Homeowners Guide to Soil Replacement

DEPARTMENT OF ECOLOGY State of Washington

Tacoma Smelter Plume **January 2017**

Introduction

The Department of Ecology (Ecology) is cleaning up the most contaminated yards in the Tacoma Smelter Plume. The plume is a 1,000 square mile area of arsenic and lead soil contamination from the former Asarco smelter in North Ruston and Tacoma.

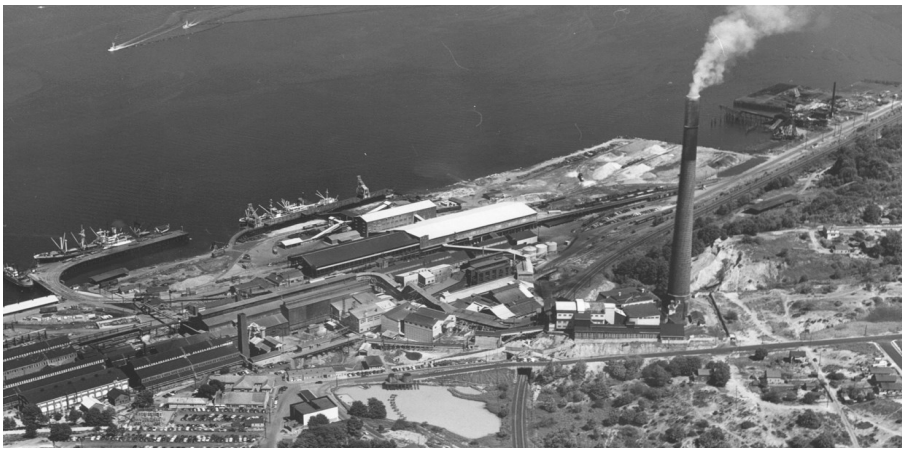
Ecology is offering soil removal through the Residential Yard Sampling and Cleanup Program (Yard Program). This program is voluntary and you can choose to participate in the program when we contact you. Ecology will work with homeowners to design a plan to remove and replace soils.

This guide explains what to expect during soil removal and replacement in your yard.

Tacoma Smelter Plume Cleanup Background

For almost 100 years, the Asarco Company operated a copper smelter in Tacoma. Air pollution from the smelter settled on the surface soil over more than 1,000 square miles of the Puget Sound basin. Arsenic, lead, and other heavy metals are still in the soil as a result of this pollution.

In 2009, the State of Washington received a settlement from Asarco, including $94 million to pay for cleanup of the Tacoma Smelter Plume. Ecology is using a large part of this settlement to sample and remove soil in the most contaminated areas of the plume.



TOPICS

- Introduction
- Background
- Soil Replacement Process
- Health and Safety Information
- Contact information

MORE INFORMATION

Yard Program Videos
http://youtu.be/Vk-i6odjHyM

Ecology's Website
http://www.ecy.wa.gov/toxics/tacoma-smelter.html

Sampling Results
https://fortress.wa.gov/ecy/areispublic/

Yard Program Project Line
(360) 407-7688, press 2

Amy Hargrove
Remediation Manager
(360) 407-6262
Amy.Hargrove@ecy.wa.gov

Crescent Calimpong
Outreach Coordinator
(360) 407-6790
Crescent.Calimpong@ecy.wa.gov

HEALTH QUESTIONS

Tacoma-Pierce County Health Department
http://www.tpchd.org/environment/healthy-environment/dirt-alert/

FSID #89267963
CSID #3657

Yard Program Service Area

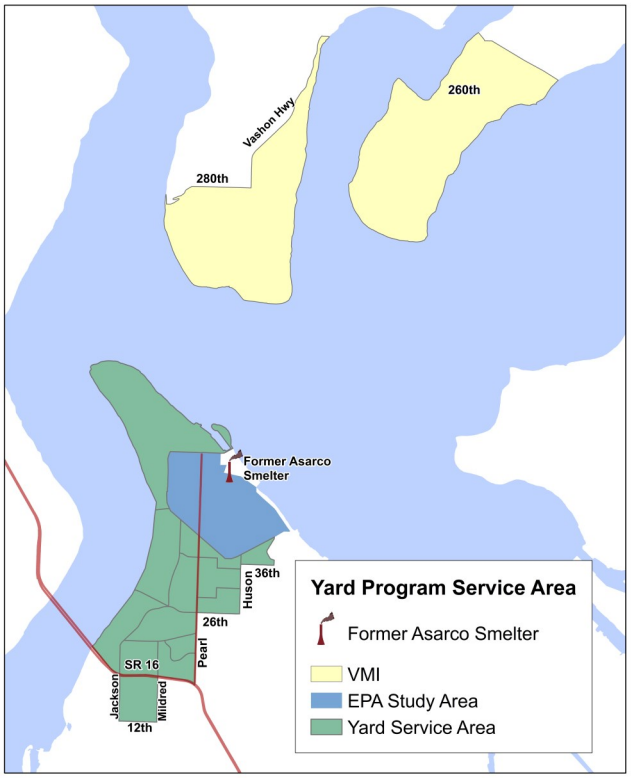
The Environmental Protection Agency (EPA) has cleaned up properties with arsenic levels of 230 parts per million (ppm) and above in the Ruston/north Tacoma EPA study area.

The area in blue was sampled by the EPA (map on right). The areas in green and yellow were sampled by Ecology's representatives.

Ecology has a lower action level of 100 ppm for arsenic. We are offering soil replacement for yards where the property has average arsenic between 100 - 230 ppm. Many yards in the EPA Study Area of Ruston and north Tacoma were already sampled by the EPA. Ecology is evaluating these results and will recommend soil replacement for properties where the parcel average for arsenic or lead are above our action levels.

A property qualifies for soil replacement planning when they meet one of the above criteria (action levels):

- Arsenic ≥ 100 parts per million (ppm)
- Lead ≥ 500 ppm

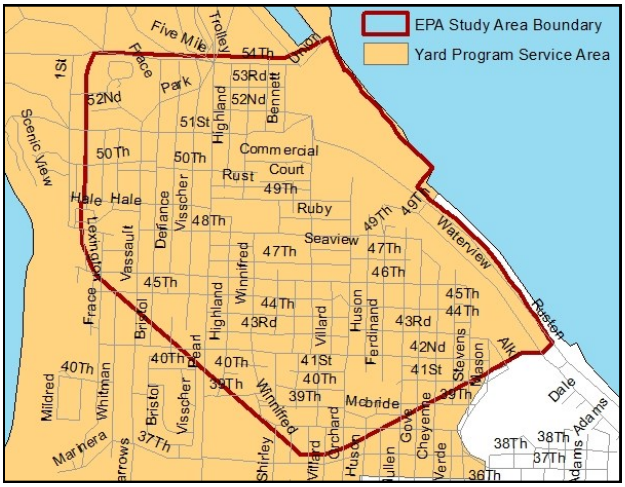


Service area for the Yard Sampling and Cleanup Program.

EPA Sampling Data

We look at existing EPA sampling results and any soil replacement already done. We look at whether:

- The top 12 inches of soil across the whole parcel has 90 ppm arsenic or higher.
- The top 12 inches of soil across the whole parcel has 500 ppm lead or higher.
- Any single "subunit" has over 200 ppm arsenic.
- Any single subunit has over 1,000 ppm lead.



Ruston/north Tacoma EPA Study Area in Tacoma.

Areas Excluded from Soil Removal

Some areas are excluded from soil removal, such as around trees or large plantings, rock walls, ponds, or under pavement. We may place a covering of soil or other landscaping materials in areas where we cannot remove soil.

Steps in the Soil replacement Process

The following section describes the steps soil replacement in a typical yard. Soil replacement might look different, depending on the layout and size of your yard. The whole process can take two years from the initial soil replacement planning to soil replacement wrap-up.

Planning and Soil Replacement involves several steps:

1. Create a property plan & agreement.
2. Ecology hires a contractor.
3. Contractor prepares the property.
4. Remove soil and sample.
5. Replace soil.
6. Restore landscaping.
7. Ongoing care for new landscaping.
8. Final paperwork.

Read more for details about each step in the soil replacement process.

Step 1 Make a Soil Replacement Plan & Agreement

- We call you to set up a visit at your property.
- During this visit, we meet with you to discuss soil replacement options and to review your yard.
- We develop a soil replacement plan for your yard using information from the checklist and the visit, in some cases, we may schedule a second visit to discuss the soil replacement plan.
- If you agree to the soil replacement plan, we ask you to sign a soil replacement agreement.

Soil Replacement Timeline

Step 2 Hire a Contractor

- After we receive the signed agreement, we proceed with hiring a contractor for the next available construction season. Soil replacement typically occurs 1 year after the plan is developed and signed.
- Our construction season is from spring to fall. The season may be shorter or longer depending on the year.
- We notify you when we have hired a contractor and set a date for soil replacement in your yard.

Step 3 Prepare the Yard

- We take photos and video to assess the yard area.
- For your safety, we install temporary fencing. Once fencing is up, we ask you to stay out of the fenced areas.
- We remove or relocate the fencing to provide pathways to your home as needed.
- We may temporarily relocate your parking areas as needed.

Step 4 Remove Soil and Sample

- During removal, we haul landscaping and contaminated soil away from your property.
- We use excavators, backhoes and hand tools to remove soil from the yard.
- To control dust, we bring in water and spray it on the dry soil.
- After soil removal, we collect samples at the base of excavation. If the soil at the base has arsenic above 100 ppm or lead above 500 ppm, we install a fabric to mark where soil contamination may remain.

Step 5 Replace Soil

- We bring new soil to your yard and fill in the areas that were excavated.
- We place topsoil over the clean backfill soil.
- We reconstruct any fences or gates that are damaged or disturbed during construction.
- We also install or replace any sprinklers that are moved or damaged during construction.
- Before restoring landscaping, we test the new soil to make sure that it is clean.

Step 6 Restore Landscaping

- The contractor will restore the landscaping based on photographs taken during the site assessment and the soil replacement plan agreement.
- The contractor will use either sod or hydro seed to replace lawn areas.
- Ecology will notify the homeowner and tenants when it is safe to walk on the lawn.
- Fencing may remain for several weeks to protect new plants and sod or hydro-seed.
- Landscape features and decorations will be restored.

Step 7 Care for New landscaping

- You, the homeowner, are responsible for basic landscape care of your restored lawn or plants, including:
    - Watering plants, sod and hydro-seed.
    - Weeding regularly.
    - Picking up pet waste.
    - Adding fertilizers as needed.
- Please contact Ecology immediately if you notice a problem within the first year after soil replacement.

Step 8 Keep a Record of the Soil Replacement Work

- When soil replacement and restoration are finished, we will give you copies of the paperwork that details all the work that was completed.
- You can pass on this paperwork to future property owners and share it with prospective buyers to address concerns about contamination on your property.
- Ecology will also keep a record of the work for your yard on our public database at https://fortress.wa.gov/ecy/

Safety considerations during Soil Replacement

Access to areas on your property:

- Our contractors will clearly designate the pathways to your home with fences.
- On the street, the contractor will clearly identify traffic routes and parking areas.
- The contractor will make sure that the soil replacement work does not interrupt mail, garbage and delivery service.
- We will notify you in advance if your mailbox needs to be moved temporarily.
- School bus service should not be impacted by soil replacement. Minor changes in pick up locations may be needed. Ecology will contact you before changes are made.
- Access to sheds and detached garages may be interrupted during construction.

Safety:

- Keep a close eye on kids and pets during construction. Keep them away from the work area.
- Relocate any personal belongings you want to protect or keep safe.
- Be aware when you are coming and going from your home.
- Let us know if you need handicapped accessible routes.
- Keep taking healthy actions.
- Stay away from construction equipment and materials. Don't assume the workers can see or hear you.

Health Information

Although the contamination does not necessarily pose an immediate health risk, arsenic and lead are harmful and may pose a long-term health risk.

Arsenic can cause cancer and has been linked to several other health problems including heart disease and diabetes. Lead can cause behavioral problems, learning disabilities and reduced physical growth in children.

Arsenic and lead are not well-absorbed through the skin. Arsenic and lead get into your body if you swallow small amounts of contaminated soil while eating with dirty hands or putting dirty fingers in your mouth. You can also be exposed if you inhale dust or dirt contaminated with lead or arsenic.

Young children are more vulnerable than adults. Children will put their fingers and other things in their mouths more regularly. Also, because children are still growing, they are more sensitive to the effects of arsenic and lead than adults.

Healthy Actions are simple things you and your family can do to decrease contact with dirt that may contain arsenic, lead and other harmful chemicals.

See healthy actions on the next page.

Healthy Actions

Use plenty of Soap and Water
Dirt is found on hands, toys, shoes, clothing and pets. **Wash** your hands well before eating and after working or playing in the soil. Use a scrub brush to clean dirt from under your nails. **Wash** heavily soiled clothing separately from other laundry. **Wash** children's toys, bedding, and pacifiers frequently. Hand sanitizers do not remove arsenic and lead from hands.

Mop, Dust and Vacuum
People and pets track in dirt or it can enter your home in the form of small dust particles through windows and doors. Dust and dirt settles on carpeting, throw rugs, curtains, upholstered furniture, as well as windowsills and bookcases. **Damp-dusting** and vacuuming at least once a week is recommended to decrease the amount of dust and dirt in your home. **Always** use a damp-mop or a damp-cloth when you dust.

Wash Fruits and Vegetables
Arsenic and lead may be in dust and dirt found on the surface of fruits and vegetables. There is a slight chance that leafy vegetables, like lettuce or kale, grown in contaminated soil may absorb very small amounts of contaminants. **Wash** all fruits and vegetables to make sure all dirt is removed. Use a scrub brush on potatoes, squash, carrots, etc. **Always** wear shoes and gloves when gardening or working in the soil and take them off before coming into your home. **Grow** your produce in raised beds made with arsenic-free materials.

Maintain Your Home and Yard
Covering bare patches and keeping up with home maintenance keeps arsenic and lead away from your family. **Cover** bare patches in your yard with a ground cover such as grass, gravel, wood/mulch product or native plants. **Wear** a dust mask while working in your yard during the dry season. **Maintain** the painted surfaces of your home. Homes built before 1978 may have been painted with paint containing lead. When lead-paint chips or wears away, it becomes a major source of lead, both inside and outside the home. **Have** your soil tested.

Eat a Healthy Diet
Iron, calcium and vitamin C help to decrease absorption of lead. **Eat** a diet rich with these nutrients. Include foods like broccoli, spinach, potatoes, dairy products and citrus fruits.

Keep Pets Clean
Pets walk, roll, and lie down in dirt and soil. When pets come into the house, their fur and paws bring in soil and dust too. **Wipe** off all excess dirt and mud before your pet comes into your home. Brush and bathe your pet regularly. **Restrict** your pet to parts of your home that are free from carpeting and upholstery. **Give** pets their own "bed" or place within your home.

How we will keep you informed during soil replacement...

Ecology staff will use several different methods to keep you informed about the soil replacement activities on your property and in your neighborhood, including:

- Phone calls
- Website or blog
- Open house meeting
- Door hangers
- Emails
- Fact sheets
- Flyers
- On-site visits
- Large site signs

Questions?

If you have questions about the soil replacement process, please contact a staff member on Ecology's Yard Program team:

Amy Hargrove
Remediation Manager
(360) 407-6262
Amy.Hargrove@ecy.wa.gov

Crescent Calimpong
Yard Program Outreach Coordinator
(360) 407-6790
Crescent.Calimpong@ecy.wa.gov

Charissa Young
Construction Manager
(360) 407-6249
Charissa.Young@ecy.wa.gov

Chris Huff
Construction Manager
(360) 407-0242
Chris.Huff@ecy.wa.gov

Health Questions:

If you have health questions about arsenic and lead in your soil, please contact:

Tacoma-Pierce County Health Department
(253) 798-6492
DirtAlert@tpchd.org

Visit their webpage at:
http://dirtalert.info

Sampling Results or Soil Replacement Records:

Find your soil sampling results or cleanup records at the Arsenic in Soil Database:
https://fortress.wa.gov/ecy/areispublic/

More information:

For more information, visit Ecology's website at: http://www.ecy.wa.gov/toxics/tacoma-smelter.html
Also check out the Yard Cleanup Program's Videos at:
http://youtu.be/Vk-i6odjHyM

To request ADA accommodation or materials in a format for the visually impaired, call Ecology at (360) 407-6790, Relay Service 711, or TTY (877) 833-6341.