Superfund
Residential Lead Sites Handbook

Office of Superfund Remediation and Technology Innovation
U.S. Environmental Protection Agency
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Disclaimer

The document provides technical guidance to U.S. Environmental Protection Agency (EPA) staff for sites contaminated with lead (Pb). The document is designed to implement national policy regarding the characterization and cleanups of lead contaminated sites. This document does not substitute for EPA's statutes or regulations, nor is it a regulation. Thus, it cannot impose legally binding requirements on EPA, states, or the regulated community, and may not apply to a specific situation based upon the circumstances. EPA recognizes that there may be certain cases where site information and professional judgment may provide sufficient rationale to deviate from the recommendations described herein. EPA may change this document in the future, as appropriate. Any decisions regarding a specific situation are expected to be made based on site-specific factors considering EPA guidance, applicable statutes, and the regulations.

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List of Acronyms

AALM	All Ages Lead Model
ABA	Absolute Bioavailability
ACCLPP	Advisory Committee on Childhood Lead Poisoning Prevention
ALM	Adult Lead Methodology
ARAR	Applicable or Relevant and Appropriate Requirement
ASAOC	Administrative Settlement Agreement and Order on Consent
ATSDR	Agency for Toxic Substances and Disease Registry
AWA	Area Weighted Average
bgs	Below Ground Surface
BLL	Blood Lead Level
BMP	Best Management Practice
BRAC	Base Realignment and Closure
BTV	Background Threshold Value
CAA	Clean Air Act
CAG	Community Advisory Group
CD	Consent Decree
CDC	U.S. Centers for Disease Control and Prevention
CEC	Cation Exchange Capacity
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CIC	Community Involvement Coordinator
CIP	Community Involvement Plan
cm	Centimeters
COPC	Contaminant of Potential Concern
CSM	Conceptual Site Model
CWA	Clean Water Act
dL	Deciliter
DOD	U.S. Department of Defense
DQO	Data Quality Objective
DU	Decision Unit
EC	Engineering Control
EDX	Energy Dispersive X-Ray
EJ	Environmental Justice
EJCPS	Environmental Justice Collaborative Problem Solving

EJSCREEN	Environmental Justice Screening
EMPA	Electron Micro Probe Analysis
EO	Executive Order
EPA	U.S. Environmental Protection Agency
EPC	Exposure Point Concentration
ESD	Explanation of Significant Differences
EU	Exposure Unit
FDA	U.S. Food and Drug Administration
FLAA	Flame Atomic Absorption
FOSET	Finding of Suitability to Early Transfer
FOST	Finding of Suitability to Transfer
FP-XRF	Field-Portable X-Ray Fluorescence
FYR	Five-Year Review
g/day	Grams per Day
GFAA	Graphite Furnace Atomic Absorption
GIS	Geographic Information System
GSD	Geometric Standard Deviation
HASP	Health and Safety Plan
HDOH	Hawaii Department of Health
HEPA	High-Efficiency Particulate Air
HHRA	Human Health Risk Assessment
HIPAA	Health Insurance Portability and Accountability Act
HRS	Hazard Ranking System
HUD	U.S. Department of Housing and Urban Development
IC	Institutional Control
ICIAP	Institutional Control Implementation and Assurance Plan
ICP-AES	Inductively Coupled Plasma-Atomic Emission Spectrometry
ICP-MS	Inductively Coupled Plasma-Mass Spectrometry
ICP-QMS	Inductively Coupled Plasma-Quadrupole Mass Spectrometry
ICP-SFMS	Inductively Coupled Plasma-Sector-Field-Mass Spectrometry
ICP-TOF-MS	Inductively Coupled Plasma-Time-of-Flight-Mass Spectrometry
ICS	Incremental Composite Sampling
IEUBK	Integrated Exposure Uptake Biokinetic Model
IQ	Intelligence Quotient
ISM	Incremental Sampling Methodology
ITRC	Interstate Technology and Regulatory Council

IVBA	*In Vitro* Bioaccessibility
kg	Kilogram
LBP	Lead-Based Paint
LCF	Linear Combination Fitting
LCR	Lead and Copper Rule
LEP	Limited English Proficiency
MCS	Media Cleanup Standard
mg/g	Milligram per Gram
mg/kg	Milligram per Kilogram
µg	Microgram
µg PB/g	Micrograms of Lead per Gram
µm	Micrometer
mm	Millimeter
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NDAA	National Defense Authorization Act
NEJAC	National Environmental Justice Advisory Council
NFRAP	No Further Remedial Action Planned
NHANES	National Health and Nutrition Examination Survey
NIST	National Institute of standards and Technology
NPL	National Priorities List
NTCRA	Non-Time-Critical Removal Action
NTE	Not to Exceed
O&M	Operation and Maintenance
OLEM	Office of Land and Emergency Management
ORC	Office of Regional Counsel
ORD	Office of Research and Development
OSC	On-Scene Coordinator
OSRTI	Office of Superfund Remediation and Technology Innovation
OSWER	Office of Solid Waste and Emergency Response (Now OLEM)
PAH	Polycyclic Aromatic Hydrocarbon
Pb	Lead
PbB	Blood Lead Concentration
PCB	Polychlorinated Biphenyl
PEHSU	Pediatric Environmental Health Specialty Unit
PIME	Planning, Implementing, Maintaining, and Enforcing
POLREP	Pollution Report

ppm	Parts per Million
PRG	Preliminary Remediation Goal
PRP	Potentially Responsible Party
PRSC	Post Removal Site Control
QAPP	Quality Assurance Project Plan
RA	Remedial Action
RAL	Remedial Action Level
RAO	Remedial Action Objective
RBA	Relative Bioavailability
RCRA	Resource Conservation and Recovery Act
RfD	Reference Dose
RI/FS	Remedial Investigation/Feasibility Study
RML	Removal Management Level
ROD	Record of Decision
RPM	Remedial Project Manager
RRP	Renovation, Repair, and Painting
RSL	Regional Screening Level
SALT	Strategy, Action, and Learning, and Supported by Tools
SAM	Site Assessment Manager
SAP	Sampling and Analysis Plan
SAR	Sodium Absorption Ratio
SARA	Superfund Amendments and Reauthorization Act
SDWA	Safe Drinking Water Act
SEM	Scanning Electron Microscopy
soilSHOP	Soil Screening, Health, Outreach, and Partnership
SOP	Standard Operating Procedure
SRM	Standard Reference Material
SRP	Superfund Redevelopment Program
STL	Superfund Technical Liaison
SU	Sampling Unit
SVOC	Semi-Volatile Organic Compound
TAG	Technical Assistance Grant
TANA	Technical Assistance Needs Assessment
TAP	Technical Assistance Plan
TASC	Technical Assistance Services for Communities
TBC	To Be Considered

TCL	Target Compound List
TCLP	Toxicity Characteristic Leaching Procedure
TCRA	Time-Critical Removal Action
TEM	Transmission Electron Microscopy
TI-MS	Thermal Ionization-Mass Spectrometry
TKN	Total Kjeldahl Nitrogen
TRW	Technical Review Workgroup
TSCA	Toxic Substances Control Act
UAO	Unilateral Administrative Order
UCL	Upper Confidence Limit
UECA	Uniform Environmental Covenants Act
U.S.	United States
USGS	United States Geological Survey
UU/UE	Unlimited Use/Unrestricted Exposure
VOC	Volatile Organic Compound
WDX	Wavelength Dispersive X-ray Analysis
WIC	Women, Infants, and Children
WIIN	Water Infrastructure Improvements for the Nation
XANES	Fitting X-Ray Absorption Near Edge Structure
XAS	X-Ray Absorption Spectroscopy
XRF	X-Ray Fluorescence
<	Less Than
>	Greater Than