

Construction Work in Arsenic and Lead Contaminated Soils



Many construction sites in the Puget Sound region may have arsenic and lead soil contamination. Until 1986, the former Asarco copper smelter in north Tacoma emitted arsenic, lead, and other heavy metals. These pollutants travelled with the wind and settled on surface soils, creating the Tacoma Smelter Plume. The plume covers 1,000 square miles of King, Pierce, and Thurston counties (page 4).

Why does it matter?

Arsenic and lead are toxic and pose a risk to human health and the environment. Workers and people living around work sites can be exposed to contaminated dust and soil. Storm water runoff can carry contaminated soils into nearby waterways.

If you have contamination, state and local laws require you to:

- Protect your workers.
- Prevent stormwater runoff.
- Properly dispose of contaminated soils.
- Control dust and keep soils from leaving the site.

Is my construction site in the Tacoma Smelter Plume?

See page 4 or visit <https://fortress.wa.gov/ecy/smeltersearch/> for a searchable map. The maps show estimated arsenic levels in parts per million (ppm). Actual levels vary greatly across the plume. When you submit permit applications and an environmental checklist (if needed), please disclose if you are in the plume.

How do I know if I have contamination?

Soil sampling is the only way to know. Ecology recommends sampling soils for arsenic and lead in areas where the arsenic is estimated to be over 20 ppm. Ecology has soil sampling guidance online and provides technical assistance (see box to the right).

More Information

Tacoma Smelter Plume Technical Assistance Coordinator

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Toxics Cleanup Program, Ecology

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<http://www.ecy.wa.gov/toxics/tacoma-smelter.html>

Click the Technical Assistance link for soil sampling and cleanup guidance.

Construction Stormwater Permits

Chris Montague-Breakwell

Water Quality Program, Ecology

Phone: (360) 407-6364

E-mail: @ecy.wa.gov

Website: <http://www.ecy.wa.gov/programs/wq/stormwater/construction/>

Air Quality

Puget Sound Clean Air Agency
(800) 552-3565

Olympic Region Clean Air Agency
(800) 422-5623

Worker Safety

Department of Labor and Industries
Safety and Health

1-800-423-7233

<http://www.lni.wa.gov>

To request ADA accommodation, including materials in a format for the visually impaired, call Ecology at 360-407-6300. Persons with impaired hearing may call Washington Relay Service at 711. Persons with speech disability may call TTY at 877-833-6341.

Facility Site ID #: 89267963

CSID #: 3657

When sampling your soil, you should consider...

- **Development history:** Undeveloped land tends to have higher levels of arsenic and lead than developed land.
- **Future use:** There is greater risk to human health if the area will be used by children or people often in contact with soil.
- **Cleanup approval:** If a local permit office, buyer, or lender requires Ecology's written approval of your cleanup, enter the Voluntary Cleanup Program (VCP). The VCP is free for projects with only Tacoma Smelter Plume contamination. To learn more, contact the Technical Assistance Coordinator (page 1).

Worker Safety

The Washington Department of Labor and Industries (LNI) has rules to protect workers from arsenic and lead in the workplace. These apply to any workers exposed to soils within the Tacoma Smelter Plume.

Employers must comply with all workplace safety rules on toxic exposures, including:

- Arsenic, Chapter 296-848, WAC
- Lead, Chapter 296-62, WAC
- Hazardous Waste Operations, Chapter 296-843, WAC

For help understanding and complying with these rules, please contact LNI at the number listed on page 1.

Stormwater Runoff

In Washington, construction sites must have a **Construction Stormwater General Permit** if they:

- Disturb one or more acres of land or are part of a larger project that will disturb one or more acres; and
- Discharge stormwater from the site into, or through a storm drain system that discharges into, surface waters of the state; or

- Use best management practices (BMPs) from the 2005 Stormwater Management Manual for Western Washington, Volume II, (February 2005) or an approved local BMP manual.

Ecology can also require a permit for a site with pollutants impacting waters of the state. **This includes Tacoma Smelter Plume arsenic and lead!**



Stormwater runoff entering a storm drain. Runoff can carry soil pollutants like arsenic and lead.

Methods for controlling and preventing stormwater runoff include:

- Covering bare soils to prevent erosion.
- Straw wattles and check dams to slow the flow of water through the site.
- Putting filters in storm drains.
- Wheel washes.
- Quarry rock at construction entrances.

Soil Disposal

Reusing, giving away, or selling contaminated soils could put others at risk. All soils leaving the site must go to a landfill. In some cases, contaminated soils can be mixed or capped in place. For more about soil cleanup, contact the Technical Assistance Coordinator (page 1).

State Solid Waste Handling Standards govern the disposal of contaminated soils. Landfills may require data about the toxicity of the soil. For general information about waste disposal:

- Tacoma-Pierce County Health Department
<http://www.tpchd.org/environment/waste-management/>
- King County Landfills
<http://your.kingcounty.gov/solidwaste/facilities/wasteclearance.asp>
- Thurston County Landfill
<http://www.co.thurston.wa.us/solidwaste/index.htm>



Visible dust on a construction site is against state law. Arsenic and lead in dust can pose a health risk.

Dust Control

It is illegal to allow dust from your construction site to cross onto another property. State air quality regulations allow heavy fines for not controlling dust.

Two agencies regulate air quality in areas most impacted by the Tacoma Smelter Plume.

- **Puget Sound Clean Air Agency** serves King, Kitsap, and Pierce counties.
<http://www.pscleanair.org>
- **Olympic Region Clean Air Agency** serves Thurston County.
<http://www.orcaa.org/>

Dust containing arsenic and lead can impact neighboring properties and pose a risk to human health.

To reduce dust:

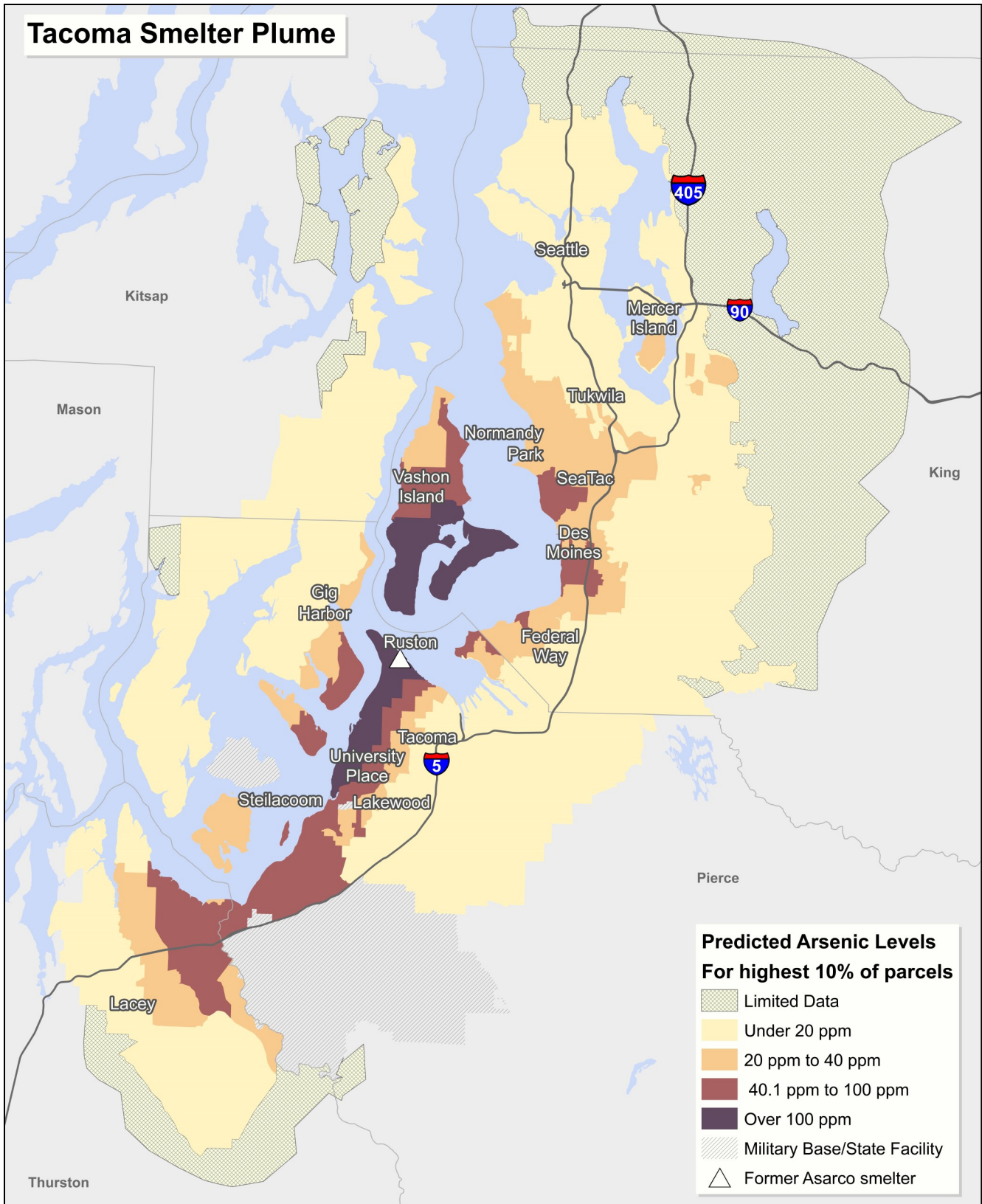
- Water down your work site during dry weather.
- Cover soil stockpiles and trucks loaded with contaminated soil.
- Limit traffic and traffic speeds onsite.
- Maintain as much plant cover as possible.

Health Information

Arsenic: Long-term exposure to arsenic is linked to many health problems. They include heart disease, diabetes, and cancer of the bladder, lung, skin, kidney, liver, and prostate.

Lead: In children, lead can cause behavior problems like hyperactivity, developmental delays, and reduced growth. In adults, lead can increase blood pressure, affect memory, and add to other health problems.

For more about arsenic and lead health effects visit <http://www.ecy.wa.gov/toxics/tacoma-smelter.html> and click on the link for "Health Effects".



With 90% certainty, at least 1 in 10 parcels will have arsenic in soil at or above levels shown. Predictions are based on distance and direction from the former Asarco smelter, and on sampling data from forested and other soils undisturbed by development. Actual arsenic levels may vary greatly from parcel to parcel. Arsenic levels are shown in parts per million (ppm). This map is also available at: <https://fortress.wa.gov/ecy/smeltersearch/>.