



State of Idaho
Department of Environmental Quality
1410 North Hilton
Boise, Idaho 83706



U.S. Environmental Protection Agency
Region 10
1200 Sixth Avenue, Suite 900
Seattle, Washington 98101

June 7, 2012

MEMORANDUM

SUBJECT: Agency Policy for Residential and Community Mean Soil Lead Levels for Operable Unit 3, Bunker Hill Superfund Site

FROM:  
Bill Ryan, USEPA and Rob Hanson, Idaho DEQ

TO: File

Since the adoption and implementation of the Institution Controls Program (ICP) in the Basin (Operable Unit 3, OU3) portion of the Bunker Hill Superfund Site (Site) in 2007, the Panhandle Health District (PHD) has encountered some difficulties in implementing the program due to the lack of a community-wide soil lead remedial action objective (RAO) or performance standard for OU3. The purpose of this memorandum is to establish a community-wide soil lead level that can be used by PHD to guide disposal decisions that help achieve the site-wide objective of reducing the exposures of young children and pregnant women to lead-contaminated soils.

The exterior soil lead cleanup level of 1,000 parts per million (ppm) selected in the OU1 ROD was predicted to result in a community mean soil lead concentration between 200 and 300 ppm within the populated areas in the Bunker Hill Box (Box). Complementary to the actions selected in the OU1 ROD, the OU2 ROD established a requirement that future residential development in undeveloped, non-populated areas of the Box would need to have an average residential yard concentration less than 350 ppm, with no property exceeding 1,000 ppm lead and the development needing to be effectively isolated from areas with soil lead levels exceeding 1,000 ppm. In addition, a 350 ppm community-wide mean soil lead performance standard was established in the Statement of Work for the Upstream Mining Group (UMG) for cleanup work in OU1. This 350 ppm level established in the OU2 ROD and the 350 ppm performance standard developed pursuant to the consent decree between the agencies and UMG was established to ensure that the blood lead RAO¹ would be met. This value is based on modeling conducted at the time the OU1 ROD was being developed. The modeling predicted that soil and dust lead levels could average 350 milligrams per kilogram (mg/kg)² and yield a probability distribution in which 95 percent of children would have blood lead levels below 10 micrograms per deciliter (µg/dL). Since that time, PHD has used a 350 ppm soil lead concentration as a

¹¹ The 1991 Record of Decision (ROD) for the Residential Soils OU (OU1) of the Site established a remedial action objective (RAO) to decrease the exposure to lead-contaminated residential soils such that 95 percent or more of the children in the area would have blood lead levels of 10 µg/dL or less than 1 percent would have blood lead levels greater than 15 µg/dL.

² ppm and mg/kg are used interchangeably, as they represent the same unit of measure (concentration by mass).

criterion for disposing of wastes generated by projects regulated under the ICP in the Box. This is a way to help ensure that the community-wide soil lead levels are kept below 350 mg/kg.

EPA issued the OU3 ROD in 2002, which included a remedial strategy for the Basin communities and residential areas outside of OU1. Applicable EPA guidance for lead cleanups changed between the OU1 and OU3 RODs to focus more on the exposures at an individual property. A result was that a community-wide mean lead soil concentration was not developed as a cleanup goal for OU3.

In consultation with EPA, DEQ tasked TerraGraphics to analyze the available soils and house dust data and evaluate options for establishing a community mean soil lead level for the Basin that would be protective, consistent with the OU3 ROD, and provide greater consistency in implementing the ICP site-wide. The TerraGraphics analysis is documented in the November 16, 2010 Draft Assessment of Residential and Community Mean Soil Exposure Indices in Operable Unit 3, Bunker Hill Superfund Site: Revision 1. The findings of that effort were inconclusive in determining a community lead soil mean level that would be protective for human health in the long term. In order to determine a community soil lead level, a reliable estimate of post-remedial house dust lead concentrations is needed. Currently, there is not an approach available to estimate such a level. The only way to determine a protective community soil level is to understand house dust lead levels and the distribution of soil lead levels at the completion of property remediation in the Basin communities. As an interim measure, the memo recommends using the 350 mg/kg as a disposal criterion for use by the ICP in the Basin. This would provide consistency with the Box and help further reduce lead levels in community soils throughout the Basin.

This memorandum documents EPA's and DEQ's concurrence with this recommendation and establishes the 350 ppm soil lead level as a criterion for disposal as part of ICP requirements for excavation projects in the Basin. The rationale for doing this is to provide consistency in ICP implementation between OU1 and OU3 and to provide a long-term effect of reducing community soil lead levels in the Basin. Establishment of this disposal criterion does not create a new cleanup level for OU3, but does provide a tool for PHD to employ to help reduce soil lead levels and blood-lead levels in OU3 that is consistent with current practices in the Box.

Recently, the Centers for Disease Control and Prevention elected to use a childhood blood-lead level reference value based on the 97.5th percentile of the population blood-lead level in children aged 1–5 years (currently 5 µg/dL) to identify children living or staying for long periods in environments that expose them to lead hazards. This represents a change from the blood-lead level of concern used in developing the RODs for the site (10 µg/dL). EPA is currently evaluating the ramifications of this change on past and future cleanup activities at the Bunker Hill site. The policy established with this memo may be subject to change based on that review.