Overview of the Superfund Cleanup of Toxic & Radioactive Contamination at Livermore Lab

By Tri-Valley CAREs' executive director, Marylia Kelley, & environmental scientist, Peter Strauss, Sept. 2015

Nuclear weapons activities at the Livermore Lab main site and its Site 300 have resulted in hundreds of documented toxic and radioactive releases to our air, soil, groundwater and surface waters. These activities, and the dangers they pose, are ongoing.

Both locations are federal "Superfund" sites. The EPA placed the Livermore Lab main site on its list of most poisoned sites in the country in 1987. Site 300, the Lab's high explosives testing range near Tracy, joined the roster in 1990.

The cleanup of contaminated soil and groundwater aquifers at both locations is complex and includes multiple and often commingled plumes of hazardous and radioactive wastes, involving uranium, tritium, volatile organic compounds, high explosives, hexavalent chromium and others. The cleanup timeframe is multi-generational and will take 50-80 years, or more.

The necessity to address this pollution more urgent then ever, due in part to the four-year long drought and federal budgetary problems that has the effect of doing "less" rather than "more". In this era of federal budget uncertainties, the Lab is adding to the danger by delaying technical progress on the cleanup and abandoning its community involvement obligations.

At the main site, the EPA calculated that the largest off-site groundwater contaminant plume could affect municipal water wells. If that occurred, it is estimated to result in an additional one cancer for every thousand Livermore residents drinking the water.

Site 300 is Livermore Lab's high explosives testing facility. It encompasses 11 square miles along Corral Hollow Road, west of downtown Tracy and east of Livermore. Site 300 is part of the U.S. Department of Energy (DOE) National Nuclear Security Administration nuclear weapons complex. Over the years, Tracy has expanded and a major residential development is proposed near Site 300.

Since it was founded in 1955, Site 300 operations have included open-air blasts with high explosives and multiple toxic and radioactive materials used in nuclear weapons. Current operations at Site 300 include contained detonations, open-air blasts, explosive and hazardous waste burning, and radioactive and hazardous waste storage. Prevailing winds blow contamination into the Central Valley, and, particularly, toward Tracy and surrounding communities.

At Site 300, the EPA estimated the risk of drinking the water at pumped from wells at the fence line of this 11 square mile site was estimated to result in one cancer for every hundred people.

In addition groundwater is used for irrigation near both of these sites. While we have not yet seen farmers trading off the risks of using contaminated water to grow food, that day may come unless there is a continued effort by LLNL to contain and cleanup the groundwater plumes.

After years of cleanup these risks have decreased; nevertheless it is still urgent that all potential drinking water be cleaned up. However, at the main site and Site 300, the Superfund cleanup process has gotten off-track, and too many decisions are being made informally and out of public view. The power of our voices is a vitally needed antidote to bureaucratic inertia and the pollution lurking in our environment.

Lab's "Public Involvement" is Broken

At the main site, Livermore Lab has not held a meeting of its official "Community Work Group" to oversee Superfund cleanup decisions for the past several years. The public is being systematically excluded. At Site 300, a pressing problem is the lack of *any* official process to involve the public in Superfund cleanup decisions. There is no "Community Work Group."

Tri-Valley CAREs' Goals for Public Participation and Cleanup

Our overall aim is to improve the quality and quantity of the Superfund cleanup at the Livermore Lab main site and Site 300. We believe that the remedy choices and cleanup levels chosen must reflect the entire community's input, not just that of the polluter and the federal and state regulatory agencies. The public that bears the health risks must be given the tools and the opportunities to decide "how clean is clean?" and which technologies for conducting the cleanup are acceptable. Because the cleanup has taken so long, and is projected to last until the beginning of the next century, the Lab needs to develop plans that inform and involve the community, so that community concerns are not overlooked.

The solution is to strengthen the overall participation of community residents in Superfund decision-making. We at Tri-Valley CAREs can help by conducting outreach to Spanish speakers, instituting an environmentally focused Youth Video Contest and other student activities, and conducting workshops and community meetings, such as the one we are sponsoring on October 22, 2015 in Tracy.

Key Questions for the Future

Along with renewed public involvement, there is a need to improve the management of pollutants and the cleanup technologies used at the main site and Site 300.

At the main site, the Lab has deferred completing a focused feasibility study to address the commingling of radioactive tritium and chlorinated solvents. Presently there is no role for the community in remedy selection. Moreover, there are four "pilot projects" underway requiring greater community oversight. They involve bio-remediation, injection of zero-valent iron, in-situ thermal treatment of contaminants and pneumatic "fracking" to open pathways to contaminants trapped in clays. Decisions will be made about where and when to use these technologies.

At Site 300, there is incomplete characterization of contaminants in soils, particularly in an area used for bomb design tests involving depleted uranium, or DU, as well as issues concerning high explosive contamination of the soil and groundwater. The remedial investigation/feasibility study to determine the best DU cleanup technology and the cleanup levels to be attained is lagging a year or more behind schedule and lacking a regular public involvement process.