Understanding the Potential Health Impacts of Livermore Lab

Nuclear weapons development has been the primary mission of the Lawrence Livermore National Laboratory since 1952 and it continues today. Studies indicate that there may be health risks for those in the community exposed to some of the elements released by the Lab, including plutonium, tritium (radioactive hydrogen), and other toxic hazards.

For people living in Livermore and the surrounding communities, thoughts about radiation and its risks to our health and the health of our families can be overwhelming and frightening. Information is often technical and the health studies are complicated. However, becoming more informed about what goes on in our community is an important step to protect our health.

Join us for a special free one-day training session that is designed specifically for community members. It will give you a better understanding of the science of radiation and the potential effects on human health.

The training workshop will:

- Help you understand, in lay terms, the health risks of exposures to ionizing radiation;
- Explain the health studies conducted in the Livermore area; and
- Provide the tools to help you to participate in the public health decision-making that will affect you, your family, and your neighbors.

Presenters include Dr. Marvin Resnikoff, an expert on radiation and risk, Dr. Peggy Reynolds, a scientist for the California Department of Health Services who authored several health studies related to Livermore, and Ms. Diane Quigley, an expert on including members of the public in public health decision-making.

COMMUNITY HEALTH TRAINING: RADIATION, RISK AND THE COMMUNITY

WHERE: **Livermore City Council Chamber**
3575 Pacific Avenue, Livermore, California
(Take I-580 to Livermore Ave, go south to Pacific Ave)

WHEN: **Saturday December 9, from 10 am to 3 pm**

Attend this special training and you will leave better equipped to be a resource for your friends and neighbors and you will become more able to participate in the public health decision-making that may affect the lives of you and your family.

The U.S. Centers for Disease Control and Prevention, National Center for Environmental Health, Radiation Studies Branch, and the George Perkins Marsh Institute at Clark University have provided support for Physicians for Social Responsibility – San Francisco-Bay Area Chapter, Tri-Valley CAREs (Communities Against a Radioactive Environment), and Western States Legal Foundation to organize this special training.

FOR ALMOST FIFTY YEARS, nuclear weapons activities at Lawrence Livermore National Laboratory have released radioactive and other toxic substances into the environment. Community members need to know what the health risks from these releases may be. Community members need to participate in the decisions that may impact their health.

The United States Centers for Disease Control and Prevention, National Center for Environmental Health, Radiation Studies Branch, and the George Perkins Marsh Institute at Clark University have provided support for Physicians for Social Responsibility – San Francisco-Bay Area Chapter, Tri-Valley CAREs (Communities Against a Radioactive Environment), and Western States Legal Foundation to conduct an educational training for community members about radiation and health. The training will help community members from Livermore and surrounding areas understand the potential health risks of exposure to ionizing radiation. The training will also provide tools to help people participate in the decisions that will affect their health.

Nuclear weapons activities at Livermore Lab have released radioactive and other toxic substances into the environment

Activities at Livermore Lab from 1952 to the present have released radioactive and other hazardous materials into the environment.

- Both Livermore Lab's main site in Livermore and the Lab's Site 300 in Tracy have experienced severe **soil and groundwater contamination**. The Environmental Protection Agency has listed both facilities on the Superfund list of worst contaminated sites in the country.
  - At Site 300, soil and groundwater contain solvents, high explosives, uranium, tritium (radioactive hydrogen), and other pollutants. One of the underground plumes is two miles long and growing. It contains tritium at a concentration of two million picocuries per liter – 100 times the state and federal maximum contaminant level.
  - At Livermore Lab's main site, soil and groundwater have been contaminated by solvents, freon, hexavalent chromium, plutonium, tritium, and other hazardous materials. As with Site 300, the clean-up effort will span many decades.
- Government health agency and Livermore Lab reports indicate that **plutonium contamination** may be widespread among Livermore households because plutonium-laden sludge was commonly used as a "soil amendment" by the unsuspecting community.[i] Public health officials have documented plutonium contamination in at least three local parks.
- Since the 1960s, Livermore Lab has released **1 million curies of radiation** into the environment, approximately equal to the amount of radiation deposited by the US bombing of Hiroshima. Approximately three-quarters of a million curies have been tritium. The Livermore Lab documents disclose that Livermore Valley wines contain up to four times the level of tritium as compared to other California wines. Lab reports also document that rainfall contains as much as seven times the state and federal drinking water standard for tritium contamination.
- Leakage from the Lab's sanitary sewer lines may have resulted in **plutonium and other radioactive discharges** into the Livermore community. The California Department of Health Services has recommended that the potential contamination caused by sewer line ruptures be investigated.[ii]

The potential impact of past environmental pollution from Livermore Lab will continue because of the long half-life of some of the contaminants released into the environment (in the case of plutonium, its radioactive half-life is 24,000 years). Due to the delayed period between exposure and signs of health problems, the public health impacts for **past** exposures may occur today and in the future.

Nuclear weapons development at the Lawrence Livermore National Laboratory continues today

Livermore Lab continues to develop nuclear weapons, creating the potential for ongoing exposure to toxic substances and radioactive materials.

- The United States nuclear weapons program, deceptively named "Stockpile Stewardship," will spend $5 billion per year over the next decade or more on nuclear weapons research, development, testing, and manufacturing. Much of that activity will occur at Livermore Lab;
- Livermore Lab is proposing to build a new $32 million hazardous and radioactive waste processing facility to treat the resulting toxic substances and materials on site;
- The National Ignition Facility in Livermore is the largest nuclear weapons facility in Livermore Lab's history. With construction costs estimated as high as $4 billion, Livermore Lab plans to use 192 laser beams to initiate a thermonuclear blast in a reactor vessel at the facility; and
- Livermore Lab keeps in stock 880 pounds of plutonium, 500 pounds of highly enriched uranium, and large quantities of tritium.

There may be health impacts to surrounding communities exposed to the contamination

Important questions and concerns about potential community health impacts from Livermore Lab's activities exist. The population at risk from environmental contamination is large and growing. More than 60,000 people now live in the town of Livermore and the Department of Energy defines the "affected community" as approximately six million people living within a 50-mile radius of the Lab.

Health studies conducted in Livermore suggest reasons for concern.

- Two worker health studies conducted in the early 1980s found significantly higher levels of malignant melanoma in Lab employees and the results pointed to exposure to radiation and/or chemicals.[iii,iv]
- A 1995 California Department of Health Services' investigation of childhood cancer incidence among Livermore children and young adults (0-24 years), found two and one-half times the expected number of children with malignant melanoma living in Livermore at the time of diagnosis, more than six times the incidence of malignant melanoma in children and young adults born in Livermore, and elevated levels of brain cancer among children born in Livermore in the 1960's.[v]

Government secrecy has made it difficult for the public to learn the whole truth about intentional and unintentional toxic leaks from Livermore Lab. Additionally, there have been no in-depth investigations into any potential health consequences other than cancer, although community members have expressed concerns about many other chronic and acute illnesses, including respiratory and auto-immune diseases and developmental disabilities that may be related to hazardous releases from the Lab.

Community members need to be involved in deciding what the health risks are and what to do to protect their health

Because Livermore Lab is listed on the National Priorities List of one of the most contaminated sites in the country, over the past few years federal and state health officials have begun to investigate several of the potential health impacts related to Livermore Lab's activities. The investigations have led to health-related decision-making that may impact you and others who live in the community around Livermore Lab.

In general, the perspectives of people who are at risk from environmental contamination have not been fully heard in the decision-making processes. Without a community voice, it is virtually impossible to ensure that decisions about health impacts to the people and the environment are not made exclusively by Livermore Lab and the Department of Energy — the parties responsible for the contamination.

It should be the community that determines what the "acceptable risk" is by participating in the decision-making process. This ensures that an honest effort will be made to conduct health investigations that are scientifically valid and relevant to community concerns. Community involvement is needed to ensure that a more illness prevention-oriented approach to health risk is considered as well.

We know that Livermore Lab and other federal facilities and their contractors – those involved in nuclear weapons research, development, testing, and production - have released radioactive and other toxic substances into the environment. Community members across America want to understand the public health consequences of this contamination. The Centers for Disease Control and Prevention is supporting efforts by local organizations such as Physicians for Social Responsibility – San Francisco-Bay Area Chapter, Tri-Valley CAREs (Communities Against a Radioactive Environment), and Western States Legal Foundation to educate community members about the potential health effects of exposure to radiation. The hope is that community members who understand the basic science will be better prepared to become involved and make decisions to protect their health.

Join us on Saturday, December 9, when several experts will present a training specifically designed for this community. It will give you a better understanding of the impact of radiation and its potential effects on human health. Learn more so that you can participate more fully in the decision-making process.

For more information, please contact:

Physicians for Social Responsibility
San Francisco-Bay Area Chapter

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A non-profit educational organization committed to the elimination of nuclear and other weapons of mass destruction, the achievement of a sustainable environment, and the reduction of violence and its causes.

Tri-Valley CAREs

2583 Old First Street, Livermore, CA 94550
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A Livermore-based non-profit organization dedicated to increasing public participation and public knowledge regarding peace, justice, and environmental issues. Founded in 1983, the organization monitors activities at the Lawrence Livermore National Laboratory and throughout the nuclear weapons complex. Tri-Valley CAREs' membership consists of approximately 2,600 individuals and families.

Western States Legal Foundation

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A non-profit, public interest organization that seeks to abolish nuclear weapons, compel open public environmental review of hazardous nuclear technologies, and ensure appropriate management of nuclear waste. Our legal, technical, and organizing activities support the growth of nonviolent public participation in shaping domestic and global nuclear policy.

i California Department of Health Services. Health Consultation, Plutonium in Big Trees Park, Lawrence Livermore National Laboratory, Livermore, Alameda County, California. CERCLIS NO. CA2890012584, March 31, 1999. Myers DS, Silver WJ, Coles DG, et al., Lawrence Livermore Laboratory, University of California, Livermore, California. Evaluation of the use of sludge containing plutonium as a soil conditioner for food crops. September 17, 1975.

ii California Department of Health Services. Health Consultation, Plutonium in Big Trees Park, Lawrence Livermore National Laboratory, Livermore, Alameda County, California. CERCLIS NO. CA2890012584, March 31, 1999.

iii Austin DF, Reynolds PJ, Snyder MA, Biggs MW, Stubbs HA. *Malignant melanoma among employees of Lawrence Livermore National Laboratory.* The Lancet. October 3, 1981. pp. 712-716.

iv Austin DF, Reynolds PJ. *Investigation of an excess of melanoma* among employees of the Lawrence Livermore National Laboratory. American Journal of Epidemiology. vol. 145. No. 6. (1997)

v California Department of Health Services. Environmental Health Investigations Branch. Cancer Incidence Among Children and Young Adults in Livermore, California 1960-1991. September 6, 1995.