaminated with tritium. Worker 1 added that he had been apprehensive about the armored transports because the oxygen had to be evacuated since it might react with the plutonium in the triggers.

Worker 4 asked Worker 12 if the stacks were monitored for tritium. Worker 12 replied that the stacks in 771, 776, and 707 may have been. Worker 6 asked if there had been tritium on Line 1.

Worker 9 commented that there had been a tritium incident when they removed the bubblers from 881 Plutonium Process Building. Worker 1 responded that they had not known until after the fact – a matter of days or weeks later. Worker 3 commented that he had been the shift supervisor on the floor in 881.

Dr. Bogard thanked the former Rocky Flats workers for meeting with NIOSH and concluded the meeting at approximately 12:15 p.m.