T r i – V a l l e y C A R E s

Communities **A**gainst a **R**adioactive **E**nvironment

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Peace Justice Environment since 1983

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Department of Health and Human Services
National Institute for Occupational Safety and Health (NIOSH)
Robert A. Taft Laboratories MS-C34
4676 Columbia Parkway
Cincinnati, OH 45226

Transmitted Electronically to NIOCINDOCKET@cdc.gov

RE: Initial Comments on Summary Site Profile for Sandia National Laboratories in Livermore, California

Tri-Valley CAREs has been actively monitoring the Livermore and Sandia labs for over twenty-five years. During this time, Tri-Valley CAREs has been very careful to document the accidents and releases that have come to light and has worked closely with workers in those endeavors. We now hold support group meetings for sick workers, many of whom have or will apply for compensation under the Energy Employees Occupational Illness and Compensation Program Act (EEOICPA).

The number of workers from Sandia / Livermore who have received compensation through the EEOICPA program is dismal. Out of 221 cases filed as of October 14, 2007, only 12 cases have been paid. That is approximately 5% of all of the claimants. While we witness the sickness and death that these workers suffer that is clearly due to their exposures, we are horrified as we see the former workers and their families suffer through this complicated and frustrating compensation process. In light of this, we are especially disappointed by the quality of this Site Profile summary document.

In our review of the Sandia Site Profile, we have found numerous inaccuracies and shortfalls that significantly disadvantage the worker in the dose reconstruction process. Our evaluation of the Site Profile revealed major oversights and inconsistencies in the document that conflict with the documentation that we have gathered. Defective procedures, missing documents, absent references, and omitted incidents are its most significant flaws. We have recommendations to include additional sections and supplementary information to achieve a more accurate dose Site Profile that does not so negatively prejudice the sick workers' claims. We urge you to revise the Site Profile to include our comments, recommendations and general concerns that we outline below.

Problems with dose calculations:

NIOSH states: "As much as possible, the basis for dose to individuals should be the dosimetry records." However, we have encountered many flaws with calculating dose in this manner. Lab workers were not properly instructed in the application of the dosimeter badges, including the fact that they should be worn on the chest outside of clothing in order to be function properly. Many factors prevented the badges from accurately recording radiation. Workers were instructed to wear their badges behind their plastic security badges, effectively shielding radiation from reaching the dosimeter! This is not mentioned in the Site Profile but clearly represents a major impediment to the radiation monitoring at the site. The accuracy of these records is at best questionable and therefore reliance upon these records should be qualified with a section disclosing the known problems with dosimeter monitoring through the years at Sandia, Livermore.

References:

The Site Profile list of references did not include a number of valuable reports that could significantly affect the dose reconstruction process. At times the Site Profile inadequately incorporated the information it did reference. We recommend the following documents be included / emphasized:

The **Tiger Team Report** from 1990 was not given any consideration in the Site Profile. An empty notation on the list of references does not help workers. The report should be incorporated meaningfully into the Site Profile document. This report must be given paramount consequence and weight because it casts doubt on the Environment Safety and Health programs within the lab that existed prior to 1990. This report contradicts the Site Profile's implicit assumption that rules and regulations on the books accurately reflected the actual practices at the site.

This document contained the following observations about Sandia's internal processes:

- Widespread noncompliance exists relative to DOE Orders, Federal regulations, and SNL procedures.
- The deficiencies identified during this assessment exist largely as a consequence of the lack of trainings, procedures, and an audit program. Some supervisors are not carrying out their responsibility in the areas of making data sheets available and accessible, labeling containers with a description of their content and hazard rating and consistently communicating safety information to working level employees.
- Sandia management systems lack the control, discipline and formality necessary to consistently accomplish Environment Safety and Health objectives.

This shows that the practices at the Sandia, Livermore site cannot be correlated to the rules on the books. To assume that procedures and practices were followed does a disservice to the workers seeking compensation through the already frustrating EEOICPA process.

The **Occurrence Reporting System** is absent from Sandia, Livermore Site Profile. This is a system of documenting most accidents at Sandia. It is a veritable goldmine of information about exposures to workers and the history of accidents. It does an injustice to the workers to fail to include and consider these documents.

Incident Reports were also omitted from any mention in the Site Profile. They, too, contain information crucial to profiling the Sandia, Livermore Lab and understanding pathways to worker exposures.

The **DOE publication *Operating Experience Weekly Summaries*** were processed as external sources of lessons learned information. These relied upon daily operations reports, notification reports, and time permitting, conversations with DOE facility or field office staff. The Operating Experience Weekly describes accidents at Sandia Lab, which must be included. Some faults found in the reports include inadequate procedures, workers' incomplete understanding of systems they operate, inadequate work planning, and changes in job design.

Documentation about **Decommissioning and Decontamination** of buildings was omitted from the Site Profile. In addition to listing decommissioning dates when a building is put out of use, a separate section dedicated to Decommissioning and Decontamination should be included as well. Whenever buildings are demolished or decommissioned, a substantial amount of documentation is created that describes the actual, rather than the expected or recorded, contamination in a building. This information will substantiate workers' claims that contamination exists when the other official records do not support it. It is the responsibility of NIOSH to include this information in the Site Profile process to shift some of the onus of documentation away from the workers. These sick workers who were told to not keep documentation of classified or "sensitive" activities are now asked for documents to substantiate their memories. This is unjust and can be alleviated by good faith efforts to incorporate this information and the associated data into the Site Profile process and into the dose reconstruction assumptions.

Pursuant to the National Environmental Policy Act and the California Environmental Quality Act documents have been drafted that contain a lot of information from the last four decades about the types of materials in different areas of the laboratory, proposed projects, known contamination and projected releases based upon routine operations. These documents should be mined for information to include in the Site Profile and should be listed as references at the end of the Site Profile. To offer but one example, state regulators discovered that Sandia, Livermore was running a hazardous waste incinerator that did not have a permit. Moreover, the Sandia, Livermore permit application that regulators were in the process of evaluating did not disclose or mention the incinerator. Only after state regulators found it during an onsite inspection did Sandia, Livermore end the practice of burning hazardous wastes in it.

Significant events/incidents not included in Site Profile:

We've spoken with a number of workers from Sandia, Livermore who were exposed to ionizing radiation and other toxic and hazardous materials while on the job. Here are a few accounts of accidents at Sandia as told by former workers. These accidents should be included in the Site Profile.

1973 or 1974: PCB spill

One worker drove a forklift of capacitators containing PCBs in 2½ ft tall crates. The forklift hit a lip in the land, resulting in an oil spill on the ground and the worker was exposed to the contamination.
(Interview with Retired Sandia Worker)

Jan 14 or 16, 1975: Fuel Oil Tank Leak

During construction, a contractor drove a grounding rod through the feed line connecting the fuel oil storage tank to the central boilers. On the 31st, a natural gas service to Sandia, Livermore was interrupted and oil was let into the line so that oil could be pumped from the fuel oil storage tank into the day tanks serving the central boilers. A gross leak resulted, which was discovered on Feb 11 after rain displaced oil to the surface. About one third of the fuel oil stored there had seeped into the ground. (Draft – environmental impact statement – Livermore Site, Sept 1978)

1978 and 1979: 2 X-ray Diffractometer incidents

There were two incidents involving a mechanical failure of a safety interlock and the bypassing of a shutter in an X-ray Diffractometer. The 1979 incident was mentioned in the Site Profile, while ***the 1978 incident was not.*** In the 1978 incident, the safety interlocks failed while calibrating a Diffractometer. As a result, the operator received an accidental elevated exposure of ionizing radiation. Unaware of the shutter failure the operator continued with the calibration exposing himself and those in the vicinity for a 20-30 minute period. Still unaware of the shutter failure the operator was further exposed when he placed a fluorescent screen in the direct beam to verify calibration. The operator received a direct beam exposure for another 2-3 minutes. The resultant exposures were to the operator's fingers, hands and arms, and upper trunk of the body. At the time the dosimeter was not in view of the exposures and there were not any area monitors to record the radiation that was being emitted about the room.

In the 1979 incident, the shutter was removed, which allowed a full intensity beam without any shielding or collimation to reach the operator. A reenactment of the 1979 incident showed that at the closest exposure point, the beam size was 13 centimeters in diameter and the exposure time ranged from 15 to 20 seconds.
(SEC Petition Evaluation Report: Sandia National Laboratories, Livermore
http://www.cdc.gov/niosh/ocas/pdfs/sec/sandiaca/ersnl.pdf)

Circa 1991: Valve Crack - Tritium Release

A tritium leak occurred at Sandia Livermore, when a Teflon seat in a pressure regulator valve on a deuterium/tritium bottle cracked after exposure to the 800-psi gas mixture. Operations personnel did not realize that the pressure regulator contained Teflon; therefore, they took no special precautions. (Operating Experience Summary http://hss.energy.gov/csa/analysis/oesummary/oesummary2006/2006-14screen.pdf)

1996: Tritium Accident

Four workers involved with dismantling the Vacuum Effluent Recovery System (VERS) and Gas Purification System (GPS) were involved in an incident with tritium contaminated hardware. The VERS typically collects effluent from gloveboxes and the exhaust from vacuum pumps. The oil from the vacuum pumps normally condenses in its exhaust manifolds. In BUILDING 968 Room 115A, workers were cutting up contaminated copper and steel pipe with Jaws of Life units. They encountered an unknown oil pocket which spilled on one worker's garment and shoes. Work was suspended, the oil spill was cleaned up and the room was evacuated. Bio-assay and perspiration swipes (sample) were immediately taken which showed elevated radioactive levels in the body.

Inappropriate Procedures:

In addition to specific incidents that harmed lab employees, long-term practices that led to radioactive exposure should also be acknowledged in the Site Profile. These exposures are not listed because they were part of standard procedure and thus not classified as 'incidents' or 'accidents'. There may be various areas and tasks within the Sandia, Livermore site of this nature that have been overlooked. These ongoing exposures should be documented because they may not be reflected in dosimeter readings. The following accounts illustrate a few examples:

- Instrument repair:
  Contaminated electronic instrumentation and hardware used in explosions at tests sites are one example. From their mobile trailer unit the workers would normally power was them with water and a detergent in an open booth prior to working on them. The water bath was recirculated and used over and over again resulting in a contamination build up. The workers wore gloves, aprons, and safety goggles for protection. The booth was not monitored for contamination, radioactive or toxic, and dosimeters were shielded by the aprons. Workers may have been at risk of long-term exposure.

  -Tritium lab alarm response:
  Employees would be called to respond to alarms in the tritium laboratory. These alarms typically represented a malfunction, either an operational or hazardous situation. When a responder was called in to mitigate a situation, such as a tritium monitor alarm, the operator was often unaware which form of tritium was present as the tritium monitors did not distinguish between tritium gas and tritium oxide. In some circumstances the situation required additional personnel who were also potentially exposed.

- Tritium monitor calibrations:
  Workers would use radioactive materials such as cesium-137and strontium-90, replicating (respectively) low level and high level exposures, to verify tritium monitor calibrations. Workers handled these radioactive sources with their bare hands or on the end of a long rod to reach the tritium monitor ionization chamber. This practice was a likely pathway of exposures' that went unmonitored as personal external dosimetry badges were no longer utilized during this time period.

Missing Records:

There is insufficient information available to workers who would like to critique this Site Profile because they cannot obtain access to their exposure records. Many workers have requested specific files concerning their years of work, documentation from dosimeter badges and radiation analyses, incident reports and medical reports, yet have not received them. Other workers have been asked to pay to have searches performed for the documents.

These records provide essential information about the employee in order to supply proof when applying for compensation. Sandia Lab's failure to comply with these requests is a disappointing display of the value the government places on its employees and results in additional burdens and frustrations for sick workers. Efforts should be made to streamline workers access to their records, free of charge. The sick claimants should not be penalized for the careless record keeping of those they entrusted their health and safety.

Travel:

Many workers would travel to other Department of Energy sites around the country and outside of the United States as a necessary component of their work, for example, during training, consulting, moving, or gathering materials. Allowable exposure limits outside the United States are often times greater than the exposure limits here in the United States. The Site Profile does not take into consideration risks of exposure to workers during these times, which may have contributed significantly to a sick worker's condition.

Conclusion:

Due to the considerable quantity and extent of these shortfalls, we believe that a number of workers' claims at Sandia, Livermore Lab should be considered under the Special Exposure Cohort. When dealing with dangerous substances, many workers were not told what the materials were or how to handle them properly. This lack of proper procedure and information was the cause of many harmful exposures. The general approach was that workers were only told classified information on a "need to know" basis. Documents have also been lost and destroyed. The documents that DOL does produce are often not accurate.

Thank you for your careful consideration of our comments and we urge you to make a Special Exposure Cohort for workers at Sandia, or at a minimum, redraft the Site Profile. We also urge you to self-identify those classes of workers where, due to insufficient data, you are unable to perform accurate dose reconstructions. This principal document must accurately reflect conditions in the lab relevant to human exposures by means of comprehensive and appropriate assumptions. This is the only way dose reconstructions can be made claimant-favorable and provide a modicum of justice to sick workers.

Thank you in advance for your careful consideration.

Sincerely,