

**U.S. Environmental Protection Agency
Mid-Atlantic Region
1650 Arch Street
Philadelphia, PA 19103
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Introduction

On August 2, 2007, EPA issued a final decision that established a residential soil lead cleanup level of 650 parts per million (ppm) for the study area surrounding the Exide Technologies smelter. EPA has determined that the 650 ppm cleanup level will ensure long term protection of the residents and the environment in Laureldale Borough and Muhlenberg Township. EPA has prepared a list of frequently asked questions and answers to explain the nature of the lead contamination, the process for developing the cleanup level and a general understanding of the residential cleanups.

Frequently Asked Questions

Properties of Lead

What is lead?

Lead is a bluish-gray metal that occurs naturally throughout the environment. Lead can be found in plants and animals used for food, and in air, water, and soil.

Lead is mined from ore deposits or salvaged from scrap metal in smelters like the Exide facility. The main use of lead is in the manufacture of storage batteries. Other uses include the production of chemicals, paint, gasoline additives, ammunition, and various metal products such as sheet lead, solder, and pipes.

Why is lead not safe?

Lead exposure in infants and young children has been shown to decrease IQ scores, slow physical growth, and cause hearing problems. Young children also are at an increased risk because their bodies easily absorb ingested lead and children are more sensitive than adults to its effects. EPA cleanup levels are developed to be protective for this sensitivity of young children.

Exposure to high levels of lead can cause severe brain and kidney damage. Lead exposure also may increase blood pressure in middle-aged men and can affect the male reproductive system.

Lead exposure is dangerous for unborn children because their bodies can be harmed while they are growing during pregnancy. Exposure to high levels of lead by the mother during pregnancy can cause premature birth, low birth weight, or even miscarriage.

How might exposure to lead occur?

Lead exposure can result from inhaling lead particles suspended in the air, drinking lead-contaminated water, or ingesting foods or soil that contain lead. In older homes built before 1978, children also may be exposed to lead by swallowing chips of paint that may contain lead, or inhaling lead dust found in the home. The concern for families in the Exide study area is that young children can ingest lead from contact with the soil.

What can I do to protect my family?

If you suspect that your house has lead hazards there are several ways in which you can minimize your exposures and risks to lead from any source. Some of these preventive steps include:

- Clean floors, window frames, window sills, and other surfaces weekly. Use a mop, sponge, or paper towel with warm water and a general all-purpose cleaner or a cleaner made specifically for lead. REMEMBER: NEVER MIX AMMONIA AND BLEACH PRODUCTS TOGETHER SINCE THEY CAN FORM A DANGEROUS GAS.
- Thoroughly rinse sponges and mop heads after cleaning dirty or dusty areas.
- Wash children's hands often, especially before they eat and before nap time and bed time.
- Keep play areas clean. Wash bottles, pacifiers, toys, and stuffed animals regularly.
- Keep children from chewing window sills or other painted surfaces.
- Clean or remove shoes before entering your home to avoid tracking in lead from soil.
- Make sure children eat nutritious, low-fat meals high in iron and calcium, such as spinach and dairy products. Children with good diets absorb less lead.

The EPA website: <http://www.epa.gov/lead> contains additional valuable information to reduce your exposure and protect you and your family from lead sources.

Is there a test to tell if I have been exposed to lead?

Recent lead exposure can be identified by measuring the amount of lead present in the blood. Long term exposure to lead also can be identified by using x-rays to measure the amount of lead in bone and teeth, but these methods are not widely available.

Where can I get tested for lead?

Residents who wish to be tested for lead blood levels can go to the Quest Diagnostics Facility. The service is provided free of charge to the public under the Exide program. The facility is located at:

Quest Diagnostics
Fairgrounds Square Mall
Reading, PA 19605
(610) 921-0305

The Cleanup Level, the Risk Assessment, and the Residential Cleanups

How did EPA derive a cleanup level of 650 ppm for residential properties?

The cleanup level was derived from the site-specific risk assessment. The risk assessment evaluates lead exposure risks from various sources such as tap water, air, lead paint, soil, dust, and food. All EPA risk assessments for lead exposure in children use an “uptake” model (called the Integrated Exposure Uptake Biokinetic Model for Lead in Children or IEUBK model) to predict an acceptable soil lead concentration. For the Laureldale Borough and Muhlenberg Township communities, the model calculates 650 ppm as a protective soil lead level for young children.

What is the IEUBK model?

The Integrated Exposure Uptake and Biokinetic (IEUBK) model is a computer model that uses a variety of inputs to calculate the expected blood lead concentration in young children. The model takes into account lead concentrations measured in water, soil, household dust, food and air. The model then calculates a soil level protective for children who live in the area.

Why did it take so long for EPA to issue this decision?

The blood lead study, an important part of the risk assessment, was delayed until we could perform the study at the optimum time recommended by EPA guidance (late summer is considered the best time). Also, early indications were that higher soil lead levels (between 800 ppm and 1200 ppm) would be protective for the Reading area. It took EPA and Exide longer than expected to unravel the technical issues behind those results.

EPA is very confident that the 650 ppm level established under the Consent Order is properly derived and will be protective for resident children.

Does the site-specific risk assessment address odor from the Exide facility?

No. Odor is a separate issue. The Pennsylvania Department of Environmental Protection (PADEP) currently is working with Exide to address the odor. If you have questions regarding odor from the Exide facility please contact Julian Olsson of PADEP at (610) 916-0100.

Initially EPA stated that 500 ppm was protective. Why has the level increased to 650 ppm and what affect does the increase have on my property?

Prior to the completion of the site-specific risk assessment EPA initially used the Pennsylvania Statewide Health Standard of 500 ppm as a preliminary screening level to determine those properties that do not require cleanups. Subsequently, a comprehensive risk assessment was conducted to evaluate the lead exposure risks in the community. The risk assessment derived 650 ppm, which reflects the conditions in the community, as a protective soil lead level for residential properties in Laureldale Borough and Muhlenberg Township. Regardless of the initial 500 ppm screening level, properties with an average soil lead concentration of 650 ppm and less do not pose a health risk and will not require cleanup.

Has the IEUBK model been used before and how does the cleanup level at Exide compare to other lead sites?

The model has been used at several lead sites throughout the country. Contingent on site-specific conditions the model predicts a range of soil lead levels that are protective for the specific community. Below are some of the sites and their respective soil lead cleanup levels predicted by the model:

Site	Location	Soil Clean up Level (ppm)
NL Industries,	Granite City, IL	500
Price Battery	Hamburg, PA	570
East Helena	Helena, MT	620
Palmerton Zinc	Palmerton, PA	650
Bunker Hill	Coeur d'Alene, ID	700
Blackwell Zinc	Blackwell, OK	750
Sherwin Williams	Coffeyville, KS	750
National Zinc Site	Bartlesville, OK	925

How does the cleanup number affect my property?

Residential properties with an average soil lead concentration of 650 ppm and less do not pose a health risk and will not require cleanup. However, residential properties with an average soil lead concentration greater than 650 ppm will require soil cleanup. The cleanup contractors for Exide and the homeowners will be consulted prior to any work being done on their property.

Can I eat the vegetables in my garden?

Yes. As a precaution, EPA recommends that you wash the soil off the vegetables before you eat them. Plants do not normally absorb lead in soil unless the pH level in soil is highly acidic. The soil in the community is neutral to alkaline and does not promote lead absorption.

Now that EPA has established the residential cleanup level, what is going to happen next?

EPA will identify, prioritize and notify the owners of the properties that will require cleanup. The first phase of the residential cleanups will begin in spring 2008. Properties that contain an average soil lead concentration of 650 ppm and less will receive a letter from EPA that states that the soil lead levels on their property do not pose a health risk and therefore, the properties will not require soil cleanup.

How will I know whether my property will require cleanup or not?

Each property will be assessed by EPA. EPA will notify the residents by mail with a determination of whether their properties require cleanup or not. If your property was sampled and you do not receive a determination letter from EPA you should contact Khai Dao, the EPA project manager, at 1 (800) 352-1973, ext. 45467 or at dao.khai@epa.gov.

How many residential properties will require soil cleanup?

At this time, EPA estimates approximately 150 residential properties will require cleanup.

What kind of residential “cleanup” will occur – and what does it involve?

The purpose of the cleanup is to reduce the soil lead concentrations to 650 ppm or lower. Several types of cleanup methods can be implemented to achieve the cleanup level. These methods include, but are not limited to, soil excavation and backfilling of the properties with clean soil, soil tilling, and capping the property with top soil. The properties will be reseeded and the landscape restored to the owners’ satisfaction. Exide and EPA will work with the property owners to determine an appropriate cleanup method.

Does the residential cleanup involve interior cleanup of my house?

Based on extensive sampling in the community, interior cleanup is not necessary. The soil cleanup will sufficiently reduce the overall lead exposure risks that may have resulted from the Exide contamination. Parents of young children, however, are encouraged to get their children tested for lead poisoning, if they live in housing built prior to 1978, given the known potential for children’s exposure to lead paint.

Do I have the option to accept or decline EPA’s soil cleanup recommendation?

Yes. The property owner has the option to decline the soil cleanup; however to minimize any future liability that may be incurred, EPA highly recommends that the property owners accept the soil cleanup.

Does the soil cleanup require the consent of the property owners?

Soil cleanup cannot occur without the consent of the property owners. The property owners will receive a consent form that must be signed and returned to Exide or its contractors before cleanup can be scheduled.

Will I have any input as to how my property will be cleaned up?

EPA and Exide will work with the property owners to determine the most appropriate cleanup method and to ensure that the property will be restored to the owners’ satisfaction.

How long will it take to cleanup the properties?

The duration to complete the cleanups of all the properties is contingent on several factors such as property size, resource availability, and weather. EPA estimates that the residential cleanup can take up to 3 years to complete. However, EPA and Exide will attempt to complete the cleanups as soon as possible.

When will my property be cleaned up?

The residential cleanups will begin in the spring of 2008. The schedule of the cleanups will be priority based. Those properties where children six years old and younger reside

are scheduled to be cleaned up first. The cleanup of the remaining residential properties will be prioritized based on occupancy.

What about developable residential properties that are not currently occupied?

Owners of the developable residential properties who plan to develop the properties in the near future for residential use should contact EPA. EPA and Exide will work with the property owners to determine an appropriate approach to address the soil lead levels.

If my property has not been sampled and I would like my property sampled who do I need to contact?

If you believe that your property is within the study area and it has not been sampled you should contact Khai Dao, the EPA project manager, at 1 (800) 352-1973, ext. 45467 to schedule a sampling event.

What about Bernhart Park?

In 2001, Exide and EPA completed a comprehensive investigation at Bernhart Park. This investigation consisted of soil, water and sediment sampling for lead. Currently, EPA is working with the City of Reading to evaluate the risk and a cleanup proposal for the park.

How will EPA determine a cleanup level that will be applied at Bernhart Park?

EPA will conduct a separate risk assessment for Bernhart Park to determine an appropriate cleanup level that will be protective for recreational use.

In addition to the human health risk assessment will there also be an ecological evaluation at the park?

Yes. An ecological evaluation will be conducted at the park.

Who do I contact if I have any questions?

You should contact Khai Dao, the EPA project manager, at 1 (800) 352-1973, ext. 45467 or at dao.khai@epa.gov.