

Everett Smelter Cleanup

Project History and Cleanup Process

The Asarco smelter, which operated in Everett in the early 1900s, caused widespread arsenic and lead contamination in north Everett. In addition to contamination left behind on the old smelter property, particles from the smokestacks settled on the surrounding areas, contaminating soil.

The Washington Department of Ecology (Ecology) managed the cleanup of the most highly contaminated properties from 1999 to 2007. In 2009, Ecology received funding through a bankruptcy settlement with Asarco to continue with cleanup efforts. Ecology is now working with property owners to clean up the rest of the properties impacted by the former smelter.

Frequently Asked Questions

Question 1: Where was the smelter located?

Answer 1: The former smelter was located in northeast Everett near the present day interchange of East Marine View Drive and State Route 529 (Figure 1 on page 2).

Q2: What type of contamination resulted from smelter operations?

A2: At the former smelter property, smelter operations contaminated the soil with high levels of arsenic and lead and lower levels of cadmium, antimony, mercury, and thallium. In the area where arsenic trioxide was processed, contamination was found at high levels at depths up to 15 feet. The property was also contaminated with demolished smelter debris including bricks, wood, and residual dust from the flues.

Smelter operations also impacted an area surrounding the smelter property (Figure 1). Slag (a smelter by-product) was dumped down the hill into the lowland area. Smokestacks spread arsenic and lead particles into the area surrounding the smelter, which resulted in widespread soil contamination.

Groundwater in the upland area does not appear to have been impacted by smelter contamination in the soil. Ecology is currently investigating potential impacts of smelter operations on groundwater in the lowland area. So far, we know that

For More Information

General Questions

Project Information Line

Call (425) 446-1024

This is a local number and will be answered 24 hours a day.

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Learn more about health impacts from:

- [Arsenic—www.doh.wa.gov/CommunityandEnvironment/Contaminants/Arsenic](http://www.doh.wa.gov/CommunityandEnvironment/Contaminants/Arsenic)
- [Lead—www.doh.wa.gov/CommunityandEnvironment/Contaminants/Lead](http://www.doh.wa.gov/CommunityandEnvironment/Contaminants/Lead)

Project website

www.ecy.wa.gov/programs/tcp/sites_brochure/asarco/es_main.html

Cleanup Site ID #4298

Facility Site ID #2744

smelter operations impacted the groundwater and the soil in the lowland. We are continuing our investigation of the lowland to determine the nature and extent of the contamination.

Q3: How can I be exposed to arsenic and lead? How could it affect my health?

A3: The main pathway for exposure is swallowing or inhaling contaminated soil.

Arsenic and lead are harmful and may pose a long-term health risk. The types of health problems that may occur are influenced by things such as the amount of arsenic to which a person is exposed, the length of time exposure occurs, and an individual's sensitivity to the harmful effects of arsenic. 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.

Arsenic and lead are not well absorbed through the skin. However, they can get into your body if you swallow small amounts of soil by 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. They normally put their fingers and other things in their mouths, even if there is dirt or dust on them. Also, children are still growing, so they are more sensitive than adults to contamination.

Ecology recommends that you participate in the cleanup program if you live in the cleanup area. Ecology also recommends that you take steps now to reduce your exposure to contaminated soil (see recommendations for healthy actions on page 3).

Q4: How can I reduce my family's exposure to the contamination?

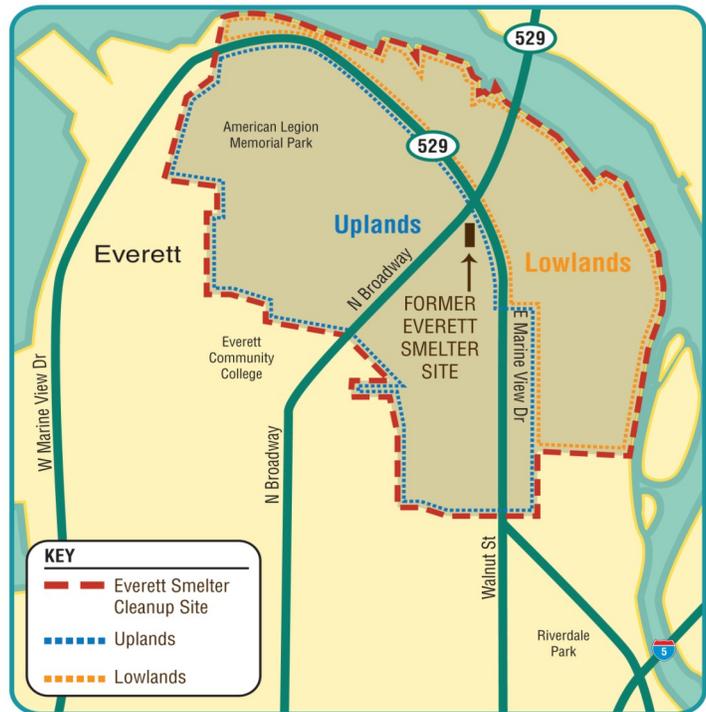
A4: Ecology has been working with the Department of Health and the Snohomish Health District to evaluate the health risks posed by the Everett Smelter contamination. Take the steps in the box on the following page to reduce your exposure to contaminated soil.

Q5: Are there other chemicals of concern other than arsenic and lead?

A5: Within the former smelter property, Ecology found six metals above the state cleanup levels, including: arsenic, lead, cadmium, antimony, mercury, and thallium. This contamination was removed between 1999 and 2004. Ecology did not detect metals other than arsenic and lead at levels above the state cleanup levels in the area outside the former smelter property.

Arsenic is the main contaminant of concern because it spread much further than the other metals. Some lead was found along with the arsenic in the upland cleanup area, although generally in lower amounts than arsenic. When Ecology cleans up arsenic contamination, remaining levels of lead and other metals in the soil will also be removed.

Figure 1. Everett Smelter Cleanup Site.



Recommended Healthy Actions



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.



Mop, damp dust and vacuum often to remove dirt tracked in from outside.



Wash fruits and vegetables grown at home before eating them to remove soil that may be on the surface. Grow vegetables in raised beds.



Take your shoes off in the house so you don't track dirt in from outside.



Use caution if working with soil. Wear gloves and wash dirty clothes separately.



Keep pets clean. Wipe off excess dirt and mud before your pet comes inside. Brush and bathe your pet often. Give pets their own beds.

Q6: What is the cleanup level for arsenic and how was it set?

A6: Ecology sets cleanup levels based on state law—the Model Toxics Control Act. For cancer causing contaminants, we set cleanup levels to protect people against an increased lifetime cancer risk at one in a million. For arsenic, the risk-based cleanup number would be 0.67 parts per million (ppm). However, arsenic occurs naturally in soils at levels higher than 0.67 ppm. In Washington, we consider “urban background” arsenic to be 20 ppm. That is where we set the cleanup level.

Ecology developed a framework for soil removal decisions when the cleanup action plan was developed in 1991. Extensive public input was used to develop this framework.

Ecology has determined that the top 12 inches of soil are where most of the direct contact with residential soil occurs. Soil within the top 12 inches that has an average level of contamination above the cleanup level will be removed. If a single soil sample in the top twelve inches has a level of 40 ppm or greater, soil will be removed. Several samples are taken from each property to determine the average level of contamination.

For soil deeper than 12 inches, Ecology uses the guidelines in the table below, to determine whether soil needs to be removed. A higher contamination threshold is used at greater depths, because it is less likely that people will come in contact with soil at greater depths.

Table 1. Soil Removal Guidelines

Depth of Soil	Average Arsenic Level	Maximum Arsenic Level (at one sample point)
0-12 inches	20 ppm	40 ppm
12-24 inches	60 ppm	150 ppm
24-36 inches	150 ppm	500 ppm

Q7: How big is the cleanup area?

A7: The total cleanup area is 1.1 square miles and is divided into two sections, Uplands and Lowlands. The Uplands, mostly residential properties, is 0.7 square miles and the Lowlands, mostly industrial property, is 0.4 square miles (Figure 1).

Q8: How did you determine the site boundary?

A8: Ecology used soil data from several years of environmental studies to determine the site boundary (Figure 1). The site is the area where contamination is known to exist or suspected to exist. It includes the former smelter property and a surrounding area.

Q9: When will you clean up my property?

A9: Ecology is cleaning up the site over the next several years as funding is available. We started the cleanup with properties closest to the former smelter property with higher levels of contamination first. Our cleanup work will continue to move away from the former smelter area outwards to the site boundary where contamination is generally lower. Ecology reviews the groups of properties for sampling and cleanup the year before work will begin. Until that time, Ecology cannot estimate which year your property will be cleaned up.

Q10: My property is on the boundary of the cleanup area. Can it be included in the cleanup?

A10: Ecology is cleaning up yards on properties inside the cleanup area boundary first. When cleanups within the boundary are completed, and as funding allows, we will be testing soil at the boundary. If we find soil contaminated with arsenic above state cleanup levels along the boundary, then the cleanup area boundary may be moved to include additional properties. Additional cleanup activity will depend on the availability of resources. Generally, soil sampling data indicate that the levels of contamination decrease as you move away from the former smelter property.

Q11: My house is outside the cleanup area and I would like to have my soil tested. What are my options?

A11: Because funding for the cleanup is limited, Ecology is not currently sampling properties outside the site boundary. Ecology recommends you use the Soil Sampling Guidance that was developed for the Tacoma Smelter Plume site. You can find information about soil testing on the Tacoma Smelter Plume website here: www.ecy.wa.gov/programs/tcp/sites_brochure/dirt_alert/2011/Soil-samp-bro.html.

Q12: How deep are you digging as a part of the cleanup? Figure 2. Removing Contamination Soil

A12: Ecology is not digging below two feet on any properties outside the area immediately adjacent to the former smelter footprint. Ecology determined this is the depth where most long-term residential and commercial soil contact occurs. Also, because the soil contamination came from smokestack emissions, contamination is found mostly in the top couple feet of soil.

Properties are sampled to determine where contamination is located and how much soil will need to be removed. There is a lot of variability in the amount of contamination between properties. On some properties, Ecology removed up to two feet of soil. On other properties, less soil may be removed. There will be areas where no soil removal is required, especially as the cleanup effort moves further away from the old smelter property.

Q13: Will my whole property be included in the cleanup? Will you dig under my house or driveway?

A13: Soil is only removed from areas where people may come into contact with it. Ecology does not dig underneath houses, permanent sheds and other property buildings, permanent planters, sidewalks, or driveways. Exceptions are sometimes made in cases of sidewalks or damaged driveways that do not survive the removal of soil around them. In such cases, the sidewalks or damaged driveways are replaced during cleanup.

Q14: Will arsenic from the street or other areas that have not been cleaned up recontaminate my property?

A14: Ecology takes steps during cleanup to make sure contamination from nearby properties and streets does not recontaminate a property that is cleaned up. Once the contaminated soil is removed, a geotextile fabric will be placed at the bottom and sides of



Figure 3. Adding New Clean Soil



Figure 4. Restoring Grass and Plants



the dig area. This will help to keep the clean soil in place and keep soil from adjoining properties from moving into cleaned up areas.

In addition, Ecology's contractor is required to follow best management practices during cleanup to reduce the movement of contaminated soil during soil removal. These practices include dust control, load covering, and regular street sweeping with a vacuum truck.

Q15: Will the cleanup remove all the arsenic contamination from my property?

A15: Ecology is only digging up the first couple feet (maximum) of soil on any property during cleanup. Arsenic contamination may remain below these first couple feet. When contaminated soil is removed, a geotextile fabric is placed down before clean soil is replaced on the property. This fabric is an indicator to property owners in the future that any soil below that fabric may have levels of arsenic contamination. Precautions should be taken to limit exposure to contamination in these areas.

Q16: Do I have a responsibility to tell my tenants, or a new owner, about the contamination?

A16: If you are selling your property, you are legally responsible (under RCW 64.06.020 Improved Residential Real Property - Seller's Duty) to disclose all known information about contamination to potential buyers. If you rent your property, you should notify your tenants so they can take healthy actions to reduce their exposure to contaminated soil.

Ecology lets tenants know about the cleanup by mail. Ecology can help you to inform your tenants and explain the health risks. If Ecology is going to clean up your property, it is very important to share information about the cleanup with your tenants as the cleanup work will impact them as well.

At the end of the cleanup, Ecology will give all property owners a copy of the records of work on their property. These records should be kept with the house. If you sell the house, this information should be passed on to the new owner.

Q17: What is happening with the Legion Memorial Golf Course and City parks?

A17: The Legion Memorial Golf Course is being managed through Ecology's Voluntary Cleanup Program. For more information about the golf course cleanup, contact Ecology's Northwest Regional Office at 425-649-7000. You can find more information about the Voluntary Cleanup Program on Ecology's Web site at www.ecy.wa.gov/programs/tcp/vcp/Vcpmain.htm.

Ecology sampled Everett City parks located within the cleanup area in 2011 and 2012. Ecology is working with the City of Everett Parks Department to clean up American Legion Memorial Park in 2015. Wiggums Hollow Park and Viola Oursler Park will likely be cleaned up in 2016 and 2017.

Q18: How do you guarantee the quality of new landscaping installed after cleanup?

A18: Ecology guarantees the contractors work and products for one year after work is completed on your property (when landscape restoration is complete). This includes landscape replacing any plants, shrubs, and grass removed during cleanup. Any work that is not completed according to the project specifications will be repaired within the warranty period.

Ecology will replace any plants, shrubs or grasses that do not survive during the first year after cleanup as a result of poor work by the contractor. Ecology inspects all of the properties once cleanup is completed and one year after cleanup. After the inspection, Ecology will address landscaping issues that remain.

Q19: How is cleanup documented for each property?

A19: When Ecology is finished working on a property, the property owner receives a property record. This record contains all the information about the work done on the property, all soil data and copies of all agreements. A map of the property is also included. This record should be transferred to a new property owner if the property is sold. It gives a complete overview of Ecology’s work and also details if and where contamination remains on the property.

Ecology also provides property records to owners whose properties were sampled, but who declined cleanup and to owners whose property did not need cleanup. This record includes the soil data and Ecology’s documentation that the property owner declined to have Ecology clean up the property.

Q20: How does the cleanup affect our property’s resale value?

A20: Ecology does not know how the cleanup will impact the value of your home. Ecology recommends that you contact a local real estate agent or your local tax assessor’s office to find out more information about your property values and factors that may impact resale values.

We encourage all residents in the cleanup area to participate in the cleanup. Property owners are required by law (RCW 64.06.020) to disclose information about contamination. If you have participated in Ecology’s cleanup, you can use the cleanup notebook to inform potential buyers about the work that was done on your property.

Q21: What happens if my property is damaged during the cleanup?

A21: The contractor hired by Ecology is responsible for any damage to your property that occurs as a result of the cleanup work. Ecology provides oversight of the contractor during the work, and works with each property owner to identify any damage that might have occurred. Ecology will work with the contractor to make sure the damage is repaired.

Q22: How can I find out if past work was done to my property?

A22: You can visit Ecology’s website www.ecy.wa.gov/programs/tcp/sites_brochure/asarco/2010/upland/properties/properties_wider.html to find out if your property has already been cleaned up. You can also call or email project staff. Contact information is on page 1 of this fact sheet.

Follow Our Soil Safety Recommendations if You Live in the Cleanup Area!

If you live in the Everett Smelter Cleanup area, please take the following steps to protect your family from contaminated soil:

- Leave your dirty shoes at the door.
- Plant flowers and plants in raised beds.
- Wear gloves when you work in the yard.
- Keep pets clean.
- Damp dust and mop often.
- Wash your hands after being outside.

If you need this publication in an alternative format call reception at 425-649-7000. Persons with hearing loss, call 711 for Washington Relay Service. Persons with a speech disability, call 877-833-6341.