



# Focus

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## Tacoma Smelter Plume

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### Background

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It is a well-known fact that air emissions from Washington's copper smelters have caused widespread, low-level arsenic and lead contamination of soils. A study recently released by Public Health - Seattle & King County confirmed elevated levels of these contaminants in soils of Vashon and Maury Islands, and along the shoreline between West Seattle and south King County. A study released in March of 2001, conducted by Ecology, also confirms elevated levels of arsenic and lead in the soils of University Place in Pierce County.

The probable source of much of the surface soil contamination is from the now-closed Asarco (American Smelting and Refining Co.) copper smelter plant that operated at Ruston near Tacoma. Arsenic occurs naturally in many kinds of rock, especially in ores that contain copper or lead. Contaminants from the smelter smokestack were spread by wind over a large area. We call the area affected by the smelter emissions the Tacoma Smelter Plume site. The exact size and shape of the area affected by the smelter is not known. The concentrations of arsenic and lead in surface soils generally decrease as we sample farther away from the old smelter facility. According to recent studies conducted by Ecology and the U.S. Geological Survey, the naturally occurring background level of arsenic in Puget Sound is typically below 7 parts per million.

### University Place

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In March 2001, Ecology released a sampling study of residential soils in University Place that confirms arsenic contamination is present. University Place was chosen because a study conducted by the Tacoma Water Department for a different project found elevated arsenic and lead in undisturbed areas of that city, such as undeveloped properties. The soil study showed that 60% of the residential yards sampled contained arsenic above 20 parts per million (ppm), although in 80% of all yards sampled, arsenic was below 40 ppm. The average arsenic level found is 26.4 ppm. The state cleanup standard for arsenic is 20 ppm. Levels found are comparable to or somewhat lower than those found on Vashon and Maury Islands. The residential study also evaluated lead, which was not found above the state cleanup standard of 250 ppm. Both the front and back yards of 59 properties were sampled. Samples were taken from each yard at depths of 0-2 inches, 2-6 inches, and 6-12 inches. The maximum arsenic found was 163 ppm at the 0-2 inch depth, and the maximum lead found was 227 ppm. Newer residences tended to have lower levels of contaminants than older, probably due to more recent soils disturbances from grading and landscaping.

Although the study focused only on University Place, Ecology believes other areas of Tacoma and Pierce County affected by the smelter are likely to have similar levels of contamination. To see a copy of the study, see the Tacoma Smelter Plume site at [http://www.ecy.wa.gov/programs/tcp/sites/tacoma\\_smelter/ts\\_hp.htm](http://www.ecy.wa.gov/programs/tcp/sites/tacoma_smelter/ts_hp.htm)

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## **Not a public health emergency**

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None of the studies indicate that arsenic and lead are present at levels that immediately threaten public health. Although soil arsenic and lead levels are elevated, the concentrations do not indicate an immediate health hazard exists to residents or workers. Rather, the agencies involved are concerned about the public's persistent exposure to low levels of arsenic and lead-contaminated soils over a long period of time. Arsenic is a known human carcinogen and lead exposure can result in developmental disabilities.

Ecology is very concerned about the long-term exposure to arsenic and lead, especially for children. Young children up to age 6 are the population most at risk for arsenic and lead contamination because they play directly in dirt where they can ingest contaminated soil through their mouths and inhale dust through their noses. Soon after Public Health-Seattle & King County published the results for Vashon-Maury Island, the Public Health officials tested nearly 100 children living on Vashon-Maury Island to determine if any youngsters had elevated levels of lead in their blood. None of the children tested were found with elevated blood lead levels.

## **What happens next?**

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Normally, Ecology works on cleanup sites that measure in square feet, yards or acres — not miles. This is the first time that local and state authorities have addressed soil contamination covering such a broad area, involving multiple residential neighborhoods. Ecology and the health agencies want to proceed quickly and carefully, making sure the best possible steps are taken to protect human health and the environment. This is going to be a complex undertaking that will extend over many years.

Ecology and the local health departments have entered into partnerships to address the soil contamination issue. The first step in doing this is to evaluate the extent of soil contamination over the wider area. Ecology has provided grant funding to Public Health-Seattle & King County, and will be providing funds to Tacoma Pierce County Health for their involvement in this project. Ecology is also currently developing a strategy to educate and involve the affected communities, in partnership with the local health departments.

## **How can you get involved?**

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Ecology is seeking volunteers to help us identify community needs in Pierce County. This includes (but is not limited to) evaluating the results of the current round of sampling and prioritizing areas to be sampled in the next rounds. Ecology may not be able to place everyone who volunteers on a work group. We will do our best to ensure that as many cities, ethnic/cultural groups, and other interest groups as possible have the opportunity for input in the work group processes; we will hold public meetings throughout the process. You can contact Ms. Molly Gibbs, the Ecology Public Participation Coordinator for South King and Pierce County at (360) 407-6179, or email her at [mgib461@ecy.wa.gov](mailto:mgib461@ecy.wa.gov) if you are interested in volunteering.

For more information on arsenic, visit:  
<http://www.metrokc.gov/health/hazard/soilsamples.htm#arseniclead>