

July 25, 2001

Gilberto Irizarry
On-Scene Coordinator
US Environmental Protection Agency, Region 1 New England
Office of Site Remediation and Restoration
One Congress Street, Suite 1100 (HBR)
Boston, MA 02114-2023

Dear Mr. Irizarry;

This letter is in response to your verbal request that the Connecticut Department of Public Health (CT DPH) provide a public health evaluation regarding the need to address hazardous soil contamination at properties in the Newhall Street residential neighborhood in Hamden, Connecticut.

EPA has conducted surface soil sampling (top six inches) at numerous properties in a residential neighborhood in Hamden (Newhall Street residential neighborhood) to investigate the nature and extent of surface soil contamination from landfill waste present in the neighborhood. In April 2001, before EPA began sampling soil in the residential area, CT DPH worked with EPA to develop health-based Action levels[®] for the contaminants of potential concern in Hamden; lead, arsenic and benzo(a)pyrene. The Action levels[®] were developed considering factors such as existing state and federal regulatory levels, potential exposures to adults and children, published toxicity values and health effects reported in the scientific literature. The Action levels[®] were developed with the understanding that EPA would address soil contamination through time-critical removal actions at properties with exceedances of an Action level[®] (provided that the contamination is landfill-related).

For lead in surface soil, CT DPH selected 1200 mg/kg as the Action level[®] or level that indicates that action should be taken to address the contamination in the short term. EPA's soil sample results indicate that there are a number of properties with lead in soil greater than 1200 mg/kg. Based on EPA's sampling, lead appears to be the primary contaminant of concern.

As mentioned above, the following factors were considered by CT DPH in selecting 1200 mg/kg as a level above which, action should be taken to reduce exposure to lead in surface soil.

- \$ EPA has recently released new standards to protect children from hazards posed by lead (January 5, 2001 Federal Register, pp. 1206-1240). Under the new standards, EPA considers lead to be a hazard if there is greater than an average of 1200 mg/kg in bare soil in a yard. In addition, 1200 mg/kg lead in residential soil is a CT DPH guideline used by local health departments to indicate when lead abatement should be pursued.
- \$ CT DEP has a residential cleanup standard (CT RSR) for lead in soil of 500 mg/kg. The action level of 1200 mg/kg used in Hamden is approximately two times higher than the CT RSR. The CT RSR was developed to be protective for young children with frequent and intense contact with soil over the long-term. Modeling done to develop the CT RSR for lead indicates that virtually any child exposed in a residential situation to lead in soil at 500 mg/kg would not have elevated blood lead levels because of the soil exposure. At a lead level of roughly twice the CT RSR in a residential setting, with frequent and intense soil contact, there is a possibility that some children could have elevated blood lead levels from the soil exposure. This possibility supports the need for action to be taken to reduce exposure in the short-term at lead levels greater than 1200 mg/kg.
- \$ Many of the properties sampled in Hamden have young children who either reside in the home or visit often. The elevated lead is present in the top six inches of soil, which is more readily accessible for contact than deeper soils. In addition, many of the yards have one or more areas of bare soil, which increases the potential for exposure to occur. At all the properties, adult residents engage in yard work of one kind or another such as mowing the lawn and vegetable/flower gardening. These factors indicate that a real potential for young children and adults to be exposed to lead in soil in their yards exists at these homes.
- \$ Exposure to lead can be harmful to both adults and children. The main target for lead toxicity is the nervous system, both in adults and in children. Long-term exposure of adults to lead in the workplace has resulted in decreased performance in some tests that measure functions of the nervous system. Lead exposure may also cause weakness in fingers, wrists, or ankles and anemia. Some studies in humans have suggested that lead exposure may increase blood pressure, but the evidence is inconclusive. At high levels of exposure, lead can severely damage the brain and kidneys in adults or children.

It is easier for children to receive greater exposure to lead than adults. Children have more hand-to-mouth contact than adults, which can result in greater exposure. Unlike adults, children can be exposed to lead in the womb if their mothers have lead in their bodies. Finally, compared to adults, a larger proportion of the amount of lead a child swallows will enter the blood. In addition to greater exposures, children's developing bodies are more sensitive than adults to the health effects from lead exposure. A child exposed to high levels of lead can develop blood anemia, kidney damage, muscle weakness, and brain damage. Lower levels of exposure can result in adverse effects on mental and physical development and intelligence.

EPA sampling results indicate that there are a number of residential properties with lead in excess of 1200 mg/kg in surface soil. CT DPH believes that the potential exists for adults and children to be exposed to lead in surface soil in their yards. Because of the potential health effects associated with exposure to lead, CT DPH believes that action should be taken in the short term to reduce exposures at the properties with lead in surface soil at levels exceeding the action level[®] of 1200 mg/kg. CT DPH supports EPA's plan to conduct time-critical removal actions this summer (2001) on properties with site-related lead levels greater than 1200 mg/kg.

Please contact me at 860-509-7748 if you have questions about the information contained in this letter.

Sincerely,

Margaret L. Harvey, MPH
Epidemiologist