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	Engineering and Design LEAD HAZARD CLEARANCE INSPECTION FOR TARGET HOUSING/CHILD-OCCUPIED FACILITIES STANDARD SCOPE OF WORK	
	Distribution Restriction Statement Approved for public release; distribution is unlimited.	
	This Engineering Pamphlet has been developed to incorporate the Environmental Protection Agency's definition of lead hazards to young children as published in 40 CFR 745 Subpart D: Lead, Identification of Dangerous Levels of Lead: Final Rule, 5 January 2001.	

This EP Supercedes EP 1110-1-29 Dated 31 July 2000

DEPARTMENT OF THE ARMY
U. S. Army Corps of Engineers
Washington, D. C. 20314-1000

EP 1110-1-29

CEMP-RA

Pamphlet
No. 1110-1-29

31 August 2001

Engineering and Design
LEAD HAZARD CLEARANCE INSPECTION
FOR TARGET HOUSING/CHILD-OCCUPIED FACILITIES
STANDARD SCOPE OF WORK

1. Purpose. This standard Scope of Work (SOW) described in this Engineer Pamphlet (EP) provides a framework for developing site- and project-specific scopes of work for completion of lead hazard clearance inspections at Army target housing/child-occupied facilities that have undergone lead hazard control activities.

2. Applicability. This pamphlet applies to all USACE Commands responsible for design of projects requiring lead hazard clearance inspections.

3. Distribution. Approved for public release; distribution is unlimited.

3. References. References are included in Appendix A.

4. Discussion.

a. This EP provides a standard SOW for conducting lead hazard clearance inspections at Army target housing and child-occupied facilities that require clearance of lead hazards following work that has disturbed lead or that has been performed as a part of lead hazard control activities.

b. This EP provides a framework based on Federal regulations and guidance in effect as of the EP date of publication. The SOW editor shall ensure that updated Federal requirements, as well as applicable state and local requirements are addressed in using this SOW.

c. Those responsible for designing lead hazard clearance inspection projects shall be familiar with the concepts and procedures described in the references in Appendix A.

FOR THE COMMANDER:

ROBERT CREAR
Colonel, Corps of Engineers
Chief of Staff

3 APPENDICES
APP A – Lead Hazard Clearance Inspection Standard Scope of Work
APP B - Analytical Data Acceptance Criteria
APP C - Standard Clearance Forms

This EP Supercedes EP 1110-1-29 Dated 31 July 2000

APPENDIX A
LEAD HAZARD CLEARANCE INSPECTION
FOR TARGET HOUSING/CHILD-OCCUPIED FACILITIES
STANDARD SCOPE OF WORK

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NOTE TO SCOPE OF WORK EDITOR:

This standard scope of work (SOW) defines lead hazard clearance following lead hazard control activities (see Glossary) at Department of Army (DA) target housing or child-occupied facilities (see Glossary). The Scope-of-Work Editor must have completed the training required for risk assessors defined in EPA 40 Code of Federal Regulations (CFR) 745 Subpart L "Lead-Based Paint Activities" prior to editing this SOW for the lead hazard clearance projects.

This SOW does not define lead hazard clearance for non-target housing projects. Clearance requirements for non-target housing/child occupied facilities are to be found in the design specifications for those projects. Risk assessor training is recommended, but not required for developing project specific clearance criteria to be used for non-target housing specifications.

This SOW incorporates 40 CFR 745 Subpart L requirements for clearance using the sampling protocol found both in 40 CFR 745.227 and developed by the Department of Housing and Urban Development (HUD) for target housing.

The SOW does not include unique clearance procedures for facilities involved in child elevated blood lead level (EBL) issues. Elevated blood lead evaluations address lead sources to children such as contaminated eating utensils, food and beverage containers, personal hygiene practices, offsite daycare, community water supply, public playgrounds, etc. EBL evaluations require coordinated professional resources involving a number of agencies, including state and local public health departments.

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1.0 PROJECT OVERVIEW, OBJECTIVES, AND DESCRIPTION OF WORK

1.1 REFERENCES

1.1.1 Federal

1.1.1.1 Consumer Product Safety Commission (CPSC)

a. CPSC Finds Lead Poisoning Hazard for Young Children in Imported Vinyl Miniblinds, Press Release 96-150, June 25, 1996,

(See www.cpsc.gov/cpscpub/prerel/prhtml19695150.html)

1.1.1.2 U.S. Environmental Protection Agency (EPA)

a. EPA National Lead Laboratory Accreditation Program, Laboratory, (NLLAP) Quality System Requirements (LQSR) Revision 2.0, August 1, 1996.

b. Lead; Requirements for Lead-Based Paint Activities in Target Housing and Child-Occupied Facilities", 40 CFR Part 745, Subpart L, Lead-Based Paint Activities; Final Rule, 61 FR 45813, August 29, 1996.

c. "Lead; Requirements for LBP Activities in Target Housing and Child-Occupied Facilities; Certification Requirements and Work Practice Standards for Individuals and Firms, Amendment"; 40 CFR Part 745, Subpart L, Lead-Based Paint Activities; Final Rule, 64 FR 42849, August 6, 1999.

d. "Lead; Identification of Dangerous Levels of Lead", 40 CFR 745, Subpart D, Lead-Based Paint Hazards, and Subpart L, Lead-Based Paint Activities; Final Rule; 66 FR 1206, January 5, 2001.

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

a. Requirements for Notification, Evaluation and Reduction of Lead-Based Paint Hazards in Federally Owned Residential Property and Housing Receiving Federal Assistance, Final Rule 24 CFR 35 September 15, 1999.

b. Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing, HUD, Government Printing Office, Washington, D.C. June 1995. (Chapter 7 revised 1997).

c. The Lead Listing, The National Lead Service Providers' Listing System. This listing is accessible on the Internet at **http://www.leadlisting.org/**.

1.1.1.4 Occupational Safety and Health Administration (OSHA)

a. Lead Exposure in Construction; Interim Final Rule 29 CFR 1926.62, May 4, 1993.

1.1.2 U.S. Army (DA)

1.1.2.1 Army Regulation (AR) 200-1, Environmental Protection and Enhancement.

1.1.2.2 AR 420-70, Facilities Engineering, Buildings and Structures.

1.1.2.3 DA Public Works Technical Bulletin 420-70-2, Installation Lead Hazard Management.

(See http://www.hnd.usace.army.mil/)

1.1.2.4 DA Hazardous Asbestos and Lead Optimal Management System (HALO)

1.1.2.5 U.S. Army Corps of Engineers Engineering Manual (EM) 385-1-1, Safety & Health Requirements Manual

1.1.3 State and Local, Outside Continental United States (OCONUS), Host Nation Agreements, etc.

[insert applicable references].

1.1.4 Other Organizations

1.1.4.1 American Association for Laboratory Accreditation (A2LA)

Environmental Lead Program Requirements. February 1994. (A2LA offers accreditation under NLLAP.)

1.1.4.2 American Industrial Hygiene Association (AIHA)

Analytical Quality Programs Quality Manual and Policies, Environmental Lead Laboratory Accreditation Program (ELLAP) and Industrial Hygiene Laboratory Accreditation Program. July 1997. (See http://www.aiha.org).

1.1.4.3 American Society for Testing and Materials (ASTM)

a. E1605, *Standard Terminology Relating to Abatement of Hazards from Lead-Based Paint in Buildings and Related Structures*

b. E1613, *Standard Test Method for Analysis of Digested Samples for Lead by Inductively Coupled Plasma Atomic Emission Spectrometry (ICP-AES), Flame Atomic Absorption (FAAS), or Graphite Furnace Atomic Absorption (GFAAS) Techniques*

c. E1644, *Standard Practice for Hot Plate Digestion of Dust Wipe Samples for the Determination of Lead by Atomic Spectrometry*

d. E1726, *Standard Practice for Sample Digestion of Soils for the Determination of Lead by Atomic Spectrometry*

e. E1727, *Standard Practice for Field Collection of Soil Samples for Lead Determination by Atomic Spectrometry Techniques*

f. E1728, *Standard Practice for Field Collection of Settled Dust Samples Using Wipe Sampling Methods for Lead Determination by Atomic Spectrometry Techniques*

g. E1792, *Standard Specification for Wipe Sampling Materials for Lead in Surface Dust*

h. E1979, *Standard Practice for Ultrasonic Extraction of Paint, Dust, Soil, and Air Samples for Subsequent Determination of Lead*

1.2 REGULATORY REQUIREMENTS

1.2.1 Regulatory Authority/Requirements

The Contractor shall conduct all work in accordance with Federal, State and local requirements. Where inconsistencies exist between the requirements and this SOW, the Contractor shall specify the procedures providing the most accurate data and requiring the most rigorous clearance.

1.2.1.1 Federal Requirements

a. Clearance Requirements and Procedures

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NOTE: The cited 40 CFR regulations and June 1995 HUD Guidelines specify clearance procedures for target housing/child occupied facilities and are the procedures included in this SOW. The procedures are to be used for both active target housing and target housing slated for BRAC property transfer. Paint, Dust, and Soil-Lead Hazard definitions in 40 CFR Part 745 Subpart D Section 65 are used in defining the cleanup clearance action levels for active housing and residential BRAC property transfers in this SOW.

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The Contractor shall evaluate clearance against action levels specified in Table A-1 by meeting the Data Quality Objectives (See Glossary) (DQO) to comply with 40 CFR 745.227(e)(8), (e)(9), and (h) [and with 24 CFR 35.1340] using methodologies specified and where not specified, using those found in Chapter 15, "Guidelines for the Evaluation and Control of Lead- Based Paint Hazards in Housing", Department of Housing and Urban Development (HUD Guidelines, June 1995, as revised) as summarized in this SOW.

b. Safety and Health

The Contractor shall comply with applicable OSHA standards and with the USACE Safety and Health Requirements Manual EM 385-1-1 including submitting an Accident Prevention Plan (APP) to the Contracting Officer (see Glossary) prior to performing field activities. Field activities shall not begin without acceptance of the APP by the Contracting Officer.

1.2.1.2 State and Local Requirements

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NOTE: Reference state, local, or installation specific requirements that differ from the Federal requirements cited in this SOW that are applicable to the clearance to be performed.

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[The Contractor shall comply with the following state and local/installation requirements in completing the activities required by this SOW. [insert applicable requirements]]

1.3 SITE CHARACTERISTICS, OBJECTIVES AND DESCRIPTION OF WORK

1.3.1 Site Location/Project Characteristics

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NOTE: Identify all units and surfaces within each unit that will be included in the clearance inspection. Provide a description of the work tasks and the extent of work that was performed by the lead hazard control contractor, including a list of surfaces that did not receive treatment; by providing access to the original SOW, specifications, and/or contractor completion report.

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The units requiring clearance evaluation are located at:

[Insert the unit or facility address(es) and unique unit or room identifiers]

The Contractor shall review descriptions of all work tasks completed by the lead hazard control contractor and descriptions of all associated lead hazard control treatments described below and in Contract # [insert lead hazard control project #, page and paragraph as appropriate] (see attached) before beginning Task # 2:

[list work tasks and lead hazard control treatments from the original project that require clearance under this SOW]

1.3.2 Clearance Objectives and Description of Work

The Contractor shall determine through the clearance inspection process defined in this SOW whether:

- The lead hazard control treatments described in this SOW were successfully performed by visual examination and dust and soil sampling if required.
- The lead hazard control project treatments meet the clearance action level criteria in Table A-1, thereby assuring the Contracting Officer of the absence of lead-based paint deterioration and that lead dust or soil lead levels remaining are considered non-hazardous by 40 CFR 745 Subpart L requirements.
- The lead hazard control project activities and clean-up meet Federal and DA standards and guidelines as specified in this SOW.

1.3.3 Data Quality Objectives

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NOTE: The clearance action levels that are found in the project SOW, specifications, or contractor's completion report and Table A-1 below should be in agreement. Some states/municipalities use lead loading values (mg/cc of surface area) associated with the use of XRF readings that differ from and are more stringent than the federal values listed here in Table A-1. Check with local authorities for applicable criteria at project site and modify Table A-1 accordingly. The action levels provided in Table A-1 are for target housing/child occupied facilities, at "active" Army installations and also BRAC property transfers. Clearance for BRAC properties may not be required since liability for identified lead hazards found during the lead inspection/risk assessment process may be transferred to the buyer under the purchase contract. Check with the customer.

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The Contractor's work shall meet project-specific DQOs for sampling, analysis, and Quality Assurance/Quality Control (QA/QC). DQOs shall be met in order to provide project required data quality. The data thus collected shall be compared to clearance action levels provided in Table A-1

below. Clearance will be considered acceptable when the results of all validated samples collected by the Contractor fall below the clearance action levels. The Contracting Officer shall be notified immediately if clearance sample results provided by the Contractor exceed the clearance action levels in Table A-1.

Table A-1	
Clearance Action Levels	
Sample Matrix/Surface Type	Lead Clearance Action Level
Lead-Based Paint	Equal to or in excess of 0.5% by weight or 5,000 µg/g; or 1.0 mg/cc if lead hazard control project data based on XRF analysis. The Clearance contractor shall use same data parameters used by lead hazard control project contractor.
Deteriorated Paint	Any Lead-Based Paint on any substrate (interior or exterior) that is peeling, chipping, chalking or cracking, or otherwise damaged or separated from the substrate.
Paint-Lead Hazard	Any friction surfaces subject to abrasion with horizontal dust lead levels below and nearest the surface, equal or exceeding Dust-Lead Hazard levels in this Table. Any chewable lead-based paint surface with teeth marks. Damaged or deteriorated lead-based paint impact surface such as caused by door knobs or out-of-plumb doors.
Dust-Lead Hazard (single surface wipe sampling only) All Floors, Hard Surface and Carpeted Interior Window Sills Window Troughs	 40 µg/ft² 250 µg/ft² Floors or windowsills in unsampled dwellings or common areas that are part of multi-family units are hazards if at least one sampled unit tested positive for these parameters. 400 µg/ft²

Soil- Lead Hazard: Bare Soil: Child Play Areas	400 µg/g
Soil-Lead Hazard: Remainder of Yard Excluding Child Play Areas	1200 µg/g

1.3.4 Bid Assumptions

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NOTE: Include project-specific assumptions for the Contractor to use in developing a cost estimate. Provide site-specific information to assist in developing realistic assumptions. Review Task # 1, Task # 2 and Task # 3 requirements prior to developing this paragraph. Use the recommended number of dust wipes based on the treatment category that applies to the project to calculate the average number of wipes per unit for bidding purposes, i.e., Category #1: 2 dust wipes per room for each room up to 4 rooms for each unit plus one sample for each 2000 square feet of common area, etc. In addition to the field wipes, field blanks must be included based on the total number of field wipes submitted in the batch in accordance with ASTM E 1728. Sample analysis cost can range to $25.00. Check with NLLAP qualified laboratories in the area. At least one dust spike sample must be submitted to the laboratory for the first 50 field dust wipes, and at a rate of one per 50 field wipes thereafter.

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Bid assumptions include: [insert bid parameters]

2.0 PROJECT REQUIREMENTS

2.1 TASK 1 DESCRIPTION OF CONDITIONS/PROJECT WORK PLAN

2.1.1 Project Information Review

The Contractor shall coordinate with the Contracting Officer to obtain information describing current conditions of the facilities to be included in the lead hazard clearance inspection. The information shall include the [lead hazard control project Contract (#) attached to this SOW] [the lead hazard control project Contract specification (#)] [and the lead hazard control Contractor completion report].

2.1.2 Project Boundaries Identification/Floor Plans

Site maps identifying individual units and unit numbers for all units to be inspected for clearance, and copies of floor plans for each type of unit to be inspected are attached as a part of this SOW. The Contractor shall use these plans in performing Task # 2 to identify and record clearance sample

locations as a part of developing clearance sample location documentation while performing the clearance inspection.

2.1.3 Preliminary Site Visit/Walkover

The Contractor shall conduct a preliminary site visit/walkover. This walkover shall be used to ensure that all site-specific conditions and special accessibility requirements are addressed in the Project Work Plan.

2.1.4 Project Work Plan

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NOTE: The clearance risk assessor in all cases must be completely free to determine the exact location of each sample, all without providing this knowledge "up front" to the remediation contractor.

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The Contractor shall submit a Project Work Plan to the Contracting Officer for government approval prior to initiating Task # 2. The plan shall include:

- Accident Prevention Plan
- Project clearance objectives and requirements including any special access scheduling requirements, escort requirements, laboratory turn-around requirements if different than as specified in this SOW.
- Clearance Sampling Plan to include a description of the sampling location decision logic, the type of samples and how the samples are to be collected and handled and analyzed .
- Identification, qualifications, and certifications of project team and risk assessors
- Identification and qualifications of each laboratory that will be used to prepare and analyze lead samples
- Floor plans/sketches (provided as a part of this SOW)

2.2 TASK 2 CLEARANCE SAMPLING

2.2.1 Visual Assessment

The Contractor shall visually examine the lead hazard control project areas identified in Paragraph 1.3.1. The Contractor shall visually determine and document whether the lead hazard control treatments (see Glossary) have been performed or completed on all treated interior and exterior surfaces, and whether visible dust or debris are present.

A visual examination of completed work shall be completed as outlined and summarized below:

- The visual examination shall be started no sooner than one hour after completion of cleanup activities in the unit/facility that will be evaluated, to allow sufficient time for potential lead-contaminated dust to settle,
- The visual examination shall be performed with an understanding of the extent of the lead hazard control work and also all surfaces that did not receive treatment.
- The visual examination shall include a room-by-room, component-by-component examination [including exterior and common areas] to determine whether the lead hazard control treatments have been completed as required, and to determine if waste and visible dust or debris is still present. The results of the visual examination shall be documented on Form 1 (Figure C-1, Appendix C). [Bare surfaces created by paint removal shall be examined prior to repainting to confirm the absence of visible residue. Wipe sampling shall not be used to document paint removal from a given surface.] [Building component replacement shall be visually examined and documented for each individual component replaced.] [The dust tightness of mechanical fastening systems (seam and edge seals) shall be visually examined and documented for all enclosures.] [The completion of soil treatments such as coverings, or removal/replacement shall be visually examined and documented.] [The presence of encapsulants shall be visually examined and documented.] [Interim controls shall be visually examined and documented to confirm stabilization of all Lead-Based Paint (LBP) surfaces.] The Contracting Officer shall be notified immediately of the presence of any deteriorated LBP present in the unit being examined.
- The Contractor shall visually examine and document the absence of visible dust in all rooms and on all surfaces treated, including any observed tracking from non-work areas to the cleaned areas subject to the clearance inspection. The Contractor shall visually examine and document the absence of all waste and debris, including paint chips transferred from the interior to exterior areas. If the Contractor detects visible dust or debris, the Contractor shall immediately notify the Contracting Officer to ensure that the Lead Hazard Control Contractor repeats the cleaning process prior to the collection of clearance samples.
- The Contractor shall visually examine and document the visual absence of LBP chips from the work areas on the soil following exterior lead-hazard control work. The visual examination shall determine whether paint chips are present along the drip line or next to the foundation, below the treated exterior surface. If paint chip debris is present, the Contracting Officer shall be notified to ensure that the Lead Hazard Control Contractor removes the paint chips using a HEPA vacuum, prior to proceeding with clearance. All horizontal surfaces in the living area closest to exterior lead hazard control treatments shall be visually examined to document that they are free of visible dust and debris.

The Contractor shall not collect clearance samples until the visual examination results are acceptable. The visual examination results and conclusions shall be documented by filling out Form 1 (Figure C-1,

Appendix C) which shall be included as an attachment to the Clearance Sampling Plan and submitted as part of the Lead Hazard Clearance Report following completion of the clearance inspection. If during the visual examination, the Contractor determines that the required lead hazard control work treatments have not been completed, or if visible dust or debris remains on the floor and other surfaces, the Contractor shall notify the Contracting Officer who will ensure that the Lead Hazard Control Contractor completes the project properly and re-cleans the units as required in the original project scope. The Contracting Officer reserves the right to audit the accuracy of Contractor's visual examination findings as recorded on Form 1 for any unit, at any time during the course of the project.

2.2.2 Sampling

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NOTE: Soil sampling is required when exterior lead hazard control work OTHER than soil covering has been performed.

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Clearance sampling shall include the collection and analysis of single-surface dust wipe [and soil] samples in order to determine whether lead concentrations in [this matrix] [these matrices] exceed clearance action levels specified in Table A-1. Dust wipe samples used to make this determination shall be collected from surfaces no sooner than one hour after lead hazard control clean-up has been performed to the satisfaction of the Contractor based on the visual examination. Sampling soil in order to evaluate the effectiveness of soil treatments (such as soil replacement) other than soil covering, which does not require sampling, shall be completed through composite sampling only. Soil covering shall require only a visual inspection.

2.2.2.1 Dust Wipe Sampling

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NOTE: The following sampling categories are based on 40 CFR 745.227 requirements and HUD guidelines for "Target Housing" (defined by the EPA 40 CFR 745.223).

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Clearance dust wipe samples shall be collected from locations at, adjacent to or close to the completed lead hazard control treatments, including nearby high-traffic areas (e.g., near doorways) where applicable. The number and location of the clearance samples shall be based on the type of containment used and the number of rooms treated, rather than the use patterns of a particular room. The building components that must be tested include floors, interior windowsills, window troughs, [ ]. The Contractor shall determine the specific sampling location, based on the type of treatment, visual observation, and professional judgement. The Lead Hazard Control Contractor shall not be informed as to where the clearance samples will be collected by the Contractor. At a minimum, the following guidelines for single-surface wipe samples, shall be followed for target housing unit clearance:

a. Category 1: Interior Treatments, No Containment within Unit (40 CFR 745.227(e)(8)(v)(B):

- Two dust wipe samples shall be collected from up to four rooms, hallways, or stairwells in units with more than four rooms, whether treated or untreated. Two dust wipe samples shall be collected from no less than four rooms, hallways or stairwells in the residential dwelling or child-occupied facility. A closet shall not be considered a separate room. When a closet has been treated, the room to which it is attached shall be tested. If there are less than four rooms, hallways or stairwells within the residential dwelling or child-occupied facility then all rooms, hallways or stairwells shall be sampled. The rooms in units greater than four rooms that will be sampled shall be selected based on where the most dust generating work has been completed and on the judgment of the clearance inspector;
- One dust sample shall be taken from one interior window sill and window trough (if present);
- One dust sample shall be taken from the floor of each room, hallway or stairwell selected; and,

b. Category 2: Interior Treatments, With Containment (plastic sheeting used as airlock doors between treated and untreated areas), (40CFR745.227(e)(8)(v)(A)):

- One dust wipe sample shall be taken from one interior window sill and from one window trough (if present) and one dust sample shall be taken from the floors of each of on less than four rooms, hallways or stairwells within the containment area. In addition one dust sample shall be taken from the floor outside of the containment area within 10 feet of the airlock if present or the edge of the containment, in order to determine the effectiveness of the containment system. This additional dust wipe sample shall be collected in 20 percent of the treated units in multi-unit buildings (greater than 20 units) being assessed, and in all single-units being assessed; and,

c. Category 3: Exterior Treatments:

- Two dust wipe samples shall be collected for each exterior treatment;
- One dust wipe sample shall be collected from a horizontal surface in part of the outdoor living area (e.g., a porch floor or entryway); and,
- The second dust wipe sample shall be collected from an exterior window trough on each floor at or near the location of where the exterior work has been performed. Additional trough samples shall be collected from the lower floors in close proximity to the work, in order to determine if troughs below the subject area have been contaminated by the work.

d. Category 4: Soil Treatments

- One dust sample shall be collected from the entryway nearest to the soil treatment work area.

Dust samples shall be collected for analysis by single surface wipe sampling. Gloves shall always be changed prior to and after collecting each sample. After donning gloves, do not touch anything other than the wipe and surface that will be sampled. If a wipe is dropped, or contact is made outside the area that will be sampled, discard the wipe and sample another, undisturbed area. In each unit that will be sampled, discard the first wipe from the dispenser prior to initiating sampling. Fold each wipe completely before inserting it into the collection tube.

The Contractor shall collect wipe samples in accordance with ASTM's *Standard Practice for Field Collection of Settled Dust Samples Using Wipe Sampling Methods for Lead Determination by Atomic Spectrometry Techniques* (E 1728), using wipe materials that meet the requirements of *Standard Specification for Wipe Sampling Materials for Lead in Surface Dust* (E 1792). (See AIHA web site for a listing of wipe vendors meeting ASTM Method E1792 criteria.)

2.2.2.2 Soil Sampling

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NOTE: In some parts of the country, particularly the South and coastal areas, family housing may have accessible crawl spaces that are used as play areas by small children. Samples should be collected from the bare soil in these crawl spaces if they have been affected by the lead hazard control activities, and clearance sampling is required.

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Each composite sample shall include no less than two (2) and no more than ten (10) sub-samples, each collected from distinct locations roughly equidistant from each other along an axis. Sub-samples along drip lines shall generally be collected at locations two to six feet from each other. In other sampling locations (such as play areas) sub-samples shall be collected from roughly equidistant points along each leg of an X-shaped pattern. The samples shall include only those sides of the building that are subject to the lead hazard control measures. [One composite soil sample shall be collected from all sides of the unit's perimeter.] [Only soil from the perimeter of treated faces of the subject unit shall be sampled. A second composite soil sample shall be collected from nearby play areas.] The Contractor shall collect composite soil samples from [ ] [the drip line] [play areas of bare soil] [bare soil from rest of the yard (i.e., non-play area)] [the bare soil in the crawl space of each unit subject to the clearance inspection].

The Contractor shall collect bare soil samples in accordance with the procedures outlined in the most current edition of *Standard Practice for Field Collection of Soil Samples for Lead Determination by Atomic Spectrometry Techniques*, ASTM Standard E 1727.

2.2.3 Sample Identification and Documentation

2.2.3.1 Sample Identification

Dust and soil samples shall be identified using unique sample numbers. Field and laboratory blanks and spiked samples submitted to the laboratory for QA/QC purposes shall be numbered in such a way that the sample identity will not be revealed to personnel conducting the analysis.

2.2.3.2 Sample Documentation

All single surface dust wipe samples collected, and the location of each, shall be documented in the field on Form 2 (Figure C-2, Appendix C). All soil samples collected and the location of each, shall be documented in the field on Form 3 (Figure C-3, Appendix C). The Forms documenting the samples and sample locations shall be included as an attachment the to the Clearance Sampling Plan and submitted as a part of the Lead Hazard Clearance Report.

2.2.3.3 Sample Chain-of-Custody

The Contractor shall follow a standard chain-of-custody protocol to ensure and document a continuous record of sample possession from sample collection to receipt by the laboratory. The Contractor shall complete and maintain chain-of-custody forms for each set of samples shipped to the laboratory, and a copy of the forms shall accompany each shipment of samples. An example chain-of-custody form (Figure C-4) is included in Appendix C.

The Contractor shall include copies of all chain-of-custody forms completed during the assessment in the Clearance Report.

2.2.4 Decontamination

Field sampling equipment shall be decontaminated following the appropriate ASTM standard. At a minimum, the field decontamination procedures for non-disposable sampling equipment (e.g., coring devices) shall consist of either wiping the equipment off twice using a clean wet wipe each time, or washing in a solution of non-phosphate detergent (e.g., Liquinox®), and rinsing with distilled water. The equipment shall be decontaminated prior to each use, between each sample, and prior to leaving the site. Disposable latex gloves shall be discarded after each sample. Gloves need not be changed between each sub-sample when collecting composite soil samples. The Contractor shall coordinate with the installation environmental officer to determine requirements for the disposal of decontamination waste and used personal protective equipment.

2.3 TASK 3 SAMPLE DATA ANALYSIS, EVALUATION OF FINDINGS

2.3.1 Sample Preparation and Analysis

Samples collected by the Contractor during the assessment(s) shall be sent to a laboratory recognized under the NLLAP for analysis. The laboratory shall be accredited for each type of analysis required. The Contractor shall verify the use of the following procedures by the Laboratory:

2.3.1.1 Dust Sample Preparation and Analysis

Dust samples shall be prepared for analysis following the ASTM *Standard Practice for Hot Plate Digestion of Dust Wipe Samples for the Determination of Lead by Atomic Spectrometry* (E 1644) or *Standard Provisional Practice for Ultrasonic Extraction of Paint, Dust, Soil, and Air Samples*

for Subsequent Determination of Lead (E 1979) and analyzed following the *Standard Test Method for Analysis of Digested Samples for Lead by Inductively Coupled Plasma Atomic Emission Spectrometry (ICP-AES), Flame Atomic Absorption (FAAS), or Graphite Furnace Atomic Absorption (GFAAS) Techniques* (E 1613). The most current version of the methodology shall be used. The laboratory shall report results in units of µg/ft^2, allowing direct comparison with federal criteria.

2.3.1.2 Soil Sample Preparation and Analysis

Soil samples shall be prepared for analysis following the ASTM *Standard Practice for Sample Digestion of Soils for the Determination of Lead by Atomic Spectrometry* (E 1726) or *Standard Provisional Practice for Ultrasonic Extraction of Paint, Dust, Soil, and Air Samples for Subsequent Determination of Lead* (E 1979) and analyzed following the *Standard Test Method for Analysis of Digested Samples for Lead by Inductively Coupled Plasma Atomic Emission Spectrometry (ICP-AES), Flame Atomic Absorption (FAAS), or Graphite Furnace Atomic Absorption (GFAAS) Techniques* (E 1613). The most current version of the methodology shall be used. Results shall be reported in units of µg/g and parts per million (ppm), allowing direct comparison with the EPA criteria.

2.3.1.3 Laboratory Turnaround Time

The Contractor shall require the laboratory to report analytical results to the Contractor within [insert expected laboratory turn around time in days. Short turn around time in days adds cost.] days of the laboratory's receipt of the samples.

2.3.2 Quality Assurance and Quality Control (QA/QC)

2.3.2.1 Field Blank Dust Wipe QA Samples

Field blanks for single wipe sampling shall be collected in accordance with ASTM's *Standard Practice for Field Collection of Settled Dust Samples Using Wipe Sampling Methods for Lead Determination by Atomic Spectrometry Techniques* (E 1728), using wipe materials meeting the requirements of *Standard Specification for Wipe Sampling Materials for Lead in Surface Dust* (E 1792) using the same wipe material that had been used to collect the field wipe samples. There shall be no indication to the laboratory, by sample identification numbers or other means, that the field blank samples are QA samples.

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NOTE: The AIHA produces the most reliable spiked lead samples that are commercially available and are specified over all other sources if commercial spikes are purchased, since the AIHA spiked samples prepared are used in the ELPAT certification program. The AIHA stock samples are obtained through the AIHA.

AIHA
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(703) 849-8888 (voice)
(703) 207-3561 (fax)
http://www.aiha.org/fees.html/

The text below gives the Contractor two options to generate spiked wipe samples:

In Option a, the Contractor must obtain the same wipe material used by the commercial source in preparing the spikes, to collect field samples.

Option b allows the Contractor to use a second independent laboratory to prepare spikes sent to the laboratory doing the analysis of the field data. NIST traceable materials must be used by the laboratory in preparing the spike samples.

****

The Contractor shall submit double-blind (spiked) (See Glossary) QA dust wipe samples to the laboratory at a frequency of one double-blind sample per 50 field samples collected (with a minimum of at least one) using one of the two following options:

a. The Contractor shall obtain commercially prepared spiked wipe samples that are prepared by meeting the same QA/QC requirements required in preparing spiked wipe samples used by the AIHA in its management of the Environmental Lead Proficiency Analytical Testing (ELPAT) laboratory certification program, for submittal to the laboratory. [One source of spiked samples meeting the QA/QC requirements is listed on the AIHA web site: http://www.aiha.org] The Contractor shall obtain from the commercial source, wipes of the same brand and type as those used to prepare the spiked samples. The Contractor shall use these wipes to collect field samples and to prepare field blank samples.

b. The Contractor shall hire a laboratory to prepare spiked wipe samples using National Institute of Standards and Testing (NIST) traceable materials. Spiked samples shall be prepared using leaded dust, not lead in solution. The lead concentration in the spiked wipe samples shall approximate the amount of lead in the lead action level criteria for hard floors in Table A-1 of this SOW. The Contractor shall provide uncontaminated wipes of the same brand and lot as the wipes that will be used to collect field samples, to the laboratory preparing the spiked samples. The laboratory shall use these wipes to prepare the spiked wipe samples. The laboratory preparing the spiked samples shall be independent of the laboratory that will be used to analyze the field samples and field QA samples.

There shall be no indication to the laboratory analyzing the field samples, by sample identification numbers or other means, that the spiked samples are QA samples.

2.3.2.3 Field Rinsate Blank QA Samples (Soil)

One rinsate blank (see Glossary) for coring or spoon sampling techniques (refer to ASTM E1727) shall be included with each batch of soil samples sent to the laboratory.

2.3.2.4 Matrix Spike/Matrix Spike Duplicate (MS/MSD) Soil QC Samples

The Contractor shall collect a sufficient quantity of soil to ensure that the laboratory can prepare MS/MSD samples. (One set of MS/MSD samples shall be prepared for each batch of soil samples submitted to the laboratory for analysis in accordance with ASTM's *Standard Practice for Sample Digestion of Soils for the Determination of Lead by Atomic Spectrometry* (E 1726).)

2.3.3 Project Data Review and Assessment

****

NOTE: The analytical data acceptance criteria for lead hazard identification and control samples provided in Table B-1 (Appendix B) have been adapted from the LQSR, Revision 2.0 (August 1996), Table A-1, Section 10-Quality Assurance and Quality Control. Table B-1 must be verified (and updated as needed) as a part of the SOW editing process by contacting the EPA NLLAP Program Manager (call the EPA Hot Line at 1-800-424-LEAD). Any time laboratory data are reviewed for acceptability, the current revision of the LQSR must be consulted to make required changes to Table B-1.

****

The Contractor shall review all project data collected during the clearance assessment and verify that the data was collected in accordance with the DQOs. Data review includes (1) field sample collection and control review; and, (2) analytical laboratory data review. Field sample collection and control review includes evaluating the adequacy of the Clearance Sampling Plan throughout the performance of the assessment.

2.3.3.1 Field Wipe Quality Assurance Verification

Prior to beginning field dust sampling, the Contractor shall provide the laboratory with at least one uncontaminated wipe per each container of bulk packed wipes that will be used for collecting field dust wipes, to verify that the wipe material meets the requirements of *Standard Specification for Wipe Sampling Materials for Lead in Surface Dust* (E 1792). Wipes containing more than 5.0 µg/wipe of background lead shall render the entire container of bulk packed wipes contaminated and disqualify the represented wipes for field use. (See AIHA web site for a list of wipe venders meeting ASTM Method E 1792 criteria).

2.3.3.2 Laboratory QA and QC (QA/QC) Verification.

****

NOTE: The Contractor must choose the most advantageous technique to provide extra samples to the laboratory should additional samples be required by the laboratory to replace sampling or QA/QC data lost due to laboratory mistakes. The Government is not liable for cost of additional sample collection due to laboratory mistakes, Contractor collection problems, or chain-of-custody errors.

****

a. Evaluation of Laboratory Data

The Contractor shall obtain and review NLLAP-required QC data generated for each sample run completed under this SOW . The QC data shall include batch QC validation data and the 95% confidence interval data (determined by the laboratory from QC charts or a QC database for each matrix, i.e., single surface dust wipe samples and soil samples) determined at concentrations equivalent to [ ] $\mu g/ft^2$ for dust wipe samples and [ ] $\mu g/g$ for bulk soil samples. The Contractor shall evaluate the data package to determine that the QA/QC data generated for each sample run falls within current NLLAP LQSR parameters listed in Table B-1, Appendix B. Spiked samples submitted to the laboratory shall fall within 75% - 125% of the true value.

b. Rejection of Laboratory Data

The Contractor shall not accept or use data from the laboratory that does not fall within current NLLAP LQSR parameters specified in Table B-1, Appendix B. If the laboratory fails to obtain spiked sample results within the specified error limits:

a. Two more spikes of the same matrix shall be sent immediately to the laboratory for analysis.

b. If the two additional spike samples fail, the sample batch shall be considered invalid for the matrix represented.

If laboratory data are rejected and insufficient quantities of the samples remain to allow re-analysis of the samples while adhering to QA/QC requirements, the Contractor shall collect and submit additional samples, at no cost to the Government, for laboratory analysis, using NLLAP QA/QC protocols. The Contractor shall also be responsible for any re-sampling required due to laboratory errors that result in a destruction or loss of data, or failure to report results on any samples submitted.

2.3.4 Contractor Certification of Project Data Validity

The Contractor shall certify that all field data collected to determine the absence of lead hazards were valid and met the DQOs.

2.3.5 Comparison with Lead Hazard Action Levels

The Contractor shall compare the collected data with the lead hazard action levels listed in Table A-1 to determine that clearance has been achieved. The Contracting Officer shall be notified immediately if validated leaded dust wipe samples or soil samples exceed the lead hazard action levels in Table A-1. The comparison shall be documented in the Lead Hazard Clearance Report.

2.3.6 Clearance Completion

Clearance will not be completed until the clearance criteria listed as lead hazard action levels in Table A-1 have been achieved.

2.3.7 Project Data Presentation

The Contractor shall provide the project data to the Contracting Officer in both a written laboratory report and an electronic format [HALO format] [insert other data management system as applicable] as an attachment to the Lead Hazard Clearance Report.

2.3.7.1 Laboratory Report

The Contractor shall require the laboratory to provide the information necessary to comply with the data evaluation/validation procedures outlined in this SOW. This shall be included in a data package containing the following information:

- Cover page information including methods, dates, instruments, digestions, and signature of the laboratory director.
- Proof of NLLAP recognition and accreditation for each type of matrix analysis required.
- Sample information including identification and results for blanks, QC samples, samples, dilution factors, and batch identification.
- Results of calibration, including sources of standards and detection limits.
- Results of blanks, including type of blank, and any corrections used.
- Results of calibration verification checks.
- Results of tests for precision and accuracy.
- Results of standard sample analysis to 95% confidence intervals, which contain concentrations of lead that correspond to a given action level.

2.4 TASK 4 LEAD HAZARD CLEARANCE REPORT

The Contractor shall prepare a Lead Hazard Clearance Report containing the elements described below.

2.4.1 General Report Contents

In addition to the information described in Paragraphs 2.4.2 through 2.4.5 below, the Lead Hazard Clearance Report shall include:

- The name, address, and telephone number of the Lead Hazard Control Contractor responsible for the lead hazard control activities requiring clearance.

- Address and age of each building [unit].
- Unit number
- The date of [each] clearance..
- Verification of lead hazard controls implemented in accordance with original project SOW, based on a visual examination for each unit subject to a clearance inspection.
- Clearance Sampling Plan with post-sampling documentation
- The Laboratory Report
- The Contractor's certification that the NLLAP required QA/QC data generated by the laboratory are valid and meet the SOW requirements for each of the sample batches analyzed.

2.4.2 Contractor Data Certification

The Contractor shall certify that the data used to develop the conclusions of the clearance have been reviewed and validated, and have met the DQOs defined in Paragraph 1.3.3.

2.4.3 Electronic [HALO/] Installation Data Downloading into Installation System

****

NOTE: All data collected during activities specified in this SOW is to be provided to the Army in a format compatible with the Army's Hazardous Asbestos and Lead Optimal Management System (HALO) or, if the installation does not utilize HALO, compatible with the installation data management system requirements. HALO is a hazard management system designed to track lead and asbestos hazards and actions taken in response to identified hazards. HALO requires an IBM-compatible personal computer (with a Pentium® processor), Windows 95, 16 MB of RAM, 10MB of available hard disk space, Word 97, and display resolution of 800x600 pixels. The current point-of-contact (POC) for HALO is:

USACE Engineering Research and Development Center (CEERDC)

(217) 352-6511, ext. 7239 (commercial)

Where the installation has no unique data management system for LBP data, HALO will be the default program for all deliverables under this SOW. The SOW should detail the procedure for the Contractor to follow in providing the results of the lead clearance inspection to the Contracting Officer for uploading into HALO or other system used by the installation.

At a minimum, the Contractor must be provided with a copy of the HALO Data Dictionary. The dictionary identifies the table names, field names, data types, and any

required default values. The dictionary is part of the HALO program and can be obtained through the installation, or by contacting CEERD CF-M. If the transferee is known, consult them for reporting requirements, In every case, electronic archives should be produced for the record.

****

The Contractor shall provide laboratory data in both hard copy and electronic format. The electronic data report shall be provided in [HALO format] [insert other data management system].

2.4.4 Update Installation Management Plan

****

NOTE: The customer should indicate whether this task is necessary, and define any installation-specific requirements. This is not related to clearance. Consult with the customer to determine the scope of this task (e.g., whether to limit the task to entry of new data into the appropriate electronic format, or to include an updated hard copy document, or to deliver an addendum to the existing installation plan, or the inclusion of this task at all).

****

[After entering the clearance inspection data into HALO, the Contractor shall run the HALO program to generate an updated installation management plan.]

[The Contractor shall update the installation lead hazard management plan.]

2.4.5 Statement of Clearance

The report shall contain a statement of lead hazard clearance to the owner.

3.0 SUPPLEMENTAL REQUIREMENTS FOR CONTRACTED SERVICES

3.1 CONTRACTOR FIRM/PERSONNEL QUALIFICATIONS

3.1.1 Contractor Firm Experience

The contracted firm shall have a minimum of [insert appropriate number of years] years experience in conducting lead clearance activities and have adequate qualified staff. Three references, at a minimum shall be required, for completed projects equal in complexity to the one described in this SOW. [The Contractor shall not be an employee of the Lead Hazard Control Contractor or be an employee or principal of a firm recognized by Federal, state, or local regulations as having a business relationship not considered independent to the Lead Hazard Control Contractor.]

3.1.2 Contractor Risk Assessor/Project Manager Qualifications

****

NOTE: Some states or local jurisdictions may use different terminology for individuals certified to complete the services described in this SOW, i.e., the certificate may include a title other than "risk assessor."

****

The Contractor shall employ a certified risk assessor to complete the assessment described in this SOW.

3.1.2.1 EPA Certification

EPA certification (or certification under an EPA-approved state program) is required pursuant to 40 CFR 745.226 (64 FR 42849, 6 August 1999).

3.1.2.2 State and Local Certification

Each risk assessor shall possess current certification or licensing required under state or local jurisdictions, if applicable, in addition to or in place of EPA certification, depending on the requirements of the jurisdictions.

3.1.2.3 Evidence of Certification

A copy of each current applicable certificate shall be included in the Project Work Plan for each Contractor risk assessor participating in this project.

3.1.2.4 Record of Experience

A resume or other description of the certified risk assessor's experience, which is directly applicable to the activities required under this SOW shall be included in the Project Work Plan.

3.1.2.5 Clearance Teams

****

NOTE: Indicate the number and size of clearance teams for large, complex projects.

****

The Contractor shall specify in the Project Work Plan the number of risk assessors and clearance teams that are to be used to perform the clearance inspection(s) addressed in this SOW. No more than [insert appropriate number] risk assessors per team shall be assigned to conduct the clearance inspection(s). Team leaders shall have a minimum of three years experience in conducting lead clearance activities

3.1.2.4 Project Manager Experience

[The project manager shall have a minimum of three years experience in managing lead clearance inspections.] A resume or other description of the project manager's experience that is directly

applicable to the activities required under this SOW shall be provided as a part of the Project Work Plan.

3.1.3 Contractor Errors and Omissions Liability Insurance

****

NOTE: Consult with the Contracting Officer to develop requirements for Contractor errors and omissions liability insurance that are appropriate for the scope of the project.

****

The Contractor shall provide documentation to the Contracting Officer that the Contractor is currently covered by an errors and omissions liability insurance policy. [insert errors and omissions text as appropriate].

3.2 PROJECT RECORDS

3.2.1 Record keeping Requirements

The Contractor shall maintain records related to the clearance activities for [insert appropriate number of years]. Records shall include:

3.2.1.1 Project Work Plan

3.2.1.2 Lead Hazard Clearance Report

3.2.1.3 Correspondence, Conference Notes, Field Notes, Other Documentation including any recommended re-cleaning activities and response actions.

3.3 PROJECT COORDINATION

The Contractor shall coordinate all activities through the Contracting Officer

3.4 GOVERNMENT SUPPORT

****

NOTE: Little standard language is offered in this paragraph, since the requirements will be very project-specific. The specific language will need to be defined with the customer.

****

3.4.1 Government Quality Control Oversight

[insert appropriate provisions] The Contracting Officer reserves the right to audit the Clearance Sampling Plan with post clearance Sample Documentation for any unit cleared at any time during the course of the project.

3.4.2 Rights of Entry, Security and Escorts

[ ]

3.4.3 Temporary Office/Equipment Storage/Staging Areas

The Contractor shall be provided at no cost a work area to be used as a temporary office, or for equipment storage and staging for the duration of the inspection activities. The contractor shall ensure that the work area is restored to its original condition upon completion of activities. [The Government] [The Contractor] shall provide phone lines for communication [and Internet access]

3.5 TRAVEL AND MEETINGS

All meetings shall be attended by the Contractor's project manager and [team leader/risk assessor], if these are different individuals.

3.5.1 Preliminary Project Site Visit/Walkover

****

NOTE: Where the Contractor's project manager is not the same individual as the risk assessor or risk assessor team leader performing the clearance inspections, both must be required to participate in the site visit. If the Contractor is to use a number of risk assessment teams, the risk assessors acting as team leaders for each team must participate in the site visit.

****

The [Contractor's project manager and] risk assessor team leader(s) shall visit a representative number of units to be cleared with the Contracting Officer and the installation POC.

3.5.2 Project Work Plan Review and Start-up Meeting

The Contractor shall attend a startup meeting to review, finalize and approve the Project Work Plan to include the Clearance Sampling Plan immediately prior to beginning field activities. The Contractor shall generate meeting minutes that will be submitted to the Contracting Officer within [two weeks] of the meeting.

3.5.3 Data Certification Meeting

****

NOTE: Data certification may also be discussed at the Lead Hazard Clearance Report meeting, or other progress meetings to help limit the number of required meetings.

****

[The Contractor shall attend a meeting with the Contracting Officer to review the Contractor's clearance sampling data verification outcomes.]

3.5.4 Final Lead Hazard Clearance Report Meeting

The Contractor shall attend a final Lead Hazard Clearance Report meeting prior to final submittal.

3.5.5 Additional Meetings

[Insert additional meetings if required]

3.6 SCHEDULES

****

NOTE: Consult the customer to determine schedule requirements. Combine meeting topics where appropriate. At a minimum, the schedule milestones are:

1) Site visit/project walkover

2) Project Work Plan submission meeting

3) Project start-up meeting, if not combined with item 2

4) Data certification meeting, if not combined with item 5

5) Final Lead Hazard Clearance Report submission meeting

****

[Insert appropriate schedule milestones]

3.7 SUBMITTALS

3.7.1 Project Work Plan

The Contractor shall submit a Project Work Plan to the Contracting Officer for government acceptance.

3.7.2 Clearance Progress Reports

[The Contractor shall provide [weekly, biweekly, monthly, etc.] project progress reports to the Contracting Officer. The reports shall be due to the Contracting Officer [insert dates as appropriate]. The reports shall address [progress, schedule compliance, etc. as appropriate.].]

3.7.3 Lead Hazard Clearance Report

The Contractor shall provide [insert appropriate number of copies] of the Lead Hazard Clearance Report in [three ring binders] [specify other] as described in Paragraph 2.4. A compact disc (CD) of the report shall be included with each copy of the submittal.

3.8 MISCELLANEOUS

3.8.1 Glossary

This paragraph contains acronyms, and terms used in this SOW. For a more complete listing of terms commonly used in reference to lead-based paint projects consult appropriate regulations or ASTM standards.

Certified Risk Assessor	An individual who has been trained by an accredited training program, as defined by this section, and certified by EPA pursuant to §745.226 to conduct risk assessments. A risk assessor also samples for the presence of lead in dust and soil for the purposes of abatement clearance testing. (40 CFR 745.223)
Chain-of-Custody	Procedures implemented to ensure a trail of accountability for samples from the time of collection to delivery at the laboratory including the forms used to implement the procedures.
Child Occupied Facility	A building, or portion of a building, constructed prior to 1978, visited regularly by the same child, 6 years of age or under, on at least two different days within any week (Sunday through Saturday period), provided that each day's visit lasts at least 3 hours and the combined weekly visit lasts at least 6 hours, and their combined annual visits last at least 60 hours. Child-occupied facilities may include, but are not limited to, day-care centers, preschools and kindergarten classrooms.
Common Area	A portion of a building that is generally accessible to all occupants. Such an area may include, but is not limited to, hallways, stairways, laundry and recreational rooms, playgrounds, community centers, garages, and boundary fences. (40 CFR 745.223)
Component or Building Component	Specific design or structural elements or fixtures of a building, residential dwelling, or child-occupied facility that are distinguished from each other by form, function, and location. These include, but are not limited to… (40 CFR 745.223).
Contracting Officer	To be interpreted to mean the Contracting Officer, the Contracting Officer Representative, or the Contracting Officer Technical Representative
Data Quality Objectives	The qualitative and quantitative statements, guidelines, and requirements presented in paragraphs 2.2, and 2.3 of this SOW that clarify study objectives, define the appropriate type of data, and specify the tolerance levels of potential errors that will be used as the basis for establishing the quality of the data needed to support decisions. See EM 200-1-2 Appendix G DQO Attainment Verification Worksheet for further refinement of the DQO definition.
Double-Blind Sample	For the purposes of this SOW, this refers to a quality control sample (replicate, duplicate, spiked sample, etc.) that is sent to the laboratory with no indication of the possible lead content and without identifying the sample as a quality control sample.

Encapsulant	A substance that forms a barrier between lead-based paint and the environment using a liquid-applied coating (with or without reinforcement materials) or an adhesively bonded covering material. (40 CFR 745.223)
Enclosure	The use of rigid, durable construction materials that are mechanically fastened to the substrate in order to act as a "dust tight" barrier between lead-based paint and the environment. (40 CFR 745.223)
HALO	The Army's Hazardous Asbestos and Lead Optimal Management System, which is an electronic management system designed to track lead hazards and actions taken in response to identified lead hazards.
Lead-Based Paint (LBP)	Paint or other surface coatings that contain lead equal to or in excess of 1.0 milligrams per square centimeter or more than 0.5 percent (5000ug/g or 5000 ppm) by weight. (40 CFR 745.223)
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 in accessible surfaces, friction surfaces, or impact surfaces that would result in adverse human health effects.
Lead-Contaminated Dust	Surface dust that contains an area or mass concentration of lead at or in excess of levels defined in Table A-1 of this SOW.
Lead-Contaminated Soil	Bare soil that contains lead at or in excess of levels defined in Table A-1 of this SOW.
Lead Hazard Control Treatment	In residential lead-based paint hazard control work, any method designed to control lead-based paint hazards. Treatment includes interim controls, abatement, and removal. Examples include paint film stabilization, friction and impact surface treatments, dust removal using standardized cleaning techniques, soil covers, building component replacement, enclosure, paint removal, or soil removal.
µg/ft^2	Micrograms per square foot
µg/g	Micrograms per gram (parts per million on mass/mass basis)
MS/MSD	Matrix spike/matrix spike duplicate
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. (40 CFR 745.223)

QA	Quality assurance defined by NLLAP as an "integrated system of activities involving planning, quality control, quality assessment, reporting, and quality improvement to ensure that a product or service meets defined standards of quality within a state level of confidence." (NLLAP LQSR Revision 2.0 (August 1, 1996))
QC	Quality control defined by NLLAP as the "overall system of technical activities whose purpose is to measure and control the quality of a product or service so that it meets the needs of users. The aim is to provide quality that is satisfactory, adequate, dependable, and economical. (NLLAP LQSR Revision 2.0 (August 1, 1996))
Recognized Laboratory	An environmental laboratory recognized by EPA pursuant to TSCA section 405(b) as being capable of performing an analysis for lead compounds in paint, soil, and dust. (40 CFR 745.223)
Rinsate Blank	A sample of "used" cleaning fluid rinse solution, also called equipment blank. Rinsate blank examples include a final rinse of the device used to collect soil or the final rinse to clean a scoop used to collect soil samples. The rinsate blank is used in rinsing collection equipment prior to use to monitor possible cross contamination. The rinsate blank goes through all steps in the analysis including the digestion. (EPA, 757-R-92-006, May 1993)
Target Housing	Any housing constructed prior to 1978, except housing for the elderly or persons with disabilities (unless any on or more children age 6 years or younger resides ore is expected to reside in such housing for the elderly or persons with disabilities), or any 0 bedroom dwelling (40 CFR 745.223).

Appendix B

Analytical Data Acceptance Criteria for Lead-Based Paint Hazard Clearance Activities

Table B-1

DATA ATTRIBUTE Frequency	ACCEPTANCE LIMITS SINGLE WIPE	COMPOSITE WIPE	PAINT CHIP
INDEPENDANT CALIBRATION VERIFICATION (ICV) Once per Day	Within ± 10% of Known Value	Within ± 10% of Known Value	Within ± 10% of Known Value
INITIAL CALIBRATION BLANK (ICB) At the Beginning of Run	Absolute Value Not More Than 10% of the Regulatory Limit or Minimum Level of Concern	Absolute Value Not More Than 10% of the Regulatory Limit or Minimum Level of Concern	Absolute Value Not More Than 10% of the Regulatory Limit or Minimum Level of Concern
CONTINUING CALIBRATION VERIFICATION CCV) Beginning and End of Run and Every 10 Samples or as specified in the SOP	Within ± 15% of Known Value for ICP or FAAS; Within ± 20% for GFAA	Within ± 15% of Known Value for ICP or FAAS; Within ± 20% for GFAA	Within ± 15% of Known Value for ICP or FAAS; Within ± 20% for GFAA
INTERFERENCE CHECK SAMPLE (ICS) Beginning and End of Run or Twice Every Eight Hours	Within 20% of Known Value	Within 20% of Known Value	Within 20% of Known Value
CONTINUING CALIBRATION BLANK (CCB) After each ICS and CCV	Absolute Value not More Than 10% of Regulatory Limit of Level of Concern	Absolute Value not More Than 10% of Regulatory Limit of Level of Concern	Absolute Value not More Than 10% of Regulatory Limit of Level of Concern
LABORATORY CONTROL SAMPLE (LCS) One per 20 Samples or Batch-Minimum Frequency 5%	Within ± 20% of Known Value	Within ± 20% of Known Value	Within ± 20% of Known Value
MATRIX SPIKE SAMPLE (MSS) One per 20 Samples or Batch-Minimum Frequency 5%	Within 25% of Calculated Value	Within 25% of Calculated Value	Within 25% of Calculated Value
DUPLICATE FIELD SAMPLE (DFS) One per 20 Samples or Batch-Minimum Frequency 5%	Within ±25% Relative Percent Difference (RPD)	Within ±25% Relative Percent Difference (RPD)	Within ±25% Relative Percent Difference (RPD)
MATRIX BLANK (MB) One per 20 Samples or Batch-Minimum Frequency 5%	Absolute Value Not More Than 10% of Regulatory Limit of Level of Concern	Absolute Value Not More Than 10% of Regulatory Limit of Level of Concern	Absolute Value Not More Than 10% of Regulatory Limit of Level of Concern

Adapted from Table 1, EPA NLLAP Laboratory Quality System Requirements (LQSR) Revision 2.0, August 1, 1996.

APPENDIX C - STANDARD CLEARANCE FORMS

This appendix contains example forms to be used in completing lead hazard control clearance activities. These forms are adapted from those presented in the HUD guidelines. These forms include:

FORM 1

LEAD HAZARD CONTROL VISUAL CLEARANCE FORM

Installation: _____ POC: _____

Address: _____ City: _____ State: _____ Housing Group: _____

Abatement Method/Treatment: _____

Date/Time
Cleanup Completed: _____

Date/Time
Inspection Initiated: _____

Check if repeat clearance inspection: _____ Date of initial inspection: _____

Lead Hazard Control Contractor Name: _____

Address: _____

_____

Telephone Number: _____

Room Name and Number	**List all building components required to be treated in each room**	**Work on each component completed (yes or no)**	**Visible paint chips/waste or debris seen (yes or no)**	**Visible settled dust seen (yes or no)**	**Additional work required**

Exterior soil	_____Treated	_____Not treated
If treated, is bare soil present?	_____Yes	_____No
Was contaminated soil removed?	_____Yes	_____No
Is additional soil treatment required?	_____Yes	_____No

NOTES:

_____

Name of Risk Assessor (print): _____

Certification Number(s): _____

Signature: _____ Date: _____

Figure C-1: Lead Hazard Control Visual Clearance Form

FORM 2 EP 1110-1-29

LEAD HAZARD CONTROL CLEARANCE DUST SAMPLING FORM 31 Aug 01

(Single-Surface Sampling)

Installation: _____ POC: _____

Address: _____ City: _____ State: _____ Housing Group: _____

Date/Time Cleanup Completed: _____ Date/Time Inspection Initiated: _____

Component: _____

Clearance Categories: _____

Abatement Method: _____

Sample ID #	Room Name and Number	Surface (floor, interior window sill, window trough, etc.)	Smooth? (yes or no)	Sub-strate	Length (inches)	Width (inches)	Area (ft^2) (may be completed by lab)	Lab Results ($\mu g/ft^2$) (may be completed by lab)	Units	Above Action Level? (yes or no)
									$\mu g/ft^2$	
									$\mu g/ft^2$	
									$\mu g/ft^2$	
									$\mu g/ft^2$	
									$\mu g/ft^2$	

Total number of samples on this page: _____

Date/Time of sample collection: _____ Date sent to lab: _____

(Note: Attach a Copy of the Chain-of-Custody Form to this Form. See Lab Report for QA/QC Information.)

NOTES:

_____

Name of Risk Assessor (print): _____

Certification Number(s): _____
(EPA, State, as applicable)

Signature: _____ Date: _____

Figure C-2: Lead Hazard Control Clearance Dust Sampling Form

EP 1110-1-29 FORM 3

31 Aug 01 LEAD HAZARD CONTROL CLEARANCE SOIL SAMPLING FORM

(Composite Sampling)

Installation: _____ POC: _____

Address: _____ City: _____ State: _____ Housing Group: _____

Date/Time Cleanup Completed: _____ Date/Time Inspection Initiated: _____

Sketch a soil sampling plot plan. Indicate sample locations. Collect only the top 1 inch of soil.

Sample ID#	Location	Bare or Covered	Lab Results	Units	High Contact? (yes or no)
				µg/g (ppm)	
				µg/g (ppm)	
				µg/g (ppm)	
				µg/g (ppm)	
				µg/g (ppm)	
				µg/g (ppm)	
				µg/g (ppm)	
				µg/g (ppm)	
				µg/g (ppm)	
				µg/g (ppm)	

Total number of samples on this page: _____

Date/Time of sample collection: _____ Date sent to lab: _____

(Note: Attach a Copy of the Chain-of-Custody Form to this Form. See Lab Report for QA/QC Information.)

NOTES:

_____

Name of Risk Assessor (print): _____

Certification Number(s): _____

(EPA, State, as applicable)

Signature: _____ Date: _____

Figure C-3: Lead Hazard Control Clearance Soil Sampling Form

FORM 4
CHAIN OF CUSTODY FORM
FOR LEAD CLEARANCE INSPECTION

Page _____ of _____

Project Name _____ Project Number _____ Installation _____ Project Manager _____ Company Name _____ Company Address _____ _____ Phone _____					Sample Preparation/Analysis Required (check the appropriate box)					
					ASTM E1644	ASTM E1645	ASTM E1726	ASTM E1979	ASTM E1613	Other (specify)
Sample ID	Sample Date	Time	Sample Matrix (wipe, paint chip, soil, other)	Laboratory ID						

Sampler:	1. Released by:	2. Received by:	Special Instructions/Comments:
_____ Signature	_____ Signature	_____ Signature	
_____ Printed Name/Certification Number	_____ Printed Name	_____ Printed Name	
_____ Company Name	_____ Company Name	_____ Company Name	
_____ Date/Time	_____ Date/Time	_____ Date/Time	

Figure C-4: Chain of Custody Form For Lead Hazard Clearance Inspection