

April 17, 2006

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

RE: Tri-Valley CAREs' Initial Comments on Lawrence Livermore National Laboratory Site Profile #054

Tri-Valley CAREs has been monitoring LLNL activities for more than twenty years. During these past two decades, Tri-Valley CAREs has been very active in documenting accidents and releases and has worked closely with workers in those endeavors. During our review of the LLNL Site Profile, we have found numerous inaccuracies and shortfalls that significantly disadvantage the worker in the dose reconstruction process. The Site Profile does not acknowledge that many records have been destroyed, misplaced or are inaccurate. Whole categories of documents were not included in the site profile that we personally handed to a NIOSH representative, Riasp Medora, who visited our office prior to the release of any section of the site profile. In short, we are very disappointed in the quality of the site profile and believe that it should be revised from the ground up. It is so fundamentally flawed and incomplete that all dose reconstructions that rely upon this profile are questionable at best. We are also disappointed that individuals with conflicts of interest have been employed in the site profile process. As is stated in more detail in a later section of this comment, we urge you to withdraw any site profile document that was drafted by a conflicted individual. Included below are comments on the profile, recommendations and general concerns.

Problems with calculating dose

We are concerned about the accuracy of dose estimations when they are based upon annual or semi-annual testing. Radiation can pass through the human system within days unless it is stored in the bone mass or bodily tissue and can cause damage to human tissue as it passes through. Furthermore, badges cannot be relied upon to provide accurate estimates of dose to the worker. Even if badges were functioning properly (we have spoken with workers willing to sign affidavits to the fact that films were not loaded properly at times) and were worn properly (e.g. not under lead aprons), there are still problems with estimating dose to the worker from badges because they only record exposures that affected the badge. Some badges were more sensitive to different types of radiation and some were not worn at the area of the body with highest exposure. Additionally some employees were not given badges at all. The site profile does not acknowledge the known problems with badges and instead states that “[t]he External Dose Reconstruction Implementation Guideline identified dosimeter records as the highest quality records for a retrospective dose assessment.” The profile should

acknowledge existing badge problems and alert dose reconstructors to factor this into their decisions.

Significant Documents that are not included in the Site Profile

The **Occurrence Reporting System** appears to be absent from LLNL's site profile. This is a system of documenting most accidents at LLNL. 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 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 summaries that describe accidents at Livermore Lab should be included.

Documentation about **Decommissioning and Decontamination** of buildings was omitted from the site profile. 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 worker's claims that contamination exists when the 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 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 uncertainties in data that are revealed into the site profile process and into the dose reconstruction assumptions.

The **Tiger Team Report** from 1990 was not mentioned or cited in the Site Profile. This report is important to include 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 LLNL's internal processes:

- Widespread noncompliance exists relative to DOE Orders, Federal regulations, and LLNL procedures.
- The supervisors have responsibility for providing safety information, including Material Safety Data Sheets to their employees. However, in all but one instance, employees interviewed could not provide information in their own words about the chemicals with which they worked daily. In addition these data sheets were

not consistently available or accessible. Numerous unlabeled or partially labeled chemical containers were noted.

- 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 available and accessible data sheets, labeling containers with a description of their content and hazard rating and consistently communicating safety information to working level employees.
- LLNL management systems lack the control, discipline and formality necessary to consistently accomplish Environment Safety and Health objectives.

Superfund Data should also be included. Both Livermore Lab and Site 300 – Livermore’s high explosive testing site – are on the EPA’s Superfund list of most contaminated sites in the nation. There is an enormous amount of documentation about contamination that should be included in the site profile document.

National Environmental Policy Act and California Environmental Quality Act documents hold a lot of information from the last four decades about what types of materials are in different rooms of the laboratory. 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.

Significant Events not in the Site Profile include, but are not limited to, the following:

a) Uranium Fire

On July 26, 1999, a uranium fire broke out in an area where wastes contaminated with uranium are prepared for transport to the Nevada Test Site for disposal. An employee was loading bags of uranium shavings and other waste materials when he noticed the bag was "glowing and starting to expand," says the DOE report. The Lab's hazardous waste and fire departments were called in to extinguish the blaze.

The uranium waste shipment facility was closed for three days while the Lab investigated the incident. Two other buildings where uranium experiments are carried out were closed for one day. Faulty waste packaging procedures that allowed a spark caused by the uranium filings to ignite paper inside the bag are thought to be at fault.

b) Filter Shredding Accident with Curium

http://www.osti.gov/bridge/product.biblio.jsp?osti_id=537309

On July 2, 1997 at approximately 6:00 A.M., two operators (Workers 1 and 2), wearing approved personal protective equipment (PPE), began a shredding operation of HEPA filters for volume reduction in Building 513 (B-513) at Lawrence Livermore National Laboratory (LLNL). The waste requisitions indicated they were shredding filters

containing 1 micro curie of americium-241 (Am-241). A third operator (Worker 3) provided support to the shredder operators in the shredding area (hot area) from a room that was adjacent to the shredding area (cold area). At approximately 8:00 A.M., a fourth operator (Worker 4) relieved Worker 2 in the shredding operation. Sometime between 8:30 A.M. and 9:00 A.M., Worker 3 left the cold area to make a phone call and set off a hand and foot counter in Building 514. Upon discovering the contamination, the shredding operation was stopped and surveys were conducted in the shredder area. Surveys conducted on the workers found significant levels of contamination on their PPE and the exterior of their respirator cartridges. An exit survey of Worker 1 was conducted at approximately 10:05 A.M., and found contamination on his PPE, as well as on the exterior and interior of his respirator. Contamination was also found on his face, chest, back of neck, hair, knees, and mustache. A nose blow indicated significant contamination, which was later determined to be curium.

c) Two of the Biggest U.S. Tritium Accidents on Record

The two major Livermore Lab Tritium accidents (*one of which is the subject of the assessment mentioned above --A Review of the January 20, 1965 Tritium Release from the Lawrence Radiation Laboratory by Sylvie-Ring Peterson, Gretchen M. Gallegos, Robert J. Harrach. US Department of Energy, Lawrence Livermore National Laboratory*) were, by any measure, major radiological events. We know that on January 20, 1965 at 3:30 pm roughly 350,000 curies were released from a stack in building 331. We are told that this was the result of human error and that most of the tritium was in gas form (3H₂). Nothing is known about meteorological conditions at the time and apparently no local environmental sampling was done following the release. On August 6, 1970 at 6:14 am another 300,000 curies were released from the same stack when a component of a pressurized gas system failed.

300,000 Ci of a relatively long-lived radioactive isotope like tritium is a very substantial accidental release of radioactivity. Our reading of the Site Profile yielded no mention of these accidents. If they were not considered, this appears to show gross negligence on the part of the preparers of the site profile. We believe these accidents warrant Site Profile attention and concern. Worker exposure and negative health impacts naturally flow from these events but they are missing in the site profile. In fact, a review of the event was conducted by the Laboratory in July 2002 that documented worker exposure and the results of urine samples following the accident.

Tritium Accident Review: *A Review of the January 20, 1965 Tritium Release from the Lawrence Radiation Laboratory* was conducted by Sylvie-Ring Peterson, Gretchen M. Gallegos, Robert J. Harrach for the US Department of Energy, Lawrence Livermore National Laboratory.

This document discusses the 1965 tritium accidents including release to the workers and the public and should be incorporated in the dose reconstruction of workers at the lab at that time.

d) Plutonium Exposure in 2003

Lawrence Livermore National Laboratory (LLNL) occurrence report LLNL-2003-0035 described an incident where multiple failures in the safety systems resulting in twelve workers potentially exposed to airborne plutonium.

On October 7th, 2003 - LLNL health physicists noticed that the passive air monitors in a lab in the superblock were reporting elevated readings. It was determined that a routine test of the emergency generators on October 3rd led to a temporary power outage. When power was restored – it was restored in the room before the glove box – causing the air in the glove box to be drawn into the room for thirty seconds or so. Inspection revealed that the gasket on the glove box cover – “had been apparently removed 8 to 10 years ago” and never replaced. Results indicated contamination at pass-through unit, on a side window and on top of a workstation (at a few hundred counts per minute of alpha contamination) but the alarm in the room had not sounded. Elevated filter readings covered work in the room for the afternoon of October 2nd to the morning of October 6th. They checked the room log and discovered that 12 people had entered the room during this time frame.

Concerns about Principle Author of Site Profile

A substantial controversy has emerged concerning Carol Berger, one of the principle authors of the Livermore site profile. While not conflicted in regard to Livermore’s site profile that we know of, Carol has received significant public criticism for her conflicts of interest in drafting the Paducah site profile. Apparently, Ms. Berger included previously criticized tables from a 1992 report that she created while employed by Martin Marietta Energy Systems into the Paducah site profile. Ms. Berger had been employed under contract to Martin Marietta Energy Systems to assess worker exposure to transuranic compounds from processing over 100,000 tons of recycled uranium. The fact that Ms. Berger agreed to work on the site profile despite the fact that she was relying on her own data that had been discredited before calls into question her integrity in the site profile process. These workers have already been wronged enough and no one who is responsible for their compensation should have a blemish on their credibility as an objective member of this process. We call upon you to remove Ms. Berger and her work from Livermore’s site profile.

Conclusion

We recognize that it is a difficult task to try to recreate doses to workers for more than 50 years of Livermore Lab operations. Record keeping has been spotty over the years. Even when records were properly established, so many records are missing or destroyed that it makes it difficult to pinpoint dosage. Through these comments, we have only begun to scratch the surface of the problems with the site profile. That is why we believe that certain jobs at Livermore Lab should be categorized as a special exposure cohort.

Thank you for your consideration of these comments. We hope that either a special exposure cohort is established or the site profile is fundamentally redrafted so that it

reflects a broader and deeper consideration of records relating to workplace exposures.
No worker's claim should be denied on the basis of this shoddy analysis.

This is the only way that we can do justice to the sick workers.

Sincerely,

Loulena Miles
Staff Attorney
Tri-Valley CAREs