

National Institute for Occupational Safety and Health (NIOSH)  
SEC Worker Outreach Meeting for the Los Alamos National Laboratory  
(LANL)

**Meeting Date:** September 16, 2008, 4:30 p.m.

**Meeting with:** International Guards Union of America (IGUA) Local 69, Los Alamos, New Mexico

**NIOSH Worker Outreach Team**

Greg Macievic, PhD, National Institute for Occupational Safety and Health (NIOSH), Office of Compensation Analysis and Support (OCAS), Health Physicist

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

Wilfrid “Buck” Cameron, ATL, Senior Outreach Specialist

Mary Elliott, ATL, Technical Writer/Editor

**Also present:**

Loretta Valerio, New Mexico Office of Nuclear Workers’ Advocacy, Director

Sylvia Rodriguez, New Mexico Office of Nuclear Workers’ Advocacy, Assistant Director

**Proceedings:**

[Name redacted], President of the International Guards Union of America (IGUA) Local 69, opened the meeting at approximately 4:30 p.m. by introducing the NIOSH representative, Greg Macievic, and members of the NIOSH Worker Outreach contractor team, Mark Lewis, Buck Cameron, and Mary Elliott. [Name redacted] also introduced Loretta Valerio and Sylvia Rodriguez from the New Mexico Office of Nuclear Workers’ Advocacy. He explained that Dr. Macievic and the NIOSH team were present to discuss safety practices and radiation monitoring during the period covered by the Special Exposure Cohort (SEC) petition that [name redacted] has filed on behalf of a class of workers at the Los Alamos National Laboratory (LANL or “the Lab”) that includes security personnel, firefighters, and construction trades workers. [Name redacted] is a member of Local 69.

[Name redacted] distributed a handout entitled *Work History Information*, which he had prepared to aid in the discussion. (Please see Attachment A.)

Mr. Lewis thanked the attendees for their interest in helping NIOSH in the petition evaluation process. He noted that Mary Elliott was recording the meeting and asked her to explain the privacy policy regarding its use. Ms. Elliott stated that she uses the recording to produce accurate minutes of the meeting that will eventually be posted on the NIOSH Web site. The NIOSH privacy policy prohibits the use of attendees’ names and other personal information in the final minutes, but information on the sign-in sheet may be used by NIOSH to contact attendees for additional information.

[Name redacted] introduced [name redacted], who filed a claim for medical benefits for asthma that he developed after the Cerro Grande fire in 2000. [Name redacted] stated that the guards were not informed of the airborne contaminants that they were exposed to during their duties at S Site and surrounding areas as the fire was being contained.

Dr. Macievic stated that NIOSH is evaluating the radiological problems associated with incidents that may have occurred during the period covered by the petition (January 1, 1976 through December 31, 2005). Incidents or activities in which guards were involved without knowledge of the potential contamination involved, but were informed of the contamination after the event are of particular interest. The information from the guards may help NIOSH find data that can be used to determine their radiological exposures during those activities. NIOSH will use the data to evaluate whether dose reconstruction is feasible for the proposed class of workers during the covered time period.

[Name redacted] stated that the guards were told as far back as 1995 not to drive their vehicles off the roadways because of the possible contamination to the vehicles from the depleted uranium in the soil. Dr. Macievic asked [Name redacted] if the areas had signs posted along the roadways advising of the contamination hazards. [Name redacted] replied that signs were not posted until much later.

The attendees described several other exposure scenarios:

- [Name redacted] described an event between 1985 and 1988 at Kiva 2 in TA-18. The RCTs “forgot” to notify [name redacted], who was posted in the guard tower, when they evacuated the area before the kiva was started. The guard was tested after the incident.
- [Name redacted] stated that during E shift duties in the 1980s, guards manned posts at multiple sets of doors in Building 127 as barrels of material were brought into the building. Other personnel were issued masks, but the guards had no protection.
- [Name redacted] stated that the same situation occurred at SM-102 during the 1980s. Machinists and RCTs in the area wore PPE, but the guards who sat close by were issued only booties.

Dr. Macievic commented that NIOSH is trying to get information from the late 1970s and 1980s from LANL. Information from the guards from this period may help NIOSH search for Lab survey and incident reports that contain data that can be used to calculate doses for unmonitored guards. Dr. Macievic asked if the guards had ever participated in regular bioassay testing. [Name redacted] responded that guards had monthly urinalysis bioassay until PTLA (Protection Technology of Los Alamos) came to the Lab in 1992. After 1992, the only regular bioassay testing was an *in vivo* lung count at the beginning of employment for baseline data and at another at termination of service, but that has stopped in more recent years. Dr. Macievic stated that the bioassay records he has seen do not give him a clear idea of who participated in the bioassay program. [Name redacted] asked Dr. Macievic if he had seen the Lab’s 1969 bioassay policy that was included in the LANL SEC petition for 1943 to 1975. Dr. Macievic responded that he had seen LANL documents on the bioassay program but was uncertain if had seen the 1969 policy. [Name redacted] offered to send the document to NIOSH.

[Name redacted] described an exposure incident in the mid-1990s: [Name redacted] and another guard received radiation doses at a high-energy radiography facility for examining materials when a technician activated the machine before they had finished clearing the roof. The Lab fired the technician. [Name redacted] stated that the incident had been disclosed to NIOSH during the LANL Site Profile meeting in 2005. Dr. Macievic commented that the incident was unique to the individual involved. NIOSH would like to have more information that shows how guards are excluded from the monitoring and safety practices in place for other employees. [Name redacted] stated that when the guards were assigned to escort the materials that were screened in the radiography facility in Building 23 in TA-8, the technicians wore lead aprons but the guards did not. [Name redacted] stated that he had addressed that issue in the previous

meeting as well. [Name redacted] added that the guards took turns doing that assignment and stayed with the materials until the screenings were finished. [Name redacted] asked about the dosimetry during that assignment. [Name redacted] responded that they were not given special dosimeters at the time; that practice started years later. Guards had the same TLDs (thermoluminescent dosimeters) as other workers, but the dosimetry reports always read “0.” [Name redacted] said that he once had a reading of 130 millirem, but his annual report stated that he had received “0” millirem. [Name redacted] asked if the radiographers had special dosimeters. [Name redacted] responded that the radiographers wore neutron dosimeters in addition to their TLDs and another dosimeter. He stated that he stood side-by-side with the radiographers. If they left the area for any reason, he went with them. [Name redacted] added that the guards were in direct contact with the packages because they were responsible for ensuring that the materials were put back into the correct packages after the screening. Dr. Macievic stated that this information would be a good example to include in his report and asked if the same practice was in place during the 1990s. [Name redacted] responded that the same practices were used throughout the 1980s as well. Dr. Macievic asked if there were area monitors in place for gamma ray exposures such as TLDs on the walls. [Name redacted] stated that the building was old and did not have area monitors, but RCTs were assigned to the area. Mr. Lewis asked if he recalled the names of any of the RCTs. [Name redacted] recalled that [Name redacted] was an RCT in the area during that period. Dr. Macievic explained that the RCTs’ names can be used to find survey reports that may contain data to calculate radiation doses when there is an absence of internal and external dosimetry.

Dr. Macievic asked the attendees if the guards respond to fires along with the firefighters. [Name redacted] responded “Yes.” Dr. Macievic noted that the airborne contamination would affect both groups.

Dr. Macievic asked if the attendees could recall the names of workers who had a lung count or other bioassay testing after any of the incidents that they had discussed. [Name redacted] recalled that the RCTs took [Name redacted] to H2 for decontamination, but did not know if he had been tested. [Name redacted] stated that the Lab had given lung counts to guards who had tested positive for beryllium exposure.

Dr. Macievic explained that NIOSH may be able to search the claims database if an employee has a claim. A claim file may yield the names of other employees who were involved in the same incidents, which may be of help in locating incident reports, survey reports associated with the incident, or possibly even dosimetry records of a co-worker. Monitoring data found in survey reports and co-worker dosimetry data can be used to model the radiation dose for an unmonitored worker.

[Name redacted] recalled that several guards who worked in the same area died of cancer [Names redacted]. Dr. Macievic stated that claimant files sometimes contain dosimetry records or other reports that may be helpful in reconstructing a co-workers radiation dose.

Dr. Macievic stated that NIOSH is particularly interested in learning when activities or incidents occurred so they can search the records from LANL’s dosimetry group to find out when they actually started monitoring for that information. He asked if the guards are aware of the materials and processes in an area before they go into the area for an assignment or in response to an incident – do they have knowledge beforehand that plutonium is in the building or if there is an accelerator or a reactor at the location? [Name redacted] explained that when he started working for Mason-Hanger in the early 1980s, they were informed only if they had a “need to know.” They were given orders to respond and did what had to be done. If that resulted in a contamination incident, the company dealt with it. Dr. Macievic stated that NIOSH is interested

in learning more about the exotic radionuclides and where those were located so they can understand how much exposure a worker may have had to those materials over a period of time. [Name redacted] responded that guards were not given that information with their orders. Dr. Macievic asked if the guards were issued respiratory protection. [Name redacted] stated that guards were not furnished respiratory protection until after the Cerro Grande fire in 2000. [Name redacted] commented that after the fire, the guards were issued the same type of breathing apparatus as the British Army for use during tactical training or in the event of a tactical situation. Before that, they had industrial-type respiratory protection, which was not adequate because it interfered with their ability to use their weapons in tactical training. Dr. Macievic noted that the equipment was provided near the end of the time frame in the petition.

[Name redacted] asked [name redacted] if he had been involved in the packaging in TA-18. [Name redacted] responded that he did one tour in TA-18, but he was involved in the packaging at TA-8 and CMR (Chemical and Metallurgical Research facility). [Name redacted] stated that at TA-8, the RCT carried a dosimeter to check the radiation level and only stayed in the area for 15 minutes at a time, but the guards had to stay in the area for their entire 8- or 12-hour shift to protect the material. [Name redacted] confirmed [name redacted] statement. Dr. Macievic asked [name redacted] if the guards had a special dosimeter for the assignment. [Name redacted] replied that the guards were not given the additional neutron dosimeter that the other workers were given. The RCTs came in, took the data, and left the area.

[Name redacted] described another exposure scenario in the Orange Room at DP in the 1980s. The guards were assigned to escort workers wearing masks and suits as they scraped paint off the walls. The guards were not issued any PPE at all. The building has since been torn down. [Name redacted] stated that a lot of contaminated equipment had been taken out of that area. [Name redacted] added that the guards ate their lunches next to that room. The guards were always told the area was clean.

Dr. Macievic asked when the health physics organizations consolidated into one group. He also asked if there had been differences between the health physics operations in the different areas before that time. Were some groups more responsive than others? [Name redacted] responded that before the groups consolidated around 1998, the RCT came to tell the guards what they needed to know and the guards passed the information along to their supervisor to handle. Dr. Macievic confirmed that when Radiation Work Permits (RWPs) were set up, the guards were not involved in the permit and were excluded from the time limits. [Name redacted] commented that this had been one of the findings in the Tiger Team report: The groups had control over what was or was not reported. Dr. Macievic stated that the actual field survey data from the groups from various periods are important because the quarterly reports that NIOSH has located are not necessarily a reflection of field activity. Quarterly reports contain only a summary of events that may have carried more weight with one group than another.

[Name redacted] stated that the guards patrolled inside PF-4 at TA-55 during fire guard without masks during the Mason-Hanger era (the 1980s and early 1990s). Dr. Macievic commented that the lack of protective equipment seemed like standard practice for the guards. [Name redacted] stated that there was not a limit on the time they were allowed to work in PF4 (the plutonium production facility) during the Mason-Hanger era. Guards often worked their entire 8-hour shift in the area and up to 16 hours if they worked overtime. The current time limit posted for the area is two hours. Mr. Lewis asked if workers were allowed to eat in the work area. [Name redacted] responded that he did not eat in the area while he was on duty during the graveyard shift, but he recalled that workers were permitted to smoke in the corridors. He also recalled drinking coffee while he patrolled the area.

[Name redacted] asked if any of the attendees had worked in TA-41 at S Site. [Name redacted] recalled that the guards on duty sat inside the work area in the Tritium Building (205). [Name redacted] stated that the guards sat at their post inside the room with no protection while the other workers were dressed out in full PPE. He recalled thinking that there was “something wrong with this picture. Why is everybody dressed out and we are not?” He added that it was a recurring situation in this location. The guards took the word of the RCT that they were “safe.”

Ms. Valerio stated that she had not heard anyone mention TA-48. She asked if any of the attendees had worked in that area. [Name redacted] responded that he had patrolled in Building 1, the radiochemistry facility where the radioactive sources are kept. He recalled that he used to cut through a hallway to check the back door. [Name redacted] asked if he had also patrolled the vault areas in the basement. [Name redacted] stated that the monitors “used to go off like crazy” in the rooms as he walked through the basement hallway.

[Name redacted] stated that they had to check the vaults and the roof at the Operations Center in TA-53 when they were in “SOs.” They could hear the alarms go off even outside the building. The guards could also hear the alarms going off inside Building 27 in TA-35 when they patrolled there.

Ms. Valerio asked about the vaults at the CMR facility, at TA-55, and at the Old DP site. [Name redacted] responded that the guards served as escorts at CMR.

Dr. Macievic asked if the guards had always worn badges. [Name redacted] responded that the guards always wore TLDs and that was usually all they had. He recalled that at TA-8 the guards had been given special TLDs. The special TLDs were collected at the end of the shift. Dr. Macievic commented that LANL often changed the types of dosimetry badges and other monitoring methods from the beginning of operations up to the present time. He asked if the attendees could identify the time period when they were given the special TLDs. [Name redacted] responded that the special TLDs were issued near the end of operations at TA-8 (from 1999 to 2005) in addition to their regular TLD badges. The special TLDs were collected at the end of the shift. [Name redacted] asked if the guards recalled when the patrol perimeter was moved farther away from Building 23 after the Lab started reading the environmental TLDs after the bursts. He added that the special TLDs were not issued due to a policy change, but were used during the bursts.

[Name redacted] explained that the guards had been given a special assignment to escort material to the WETF (Weapons Engineering Tritium Facility) at TA-16 for a special experiment and had to remain there on shifts around the clock. During the experiment, guards were posted in the building and outside on perimeter patrol to keep personnel out of the area. The guards in the building were in close proximity to the material. [Name redacted] recalled that his work hours were extensive during the experiment. In 2003 or 2004, he had filed a safety concern with his supervisor because he had been called back to work shortly after arriving home from a long shift. [Name redacted] confirmed that the complaint had resulted in a stipulation in the guards’ 2004 contract for overtime relief that provides for the reimbursement of hotel room charges for employees who routinely work double shifts. [Name redacted] stated that he did not wear protective clothing during this assignment but the other Lab employees were dressed in smocks. [Name redacted] commented that everyone worked overtime during that experiment and they often worked in another area before reporting for their second shift at WETF. Dr. Macievic commented that the guards’ routine overtime should be taken into consideration since dose reconstruction normally is based on 8-hour days. [Name redacted] responded that the guards routinely worked either 16-hour shifts every other day (16-8-16-8-16) or 12-hour shifts every day for as many as seven days. Starting off the week by working a double shift and then

working 12-hour days for the balance was also common (16-12-12-12-12). [Name redacted] recalled working three 16-hour shifts in a row when he started working for Mason-Hanger in 1980. He commented that the excess overtime caused both physical and mental fatigue and noted that he had once been written up when he forgot to check in at one of the Detex clocks during a period when he had worked multiple 16-hr days.

Dr. Macievic commented that he needed to establish ways to link their comments to health survey data. He asked whether the guards patrolled mostly in areas where other workers were being monitored during rad operations or mostly by themselves. [Name redacted] stated that he patrolled by himself when he was checking facilities in the radiation buffer zones. There were RCTs present when he was assigned to radiation jobs. He recalled that he used to patrol in Building 102, but later the RCTs starting roping off the areas where the material was stored and posting "Do Not Enter" signs that kept the guards from checking the doors.

Dr. Macievic stated that the site profile describes the radioactive materials that are in the various buildings and technical areas. He asked whether those materials are confined to specific areas or if the materials are moved between the different technical areas from time to time. [Name redacted] stated that storage of specific materials is usually confined to specific areas. He recalled that waste material from the plutonium facility had been removed from Building 155 at the TA-55 waste facility because it had not been stored properly. [Name redacted] stated that there had been no shielding in Building 164 in TA-3 (next to Building 202 in the CMR). [Name redacted] remarked that the guards do not always know what is stored in their patrol areas; for example, he is aware that there are cobalt sources in TA-3 but not specifically where they are stored. He stated that barrels of material were moved out of CMR before the Tiger Team investigation. He added that there are "all kinds of actinides" in CMR. Dr. Macievic commented that NIOSH is aware that many of the exotic radionuclides are used in CMR, but it is difficult to find out the quantities because much of the work is classified.

[Name redacted] stated that the guards receive and scan the shipments of materials from other DOE sites at TA-55. The monitors go off all the time.

Ms. Valerio commented that when she worked at CMR in the late 1990s, the guards escorted HVAC workers to the filter towers when they changed out the HEPA filters on the roof. The guards were stationed at the door to the filter room while the HVAC workers changed out the filters. [Name redacted] recalled having this duty one time in the 1980s. During the procedure, the HVAC workers were in full PPE with respirators but the guards were stationed at the door to the filter room without any protective gear. [Name redacted] stated that a guard had once entered the exhaust stack and had to be decontaminated; so the doors are locked during the filter change now. [Name redacted] stated that guards still escort personnel in this area during air sampling.

[Name redacted] stated that guards now receive additional pay when they are assigned to escort duty for rad jobs that take more than two hours. Dr. Macievic noted that the security levels at LANL are higher than at many of the other DOE facilities. He asked if the attendees knew whether guards escorted materials or other workers into the production areas in the mid- to late 1970s and 1980s. He asked if the attendees could help him identify any security personnel from that period. [Name redacted] stated that he began working at LANL in 1982. Many of the guards who worked during that time have retired. Dr. Macievic asked [name redacted] if he could recall any key changes after 1982 to practices that had been in place since the mid- to late 1970s. [Name redacted] responded that security personnel who began working in the early 1980s were trained by "old school" DOE guards who had been there for 20 years or longer, so the practices likely did not change during that time period.

[Name redacted] recalled sealing doors with lead seals that left a black residue on his hands. The practice stopped after LANL policy began limiting employees' lead exposure.

Mr. Lewis asked if the attendees could recall if there were smelters for melting down scrap metals. [Name redacted] stated that there are furnaces in PF4 and at DP site, but there are none in the open. [Name redacted] stated that there are furnaces in Building 102 near the breakroom in the back of the building. [Name redacted] stated that the guards had to check the bunker doors hourly in Building 42 at TA-9 when the ovens were operating. [Name redacted] added that the check was to make sure the bunker doors were locked. He could hear the alarms going off as he patrolled the building. [Name redacted] recalled that there was an explosion in one of the laboratories in the main building at TA-9 about two years ago, but he did not think that radiological materials were involved. He added that the guards often do not know what radiological sources are present. Dr. Macievic explained that information about sources in specific areas or facilities may be easier to locate if NIOSH has an idea of the guards' activities in those areas during specific time periods. [Name redacted] stated that there are signs posted at the 280 Series Bunkers warning that there are radiological materials in the area and that safety glasses are required, but the type of material and the counts are not indicated. He stated that in certain areas at TA-55, the counts are indicated on signs posted near the laboratories or where there is drum storage in the basement. [Name redacted] stated that a sign on the door to the X ray machine warns of "Grave Bodily Danger."

[Name redacted] stated that he had found an orange lock on the door to Building 304, or possibly 302, in TA-16 after patrolling that area routinely. He asked why the door was locked suddenly and was told that he should look into it. After several days, he was able to locate someone with an explanation. The door had been locked to keep craftsmen out of the basement where there was a 6 MeV Betatron X ray unit. There were no safety signs or other indicators that showed when the Betatron was operating. Since the lockout-tagout locks were supposed to be red, not orange, he submitted a safety concern that resulted in warning devices being installed on the front of the building to keep the guards from patrolling there when the Betatron is in use. (This occurred in 2007.) [Name redacted] commented that the Safety Department had been surprised when he noted the danger of skyshine from the Betatron.

Dr. Macievic asked when LANL started posting safety warnings denoting the radiation levels in the areas. [Name redacted] responded that the postings did not begin until after the Lab started Rad 2 training. [Name redacted] stated that the guards started Rad 2 training in 1993. [Name redacted] added that the lack of safety postings had been an issue in the Tiger Team report.

Prior to the Tiger Team investigation, the guards had been trained only for Rad 1.

[Name redacted] revisited another topic from the 9:00 a.m. session: The guard post at TA-2 was located so close to the reactor that condensate of the steam from the reactor fell on the guards at the post. [Name redacted] commented that the LANL site profile notes a leak in the discharge line from the reactor building out to the canyon. The air monitoring data in the site profile indicated that the reactor produced mixed activation products. [Name redacted] noted that the fire station is on the north canyon wall. The firefighters' concerns were addressed at a 2007 worker outreach meeting.

Dr. Macievic commented that the LANL Site Profile will be revised to address their concerns and to include any new information found during the LANL data search. He stated that their comments have given him a better idea of the working conditions for the workers who were classified as "unmonitored" in the site profile and the radiation doses that they received.

Ms. Valerio commented that there are enforced time limits in the RaLa facility. She asked if the guards are present when radioactive lanthanum is machined. [Name redacted] responded that the guards have not had that duty for some time, but the guards were present in the facility for the entire shift during the Mason-Hanger era. They also escorted other materials, such as beryllium, in the other machine shops. Ms. Valerio asked if the guards still secure materials in SM-39 or SM-102. [Name redacted] responded that they have not done that for some time now; only half of the bay is used for machining now. Ms. Valerio asked if they are still machining explosives in the bays in Building 260. [Name redacted] confirmed that the machine shop is still operating in that building, but LANL has torn down Building 360.

Dr. Macievic commented that the attendees can submit information to NIOSH in writing if they think of additional items after the meeting.

[Name redacted] stated that roads in TA-18 were closed off during gamma experiments at the kivas in the Mason-Hanger era. [Name redacted] added that the Godiva neutron experiments at Kiva 3 had been of concern to CCNS (Concerned Citizens for Nuclear Safety), which had raised an issue regarding air monitoring for activation products at LANL. He stated that LANL may have responded by conducting air monitoring for neutron activation products after some of the shots, but he has not found any documentation of that activity. (LANL conducted neutron experiments in that area in the early to mid-1980s during the development of the neutron bomb.)

[Name redacted] asked if the Lab had conducted experiments in TA-49, where the guards were trained for SWAT (Special Weapons and Tactics). He stated that he had been in the third SWAT training class and they had trained in the abandoned buildings in that area. The Cerro Grande fire in 2000 destroyed many of the old wooden structures, some dating back to the days of the Manhattan Engineer District.

[Name redacted] stated that the guards patrolled the Hot Dump at TA-54 to make sure that the gates were locked. [Name redacted] stated that he had not been out there in two years, but recalled patrolling Area L and driving through Area G. The Lab only recently had started monitoring the guards on the way out of the area but did not check the patrol vehicles. He stated that he did have any information about patrols in that area before he came to work at LANL. He commented that construction trades workers and firefighters may have some concerns about TA-54, especially the firefighters who are first responders in that area.

Dr. Macievic stated that he is aware of issues with legacy materials that are in many areas around the LANL site. [Name redacted] stated that an environmental lawsuit has been filed against LANL for violations of the Clean Water Act in the "PRs" and "AOCs" (Areas of Concern), citing concerns regarding the waste streams leaching into the Rio Grande River. [Name redacted] asked if LANL had done monitoring at the streams in TA-49 and TA-2, where the guards also had SWAT training. [Name redacted] was not certain if there has been recent environmental monitoring in those areas. Dr. Macievic stated NIOSH may have a hard time finding survey or sampling data to model the dose received from radiological materials in the ground. [Name redacted] suggested that [name redacted] at the New Mexico Environmental Department in White Rock may have environmental survey data. [Name redacted] stated that the Resource Conservation and Recovery Act (RCRA) permits, Clean Water Act, and the National Academy of Sciences ground water reports raised concerns about the mass balance of the materials moving through the areas. He added that many of the reports from the early 1990s are unclassified; the RCRA permits from the early 1990s included some of those documents. [Name redacted] noted that his presentations to the Advisory Board in Denver and Tampa discussed some of the materials in the Technical Areas and the cleanup processes for those materials, which might be useful to derive source terms. He described the watershed cycle that

sometimes causes heavy runoff from the waste streams from LANL into many of the arroyos and canyons, creating “hot spots” as the pools from the runoff evaporate (for example, uranium concerns from the waste streams at TA-39 into Ancho Canyon, and runoff from TA-50 and TA-55 into Mortandad Canyon). LANL monitors the soil and water in the areas of concern, particularly since the lawsuit.

[Name redacted] recalled a contamination incident in the early 1990s at TA-35 in which a guard was contaminated when he was escorting workers who were digging up an old storage tank containing fuel cells on the south side of Building 2. [Name redacted] suggested that the material may have been spent fuel cells from TSL.

[Name redacted] stated that the guards patrolled Building 27 in TA-35, where many research projects took place. The guards patrolled the basement of that building, where a great variety of research materials were stored. He recalled that the basement had been flooded once during the 1990s.

Ms. Valerio stated that some of the designations for the Technical Areas changed throughout LANL history; for example, TA-51 was once called the Environmental Research Site and now is a waste studies area. Another example is that the HRL facility that was located in TA-0 is now in TA-43. There was a brief discussion among the attendees as they tried to recall which areas may have changed over time. Ms. Valerio recalled that someone documented the changes because they believed that would affect exposures. [Name redacted] stated that he had included a map from a 1979 Environmental Impact Statement (EIS) in the Denver presentation to show that many of the Technical Areas are different – TA-18, TA-54, and many others. Dr. Macievic asked if the technical areas shifted over time as the facilities were no longer useful. [Name redacted] explained that the nomenclature seemed to change due to growth of operations, as well as during shifts between agencies, such as the shift from the Manhattan Engineer District to the Atomic Energy Commission (AEC). He stated that the practice of numbering the Technical Area appeared to have happened shortly after the 1979 EIS, which blocked off large areas incorporating the smaller, scattered technical sites.

Dr. Macievic stated that the information he was getting from the meetings was giving him a better idea of how to categories the work and how the monitoring was done during the period named in the petition. He is hopeful that he can use some of the information to locate survey records containing data that can help NIOSH model the doses, or find out if the data exists at all.

[Name redacted] described a contamination event that happened when a tool contaminated with americium inside a glovebox was removed and used to package materials that were being shipped outside of LANL. (Much of this short dialogue was inaudible as cross-table conversations were taking place.)

*Several day shift guards entered the room during the last few minutes of the meeting. As 6:30 p.m. approached, [Name redacted] took a few minutes to inform them of the purpose of the meeting and invited them to join the meeting already in progress.*

## ATTACHMENT A:

### Work History Information

Use the following as a *guide* to prepare your statement for NIOSH. Try to provide as much information as possible to include dates, locations, who, what when, where, why, and how. The key information to be obtained is radiation exposure and inadequate or no monitoring for those exposures. NIOSH will use this information to evaluate a petition to add a class to the Special Exposure Cohort of the Energy Employees Occupational Illness Compensation Program Act. If this class is added, eligible claims will be compensated without the completion of a radiation dose reconstruction of the probability of causation.

### Employment History

Job title, start date, end date

- Number of hours worked per week
- Number of hours per week the job involved potential exposure to radiation and/or radioactive materials
- Buildings/locations in which you worked (include the type of duty performed at each location)
- Types of radioactive material(s) present or processed, and what form(s) (solid, liquid, gas)
- Amount of radioactive materials present or processed (ounces, pounds, kilograms, drums, etc.) over what time period
- Types of radiation-generating equipment (X-Rays, criticality reactors, or accelerators) that were present or used
- Exposure/contamination control measures used
  - Hoods, gloves, respirators, booties, smocks, etc.
  - What type of shielding was present
  - Were only some workers provided with this equipment
  - What was the distance from the material, process, or equipment

### Radiation Monitoring Information

- State whether you or co-workers (same job category) routinely wore radiation dosimetry badges
- Badge information: how often worn, how often exchanged, and where was it worn
- If worn on front of the body, did you face toward or away from the radiation source
- Did other workers (different job category) in the same area wear radiation dosimetry badges
- Did other workers (different job category) wear different radiation dosimetry badges than you
- Did you participate in a biological radiation monitoring program (**nasal smears, urine samples, fecal samples, whole body counts**)

- State the time period(s) you participated
- Was the urinalysis kit provided for a particular radioisotope (i.e.: plutonium, uranium)
- Do you have copies of your dosimeter badge or biological monitoring records?
  - Are you aware of any discrepancies in your records between special, monthly, and annual monitoring?
- State whether you routinely surveyed yourself (frisked) for external contamination.
- Was there general air monitoring for radiation performed in the work environment (if yes, indicate when this occurred)

## **Radiation Incidents**

- Were you ever involved in an incident potentially involving radiation exposure or contamination (LANL examples: Cerro Grande Fire, Sigma Americium Contamination; individual contamination, spill, exposure)
- If yes, tell:
  - what happened
  - when it happened
  - what form was the radioactive material in, what quantity of radioactive material was present
  - which radiation-generating equipment was involved
  - where it took place
  - who was involved
  - what actions were taken to remedy the exposure contamination
  - your location and activities during the incident, precautions taken to protect you
  - types of personal protective equipment used
  - length of time exposed during the incident
  - chelation therapy or other medical treatments, type of biological monitoring after the incident
  - indicate whether you have records of the monitoring