



Environmental Lab, Public Health–Seattle & King County Collaborate on Tacoma Smelter Plume Study

By Diane McElhany, Environmental Laboratory Trace Metals Unit

King County departments are coordinating, communicating and collaborating to address regional issues, balance priorities and implement missions. The following illustrates one of these efforts.

Background

The American Smelting and Refining Corporation (ASARCO) operated a smelter on the shores of Commencement Bay near Tacoma for nearly a century. The facility began its life as a lead smelter in 1889 and was converted to a copper smelter in 1902. Copper produced there was used in electronics, roofing, household products, coins, and biomedical and chemical applications, among other uses.

One byproduct of copper smelting is arsenic. The Ruston smelter was one of the only smelters in the world capable of processing ore containing a high percentage of arsenic. In fact, the Ruston smelter collected much of its arsenic and sold it for use in insecticides and building materials.

Unfortunately, not all of the arsenic was captured and sold. Along with lead and other chemical byproducts of copper smelting, arsenic was released into the surrounding environment through a 562-foot-tall smokestack.

The smokestack sent pollutants far into surrounding communities. While the smelter was permanently closed in 1986 and the stack demolished in 1993, the environmental damage was done. We now know that lead and arsenic pollution was carried by the wind over a wide expanse and contaminated the soils of King, Pierce, Thurston and Kitsap counties.

Contamination in the area surrounding the smelter was so serious that in 1983 the United States Environmental Protection Agency

included the smelter site, including a 23-acre peninsula built from slag, as part of a Superfund site called the Commencement Bay Superfund site.

The story

Starting in 1999, Public Health – Seattle & King County in collaboration with the Washington Department of Ecology embarked on a series of ASARCO plume grant-funded studies to characterize the nature and extent of lead and arsenic contamination throughout King County.


During the past 10 years more than 8,000 soil samples have been collected and analyzed from approximately 900 locations throughout King County. This research has allowed Public Health to accurately map the concentrations of dispersed arsenic and lead throughout King County.

Although Public Health approached the Lab in 1999 to analyze these samples, we did not have the appropriate resources to help with this exciting work. But in 2009 Public Health's Lee Dorigan approached us again and this time we were better equipped to take on the Trace Metals arsenic and lead soil analyses. The lab started analyzing samples in late 2009.

However, due to a rise of some other large public health priorities (H1N1 Flu and Howard Hanson Dam flood contingency planning) Public Health found itself with grant funding for sample collection, but not enough staff to carry out the work.

Without staff to do the sampling, this would also mean that, while the Lab's Trace Metals unit stood ready to continue the analysis, no samples would be available.

This led to further negotiations between Public Health, Ecology and the Lab that ultimately allowed the Lab's Environmental Services Unit (ESS) to step in and take over the sampling from Public Health in 2010, so that the



project could continue and be completed before grant funding expired.

This is very exciting as a large part of this work is taking place at day care centers around King County. Because children have both potentially more exposure to and negative effects from toxic metals, Public Health and Ecology started more-focused assessments of child play areas in 2003.

This work has led to child areas being cleaned up, and part of this on-going grant project is to identify as many possible areas that would benefit from soil remediation.


It has been both educational and gratifying to work on a project that uses our data to make important decisions about the health and welfare of King County residents.

It has also been rewarding to work so collaboratively with another King County department to keep work moving forward despite the ever changing priorities and budget challenges faced by King County.

Much of the information in this article was taken from Public Health's Web site, <http://www.kingcounty.gov/health/tsp>. Please visit the website for much more information detailing their decade of handwork.

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