National Institute for Occupational Safety and Health (NIOSH)

SEC Worker Outreach Meeting for the Los Alamos National Laboratory (LANL)

Meeting Date: September 16, 2008, 1:00 p.m.

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

NIOSH Worker Outreach Team

Greg Macievic, 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 1:00 p.m. by explaining that [name redacted], a member of Local 69, had filed a petition for workers at Los Alamos National Laboratory (LANL or the Lab) to be added to the Special Exposure Cohort (SEC). [Name redacted] introduced the representatives from NIOSH and its contractors. He explained that Greg Macievic and the other members of the NIOSH Worker Outreach team were present to discuss aspects of radiation monitoring and safety conditions at LANL that could help NIOSH evaluate the petition. He also introduced Loretta Valerio and Sylvia Rodriguez of the New Mexico Office of Nuclear Workers' Advocacy and [name redacted], the author of a previous petition that had successfully added a class of workers to the SEC.

[Name redacted] asked [name redacted] to explain the petition. [Name redacted] briefly described the Energy Employees Occupational Illness Compensation Program Act (EEOICPA). He explained that if the petition is approved and the class is added to the SEC, workers who are eligible members of the class will not have to undergo the dose reconstruction process to qualify for Part B compensation. He filed the petition to present evidence that the proposed class of workers has not been properly monitored for occupational radiation exposure. The class includes security guards, firefighters, trades people, and others who worked at Los Alamos during the period from 1976 through 2005. He stated that he had prepared a handout as a guideline for information that will be helpful to NIOSH in evaluating the petition. (Please see Attachment A.)

Mark Lewis passed out the handout to the attendees. He asked Mary Elliott to explain that she was recording the meeting to assist in preparing the minutes. Ms. Elliott added that personal information in the minutes is protected under the Privacy Act and will not appear in the minutes

when they are posted on the NIOSH Web site.

Dr. Macievic explained that since the class of workers named in the petition worked in all areas at LANL, NIOSH is considering not only that class of workers but all other LANL workers from 1976 through 2005 as well. NIOSH is looking at LANL environmental records, survey records, and dosimetry records to determine who was or was not monitored. NIOSH is currently working with the site to locate survey records from 1976 through 1992. NIOSH located post-1992 survey records in the Department of Energy (DOE) records facility in Denver. NIOSH is trying to determine if the records are adequate to support dose reconstruction for all workers. Because the petition names a number of incidents to which guards and firefighters responded and were not monitored, NIOSH is looking for incident reports that may show who was monitored during those incidents and how much dose they received. If those reports can be located, the data for the monitored workers can be adjusted and applied to those who were not monitored. NIOSH often uses surrogate data to determine dose for unmonitored workers. The petition for LANL employees from 1943 to 1975 was approved because there was not sufficient data available to estimate accurate radiation doses for all workers.

Dr. Macievic stated that NIOSH hopes the guards can provide some of the missing information for the mid-1970s, 1980s, and 1990s. NIOSH would like to understand more of the LANL safety and monitoring procedures for workers such as the guards, firefighters, and trades workers who were not classified as radiological workers but worked in radiological areas: Who participated in the bioassay programs and how frequently? When were these workers monitored? What incidents were they involved in? How did they find out that they should have been monitored? What should they have been monitored for? Does anyone recall the names of some of the health physics personnel from the 1970s through the 1990s? Dr. Macievic explained that key words from this kind of information could be used in searches of the records databases to hopefully retrieve reports that may help in the SEC petition evaluation.

[Name redacted] asked Dr. Macievic if NIOSH had searched for LANL documents at the Zimmerman Library at the University of New Mexico. He stated that the library maintains a searchable database for a large collection of declassified LANL documents. The Los Alamos Historical Document Retrieval Assessment (LAHDRA) project recently released even more documents to the library. Dr. Macievic stated that NIOSH has been going through the LAHDRA database and has found very useful quarterly reports that contain summary survey information, but there are gaps that indicate that some of the reports may still be classified. [Name redacted] asked Dr. Macievic if NIOSH is looking at the incident reports mentioned in the quarterly reports. Dr. Macievic confirmed that NIOSH is trying to locate the associated incident reports to come up with a distribution of dose values that can be used in dose reconstructions.

Mr. Lewis asked [name redacted] to share some of the incidents that he had described during the 9:00 a.m. meeting. [Name redacted] stated that security guards were assigned to protect the pits and sometimes heavy metals in the machine shops in Building 102 and SM-39 (South Mesa Building 39) when he first started working at LANL in the 1980s. The guards sat next to the material as it was machined. The machinists wore masks and smocks but the guards assigned to protect the material were only given booties. When they voiced their concerns about being so close to the activity and not having adequate protection, the guards were told that they were safe. Dr. Macievic stated that if radiation monitoring data for the workers in that area during that period and air monitoring information were available, NIOSH could determine the guards' potential radiation exposures. [Name redacted] replied that all workers in the area used hand monitors as they left the area since radiological control technicians (RCTs) were not assigned to

the area during the 1980s. Currently, RCTs stay in radiological work areas. Dr. Macievic recalled that the Tiger Team report mentions the scenario. [Name redacted] confirmed that it does. [Name redacted] offered to give Dr. Macievic contact information for one of the machinists that had worked in the area during the 1980s. He stated that the machinists had sometimes asked why the guards were in the machine shop without protection. The guards were later moved into an area away from the machining where they could still see the material.

[Name redacted] asked if any of the attendees had any safety concerns to discuss. [Name redacted] explained that most of the attendees in this meeting have six or less years at LANL.

Buck Cameron noted that biological monitoring is one of the issues that NIOSH is looking at to see if it was done effectively. Dr. Macievic stated that NIOSH is looking for bioassay monitoring data for the exotic radionuclides such as neptunium and curium. LANL had the capability of using lung counts to detect these radionuclides beginning in the mid-1970s, but there are no records to confirm that they were monitoring for them. NIOSH is using survey data to develop a lung model for these radionuclides. The question is, "How did LANL respond to the potential exposure if they knew it was there?" Mr. Cameron asked if effective bioassay monitoring is still a concern at LANL today. Dr. Macievic responded that LANL conducted bioassay testing for many incidents but it is difficult to find the data that shows that it was done. Mr. Cameron asked if any of the attendees had bioassay testing at any time. The consensus response was that a baseline bioassay is conducted when employment begins.

Dr. Macievic stated that the NIOSH needs information regarding who was monitored for what radionuclides, when, and how often. LANL bioassay testing during the earlier years was performed mainly for plutonium and uranium. Bioassay information for the exotic radionuclides is not available prior to 1992, but survey data prior to that time shows their presence. Another question NIOSH must examine is how LANL used the survey data from the field to determine whether bioassay was or was not necessary.

[Name redacted] stated that he had already worked in TA-55 for two or three years before he was given a bioassay test kit. He had not received a baseline screening when he began working at LANL. He had also received an *in vivo* screening after approximately three years on the job. He has not had any bioassay testing since then. Dr. Macievic stated that since guards have worked throughout the site, it is important for NIOSH to know when LANL started monitoring guards for bioassay in what areas, what was the frequency of the testing, and what radionuclides were being monitored. [Name redacted] and [name redacted] responded that the site was divided into four zones in 1993 when they were assigned to groups that stayed in a particular zone. [Name redacted] noted that he works primarily in TA-55, but may be sent to other areas at times. He explained that the zones are like precincts and officers are trained for a specific zone. Dr. Macievic observed that over the course of a long career, a security guard has the potential to work in many areas.

Mr. Lewis asked [Name redacted] to address the issue of the kivas in TA-18. [Name redacted] explained that Building 127 is a high radiation area. The building was cleared for training. After a few days of training, the guards had concerns about their radiation exposure in the building so they asked the RCTs to survey the building again. The RCTs found that it was contaminated and gave the trainers bioassay testing because they had been there every day. When the guards asked, they were told that there was low dose radiation.

Dr. Macievic asked if their duties exposed them to chemicals as well as radiation. [Name redacted] responded that they did.

Mr. Lewis prompted [name redacted] to tell Dr. Macievic about the reactor in TA-2. [Name redacted] related that when the reactor was running, a mist fell on the guard post near the reactor. He indicated that the reactor was started often during the 1980s. [Name redacted] added that the reactor was at Omega West. [Name redacted] said that they often had concerns about the reactor but were never told anything.

Dr. Macievic asked when LANL started using Radiation Work Permits (RWPs). [Name redacted] responded that RWPs were first used in the 1990s. [Name redacted] stated that RWPs were issued mainly to the trades. LANL does not advise the guards of the nature of the work and they are not required to sign off on RWPs. He has not seen an RWP in the ten years that he has worked at LANL, even though he sometimes escorts material during radiation work. Dr. Macievic said that he is hopeful that RWPs were issued prior to the early 1990s because they provide NIOSH with a lot of useful information. RWPs show what type of work was performed and where, radiological materials in the area, the types of instruments used for monitoring, and work time limits in the area. [Name redacted] stated that the air monitors at the shooting range test for lead contamination.

Mr. Lewis stated that someone in the previous session had mentioned the ash residue from the Cerro Grande fire in 2000 at the morning session. He asked if any of the attendees had seen a report from FEMA (the Federal Emergency Management Administration) on the contents of the residue. [Name redacted] stated that Risk Assessment Corporation released a detailed report, which he had cited in the addendum to the petition.

Mr. Lewis asked [name redacted] to talk about the historical area where the Fat Man and Little Boy bombs were built. [Name redacted] stated that the buildings had been established as historic sites by the Historic Preservation Act and had been set aside for preservation but were mostly destroyed by the Cerro Grande fire. Dr. Macievic asked if the responders wore self-contained breathing apparatus during the fire. [Name redacted] replied that none of the personnel who responded wore air masks because the fire was a wildlands fire, not a structural fire. He explained that the U. S. Forestry Service personnel wore protective clothing and a pack and used tools to create a firebreak to contain the fire, which resuspended material from the soil into the air. The firefighters who responded used water to extinguish the blaze. He did not recall if the firefighters wore masks, but they did not wear protective gear because it was too hot. Dr. Macievic stated that, in order to address the resuspension issue, NIOSH needs to review environmental reports to determine what materials were present in the soil and potentially in the plant life.

[Name redacted] asked if NIOSH has reviewed the RCRA (Resource Conservation and Recovery Act) permits that were submitted with the petition. He stated that the permits show areas of concern and potential release sites that list either unknown radionuclides or radionuclides of unknown quantities, or areas that have not been characterized for radiation or chemical contamination. The areas of concern and potential release sites affected by the fire are shown on maps that were included in the petition. Dr. Macievic replied that the information may help NIOSH determine source terms for the materials that may determine whether or not dose reconstructions can be done for the responders involved in the fire. Dr. Macievic noted that data on resuspension may also help define the SEC class to the responders and other personnel involved in the Cerro Grande fire incident. The petition evaluation requires the review of a large number of documents about many incidents to paint a picture of LANL for a particular period of time.

Mr. Lewis asked [name redacted] to revisit his comments from the morning session regarding

TA-35. [Name redacted] said that he used to walk around an open field near Building 27 after he stopped there to eat his lunch. The area has since been fenced off and posted as a radioactive contamination area, much like the material disposal areas. Dr. Macievic said that some of the laws regarding marking restricted sites were not passed until the 1990s.

Mr. Lewis also prompted [name redacted] to relate another incident he had described during the morning session. [Name redacted] stated that the guards fly the American flag over TA-55. They used to take it down at sundown every day. There were several incidents in which the flag activated the floor radiation monitors when they brought it into Post 111. The alarms also activated when the flag was scanned with a handheld monitor. After he submitted a safety report, he was told that radon in the flag had set off the alarms. He found the explanation unacceptable. Dr. Macievic stated that high concentrations of radon generally accumulate in uranium facilities in which materials are stored in large bays or coal-fired power operations. The flag now flies around the clock and is taken down only for replacement when it becomes tattered.

Ms. Valerio asked if co-worker data is used when workers are temporarily assigned to other areas and are not monitored during the assignment (for example, a support service worker who is monitored for uranium at Sigma site and then not monitored when he is assigned to DP West for a short period). Dr. Macievic confirmed that NIOSH would use co-worker data to model the missed dose during the time the worker was not monitored.

Dr. Macievic addressed a question by [name redacted] regarding missed dose due to a guard's assignment to multiple facilities during a shift. He explained that by using the dose information from those facilities, NIOSH can create a default value for the missed dose based on the time spent in each facility. He added that the LANL Site Profile will be revised based on the new information found during the data search during the SEC petition evaluation. For example, if there is bioassay monitoring information for workers in a specific facility, then an unmonitored worker whose job puts them in the facility will receive a portion of the dose based on the bioassay information for the monitored worker.

A short discussion followed regarding the application of a neutron correction factor for workers who were assigned to facilities with neutron radiation. Dr. Macievic explained that the correction factor would likely be applied across the board to the workers' dose.

Ms. Valerio asked how dose reconstructions are affected when a worker wore a film badge or TLD (thermoluminescent dosimeter) and was exposed to multiple sources of radiation in multiple areas. Dr. Macievic responded that most of the period when LANL used film badges is already covered by the SEC for 1946 to 1975. Ms. Valerio asked about individuals from that period who have a cancer that is not covered by the SEC. Dr. Macievic replied that the data that NIOSH gets from the data capture for the SEC petition for 1976 to 2005 will also be used to estimate dose for the dose reconstructions of non-SEC cancers for the previous SEC period. Any available data for external or internal dose that applies to the organ affected by the cancer will be applied to the dose reconstruction, as well as the environmental and medical doses. Ms. Valerio asked if previously denied dose reconstructions will be recalculated when the new information becomes available. Dr. Macievic answered that dose reconstructions may be reworked if new or more specific information will change the outcome.

Ms. Valerio asked how legacy contamination is considered in the dose reconstructions of support services workers who go into areas where there are no bioassay records for the legacy period, especially areas where the waste disposal sites are no longer identified or the buildings have been demolished. Dr. Macievic replied that when there is a legacy area, NIOSH can use survey data

to determine an environmental dose that can be used to assign a general dose for a worker going into the area during a particular time period. Air monitoring data can also be used to calculate the environmental dose for the legacy period. He added that NIOSH would be interested in getting information about sites where a particular waste is buried but not marked so a potential dose can be determined for that site.

Mr. Lewis described an effort by unions at another site to get retirees to identify waste material burial sites at the facility. Dr. Macievic said that in such a case, additional efforts are needed to determine the quantity and type of materials and when they were buried to determine the environmental dose to workers during a specific time period. He stated that if the burial site is not marked, the assumption will be that it is clean, rather than radioactive waste.

Ms. Valerio cited the dose reconstruction of a laborer who worked during the decontamination of TA-1 in the mid-1970s. A report on the cleanup effort confirmed that most of the work was done by laborers, who shoveled uranium-contaminated soil by hand. None of the laborers had bioassay testing. She asked how the dose reconstruction is affected when NIOSH uses co-worker data for other workers who handled uranium and had bioassay testing. Dr. Macievic said that in that particular case, the assigned co-worker dose would likely be higher than the dose received from the uranium in the soil. But if NIOSH can find survey data from the period when the legacy material was buried, it can be helpful in determining the actual radiation dose the laborer received when the soil was resuspended. Ms. Valerio stated that the dose reconstruction and appeals process can be very frustrating for claims in which the worker does not meet the 250-day employment qualification for the SEC class. Mr. Lewis added that some of those claims may become eligible if a new class of LANL workers is added to the SEC under the new petition.

A discussion ensued between [name redacted] and Dr. Macievic regarding whether compensation for non-SEC cancers becomes easier or harder after a class is added to the SEC. If the basis for the SEC petition is the lack of internal monitoring information, a skin cancer claim may be compensable if there is sufficient dose from medical, environmental, and external radiation dose. Since dose reconstructions are case-specific, it is difficult to say if a case may be compensable without knowing the specifics of the case.

Ms. Valerio asked if NIOSH or the U.S. Department of Labor (DOL) requests the records from other sites from the U.S. Department of Energy (DOE) when processing a claim for a LANL worker who was sent to other sites for job assignments. Dr. Macievic stated that DOL is responsible for getting employment records. Ms. Valerio stated that she had recently assisted with appeals for non-SEC claims for two LANL employees who had been given exchange badges when they went to the Nevada Test Site (NTS) for month-long assignments. When she compared the records from NTS, it became clear that the badge readings had not been included in the dose reconstructions. Dr. Macievic suggested that Ms. Valerio contact Laurie Breyer, the NIOSH SEC Petition Counselor, to discuss the matter.

[Name redacted] stated that he was one of the LANL guards who were sent to the Nevada Test Site (NTS) for two work rotations. They were not issued NTS dosimetry badges during either of two month-and-a-half rotations. They were assigned to patrol duties inside the Device Assembly Facility (DAF) and other areas outside the DAF. They were not briefed regarding the work being performed or if they were assigned to “hot” areas. Dr. Macievic added that there have been many cases where the employee may be eligible as a member of SEC classes at two or more facilities – the 250-day employment requirement can be satisfied from time served at multiple SEC sites. Dr. Macievic suggested again that they should consult Ms. Breyer.

Ms. Valerio asked if the latency requirements are the same for claims that undergo dose reconstruction as for SEC claims. Dr. Macievic confirmed that the latency periods are applied in the same manner to both types of claims. He stated that the latency period of the cancer is one of the factors in determining whether the cancer is associated with the radiation. Many other factors affect the outcome of dose reconstruction as well, including age at first exposure, ethnicity, gender, and time-distance-shielding to radiation exposure. Dr. Macievic explained that data from the study of the Japanese atomic bomb survivors are used in the models of many of the probabilities in the dose reconstruction calculations. The probability of getting the specific cancer is also compared with the cancer rate for the general population of a given area (for example: the rate of skin cancer is higher for the general population in desert areas such as New Mexico).

Ms. Valerio stated that she had also worked on appeals for cases in which DOL had provided the wrong cancer diagnosis to NIOSH. Dr. Macievic stated that some cases have been reversed and compensated because the initial diagnosis was not coded correctly. Ms. Valerio commented that cases with multiple skin cancers may be compensated if they are primary cancers. She stated that prostate cancer may also be compensated as an SEC cancer if it has metastasized to the bone or the lung.

[Name redacted] commented that it is difficult to find records to file some claims. His mother-in-law worked at LANL from 1945 to 1949 and died from cancer, but his wife and her brother had difficulty proving that the claim is eligible under the SEC because the death certificate states that she died from natural causes. They were able to have the death certificate changed only after finding that their mother's death is listed in the New Mexico Tumor Registry. Ms. Valerio commented that they had been lucky to find the listing because there are no entries prior to 1966 in New Mexico.

Ms. Valerio asked if NIOSH is involved in Part E claims for chemically-induced cancers. Dr. Macievic responded that DOL has a medical panel that determines the compensability of Part E claims. Ms. Valerio commented that radiation sources are listed in the Site Exposure Matrix for Part E illnesses and asked if DOL includes the radiation as a toxic substance. Dr. Macievic stated that DOL considers that the case has an associated dose reconstruction, but he is not certain how they use the dose reconstruction to make their determination. Mr. Lewis added that uranium hexafluoride is in the matrix as a source of exposure for both radiation and chemicals.

Ms. Valerio asked if NIOSH is doing dose reconstructions for the uranium miners who are involved in the industry. Dr. Macievic stated that the mining activity is not considered as part of the DOE work under EEOICPA.

Mr. Lewis thanked those in attendance and closed the meeting at approximately 3:00 p.m.

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 evaluation 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