



PA's Proposed Increase to Cleanup Level for Lead in Soil

Background

Lead is a highly toxic metal that harms the central nervous system. Lead pollution is prevalent in many areas throughout Pennsylvania, due in part to the legacy of industrial facilities, the burning of leaded gasoline, and the use of lead paint.

The Pennsylvania Department of Environmental Protection (the Department) has [proposed a revision](#) to allow for higher concentrations of lead in surface soil (soil that is 0-2 feet under the ground) at nonresidential properties, including those used for industrial and commercial purposes. This concentration is known as the direct contact numeric value. Examples of affected properties include office buildings, commercial facilities, and manufacturing sites. Pennsylvania requires property owners undertaking a cleanup of contaminated property to meet these public health standards for allowable concentrations of harmful contaminants like lead.

The Department is proposing to increase this value for lead in nonresidential surface soil after a cleanup from 1,000 parts per million (ppm) to 2,500 ppm - an increase of two-and-a-half times.

What is Remediation?

A property owner can remediate contaminated property through several actions. One common remediation method is removing the soils—digging them out and disposing of them elsewhere. Another method is installing materials such as plastic liners or asphalt caps to protect people from exposure.

Cleanup levels are important in determining whether a property is required to take action. A concentration above a cleanup level generally indicates the need for action, whereas a concentration below a level may not necessarily require action.



Soil sampling for lead testing. Photo Credit: Rensselaer Polytechnic Institute

Why This Matters Now

The ongoing [remedial investigation of the former Philadelphia oil refinery](#) provides a useful example of how the Department's proposed changes to the lead cleanup level matters.

At the former refinery's Schuylkill River Tank Farm, the proposed increase in the cleanup level from 1,000 ppm (the current value) to 2,500 ppm would decrease the number of surface soil exceedances (measurements above the cleanup level) from 54 to 11. At the Girard Point South Tank Field, the number of exceedances would decrease from 55 to 11. This would result in a reduction of the soil that would have to be addressed during remediation.



AOI 9 Schuylkill River Tank Farm / Sunoco Remediation Areas of Interest. Source: Evergreen Resources Group, LLC

Issues with Proposed Increased Lead Levels

The Department's proposal is not based on current science because the cleanup level is not protective of a fetus of a pregnant worker at the site. The concentration of lead allowed in the blood of a fetus is an important factor in determining the acceptable concentration of lead in soil.

The Department used an incorrect target blood concentration of 10 micrograms per deciliter ($\mu\text{g}/\text{dL}$) which is twice the reference value that the Centers for Disease Control and Prevention uses (5 $\mu\text{g}/\text{dL}$) to address lead in children. "CDC now uses a blood lead reference value of 5 micrograms per deciliter to identify children with blood lead levels that are much higher than most children's levels." The Department's proposal to use the 10 $\mu\text{g}/\text{dL}$ concentration would not adequately protect public health.



The shuttered Philadelphia Energy Solutions refinery site in South Philadelphia. Source: NBC10 Philadelphia

The Department believes this proposed cleanup level is irrelevant because a soil-to-groundwater numeric value will apply instead. The soil-to-groundwater numeric value is a concentration designed to protect groundwater that could be affected by contaminated soil.

However, the regulations only make the soil-to-groundwater numeric value applicable if specific requirements are met. In addition, the Department's claim is flawed because that soil-to-groundwater numeric value would apply only if the lead concentration in the soil is less than that soil-to-groundwater numeric value.



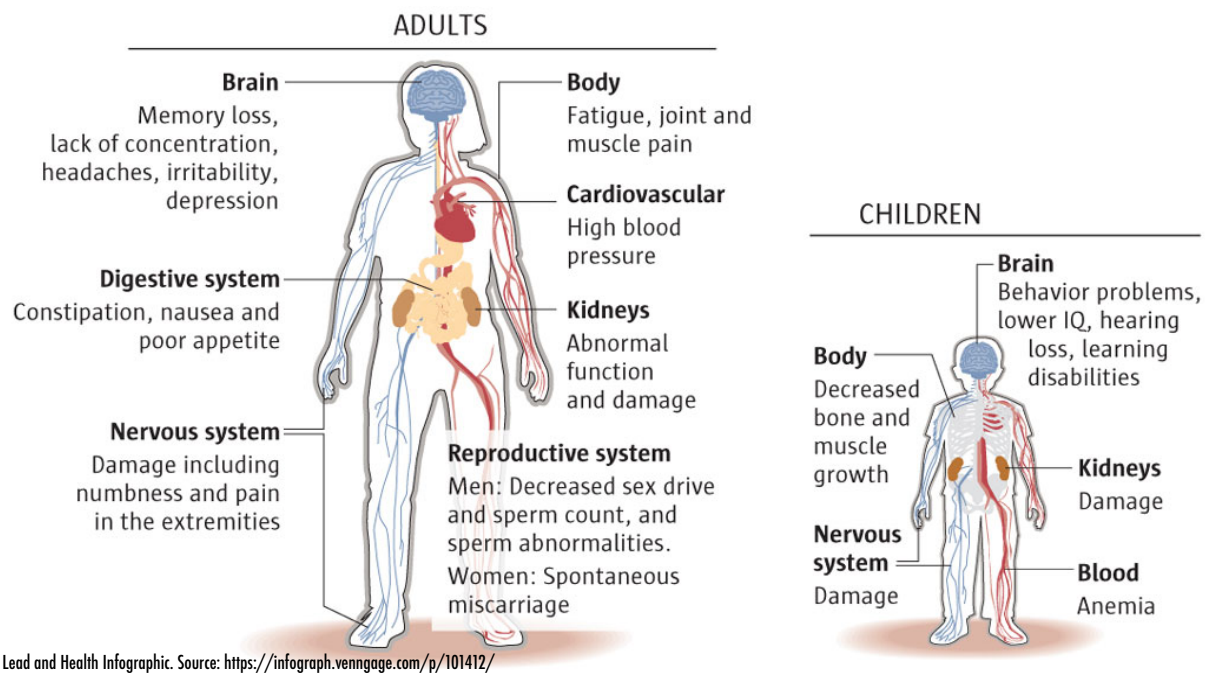
Lead remediation by excavation in Australia. Photo Credit: Turfmate Editor, AU

If the lead concentration is higher, a property owner would have an incentive to develop a site-specific cleanup standard, which is allowed under the law. In the case of lead, a site-specific standard would be around 2,500 ppm if the property owner uses the same incorrect target blood concentration that the Department used.

This happened at the Philadelphia oil refinery in 2015, when the Department approved a high standard of 2,240 ppm.



Refinery Areas of Interest in need of remediation. Image Credit : John Duchneskie, Phila Inquirer Staff Artist



Lead and Health

Lead is prevalent in many areas throughout Pennsylvania, due in part to the historical legacy of industrial facilities, the burning of leaded gasoline, and the use of lead paint.

Lead is a heavy metal that can bioaccumulate in your body. This means that when it is absorbed into the body by ingestion or inhalation it will be stored in the body's cells. Lead in the body is distributed to the brain, liver, kidney and bones. It is stored over time in the teeth and bones where it accumulates.

Both the World Health Organization and US Centers for Disease Control and Prevention (CDC) concludes that there is NO safe level of exposure to lead that is known to be without harmful effects. However, lead exposure is preventable.

Lead exposure in children is especially dangerous and can seriously harm a child's health. According to the CDC, numerous studies have shown the adverse effects of lead on developing children such as:

- Damage to the brain and nervous system
- Slowed growth and development
- Underperformance in school and lower IQ
- Decreased ability to pay attention
- Learning and behavior problems
- Hearing and speech problems

Get Involved

The public should persuade the Department not to proceed with the proposed weakening of the direct contact numeric value for lead in nonresidential soil. Comments to PA DEP are due April 30th, 2020 to RegComments@pa.gov.

For more information or if you need help submitting comments please contact:

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