



# **Overview of EPA'S Office of Land and Emergency Management Activities to Reduce Lead Exposure**

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# Office of Land and Emergency Management (OLEM)

- OLEM implements several statutory programs that address lead contamination, including
  - Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)
  - Resource Conservation and Recovery Act (RCRA)
    - Corrective action
  - Brownfields

# Overview of CERCLA Process

- Removal authority can be used
- Listing on the National Priorities List
- Remedial Investigation/Feasibility Study (RI/FS)
  - Baseline risk assessment
- Record of Decision (ROD)
- Remedial Action
- Completion
- Five year reviews

# OLEM Lead Risk Assessment

- OLEM has been using the Integrated Exposure and Uptake Bio-Kinetic (IEUBK) Model since the early 1990's
  - It was reviewed by the SAB in 1991
- The IEUBK Model has been used to:
  - Set screening levels to determine when further investigation is warranted;
  - Set site-specific cleanup goals.



## OLEM Contributions to Federal Lead Strategy

- Reduce childhood exposures to lead in soils through removal, remedial and corrective actions at contaminated sites.
- Update the Superfund Lead-Contaminated Residential Sites Handbook to include current scientific consensus and public health recommendations about lead exposure.



## Additional Efforts to Support Federal Lead Strategy

- Updating approaches to modeling lead exposures from contact with contaminated soils, and other environmental media;
- Working with states and tribes to support their efforts to address lead in soil, and
- Leveraging authorities across EPA programs for an integrated approach to address multiple lead exposure pathways from disparate sources.

# Investigating Superfund Cleanups and Children's Blood Lead Levels

- Researchers: Heather Klemick (NCEE), Henry Mason (ORISE Fellow in NCEE) and Karen Sullivan (OLEM/OCPA)
- Objective: Identify the average effect of Superfund site cleanups on children's exposure to lead
  - Previous studies have focused on the most severe cases at specific mining and smelter sites (Murgueytio et al. 1996– mining site in MO; Lanphear et. al 2003 - smelter site in Midvale, UT; von Lindern et al. 2003– Bunker Hill mining site in ID) or on outcomes other than lead poisoning (Currie, Greenstone, Moretti 2011 – birth defects)
  - This study covers multiple regions, exposure pathways and levels of Pb contamination

# Investigating Superfund Cleanups and Children's Blood Lead Levels – Cont.

- Methods: “Quasi-experimental” statistical approach
  - Use individual level blood lead measurements spanning two decades obtained from public health departments in six states (MA, MI, MO, NC, RI and WI)
  - Mimic experimental design by identifying control group(s)
    - Children farther from Pb-contaminated sites
    - Children farther from Pb-contaminated sites with similar characteristics as treatment group (matching)
    - Children near non-Pb sites
  - Control for other indicators of Pb exposure
    - Age of home, neighborhood socioeconomic characteristics, other potentially contaminated sites not in the Superfund program, etc.
- Results: Coming soon—expected summer/fall 2018!