



**U. S. ARMY GARRISON HAWAII
LEAD HAZARD MANAGEMENT PLAN**

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CHAPTER 1

INTRODUCTION

1. 1 Purpose.

a. An installation lead hazard management program has been established by the Directorate of Public Works (DPW) to ensure the health and safety of soldiers and civilians within U. S. Army Garrison Hawaii (USAG-HI). This program is designed to establish management and organizational responsibilities and procedures to ensure personnel in Army facilities are not exposed to hazards from lead contaminated paint, dust, and soil and includes an annually updated Lead Hazard Management Plan (LHMP). This plan should be referred to whenever a problem is encountered dealing with a lead hazard.

b. The purpose of this plan is to implement a management program for identification, risk assessment, worker safety, worker training and certification, community outreach and education, childhood lead poisoning prevention, evaluating, managing, and abating Lead Based Paint (LBP) hazards in accordance with AR 420-70. The lead management program is a coordinated effort between the DPW, medical, resource management, safety, legal, public affairs, and other appropriate offices.

c. It is an Army requirement to provide a lead hazard-free living and working environment for soldiers, their families, and the civilian staff. Army Policy is to manage lead-based paint (LBP) in place as long as safe and practicable. Emphasis on mitigation and management of lead hazards will be placed on facilities frequented by children.

1. 2 Background on Lead.

a. Lead is a naturally occurring wonder metal that had widespread use throughout our environment. Since ancient times, lead has been valued for its properties and the properties it furnishes when combined with other materials. Lead has been used in gasoline, paints, stained or lead crystal glass, bullets, shotgun pellets, x-ray/RFI shields, batteries, solder, flashing, fishing sinkers, ceramic utensils, mini-blinds, and many other products.

b. Exposure to lead contaminants has been documented to have come from dust, soil, water, food and even the air we breath. We all have small amounts of lead in our bodies that have accumulated since our birth. People working on installation firing ranges, construction demolition sites, and battery shops are exposed to lead. Workers in civilian industries are also exposed to lead in battery manufacturing, and scrap metal recovery. Piping and soldering compounds containing lead used in drinking water systems have also been viewed as health threats when lead leaches into drinking water. Lead exposures are possible from crafts and hobbies such as stained glass, casting fishing sinkers or bullets, and children who may ingest deteriorated LBP chips or inhale LBP dust in housing units built before 1978. Soil contaminated with lead is found near homes where deteriorated or peeling exterior LBP has accumulated and leached into the soil.

c. The toxic effects of lead on human beings have been known for many years, but the contamination problem is only now being fully realized. Lead in the body can cause serious damage to the central and peripheral nervous system, the cardiovascular system, and the kidneys. Exposure to high concentrations of lead can cause retardation, convulsions, coma, and sometimes death. Children are especially susceptible and vulnerable to lead poisoning.

d. Basically there are three federal agencies implementing regulations controlling various aspects of lead contamination. The Department of Housing and Urban Development (HUD) has developed comprehensive technical guidelines on testing, abatement, clean up and disposal of LBP in public housing. The Occupational Health and Safety Administration (OSHA) focuses primarily on worker protection. Finally, the Environmental Protection Agency (EPA) overlaps HUD guidance with aspects dealing with disclosure and disposal regulations.

1.3 Objectives.

This LHMP is designed to provide a comprehensive program which stresses risk assessment, on-going monitoring, interim controls, and abatement, as prescribed by applicable laws and regulations. The objectives of the plan are to:

a. Comply with applicable Army, Federal, State, and Local laws and regulations. The State of Hawaii, and Cities & Counties of Hawaii regulations are in accordance with (IAW) Federal laws and regulations. Army policy is to follow the more stringent law and regulation. Applicable laws and regulations are listed in Appendix A.

b. Identify, control, and abate sources of lead and lead hazards.

c. Educate personnel about lead hazards and methods of control.

d. Provide technical guidance on protection of children from lead exposure.

e. Provide technical guidance to protect workers from overexposure to lead.

CHAPTER 2

LEAD HAZARD MANAGEMENT TEAM

2.1 General.

a. The USAG-HI has established a Lead Hazard Management Team (LHMT). This is an informal board chaired by the DPW Environmental Office. The LHMT will meet periodically to discuss lead hazard management issues. Representatives from the following offices will make up the LHMT board: Directorate of Public Works; Preventive Medicine; Installation Safety Office; Staff Judge Advocate; Public Affairs Office, Directorate of Community Activities Child Development Division.

b. The LHMT will be responsible for developing the program and enforcing its operation. The team will be responsible for the following:

- 1). Develop the Installation LHMP including project documentation and programming for funds.
- 2). Evaluate Plan effectiveness through periodic meetings.
- 3). Develop public awareness and worker education programs to communicate the risk associated with exposure to lead hazards, ways to prevent or control exposures, and corrective actions to prevent, manage, and abate hazards.
- 4). Receive and review updates from Preventive Medicine on blood lead screening program.
- 5). Coordinate activities between organizations for the control and elimination of lead containing materials and products.
- 6). Review reports on Lead Toxicity Investigations (LTIs)
- 7). Identify and appoint key individuals to serve on LTIs.
- 8). Direct modifications or changes to the Plan when necessary to improve operations or to comply with new regulatory requirements.

2.1 Responsibilities.

a. The USAG-HI Commander's Policy for Lead Hazard Management

The USAG-HI Commander shall:

(1) Ensure funding for lead hazard abatement actions required because of an imminent health hazard.

(2) Appoint a Lead Hazard Management Coordinator (LHMC).

(3) Ensure that all target housing and child-occupied facilities are adequately surveyed for the presence of lead hazards and disclosure of investigations is properly disseminated.

(4) Ensure disclosure of information on LBP and/or LBP hazards to housing residents assigned to quarters built prior to 1978.

(5) Ensure dissemination of EPA pamphlet “Protect Your Family from Lead in Your Home” and signed occupant acknowledgement prior to maintenance and repair work in housing facilities built before 1978 (Appendix D).

(6) Ensure adequate accommodations for tenants displaced by abatement operations.

(7) Update real property records to reflect the results of the LBP surveys.

(8) Develop management actions for all target housing and child-occupied facilities where lead hazards exist.

(9) Provide training to inspectors who will supervise contractor performance and inspect housing units and child-occupied facilities.

(10) Provide the Public Affairs Office with information, as appropriate, for keeping the installation residents and employees informed of LBP management activities.

b. DPW Environmental Division (APVG-GWV)

The APVG-GWV shall:

(1) Serve as the Lead Hazard Management Coordinator (LHMC) who shall:

(a) Be the point of contact for lead issues on USAG-HI installations.

(b) Maintain on file the applicable current policies, procedures and regulations that involve LBP management.

(c) Review and revise the LHMP as needed to reflect the changes of regulatory requirements.

(d) Steer the LHMT and chair the periodic meetings held semi-annually or as needed.

(e) Program EPR Fundable Environmental Projects

(f) Assist, as needed, in Lead Toxicity Investigations (LTIs).

(g) Be the Officer In Charge of the USAG-HI Lead Emergency Response Team.

(h) Consult with DCA to develop and provide the information on Day Care Centers and Providers.

(2) Maintain and/or identify location of all records for the program, including lead surveys, risk assessments, and abatement actions.

(3) Coordinate completion of initial surveys of family housing and priority facilities to determine lead hazards.

(4) Coordinate completion of surveys of facilities prior to renovation, demolition, maintenance, and other DPW activities that may disturb lead-containing materials.

(5) Check for and keep record of proper characterization, transportation and disposal of lead contaminated demolition debris.

(6) Review contractor work plan submittals, to include: training certifications, respirator fit test records, and medical monitoring.

(7) File and retain for a period of at least three years the signed acknowledgement forms generated from maintenance, repair or renovation work in family housing units where more than 2 square feet of paint is disturbed

(8) Coordinate closely with DPW Real Property Planning Branch (APVG-GWE-M) and Work Management Branch (APVG-GWB-W) to ensure LBP locations is properly annotated in real property records. Consolidate and provide LBP data as they become available to APVG-GWE-M.

c. DPW Support Division (APVG-GWS)

The APVG-GWS shall:

(1) Ensure that dust control methods be applied when painted surfaces are disturbed. The control methods include manual scrapping, wet sanding, or dustless sanding (sander with High Efficiency Particulate Air vacuum attached). Power-tool sanding shall not be used.

(2) Ensure that maintenance personnel are properly trained and equipped to work with activities involving any cutting, drilling and sanding of painted surfaces according to OSHA 29 CFR 1926.62 regulation.

(3) Ensure that family housing residents are notified prior to maintenance, repair or renovation activities that disrupt 2 square feet or more of painted surfaces, and that a written

acknowledgement is received. Signed acknowledgement forms are to be submitted to DPW Environmental for filing (Appendix D).

d. DPW Engineering Plans and Services Division (APVG-GWE)

The APVG-GWE shall:

(1) Provide adequate training to designers and contract inspectors so that they are competent in developing and reviewing LBP specifications and monitoring the LBP-related work.

(2) Ensure that project planners and designers have clearly indicated to contractors that LBP hazards may exist for on-post non-family housing facilities built before 1978.

(3) Ensure that LBP surveys for facilities to be repaired, renovated or demolished are completed during the design phase. Prioritize LBP surveys to be done by the APVG-GWE-D Environmental Inspection Team. The team is contracted utilizing APVG-GWE-D O&M funds.

(4) Ensure that specifications for LBP and lead-containing paint are current and in compliance with applicable EPA and OSHA regulations.

(5) Monitor lead-paint related contracts to ensure contractor's compliance. Ensure that required airborne lead monitoring and waste characterization prior to disposal is performed IAW regulations.

(6) Ensure that construction contractor clean up all visible paint dust or chips from project areas.

(7) Ensure dissemination of information required by EPA for residential construction projects notifying occupants of facilities and adjacent facilities of lead hazards prior to start of work and receipt of written acknowledgement. Signed acknowledgement forms are to be submitted to DPW Environmental for filing (Appendix D).

(8) Ensure that construction contractors provide all copies of hazardous waste manifests to APVG-GWV.

(9) DPW Real Property Planning Branch (APVG-GWE-M) shall:

(a) Maintain listing of USAG-HI facilities. Facility information such as physical description, number of square feet, present use, future plans, facility age and capital improvement information.

(b) Populate tables of real property records with lead hazard data provided by APVG-GWV.

e. Installation Environmental Staff Judge Advocate (SJA)

The SJA shall:

- (1) Reviewing all activities involving lead hazards, as requested, to ensure regulatory compliance and advise on legal conflicts.
- (2) Identify new regulations that require LBP criteria, standards, performance specifications and compliance schedules.
- (3) Accompany and assist in response to inspections conducted by Federal, State, and Local regulatory agencies and the results of these inspections.
- (4) Serve as a member of the USAG-HI LHMT

f. Installation Safety Office (ISO)

The ISO shall:

- (1) Implement the Respiratory Protection Program for USAG-HI.
- (2) Upon notification by DPW of an abatement project by in-house team, ISO inspects the work site and verifies that appropriate safety and OSHA warning signs and a list of emergency telephone numbers are posted. In addition, the construction work site will be inspected daily during operations to assure compliance with applicable regulations.
- (3) Monitor employee training programs and coordinate with the Civilian Personnel Office to ensure that employees are adequately trained to fulfil their assigned duties.
- (4) When furnished by DPW, will review construction/renovation designs for applicability to OSHA Regulations and local and state laws.
- (5) Review safety briefing developed by DPW for Army personnel involved in lead related operations.
- (6) Participate in Lead Toxicity Investigations as requested by LHMT.
- (7) Recommend appropriate hazardous-duty pay/severity allowance for employees involved in lead hazard abatement or maintenance projects.
- (8) Serve as a member of the USAG-HI LHMT.

g. Public Affairs Office (PAO)

The PAO shall:

(1) Inform the community members on the purposes and activities of the lead hazard program.

(2) Release pertinent information to the public regarding the lead program.

(3) Serve as a member of the USAG-HI LHMT.

h. DPW Family Housing Division Facility Maintenance Office (APVG-GWZ-D)

The APVG-GWZ-D shall:

(1) Ensure that LBP surveys for all on-post military dependent family housing unit (built before 1978) to be repaired, renovated or demolished are completed during the design phase.

(2) Conduct LBP surveys that arise from internal audits, complaints, or as requested by occupants of units. Prioritize LBP surveys to be done by the Family Housing funded Environmental Inspection team.

(3) Disseminate information to residents as requested by occupants and advise them of the test results and any planned action if lead hazards are detected.

(4) Provide the Known-Lead Hazards Disclosure Package to include do's and don'ts dealing with lead to residents during the check-in process. Provide LBP test results from previous testing in the disclosure package if available. Obtain and file for at least 3 years from date of occupancy a signed acknowledgement that residents have received disclosure information and EPA pamphlet.

(5) Place families with children and pregnant women in units built after 1978 whenever possible. Before placing a family into quarters, be sure to conduct a final walk-through of the unit to ensure no visible paint chips and paint is in good condition (no peeling/chipping paint, also, ensure window sills and troughs are free of dust accumulation).

(6) Brief the housing occupants that self-help activities that involve any disturbance of known LBP surfaces shall not be allowed.

(7) Ensure that residents are properly notified and sign a written acknowledgement of receiving the EPA pamphlet "Protect Your Family from Lead in Your Home" prior to any maintenance, repair or renovation work where 2 square feet or more is disrupted. Signed acknowledgement forms are to be submitted to DPW Environmental for filing (Appendix D).

(8) Assist, as requested, in Lead Toxicity Investigations.

(9) In conjunction with the LHMC, designate "safe" units as temporary living quarters for tenants displaced by abatement operations.

(10) Assist the LHMT in developing the installation public awareness and education program.

i. Preventive Medicine (PREVMED)

The PREVMED shall:

(1) Monitor Lead Toxicity Investigations (LTIs) (Appendix E). If the blood screening program identifies a child with an elevated blood level (>10.0 micrograms/deciliter) an LTI will be conducted to identify the source of exposure. Upon completion of the investigation, PREVMED will present a written report to the LHMT summarizing the team's findings and actions. Immediately and directly notify DPW Family Housing of the findings, IAW governed patient confidentiality.

(2) Oversee the development of the installation blood lead-screening program. The lead screening program will include periodic blood lead testing for children under the age of 7, the lead exposure questionnaire, and a database to track blood lead levels.

(3) Conduct air sampling to assess worker exposure, efficiency of work methods and reducing lead in dust generation.

(4) Develop and implement lead screening program and lead exposure questionnaire. Assist pediatrics with implementation of the program during routine infant examinations.

(5) Maintain a database of lead exposure records.

(6) Statistically evaluate blood lead screening data that show a continued increase from average levels.

(7) Develop an educational pamphlet. This information should be provided to all families currently residing in installation housing, new installation arrivals (including childless couples), and parents of newborns.

(8) In conjunction with the PAO, develop the installation awareness and education plan.

(9) Serve as a member of the USAG-HI LHMT.

j. Directorate of Community Activities Child Development Division (CDD)

The CDD shall:

(1) Coordinate staff LBP training requirements and training with the LHMT.

(2) Develop informational package with the LHMT.

(3) Assess paint conditions visually every week and never allow any activities that may disturb LBP to occur while children are in the building.

(4) Maintain an active database identifying residents participating in at-home childcare services.

(5) Ensure that at-home childcare units have been properly surveyed for lead hazards, and that all identified hazards have been rectified prior to allowing childcare services to proceed.

(6) Ensure that applicants for at-home childcare services are properly trained in good house keeping measures and informed about potential lead hazards.

(7) Conduct quarterly inspections of each authorized childcare unit to ensure that good house keeping measures are in effect. Units identified as non-complying will be placed on probation and trained in proper procedures. These units will then be monitored bi-weekly to assure compliance.

(8) Prohibit and warn children not to chew or rest their mouth on painted windowsills, playground equipment and other painted surfaces.

(9) Keep surfaces reachable to children free of dust accumulation since soil dust may contain lead. Wet mopping or wiping with detergent are effective methods to control lead poisoning from lead dust.

(10) Submit work order requests annually to reassess the conditions of LBP for childcare centers and at-home childcare units built before 1978.

(11) Serve as a member of the USAG-HI LHMT.

CHAPTER 3

LEAD HAZARD MANAGEMENT PLAN

The LHMT, under direction of the LHMC (or team leader), should initiate the steps required to create the Lead Hazard Management Plan (LHMP). The LHMP is a formal written document that must be prepared to identify and control exposures to lead hazards from lead-contaminated paint, dust, and soil.

- a. Integrate with other installation programs such as environmental compliance, Whole Neighborhood Revitalization, and EPR Report or DD Form 1391.
- b. Plan and document to ensure regulatory compliance and to provide a historical record for legal liability and future project planning.
- c. Elements of the plan, maintained by appropriate LHMT member, include:
 - 1). Identification and prioritization of target housing and child-occupied facilities. **APVG-GWZ-D**
 - 2). Summaries of construction and maintenance histories taken from real property records, contract documents, and other local sources. **APVG-GWZ-D/GWV/GWE-M**
 - 3). Summaries of child and worker blood level screening and testing data. **PREVMED**
 - 4). Identification of similar groupings of facilities for risk assessment and interim controls. (See HUD Guidelines, Chapter 5) **APVG-GWZ-D**
 - 5). Results of previous paint inspections. **APVG-GWZ-D/GWV**
 - 6). Results of risk assessments identifying lead hazards. **APVG-GWZ-D/GWV**
 - 7). Recommended interim controls and abatement actions based on results of risk assessments. **APVG-GWZ-D/GWV**
 - 8). Records of actions taken for children with EBLs. **PREVMED/ APVG-GWZ-D**
 - 9). Records of training and certification of personnel involved in LBP activities. **APVG-GWV**
 - 10). Medical surveillance records of personnel involved in LBP activities. **PREVMED**
 - 11). Results of clearance and on-going monitoring inspections showing recommended changes to interim control procedures and abatement plans. **APVG-GWZ-D/GWV**

12). Abatement project list, including Whole-Neighborhood Revitalization and other major repair projects. **APVG-GWZ-D/GWV**

13). Records of solid waste characterization and disposal actions. **APVG-GWZ-D/GWV**

14). Copies of contract documents/reports specifically cited in the lead management plan. **APVG-GWZ-D/GWV**

15). Identification of sources of funding and planning, programming, budgeting, and execution plans. **APVG-GWZ-D/GWV**

16). List of projects submitted to higher headquarters through the EPR report. **APVG-GWV**

CHAPTER 4

LEAD HAZARD ASSESSMENTS

4.1 Lead Hazard Assessment for Non-Housing Facilities.

a. Childcare or daycare centers built before 1978 were initially assessed for lead hazards in 1996. Currently, there are no known facilities built prior to 1978 being used as childcare center.

b. Comprehensive testing of the installation's industrial facilities built before 1978 is very costly and time-consuming. In addition, the risk of lead exposure to individuals in the industrial facilities is relatively low because projects involving disturbance of painted surfaces are conducted in a manner safe to occupants and bystanders. Therefore, the installation's industrial buildings will be managed through proper maintenance of painted surfaces rather than testing and monitoring.

4.2 Lead Hazard Assessment for Targeted Housing Facilities (built before 1978).

a. DPW targeted housing inspections are currently performed by the LBP inspection team funded by Family Housing. Comprehensive lead assessments are performed for all targeted housing units on Army installations. Lead risk assessments will be conducted according to the following priority: CDD sanctioned at-home childcare unit, units with children under 6 years of age, units occupied by pregnant women, units whose residents request assessment, and the remaining targeted units.

b. There are three major types of assessments for determining if a LBP hazard exists in a family dwelling unit:

(1) Lead Hazard Screen. This evaluation is an expedited lead identification step and will be performed only in facilities constructed after 1960 and before 1978 by a certified LBP Risk Assessor. Visual inspections, samples of deteriorated surfaces, and wipe samples are collected and analyzed. EPA Lead Hazard Screen criteria are utilized to determine if a more thorough investigation is warranted. If any of the below listed screen criteria is exceeded, a full LBP risk assessment ensues.

Table 4.1 EPA Hazard Criteria

Evaluation Method	Surface ($\mu\text{g}/\text{ft}^2$)		
	Floors	Interior Window Sills	Window Troughs
Lead Hazard Screen	25	125	N/A
Risk Assessment	40	250	N/A
Reevaluation	40	250	N/A
Clearance	40	250	800

(2) LBP Inspection. A LBP Inspection is a thorough surface-by-surface investigation to determine the presence of LBP and the provision of a report explaining the results of the

investigation. The LBP Inspection must be conducted by a certified LBP Inspector upon a dwelling's failure of the Lead Hazard Screen or for facilities built before 1960. A LBP Inspection will include the following information.

(a) Obtaining background information pertaining to the construction and painting history of the dwelling.

(b) Developing a sampling plan for the dwelling(s).

(c) Collection and analyzing paint chip samples for each required component.

(d) Collecting outside soil samples from around the perimeter of the dwelling and out into the yard, especially where children play.

(e) Developing a report summarizing the findings of the LBP Inspection.

(3) LBP Risk Assessment. A LBP Risk Assessment is an on-site investigation to determine and report the existence, nature, severity, and location of LBP hazards in residential dwellings. A certified Risk Assessor will accumulate the previously documented screen and/or inspection information and make recommendations for minimizing (in-place management) or eliminating (abatement) any hazards identified.

4.3 LBP Identification at the Work Site.

a. All maintenance and shop personnel are required to have a minimum of 2 to 16 hours, LBP Hazard Awareness Training or the Lead Abatement Workers Training. Maintenance and Shop Work Leaders and Supervisors are required to have the 32-hour Lead Abatement for Supervisors and Contractors course.

b. When suspect LBP is encountered during routine repairs or partial demolitions' that will disturb a painted surface, it is the work estimator's responsibility to request a sample of the paint be taken and analyzed for lead content. Sampling requests are to be completed at least two weeks prior to actual work commencement.

(1) If the results indicate that LBP is present, the work estimator prior to execution of the intended work will draft a work plan. The LHMC will be notified of the conditions and be required to review and accept the work plan prior to beginning work.

(2) If the results indicate that LBP is not present, an exposure assessment for each specific job classification will need to be conducted.

(a) Supervisors will categorize each specific job according to type of job with a thorough description of equipment and materials, controls utilized, crew size, job responsibilities, and operations and maintenance procedures for each activity in which visible dust is emitted.

(b) PREVMED will be notified to perform air monitoring of the different job classifications.

(c) Workers will be required to don proper protective equipment (PPE) until notified by PREVMED that personnel exposure has not exceeded OSHA action levels ($30 \mu\text{g}/\text{m}^3$).

(d) The objective is to obtain a “Negative Exposure Assessment (NEA)” for each specific job classification, from PREVMED. The NEA will allow workers to proceed with scaled down PPE and without air monitoring for a period of one year after issuance of NEA.

(e) At expiration of the one-year period for each respective NEA, a new monitoring cycle with PPE requirements and air monitoring will again need to be completed by PREVMED.

c. Supervisors are required to maintain a file for each specific job classification NEA utilized. The files will be made available to the LHMT upon request.

CHAPTER 5

ELEVATED BLOOD LEVEL INVESTIGATION

5.1 Background.

a. In 1970, the U.S. Surgeon General issued a statement entitled “Medical Aspects of Childhood Lead Poisoning”, which drew considerable attention to lead hazards and the potential impacts to children as being the most susceptible to lead hazards. Childhood lead poisoning has been labeled by the Centers for Disease Control and Prevention as “the number one environmental health hazard facing American children.”

b. The current threshold of concern for American children under 6 years is 10 µg/dL.

c. The greatest concern to children being overexposed to lead hazards are changes in the brain that cause reductions in IQ and attention span, reading and learning disabilities, hyperactivity, and behavioral problems.

d. Because lead has been successfully removed from gasoline and food, it is believed that the foremost source of lead in the environments of young children is house paint applied before the 1978 ban on LBP for residential and consumer use. Closely associated sources of lead are lead-contaminated dust and soil.

5.2 Responsibilities.

a. Preventive Medicine (PREVMED)

(1) Oversee the development of the installation blood lead-screening program. The lead screening program will include periodic blood lead testing for children under the age of 7, the lead exposure questionnaire (Appendix B), and a database to track blood lead levels.

(2) Monitor Lead Toxicity Investigations (LTIs). If the blood screening program identifies a child with an elevated blood level (>10.0 micrograms/deciliter) an LTI will be conducted to identify the source of exposure.

(3) Upon completion of the investigation, PREVMED will present a written report to the LHMT summarizing the team's findings and recommended actions. Immediately and directly notify DPW Family Housing of the findings, IAW governed patient confidentiality.

(4) Establish and maintain database for LTIs.

b. DPW Family Housing Division Facility Maintenance Office (APVG-GWZ-D)

(1) Request a LBP risk assessment of the housing unit and the daycare center where the EBL child lives and attends to be expedited by the LBP Inspection Team.

(2) Forward a copy of lead risk assessment to PREVMED.

(3) Implement the recommendations by PREVMED immediately.

c. DPW Environmental Division (APVG-GWV)

(1) Provide lead risk information immediately to APVG-GWZ-D if available.

(2) Initiate a lead risk assessment to be performed by the LBP Inspection Team.

(3) Oversee the entire risk assessment process performed by the LBP Inspection Team to ensure that assessment is performed according to the HUD Guidance and comply with regulatory requirement.

d. Installation Safety Office (ISO)

(1) Participate in Lead Toxicity Investigations as requested by LHMT.

(2) Coordinate with APVG-GWZ-D with regards to corrective action implementation.

CHAPTER 6

LEAD CONTAMINATED WASTE DISPOSAL

6.1 Background.

a. In 1976, Congress passed the Resource Conservation and Recovery Act (RCRA), which was designated to track and regulate hazardous wastes from the time of manufacture to ultimate disposal. LBP projects potentially produce large quantities of waste, which may be considered as hazardous waste. Debris generated from a LBP project is considered a hazardous waste if a representative sample of the waste stream leaches lead at or above 5 parts per million (ppm) under Toxicity Characteristic Leaching Procedures (TCLP) analysis according to RCRA regulations found in 40 CFR Part 261.24.

b. Since 1980, EPA has excluded household wastes from the universe of RCRA hazardous waste classifications. Meaning that waste generated from homes or residential activities are not required to be scrutinized and held to the stringent regulations that commercial, office or industrial activities need to adhere to.

c. Waste or construction debris generated as a result of LBP activities (including abatement, renovation and remodeling) need to be classified in accordance with the generating facility. If the debris was generated from a commercial, office or industrial activity the debris may be classified as a hazardous waste. However, if the debris was generated as a result of an activity in a home or other residence, the waste has a special exclusion exempting it from the RCRA Subtitle C hazardous waste regulations.

6.2 Disposal of LBP Waste Generated from Household Activities.

a. In order for a LBP waste to be excluded from the hazardous waste regulations the following two conditions must be met.

(1) The waste must be generated by individuals on the premises of a household. EPA has concluded that LBP waste resulting from contractor-generated or residents performing renovations, remodeling and abatements qualify under this condition.

(2) The waste must be composed primarily of materials found in the debris generated by consumers in their homes. Provided the waste is not commingled with waste from commercial projects, it qualifies under this condition.

b. Although excluded from the hazardous waste regulations, best management practices of minimizing generation of lead dust, limiting access to stored LBP waste including debris, and maintenance of the waste packaging material during transfer of LBP is essential.

(1) Collect paint chips and dust, and dirt and rubble in plastic trash bags for disposal.

(2) Store larger LBP architectural debris pieces in containers until ready for disposal. Use of a covered roll-off container is recommended.

(3) Landfill must be contacted prior to disposal to determine conditions for acceptance.

6.3 Disposal of LBP Debris Generated from Commercial, Office or Industrial Activities.

a. Characterization of the LBP Debris

(1) To ensure that the LBP waste is properly characterized, an acceptable sampling protocol must be conducted which collects a sample from all components of the waste stream to representatively define the debris as hazardous or not.

(2) Determination of the toxicity of the LBP waste is done by a Toxicity Characteristic Leaching Procedure (TCLP). The TCLP testing primarily consists of chipping the samples into small pieces to fit a 9.5 mm sieve and tumbling the chipped pieces in an acidic solution for 18 hours. The liquid is then tested for its lead content. If the lead concentration of waste is equal to or greater than 5 ppm, the waste is considered hazardous. A laboratory that is recognized by the EPA National Lead Laboratory Accreditation Program (NLLAP) or equivalent must perform the TCLP analysis.

b. Hazardous Waste Disposal

(1) Once the waste is tested over 5 ppm of TCLP lead, all components generated during construction must be properly containerized, labeled, stored, secured, manifested and transported to disposal site.

(2) Before transporting hazardous waste off-site, the generator must package the waste in accordance with the Department of Transportation regulations under 49 CFR 173, 178 and 179 and prepare a manifest (Appendix C) in accordance with 40 CFR Part 262.

(3) The DPW Environmental Hazardous Waste Program dictates USAG-HI hazardous waste disposal. The Transfer and Accumulation Point Manager can be contacted at 622-4246 for additional instructions.

CHAPTER 7

RECORD KEEPING

7.1 LBP Database and LBP Testing Records.

a. Hard copy LBP reports and records are maintained and kept at APVG-GWV. The LBP information is filed by installation and facility identification. Project designers and shop personnel should consult with APVG-GWV prior to work commencement. Therefore, it is essential that lead inspectors and lead removal project engineer submit new LBP information to APVG-GWV to update the building database in order to manage LBP in the building.

b. APVG-GWV will consolidate and provide LBP data to APVG-GWE-M and they will populate tables in the IFS.

c. Once a lead hazard or LBP is identified in a lead risk assessment or LBP testing for a family housing unit, the information should be immediately forwarded to APVG-GWZ-D to file into the unit folder. The known lead hazard or LBP shall be incorporated into the disclosure package to current residents or potential residents during the check-in process.

7.2 Hazardous Waste Disposal Records.

All original hazardous waste manifests (Appendix C) generated and signed by the Army officials must be kept in the APVG-GWV, Hazardous Waste Program Office for at least three years from the date of disposal.

7.3 Miscellaneous Records.

Other than the records mentioned above, each organization should keep a copy of its own employees' training, medical and worker protection records.

CHAPTER 8
TRAINING

8.1 Background.

Employee training is mandated for all personnel who come into contact with lead hazards. Moreover, EPA has promulgated that “certification” is required for professionals engaged in lead-based paint activities in target housing or child-occupied facilities. Activities included are LBP abatements, LBP inspection and lead risk assessments according to 40 CFR 745.

8.2 EPA Mandated Certification.

The table below identifies the training required to meet EPA training course length and hands-on exercise requirements by discipline. In addition to completing the training requirements, certification is only received after satisfactorily passing a discipline specific test administer by an EPA agent. Without passing the EPA test, personnel are not legally authorized to perform any task on target housing or child-occupied facility.

Target housing is defined as any housing constructed prior to 1978, except housing for the elderly or persons with disabilities, or any zero-bedroom dwelling. A child-occupied facility is defined as a building, or portion of a building, constructed prior to 1978 which, may be used as a day-care center, preschool , or kindergarten.

Table 8.1 EPA Training Requirements

Discipline	Total Course Length (Hours)	Portion of Course Involving Hands-On (Hours)
Inspector	24	8
Risk Assessor	16	4
Contractor/Supervisor	32	8
Project Designer	8	none
Abatement Worker	16	8

8.3 Miscellaneous Training Requirements and Exclusions.

The training courses for the respective disciplines identified in Table 8.1 still apply; however, janitorial and maintenance workers are only required to receive a 2-hour and 4-hour awareness training given by a competent person, respectively. Workers performing renovation or remodeling activities are not required to be EPA certified to perform the work. The 4-hour awareness training is sufficient.

APPENDIX A

APPLICABLE LAWS AND REGULATIONS

AR 40-5, Preventive Medicine

AR 200-1, Environmental Protection and Enhancement

AR 210-50, Housing Management

AR 420-70, Building and Structures

AR 608-10, Child Development Services

DA Memorandum, DAIM-FDH-F, SUBJECT: Army Lead-Based Paint Management, 23 Jul 96.

DA Memorandum, DAIM-FDH-F, SUBJECT: Disclosure Requirements for Lead-Based Paint Hazards in Family Housing, 24 July 96.

USACE Guide Specification CWGS 02090: Removal and Disposal of Lead Containing Paint.

USACE Guide Specification CWGS 02091: Removal and Disposal of Substrate with Lead Containing Paint.

Department of Housing and Urban Development, Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing, June 1995.

HUD 24 CFR 35/EPA 40 CFR 745: Requirements for Disclosure of Known Lead-Based Paint and Lead Based Paint Hazards in Housing.

40 CFR Part 745 Subpart L, Lead: Requirements for Lead-Based Paint Activities in Target Housing and Child -Occupied Facilities, Final Rule, 29 August 1996.

U.S. Department of Labor, OSHA 29CFR 1926.62 Lead Exposure in Construction Interim Final Rule, 4 May 1993.

USAEHA Interim Final Report - Lead-Based Paint Contaminated Debris Waste Characterization Study No. 27-26-JK44-92, May 1992-May 1993.

USA Center for Public Works, PWTB 420-70-2 Installation Lead Hazard Management, 20 February 1997.

APPENDIX B

**INVESTIGATION QUESTIONNAIRE FOR
ELEVATED BLOOD LEVELS**

HUD

*Guidelines for the Evaluation and Control
of LBP Hazards in Housing*

CH. 16

pursuant to Title X of the
Housing and Community Development Act of 1992

**Resident Questionnaire for
Investigation of Children with Elevated Blood Lead Levels**

The results of this questionnaire will be used for two purposes:

- ◆ To determine where environmental samples should be collected.
- ◆ To develop corrective measures related to use patterns and living characteristics (e.g., flushing the water line if water lead levels are high, moving the pet's sleeping area if it appears the pet is tracking in lead dust, and so forth).

NOTE: The investigator should always recommend temporary measures to immediately reduce the child's exposure to lead hazards.

General Information

1. Where do you think the child is exposed to the lead hazard?

2. Do you rent or own your home? rent own (circle)

If rented, are there any rent subsidies? yes no (circle) If yes, what type: (check)

_____ Public housing authority

_____ Section 8

_____ Federal rent subsidy

_____ Other (specify): _____

Landlord Information (or rent collector agent)

Name: _____

Address: _____

Phone: _____

3. When did you/your family move into this home?

Complete the following for all addresses where the child has lived during the past 12 months:

Date of residency	Address (including city and State)	Approximate age of dwelling	General condition of dwelling: Any remodeling or renovation? Any deteriorated paint?

4. Is the child cared for away from the home? (This would include preschool, day-care center, day-care home, or care provided by a relative or friend.)

If YES, complete the following:

Type of care	Location of care (name of contact, address, and phone number)	Approximate number of hours per week at this location	General condition of structure. Any deteriorated paint? Any recent remodeling or renovation?

Lead-Based Paint and Lead-Contaminated Dust Hazards

1. Has this dwelling been tested for lead-based paint or lead-contaminated dust? yes no

If yes, when? _____

Where can this information be obtained? _____

2. Approximately what year was this dwelling built? _____

If unknown, was the dwelling built before 1950? _____

3. Has there been any recent repainting, remodeling, renovation, window replacement, sanding, or scraping of painted surfaces inside or outside this dwelling unit? yes no (circle)

If yes, describe activities and duration of work in more detail.

4. Has any lead abatement work been conducted at this dwelling recently? yes no (circle)

5. Where does the child like to play or frequent? (include rooms, closets, porches, outbuildings.)

6. Where does the child like to hide? (include rooms, closets, porches, outbuildings.)

Complete the following table:

Areas where child likes to play or hide	Paint condition (intact, fair, poor, or not present)*	Location of painted component with visible bite marks

*Paint condition: Note location and extent of any visible chips and/or dust in window wells, on windowsills, or on the floor directly beneath windows. Do you see peeling, chipping, chalking, flaking, or deteriorated paint? If yes, note locations and extent of deterioration.

Assessment. (check)

_____ Probable lead-based paint hazard.

_____ Probable leaded dust hazard.

Action: (check)

_____ Obtain records of previous environmental testing noted above.

_____ XRF Inspection of dwelling (circle one): limited complete.

_____ Paint Testing-deteriorated paint: add any additional areas to "Field Sampling Form for Deteriorated Paint," Appendix C.

_____ Leaded dust sampling of home: add any additional areas to the list of rooms to be sampled, using "Field Sampling Form for Dust," Appendix C.

_____ Other sampling (specify): _____

Water Lead Hazards

1. What is the source of drinking water for the family? (circle) municipal water private well

Other (specify): _____
(This information will be used to help determine responsibility and methods of controlling lead exposures from water.)

If tap water is used for drinking, please answer the following:

2. From which faucets do you obtain drinking water? (Sample from the main drinking water faucet.) _____

3. Do you use the water immediately or do you let the water run for awhile first? (If water lead levels are elevated in the first flush, but low in the flushed sample, recommend flushing the water after each period the water has remained standing in the pipe for more than 6 hours.)

4. Is tap water used to prepare infant formula, powdered milk, or juices for the children?
If yes, do you use hot or cold tap water? _____
If no, from what source do you obtain water for the children? _____

5. Has new plumbing been installed within the last 5 years? yes no (circle)
If yes, identify location(s). _____
Did you do any of this work yourself? yes no (circle)
If yes, specify _____

6. Has the water ever been tested for lead? yes no (circle)
If yes, where can test results be obtained? _____

Determine whether the dwelling is located in a jurisdiction known to have lead in drinking water in either public municipal or well water. Consult with State/local public health authorities for details.
(check) _____ at risk _____ not at risk.

Assessment: (check)
_____ At risk for water lead hazards.

Actions: (check)
_____ Test water (first-draw and flush samples).
_____ Other testing (specify): _____
_____ Counsel family (specify): _____

Lead in Soil Hazards

(Use the following information to determine where soil samples should be collected.)

1 .Where outside does the child like to play? _____

2. Where outside does the child like to hide? _____

3. Is this dwelling located near a lead-producing industry (such as a battery plant, smelter, radiator repair shop, or electronics/soldering industry?) yes no (circle)

4. Is the dwelling located within two blocks of a major roadway, freeway, elevated highway, or other transportation structures? _____

5. Are nearby buildings or structures being renovated, repainted, or demolished?

6. Is there deteriorated paint on outside fences, garages, play structures, railings, building siding, windows, trims, or mailboxes? _____

7. Were gasoline or other solvents ever used to clean parts or disposed of at the property?

8. Are there visible paint chips near the perimeter of the house, fences, garages, play structures?
If yes, note location. _____

9. Has soil ever been tested for lead? yes no (circle)
If yes, where can this information be obtained? _____

10. Have you burned painted wood in a woodstove or fireplace? yes no (circle)
If yes, have you emptied ashes onto soil? _____
If yes, where? _____

Assessment. (check)

_____ Probable soil lead hazard.

Actions: (check)

_____ Test soil. Complete Field Sampling Form for Soil (Form 5.5). Obtain single samples for each bare soil area where the child plays.

_____ Advise family to obtain washable doormats for entrances to the dwelling.

_____ Counsel family to keep child away from bare soil areas thought to be at risk.

(specify): _____

Occupational/Hobby Lead Hazards

Use the information in this section to determine if the child's source of lead exposure could be related to the parents', older siblings' or other adults' work environment. Occupations that may cause lead exposure include the following:

- ◆ Paint removal (including sandblasting, scraping, abrasive blasting, sanding, or using a heat gun or torch).
- ◆ Chemical strippers.
- ◆ Remodeling, repairing, or renovating dwellings or buildings, or tearing down buildings or metal structures (demolition).
- ◆ Plumbing.
- ◆ Repairing radiators.
- ◆ Melting metal for reuse (smelting).
- ◆ Welding, burning, cutting, or torch work.
- ◆ Pouring molten metal (foundries).
- ◆ Auto body repair work.
- ◆ Working at a firing range.
- ◆ Making batteries.
- ◆ Making paint or pigments.
- ◆ Painting.
- ◆ Salvaging metal or batteries.
- ◆ Making or splicing cable or wire.
- ◆ Creating explosives or ammunition.
- ◆ Making or repairing jewelry.
- ◆ Making pottery.
- ◆ Building, repairing, or painting ships.
- ◆ Working in a chemical plant, a glass factory, an oil refinery, or any other work involving lead.

1 .Where do adult family members work? (include mother, father, older siblings, other adult household members)

Name	Place of employment	Occupation or job title	Probable lead exposure (yes/no)

- 2. Are work clothes separated from other laundry? _____
- 3. Has anyone in the household removed paint or varnish while in the dwelling? (includes paint removal from woodwork, furniture, cars, bicycles, boats) yes no (circle)
- 4. Has anyone in the household soldered electric parts while at home? yes no (circle)
- 5. Does anyone in the household apply glaze to ceramic or pottery objects? yes no (circle)
- 6. Does anyone in the household work with stained glass? yes no (circle)
- 7. Does anyone in the household use artist's paints to paint pictures or Jewelry? yes no (circle)
- 8. Does anyone in the household reload bullets, target shoot, or hunt? yes no (circle)
- 9. Does anyone in the household melt lead to make bullets or fishing sinkers? yes no (circle)
- 10. Does anyone in the household work in autobody repair at home or in the yard? yes no
- 11. Is there evidence of take-home work exposures or hobby exposures in the dwelling? yes no

Assessment. (check)

_____ Probable occupational-related lead exposure.

_____ Probable hobby-related lead exposure.

Actions: (check)

_____ Counsel family (specify): _____

_____ Refer to (specify): _____

Child Behavior Risk Factors

1. Does child suck his/her fingers? yes no (circle)
2. Does child put painted objects into the mouth? yes no (circle)
If yes, specify: _____
3. Does child chew on painted surfaces, such as old painted cribs, windowsills, furniture edges, railings, door molding, or broom handles? yes no (circle)
If yes, specify: _____
4. Does child chew on putty around windows? yes no (circle)
5. Does child put soft metal objects in the mouth? These might include lead and pewter toys and toy soldiers, jewelry, gunshot, bullets, beads, fishing sinkers, or any items containing solder (electronics). yes no (circle)
6. Does child chew or eat paint chips or pick at painted surfaces? yes no (circle)
Is the paint intact in the child's play areas?
7. Does the child put foreign, printed material (newspapers, magazines) in the mouth? yes no
8. Does the child put matches in the mouth? (Some matches contain lead acetate.) yes no
9. Does the child play with cosmetics, hair preparations, or talcum powder or put them into the mouth? Are any of these foreign made? yes no (circle)
10. Does the child have a favorite cup? yes no (circle)
A favorite eating utensil? yes no (circle)
If yes, are they handmade or ceramic? _____
11. Does the child have a dog, cat, or other pet that could track in contaminated soil or dust from the outside? yes no N/A (circle)
Where does the pet sleep? _____
12. Where does the child obtain drinking water? _____
13. If child is present, note extent of hand-to-mouth behavior observed. _____

Assessment: (check)

- _____ Child is at risk due to hand-to-mouth behavior.
_____ Child is at risk for mouthing probable lead-containing substance
(specify): _____
_____ Child is at risk for other (specify): _____

Actions:

- _____ Counsel family to limit access or use of (specify):
_____ Other (specify): _____

Other Household Risk Factors

1. Are imported cosmetics such as Kohl, Surma, or Ceruse used in the home? yes no (circle)

2. Does the family ever use any home remedies or herbal treatments? yes no (circle)
If yes, what type? _____

3. Are any liquids stored in metal, pewter, or crystal containers? yes no (circle)

4. What containers are used to prepare, serve, and store the child's food? _____
Are any of them metal, soldered, or glazed? _____
Does the family cook with a ceramic bean pot? _____

5. Does the family use imported canned items regularly? yes no (circle)

6. Does the child play in, live in, or have access to any areas where the following materials are kept: shellacs, lacquers, driers, coloring pigments, epoxy resins, pipe sealants, putty, dyes, industrial crayons or markers, gasoline, paints, pesticides, fungicides, gasoline, gear oil, detergents, old batteries, battery casings, fishing sinkers, lead pellets, solder, or drapery weights?
yes no (circle)

7. Does the child take baths in an old bathtub with deteriorated or nonexistent glazing? yes no

Assessment: (check)

_____ Increased risk of lead exposure due to _____

Actions: (check)

_____ Counsel family to limit access or use (specify):

_____ Other (specify): _____

Assessment for Likely Success of Hazard Control Measures

1. What cleaning equipment does the family have in the dwelling? (circle)
broom, mop and bucket, vacuum (does it work?), sponges and rags

2. How often does the family:

Sweep the floors? _____

Wet mop the floors? _____

Vacuum the floors? _____

Wash the windowsills? _____

Wash the window troughs? _____

3. Are floor coverings smooth and cleanable? _____

4. What type of floor coverings are found in the dwelling? (circle all that apply)
vinyl/linoleum carpeting wood other (specify): _____

5. Cleanliness of dwelling (circle one): [Pick the best category based on overall observations]

1. Appears clean. 2. Some evidence of housecleaning. 3. No evidence of housecleaning.

Check all that Apply:

___ No visible dust on most surfaces.

___ Evidence of recent vacuuming of carpet.

___ No matted or soiled carpeting.

___ No debris or food particles scattered -about.

___ Few visible cobwebs.

___ Clean kitchen floor.

___ Clean doorjambs.

___ Slight dust buildup in corners.

___ Slight dust buildup on furniture.

___ Slightly matted and/or soiled carpeting.

___ Some visible cobwebs.

___ Some debris or food particles scattered about.

___ Slightly soiled kitchen floor.

___ Slightly soiled doorjambs.

___ Heavy dust buildup in corners.

___ Heavy dust buildup on furniture.

___ Matted and/or soiled carpeting.

___ Debris or food particles scattered about.

___ Visible cobwebs.

___ Heavily soiled kitchen floor.

___ Heavily soiled doorjambs.

Assessment: (check)

___ Cleaning equipment inadequate.

___ Cleaning routine inadequate.

___ Floor coverings inadequate to maintain clean environment.

Actions: (check)

Counsel family to limit access or use (specify) _____

___ Provide cleaning equipment.

___ Instruct family on special cleaning methods.

___ Flooring treatments needed.

___ Other (specify): _____

APPENDIX C
UNIFORM HAZARDOUS WASTE MANIFEST

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No.		Manifest Document No.		2. Page 1 of		Information in the shaded areas is not required by Federal law.	
		3. Generator's Name and Mailing Address		6. US EPA ID Number		C. State Transporter's ID		A. State Manifest Document Number	
4. Generator's Phone ()		7. Transporter 1 Company Name		8. US EPA ID Number		D. Transporter's Phone		E. State Transporter's ID	
5. Transporter 1 Company Name		7. Transporter 2 Company Name		10. US EPA ID Number		F. Transporter's Phone		G. State Facility's ID	
9. Designated Facility Name and Site Address						H. Facility's Phone			
11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)		12. Containers		13. Total Quantity		14. Unit Wt/Vol		I. Waste No.	
		No. Type							
a.									
b.									
c.									
d.									
J. Additional Descriptions for Materials Listed Above		K. Handling Codes for Wastes Listed Above							
15. Special Handling Instructions and Additional Information									
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.		Printed/Typed Name		Signature		Month Day Year			
17. Transporter 1 Acknowledgement of Receipt of Materials		Printed/Typed Name		Signature					
18. Transporter 2 Acknowledgement of Receipt of Materials		Printed/Typed Name		Signature		Month Day Year			
19. Discrepancy Indication Space									
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.		Printed/Typed Name		Signature		Month Day Year			

APPENDIX D

EPA PAMPHLET

**“PROTECT YOUR FAMILY FROM
LEAD IN YOUR HOME”**

**WRITTEN ACKNOWLEDGEMENT FORM
FOR
LEAD-BASED PAINT NOTIFICATION**

APPENDIX E

ACRONYMS

APVG-GWE	DPW Engineering Plans and Services Division
APVG-GWV	DPW Environmental Division
APVG-GWZ-D	DPW Family Housing Division, Facility Maintenance Office
AR	Army Regulation
CDD	Directorate of Community Activities Child Development
CFR	Code of Federal Regulations
DA	Department of the Army
DCA	Directorate of Community Activity
DOC	Directorate of Contracting
DOD	Department of Defense
DPW	Directorate of Public Works
EBL	Elevated Blood Lead
EOs	Executive Orders
EPA	Environmental Protection Agency
EPR	Environmental Program Requirements
HUD	Department of Housing and Urban Development
IAW	in accordance with
ILHMP	Installation Lead Hazard Management Program
LBP	lead base paint
LHMC	Lead Hazard Management Coordinator
LHMP	Lead Hazard Management Plan
mm	millimeter
NLLAP	National Lead Laboratory Accreditation Program
OSHA	Occupational Safety and Health Administration
PAO	Public Affairs Office
PREVMED	Preventive Medicine
ppm	parts per million
PWTB	Public Works Technical Bulletin
RCRA	Resource Conservation and Recovery Act
SJA	Environmental Legal Advisor
ISO	Installation Safety Office
TAMC	Tripler Army Medical Center
TCLP	Toxicity Characteristic Leaching Procedure
USA	U. S. Army
USAG-HI	U. S. Army Garrison Hawaii