

Dockton Park (Maury Island) Re-sampling

Introduction

The Department of Ecology (Ecology) studied soils in Dockton Park on Maury Island for the presence of arsenic and lead. This study followed up on an earlier sampling study of areas used heavily by children on Vashon and Maury Islands. The purpose of the new study was to provide additional information about the safety of the park as a place for children to play if actions that reduce arsenic and lead exposure are practiced.

The study is part of a larger effort by Ecology, the Washington State Department of Health and local health departments to evaluate lead and arsenic contamination believed to have come from the now-closed Asarco copper smelter in Ruston, near Tacoma. The affected area, known as the Tacoma Smelter Plume, affects large sections of Pierce and King Counties.

On the whole, the levels of lead and arsenic measured so far in these areas are of concern but do not present an immediate health risk so long as people take proper precautions. As a protective measure, people should reduce their exposure to dust and soil by following our recommended [Healthy Actions](#).

The study focused on areas used heavily by children, and sampled the same areas previously sampled by Public Health – Seattle & King County (Public Health) in the initial [Vashon-Maury Island Child Use Area study](#).

[Click here for more general background on the Tacoma Smelter Plume.](#)

Key facts about the study

- The arsenic and lead levels measured to date are a concern, not an emergency.
- Guidance to Reduce Exposure to Contaminated Soil in and around the home, work and recreation areas reduce your exposure to soil and dust and the lead and arsenic potentially associated with them.
- The beach, paved walkways and playground are not affected by arsenic contamination.
- The grass in the lawn areas provides some reduction in exposure to the underlying soil.

Arsenic, lead and public health

The main risk to your health from the Tacoma Smelter Plume is from your exposure to arsenic and lead in contaminated soil. The main way for soil – and any contaminants it may contain – to enter your body is by mouth. Breathing dust that may contain arsenic, lead or other contaminants is the next most important means of exposure.

Children under six years old are especially vulnerable to contaminated soil and dust because at this age they tend to put dirty and dusty objects into their mouths. Also, because the

bodies of children this age are still developing, they are additionally susceptible to the effects of contaminants such as lead and arsenic.

You can reduce your exposure to lead, arsenic and other toxic materials by following the healthy actions. By following these measures, the Tacoma Smelter Plume is a health concern, but not an emergency.

Here are a few of the steps you can take to avoid breathing or swallowing soil that may contain arsenic, lead or other contaminants.

- Don't wear your shoes in the house. Most dirt enters the house on your shoes.
- Wash hands and face frequently, especially before eating.
- Keep children away from bare patches of dirt.
- Wash all vegetables and fruits before you eat.

What we studied

Public Health collected additional sets of soil samples for Ecology to analyze from locations that were near those initially sampled. All samples were collected in developed or cleared play/recreational areas.

Public Health sampled at 16 locations, taking one soil core at each location by boring into the ground. Each core was later divided to examine the soil at depths of 0-2 and 2-6 inches.

What we found

The range of our findings

Washington's Model Toxic Control Act sets general clean-up levels of 20 parts per million (ppm) for arsenic and 250 ppm for lead.

Ecology's Interim Action Trigger Levels for the Tacoma Smelter Plume Site at parks and camps are 200 ppm for arsenic (As) and 1000 ppm for lead (Pb). At these levels, Ecology would require expedited measures to prevent exposure to contaminated soil.

The lead and arsenic concentrations from the second Dockton Park study are shown in the table below, compared with the samples taken in the first study.

Summary of Dockton Park Soil Sampling		
	Arsenic	Lead
Depth Interval (0-2 inches)		
Fall 2000 Sampling Results (Mean of 8 samples)	30	75
December 2001 (Composite #1-39-1-1-1-3)	28	35

December 2001 (Composite #1-39-1-1-2-3)	28	44
GRAND MEAN (0-2 inch depth interval)	29	51
Depth Interval (2-6 inches)		
Fall 2000 Sampling Results (Mean of 8 samples)	24	78
December 2001 (Composite #1-39-1-2-1-3)	23	29
December 2001 (Composite #1-39-1-2-2-3)	29	69
GRAND MEAN (2-6 inch depth interval)	25	59

Conclusions

The average arsenic and lead contaminant levels at Dockton Park developed child use areas are well below the Interim Action Trigger Levels of 200 ppm for arsenic and 1000 ppm for lead. The average lead concentration also appears to be below MTCA cleanup levels in the top six inches of developed areas of the park. Average arsenic concentrations are above MTCA cleanup standards, therefore Public Health and Ecology strongly recommend that people follow [Healthy Actions](#) to reduce exposure to the contaminated soils.

Next steps

The Tacoma Smelter Plume is an unusually large and complex contamination problem. We cannot hope to find all the answers about it quickly. We have studied undeveloped places and child use areas on Vashon and Maury Islands, King County. We have performed small studies on residential properties in University Place, Pierce County.

Here are the next key steps Ecology is taking:

- Pierce County, ongoing through 2003: We are sampling undeveloped areas and some residential and child use areas in Pierce County on the Gig Harbor Peninsula and the mainland from Tacoma to the Thurston County line.
- King County mainland child use areas, fall 2002 through 2003: This study will help give us more information about developed areas in general and areas used by small children in particular. While this study won't enable you to make conclusions about your property or neighborhood, we'll better understand how the Tacoma Smelter Plume affects developed properties in this area.
- Ecology is providing property sampling guidance on arsenic and lead in soil.
- Under Washington's Model Toxic Control Act (MTCA), Ecology attempts to identify the source of a site's contamination so that a potentially liable party or parties can be identified. Ecology has been gathering and evaluating scientific evidence to identify whether the former Asarco, Inc. smelter in Ruston is the source of contamination in the Tacoma Smelter Plume area and

whether any other sources may have contributed to the regional contamination.

It will take many years to assess, make plans and carry out remedies. The Tacoma Smelter Plume covers hundreds of square miles and represents nearly a century of emissions. Fortunately, there is no health emergency as long as everyone follows the [Healthy Actions](#) recommended by Ecology and PHSKC. For the near term, they will form an important part of living with the Plume.

The fallout from the smelter in Ruston reminds us of the need to prevent, control and reduce all forms of pollution from today's sources so that our activities do not leave a toxic legacy for another era.

For further information, please contact Northwest Regional Office Site Manager, at 425-649-7047 or, Marian Abbett, TSP Project Manager at 360-407-6257 or mabb461@ecy.wa.gov.