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My Impressions of Livermore Lab's Site 300 Tour

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On Wednesday, June 27, 2012, Tri-Valley CAREs and Livermore Lab hosted a community tour of Lawrence Livermore National Laboratory's Site 300 (a Superfund site that is their high explosives testing range) that is located in the outskirts of Tracy. I was surprised to find out it was directly across the street from Carnegie SVRA right down Coral Hollow Road; which is a popular off road vehicle area that many Tracy citizens use for recreational purposes.

From the highest point in Site 300, we got a nice view of Tracy and Mountain House. I could pin point where my house was. I'll admit, it scared me a little knowing that a high-explosives testing range has been operating for 60 years so close to my home. So many thoughts passed through my mind. I thought about the wind patterns and how the wind flows from Livermore to Tracy. I wondered about how much contamination gets delivered to Tracy through winds.

Beverly King actually had talked to me about this before. She told me that she was a teacher, and she felt that more kids were sick in the Tracy schools then any other town she taught in. Once she started volunteering with Tri-Valley CAREs, she always had a hypothesis that it was partly from the contamination of Livermore and Site 300. I also remembered at my first Tri-Valley CAREs meeting I attended in Tracy this year. Bob Sarvey talked about why he joined Tri-Valley CAREs; because his windows would break when bomb testing would go off. One time, the window shattered in the room his young daughter was in and he then he decided he had enough. Now it became clear to me how close his house actually could have been.

Along with about a dozen other community members and Livermore Lab employees, we went on a tour through the eleven square mile site in a small bus. I really did not know what to expect of Site 300 before going on the tour. It was not at all what I envisioned an explosive weapons testing range to look like, especially one that supports our nuclear weapons research and development. We were in the Altamont Pass, with clear views of deer and rabbits looking for shade, birds flying, and windmills spinning in the gusty breeze. You would think it was just a normal part of the surrounding area, except the area is scarred by high explosives firing tables and incognito contaminated groundwater treatment facilities.

It was a very informative experience with Site 300 workers giving the tour, and also having Marylia Kelley's, executive director of Tri-Valley CAREs, input. The clean-up experts were much more open than I anticipated while talking about the contamination on site. They told us the contaminants that were prevalent at the site: VOCs (including TCE), high explosives

compounds, Tritium (the radioactive isotope of hydrogen), depleted uranium, nitrate, perchlorate, metals, PBCs, and others.

It was great news to learn that the many groundwater monitor wells have detected successful remediation of some of the contaminated water. They said, in some areas, their treated water is "better than the minimum drinking water standards."

Though, many of the achievements that they were very proud of, made me cringe a little on the inside. One particular "achievement" stood out to me. Building 850 was a firing table that was active from the 1950s to 2007. In the 1960s, 1,000 capacitors were destroyed during their testing, and that ended up contaminating the soil with polychlorinated biphenyls (PCBs). This amount of contamination was a risk for the workers, so they needed to act. Their solution was to take this PCB contaminated soil, solidify it, and mix it with cement into what they call a Corrective Action Management Unit (CAMU). To me, this does not seem like getting rid of the problem, it is just putting the problem in another ugly form. I remember seeing very little plant and animal life, and hearing no noises coming from this CAMU. While on the other side, the real hills were full of life and chirping bugs.

I asked the experts what happened to the wildlife with the Building 850 project, because it seemed so dead and uninhabited. They told me that the species were still there and that they had a lot of endangered species living in their area. Some of the endangered species that live on Site 300 are Burrowing Owls, San Joaquin Kit Fox, California Red-Legged Frog, Golden Eagle, and others. While this is great, are they not at all concerned about these species living in a toxic, radioactive, and contaminated habitat? I remember Marylia talking about a tour they went on and a women who used to live around the area of Site 300 as a child. She told Marylia that she saw many weird things in the creek by her house as a child, such as deformed animals and odd colors running through the water.

Also from Building 850 are groundwater plumes that exceed drinking water standards of tritium. Tritium is a isotope of hydrogen. Hydrogen has one proton and one electron. Tritium has one proton and one electron, along with two neutrons. When tritium reacts with two molecules of oxygen, it forms Tritiated water. Tritiated water mimics a regular water molecule, so it is hard to distinguish the two. Because of this, the LLNL claims that there is no effective technology to treat tritium in ground water. So instead they will let nature take its course. (Note: natural occurring tritium is very rare on earth. According to a LLNL publication, naturally occurring tritium accounts for less than five atoms per billion.) Tritium has a half life of a bit over 12 years. Apparently, to meet drinking water standards, a reasonable amount of time will decay out of the environment. So by 2033, the ground water will finally be at drinking water levels of 20,000 picocurie of tritium per liter of water, according to our tour guide.

Might I mention of course, what tour would be complete without a mishap; a tire on the bus we were in began deflating right before our final stop. The staff took care of the issue after only a brief detour and we all proceeded to Building 812 in three government vehicles. This building

was an open firing table that was in use from 1960s to 2009 (there is only one open firing table in use now at Site 300, which we did not go see). From the different experiments they conducted, the soil and groundwater are contaminated, and they are in the beginning stages of determining what remedial actions are needed to clean it up.

A RemCAT (a cool, but illusive remote controlled robot) is used to survey the ground for gamma radiation. The employees said it was a much more efficient and precise way of determining where the uranium-238 is located in the soil.

We all really appreciated the time the employees of Site 300 gave to us for our tour.