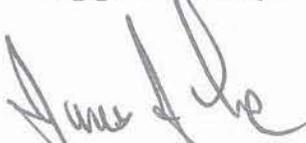


**LEAD HAZARD
MANAGEMENT PLAN**

**U.S. ARMY GARRISON
FORT JACKSON**

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1. GENERAL PROVISIONS

1.1. PURPOSE.

The Lead Hazard Management Plan (LHMP) provides guidance and provisions to ensure that Fort Jackson's service members, their families, tenants, employees, and contractors are provided a healthy living and working environment that is protected from overexposure to lead. It will also:

- a. Identify and control lead hazards from lead contaminated paint, dust and soil, and other sources in federal public facilities, target housing and child-occupied facilities constructed prior to 1978.
- b. Establish safe and proper procedures which are in compliance with pertinent regulatory requirements regarding lead-based paint (LBP) handling activities.
- c. Reduce exposure to and prevent lead contamination in accordance with (IAW) applicable Federal laws and Army regulations.

1.2. POLICY.

In order to comply with the Environmental Protection Agency (EPA) final regulations concerning lead hazard management, Fort Jackson (FJ) has implemented a policy to identify and manage all LBP materials and structures within its area of responsibility. The Army policy is to proactively assess renovation and demolition projects that have the potential for lead contamination in pre-1978 Federal public, industrial and child-occupied facilities. The plan is to (1) systematically eliminate all lead hazards from the FJ installation, and (2) prevent lead exposure by using the proper interim controls. Management of lead hazards requires a major effort by the Directorate of Public Works (DPW), Installation Safety Office (ISO), Preventive Medicine (PM), Staff Judge Advocate (SJA), and Public Affairs and Information Office (PAIO).

1.3. BACKGROUND.

For many years, lead, a naturally occurring mineral, was used extensively in paints and coatings for housing units, vessels and steel structures because of its ability to improve strength, appearance, and resistance to atmospheric and marine deterioration. Lead is a heavy metal, which is toxic to human beings. LBP and coatings used in construction applications, subsequently, were found to pose health hazards. Lead can be ingested through paint chips from deteriorated paint, and can be inhaled through dust created when maintenance or removal work is done. Common sources of lead exposure are lead in paint; lead in air (industrial emissions, auto emissions); lead dust on toys, pets, horizontal surfaces; lead in food (solder in cans, lead contaminated food); and lead in water (soldered joints, lead pipes).

Lead is an occupational hazard for employees and also could be a hazard for family members. Children under the age of six (6) and unborn children are especially sensitive to lead exposures. Lead can cause damage to the nervous system and other adverse health effects. Because of these

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health hazards, in the late 1970's the Consumer Product Safety Commission banned the use of lead-based paints and coatings in residential and public buildings. Housing constructed prior to 1978 is considered to have lead-based paint (LBP). However, if properly managed and maintained, lead-based paint does not pose a health risk.

To protect against this risk, the US EPA issued the Lead Renovation, Repair and Painting (RRP) Rule which requires the use of lead-safe work practices and other interim controls aimed at preventing lead poisoning. Under the rule, beginning April 22, 2010, it is mandatory that anyone who performs modifications, restorations, repairs, surface repainting (including sanding, scraping, abrasive blasting etc.), weatherization and preventive maintenance activities that may potentially require the disturbance of lead-base painted surfaces receive EPA Lead Renovator training. The requirement applies to renovators, painters, carpenters, maintenance workers, plumbers, electricians, HVAC mechanics and contractor who renovate, demolish and/or repair pre-1978 built child-occupied facilities. This requirement does pertain to all Federal public facilities and structures.

1.4. SCOPE.

The LHMP limits its scope to the management of lead containing materials, and applies to all personnel, commands, directorates, activities, tenants, contractors, and organizations located or conducting operations at Fort Jackson and Weston Lake Recreation Area. This plan also defines procedures and protocols used in the identification, handling, removal, and disposal of lead contaminated materials. Responsibilities have been delegated to individuals and/or organizations as identified throughout the various sections of the plan. Although this plan is limited to lead hazard management issues, additional environmental protection management plans (i.e., Hazardous Substance Management Plan (HSMP), Spill Prevention Control and Countermeasure (SPCC) Plan, Installation Spill Contingency Plan (ISCP), etc.) have been developed to address related environmental compliance, management and contingency procedures. These plans have been referenced as appropriate to ensure consistency between plans.

1.5. ACRONYMS.

The following acronyms and abbreviations are used throughout this document:

AR – Army Regulation

ASTM – American Society for Testing and Materials

BRAC – Base Realignment and Closure

CERCLA – Comprehensive Environmental Response, Compensation and Liability Act, 1980

CFR - Code of Federal Regulations

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DOD - Department of Defense

DODD – Department of Defense Directive

DPW – Directorate of Public Works

EMB – Environmental Management Branch

EPA- United States Environmental Protection Agency.

FJ – Fort Jackson

FJFD – Fort Jackson Fire Department

FOIA – Freedom of Information Act

HMTA – Hazardous Materials Transportation Act

LBP – Lead-Based Paint

NRC – National Response Center

OSHA – Occupational Safety and Health Administration

PPE - Personal Protective Equipment

PPM – Parts per Million

RCRA – Resource Conservation and Recovery Act

SCDHEC – South Carolina Department of Health and Environmental Control

TSCA – Toxic Substance Control Act

1.6. DEFINITIONS.

Unless otherwise noted, the following definitions are taken and/or adopted from 40 CFR 761.3.

Abatement: Any measure or sets of measures designed to permanently eliminate lead-based paint hazards or LBP. Abatement includes, but is not limited to:

- a. The removal of LBP and lead-contaminated dust, permanent enclosure or encapsulation of LBP, the replacement of lead-painted surfaces or fixtures, and the removal or covering of lead contaminated soil; and

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- b. All preparation, cleanup, disposal, and post-abatement clearance testing activities associated with such measures.

Note: Abatement does not include renovation, remodeling, landscaping or other activities, when such activities are not designed to permanently eliminate LBP hazards, but, instead are designed to repair, restore, or remodel a given structure or dwelling, even though these activities may incidentally result in a reduction or elimination of LBP hazards.

Accessible surface: Any protruding interior or exterior surface, such as an interior windowsill, that a young child can mouth or chew.

Accredited laboratory: A laboratory that has been evaluated and approved by the National Lead Laboratory Accreditation Program (NLLAP), to perform environmental lead measurement or analysis for paint chip, dust and soil, usually over a specified period of time.

Accredited training program: A training program that has been accredited by the Environmental Protection Agency (EPA) pursuant to 745.225 of 40 Code of Federal Regulations (CFR) to provide training for individuals engaged in LBP activities.

Bare soil: Soil not covered with grass, sod some other similar vegetation, or paving, including the sand in sandboxes.

Certified abatement worker: An individual who has been trained by an accredited training program, as certified by EPA pursuant to 745.226 of 40 CFR to perform abatements.

Certified inspector: An individual who has been trained by an accredited training program, as certified by EPA pursuant to 745.226 of 40 CFR to conduct inspections. A certified inspector also samples for the presence of lead in dust and soil for the purposes of abatement clearance testing.

Certified project designer: An individual who has been trained by an accredited training program as certified by EPA pursuant to 745.226 of 40 CFR to prepare abatement project designs, occupant protection plans, and abatement reports.

Certified supervisor: An individual who has been trained by an accredited training program as certified by EPA pursuant to 745.226 of 40 CFR to supervise, conduct abatements, and prepare occupant protection plans and abatement reports. A certified supervisor is required for each abatement project and shall be onsite during all work site preparation and during the post-abatement cleanup of work areas. At all other times when abatement activities are being conducted, the certified supervisor shall be onsite or available by telephone, pager or answering service and able to be present at the work site in no more than 2 hours.

Chalking: Photo-oxidation of paint-binders (usually due to weathering) that causes a powder to form on the surface of the material.

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Chewable surface: Any protruding interior or exterior surface, such as an interior windowsill, that a young child can mouth or chew.

Child-occupied facilities: Child-occupied facilities are buildings, or portions of buildings, constructed prior to 1978, visited regularly by the same child, six years of age or under, on at least two different days within any week, provided that each day's visit lasts at least three hours and the combined weekly visit lasts at least six hours and the combined annual visits last at least

60 hours. Child-occupied facilities may include, but are not limited to; day-care centers, pre-schools, kindergarten classrooms, and family child care homes.

Cleaning: The process of using a HEPA vacuum and wet cleaning agents to remove leaded dust; the process includes the removal of bulk debris from the work area.

Common area: A room or area that is accessible to all residents in a community (e.g., hallways or lobbies); in general, any area not kept locked.

Composite sample: A single sample made up of individual sub-samples. Analysis of a composite sample produces the arithmetic mean of all sub-samples.

Containment: A process to protect workers and the environment by controlling exposures to the lead-contaminated dust and debris created during abatement.

Deteriorated lead-based paint: Any lead-based paint coating on a damaged or deteriorated surface or fixture, or any interior or exterior lead-based paint that is peeling, chipping, blistering, flaking, worn, chalking, alligating, cracking, or otherwise becoming separated from the substrate.

Dust removal: A form of interim control that involves initial cleaning followed by periodic monitoring and re-cleaning, as needed. Depending on the severity of lead-based paint hazards, dust removal may be the primary activity or just one element of a broader control effort.

Elevated Blood Lead (EBL), child: Excessive absorption of lead that is a confirmed concentration of lead in whole blood of greater than or equal to 20 ug/dl (micrograms of lead per deciliter of whole blood) for a single venous test or of 15-19 ug/dl in two consecutive tests taken 3-4 months apart.

Emergency Renovation Operation: Renovation activities, such as operations necessitated by non-routine failures of equipment that were not planned but result from a sudden, unexpected event that, if not immediately attended to, presents a safety or public health hazard, or threatens equipment and/or property with significant damage.

Encapsulation: Encapsulation is the application of an encapsulant that forms a barrier between lead-based paint and the environment using a liquid-applied coating (with or without

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reinforcement materials) or an adhesively bonded covering material. The durability relies on adhesion and the integrity of the existing bonds between multiple layers of paint and between the paint and the substrate. This is formulated to be elastic, long-lasting and resilient to cracking, peeling, algae, and fungus so as to prevent chalking, flaking, lead-containing substances from becoming part of house dust or accessible to children.

Enclosure: The use of rigid, durable construction materials that are mechanically fastened to the substrate to act as a barrier between the LBP and the environment.

Family Child Care (FCC) home: An authorized family housing unit, other than the child's home, in which a family member provides childcare to one or more unrelated children on a regular basis.

Friction surface: Any interior or exterior surface, such as a window or stair treads, subject to abrasion or friction.

Hazardous waste: By-product of society that can pose a substantial or potential hazard to human health or the environment when improperly managed. It is a waste that possesses at least one of four characteristics (ignitability, corrosivity, reactivity, and toxicity), or meets the regulatory criteria of a listed hazardous waste.

Heat gun: A device capable of heating LBP causing it to separate from the substrate. For lead hazard control work, the heat stream leaving the gun should not exceed 1,100 °F.

High-Efficiency Particulate Air (HEPA) filters: A filter capable of removing particles of 0.3 microns or larger from air at 99.97 percent or greater efficiency.

Impact surface: An interior or exterior surface (such as surfaces on doors) subject to damage by repeated impact or contact.

In-place management: An interim control process that reduces excessive exposures to lead and protect occupants from lead poisoning. See Interim controls.

Inspection: A surface by surface investigation to determine the presence of LBP and the provision of a report explaining the results of the investigation.

Interim controls: A set of measures designed to temporarily reduce human exposure or likely exposure to LBP hazards, including specialized cleaning, repairs, maintenance, painting, temporary containment, ongoing monitoring of LBP hazards or potential hazards, and the establishment and operation of management and resident education programs. Monitoring conducted by owners, and reevaluations, conducted by professionals, are integral elements of interim control. Interim controls include dust removal; paint film stabilization; treatment of friction and impact surfaces; installation of soil coverings, such as grass or sod; and land-use controls.

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Investigation [pertaining to Elevated Blood lead (EBL) case]: The processes of determining the source of lead exposure for a child or other resident with elevated blood lead level. Investigation consists of administration of a questionnaire, comprehensive environmental sampling, case management, and other measures as directed by the installation medical authority. Full public health intervention, environmental investigation and community health nursing case management begins with a venous blood lead level of ≥ 20 ug/dl. All capillary blood lead samples of ≥ 20 ug/dL must be confirmed with a venous draw to establish a lead poisoning case.

Lead: Lead includes metallic lead and inorganic or organic compounds of lead.

Lead-based paint (LBP): Any paint, varnish, shellac, or other surface coating that contains lead equal to or in excess of 1.0 mg/cm^2 as measured by an x-ray fluorescence analyzer or laboratory analysis, or greater than 0.5% by weight by laboratory analysis.

Lead-based paint activities: In the case of target housing and child-occupied facilities, inspection, risk assessment, and abatement as defined in EPA regulation.

Lead-based paint hazard: Any condition that causes exposure to lead from lead-contaminated dust, lead-contaminated soil, or lead-contaminated paint that is deteriorated or present on accessible surfaces, friction surfaces, or impact surfaces that would result in adverse human health effects as identified in TSCA section 403. Housing and Urban Development (HUD) and EPA refer to lead hazards identified through risk assessments as LBP hazards.

Lead-based paint inspection: A surface-by-surface investigation to determine the presence and location of LBP and a report of the results.

Lead hazard screen: A type of risk assessment performed only in buildings in good condition using fewer samples but more stringent evaluation criteria (standards) to determine lead hazards.

Lead-contaminated dust: Surface dust in residential dwellings, or child-occupied facilities that contains an area or mass concentration of lead at or in excess of levels (floors = >100 micrograms (ug) per square feet; windowsills = $> 250 \text{ ug/ft}^2$; window wells/trough = $>400 \text{ ug/ft}^2$) identified by EPA.

Lead-contaminated soil: Bare soil on residential real property and on the property of a child-occupied facility that contains lead at or in excess of the levels identified by EPA.

Living area: Any area of a residential dwelling use by one or more children age 6 and under including but limited to, living rooms, kitchen areas, dens, play rooms, and children's bedrooms.

Monitoring: Surveillance to determine (1) that known or suspected lead-based paint is not deteriorating, (2) that LBP hazard controls, such as paint stabilization, enclosure, or encapsulation have not failed, (3) that structural problems do not threaten the integrity of hazard controls or of known or suspected LBP, and (4) that dust lead levels have not risen above

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applicable standards. There are two types of monitoring activities; visual surveys by property owners and reevaluations by certified risk assessors.

Multi-family dwelling: A structure that contains more than one separate residential dwelling unit, which is used or occupied, in whole or in part, as the home or residence of one or more persons.

National Lead Laboratory Accreditation Program (NLLAP): A laboratory recognized by EPA pursuant to Section 405(b) of TSCA as being capable of performing analyses for lead compounds in paint chip, dust and soil samples.

Ongoing monitoring inspections: In lead hazard control work, the combination of a visual survey performed by property owners and reevaluation (visual assessment & collection of environmental samples) performed by a certified risk assessor to determine if a previously implemented LBP hazard control measure is still effective and if the dwelling remains lead-safe.

Permissible Exposure Limit: The employer shall assure that no employee is exposed to lead at concentrations greater than fifty micrograms per cubic meter of air (50 ug/m^3) averaged over an 8-hour period. If an employee is exposed to lead for more than 8 hours in any work-day the employees' allowable exposure, as a time weighted average (TWA) for that day, shall be reduced according to the following formula: Allowable employee exposure (in ug/m^3) = 400 divided by hours worked in the day.

Permanently covered soil: Soil, which has been separated from human contact by the placement of a barrier, consisting of solid, relatively impermeable materials, such as pavement or concrete. Grass, mulch, and other landscaping materials are not considered permanent covering.

Reduction: Measures designed to reduce or eliminate human exposure to LBP hazards through methods including interim controls and abatement.

Renovation: Renovation means the modification of any existing structure, or portions thereof that results in the disturbance of painted surfaces, unless that activity is performed as part of abatement. The term renovation includes (but is not limited to): the removal or modification of painted surfaces or painted components (e.g., modification of painted doors, surface preparation activity such as sanding, scraping, or other such activities that may generate paint dust); the removal of large structures (e.g., walls, ceiling, large surface re-plastering, major re-plumbing); and window replacement.

Renovator: Any person who performs a renovation for compensation.

Replacement: A strategy of abatement that entails removing components such as windows, doors, and trim that have lead-painted surfaces and installing new or de-lead components free of lead paint.

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Residential dwelling: (1) A detached single family dwelling unit, including attached structures such as porches and stoops; or (2) a single family dwelling unit in a structure that contains more than one separate residential dwelling unit, which is used or occupied, or intended to be used or occupied, in whole or in part, as the home or residence of one or more persons.

Resource Conservation and Recovery Act (RCRA): The Federal statute that regulates the generation, treatment, storage, disposal, recycling, or transportation of solid and hazardous waste.

Risk assessment: (1) An on-site investigation to determine the existence, nature, severity, and location of LBP hazards in residential dwellings, including information gathering regarding the age and history of the housing and occupancy by children under age of 6 years; visual inspection; limited wipe sampling or other environmental sampling techniques; other activity as may be appropriate; and (2) the provision of a report by the individual or the firm conducting the risk assessment, explaining the results of the investigation and options for reducing LBP hazards.

Target facilities: Government owned or leased facilities constructed prior to 1978 which are used regularly by children six years old or younger or by pregnant women as family housing, child development centers, family child care homes, schools, playgrounds, and similar facilities. Facilities constructed or included in whole-house revitalization or similar major rehabilitation projects since 1978 are constructed free of LBP if all paint coatings were removed or replaced.

Target housing: Any housing constructed prior to 1978, except housing for elderly or persons with disabilities (unless any one or more children age 6 years or under resides or is expected to reside in such housing for the elderly or persons with disabilities) or any 0-bedroom dwelling.

Toxicity Characteristic Leaching Procedure (TCLP): A laboratory test to determine if excessive levels of lead or other hazardous materials could leach from a sample into groundwater; usually used to determine if waste is hazardous based on its toxicity characteristics. It is a required test under RCRA to determine the toxicity and mobility of a waste's hazardous constituents.

Visual inspection for clearance testing: The visual examination of a residential dwelling or a child-occupied facility following abatement to determine whether or not the abatement has been successfully completed.

Work area: An area designated by a supervisor within which lead paint abatement services are performed and within which lead dust and debris are contained IAW applicable regulations.

X-Ray Fluorescence Spectrum Analyzer (XRF): An instrument that measures lead concentration in milligrams per square centimeter (mg/cm^2) in paint and other materials by using the principle of x-ray fluorescence.

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1.7. APPLICABLE REGULATIONS / REFERENCES.

This section only lists those regulations most applicable to the management of LBP. Refer to the FJ Hazardous Substance Management Plan (HSMP) for applicable hazardous waste requirements.

1.7.1. Environmental Protection Agency (EPA) Regulations.

- a. 40 CFR Part 745, Lead; Identification of Dangerous Levels of Lead.
- b. 40 CFR Part 745, Lead; Requirements for Hazard Education before Renovation of Target Housing.
- c. 40 CFR Part 745, Lead; Requirements for Lead-Based Paint Activities in Target Housing and Child-occupied Facilities.
- d. 40 CFR Part 745, Lead; Requirements for Disclosure of Known Lead-Based Paint and/or Lead-Based Paint Hazards in Housing.
- e. EPA Guidance on Residential Lead-Based Paint, Lead-Contaminated Dust and Lead-Contaminated Soil.
- f. EPA memorandum "Regulatory Status of Waste Generated by Contractors and Residents from Lead-Based Paint Activities Conducted in Households".

1.7.2. Occupational Safety and Health Administration (OSHA) Regulations.

- a. 29 CFR 1910.134, Respiratory Protection.
<http://63.234.227.130/pls/oshaweb/owadisp.show>
- b. 29 CFR 1926.62, Lead Exposure in Construction.
<http://63.234.227.130/dea/lookback/lead-construction-review.html>
- c. 29 CFR 1910.1025, General Industry Standard for Lead.
- d. 29 CFR 1910.1200, Hazard Communication Standard.

1.7.3. U.S. Department of Housing and Urban Development (HUD).

- a. Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing, June 95; with revised Chapter 7, 1997 version.
- b. 24 CFR Part 35, Lead; Requirements for Disclosure of Known Lead-Based Paint Hazards in Housing, 6 Mar 96.
- c. Guidance on the Lead-Based Paint Disclosure Rule, 21 Aug 96.
- d. Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing, June 1995.

1.7.4. Army and Department of Defense Requirement.

- a. AR 200-1, Environmental Protection and Enhancement, 13 December 2007.
http://www.army.mil/usapa/epubs/pdf/r200_1.pdf