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Port Hueneme, California 93043-4370

TECHNICAL MEMORANDUM
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LEAD PAINT REMOVAL QUALITY ASSURANCE MANUAL FOR RENOVATION/DEMOLITION CONTRACTS AT NON-HOUSING/NON-CHILD OCCUPIED FACILITIES

by

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This field procedure manual was developed to help government representatives review and administer lead paint removal contracts. The manual's intent is to ensure the contractor: (1) protects the safety and health of workers and building occupants, (2) prevents the release of lead paint debris into the environment, and (3) complies with all applicable standards and regulations.

The manual parallels each stage of a lead paint removal project at a non-housing/non-child occupied facility. Checklists, which follow the logical sequence of a removal project, provide basic information and emphasize important criteria.

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INTRODUCTION

Government representatives, including the Public Works Quality Assurance Engineer, the Officer In Charge of Construction (OICC) and the Resident Officer In Charge of Construction (ROICC), may supervise demolition or renovation projects that include the removal of lead paint. Lead paint is any paint or coating that contains lead in any amount. Lead paint should not be confused with lead-based paint or lead-containing paint. Refer to the Glossary for the definitions of lead paint, lead-based paint, and lead-containing paint.

> NOTE: Per Naval Facilities Engineering Command (NAVFAC HQ) msg. 131100Z Apr 98, "No NCF (Naval Construction Force) Unit will conduct hazardous materials removal or disposal operations."

The Naval Facilities Engineering Service Center (NFESC) developed this field procedure manual to help government representatives review and administer lead paint removal contracts for non-housing/non-child occupied facilities. The manual's intent is to ensure that the contractor will: (1) protect the workers and building occupants health and safety; (2) prevent the release of lead paint debris into the environment; and (3) comply with all applicable standards and regulations.

This manual combines information from Federal regulations and Navy standards, including: Occupational Safety and Health Administration (OSHA) 29 CFR 1926.62, Environmental Protection Agency (EPA) 40 CFR 260-268 and 745, Navy Occupational Safety and Health Program Manual OPNAVINST 5100.23 (Series), and Naval Facilities Guide Specification (NFGS) 13283A.

The manual parallels each stage of a lead paint removal project, following the logical sequence of a removal project. It is designed to be concise and easy to use, relying on removable checklists that emphasize important criteria. These checklists can be used to review lead paint removal contracts or taken to the project site to verify that all critical portions of the contract are completed. Detailed discussions of each checklist are included. Appendices provide additional relevant information that will aid in administering the contract.

The checklists provide basic information on required and/or recommended procedures for managing lead paint removal contracts for non-housing/non-child occupied facilities.

The manual is not intended to replace the contract specifications, but to augment them. The contract specifications are the legal binding documents that provide contract detail and serve as the final reference in areas of conflict or dispute. Completion of the checklists does not ensure the complete satisfaction of the contract specifications. This manual may not apply to all lead paint removal projects, such as small projects where the lead paint is to be encapsulated.

We hope the information contained within this document will serve government representatives and assist them in executing lead paint removal projects. We have an obligation to protect the safety and health of our workers as well as the environment.

REGULATIONS

The Occupational Safety and Health Administration (OSHA) and the Environmental Protection Agency (EPA) are responsible for promulgating federal lead regulations. However, States and local governments may also institute regulations that are more stringent than Federal standards. It is very important to obtain and comply with all State and local lead regulations.

The OSHA regulations addressing worker protection and procedures are:

29 CFR 1926.62 - Lead. Applies to all construction activities including renovation; alteration and repair work, including painting and decorating; and maintenance operations associated with construction. It is structured so that protection increases as the potential airborne levels of lead increase. Also included are requirements addressing exposure assessment, methods of compliance, respiratory protection, protective clothing, hygiene facilities and practices, medical surveillance and removal, signs, recordkeeping, and employee training.

29 CFR 1910.139 - Respiratory Protection. Sets forth requirements for establishing and implementing an acceptable respiratory protection program and sets guidance for respirator selection.

The EPA regulations are:

40 CFR 260 to 268 - Resource Conservation and Recovery Act (RCRA). Establishes procedures for making hazardous waste (HW) determinations and managing HW. It includes regulations to identify HW, standards for generators, transporters, and disposers of HW, and land disposal restrictions.

40 CFR 745 – Lead-Based Paint Poisoning Prevention in Certain Residential Structures. This regulation applies to target housing and child occupied facilities and establishes the training curriculum for accredited training programs in each work discipline. Work disciplines include inspector, risk assessor, supervisor, project designer, and abatement worker. It also sets forth the required work practice standards for inspection, risk assessment and lead abatement.

NOTE: It is strongly recommended that all employees conducting lead paint removal activities at non-housing/non-child occupied facilities receive accredited training in their corresponding work discipline. Some States have already extended their training accreditation and certification requirements to public and commercial buildings. EPA requirements for public and commercial buildings are under development and expected to be finalized in some time in the year 2000.

The Navy's lead program is defined as follows:

OPNAVINST 5100.23, Chapter 21 - Lead. This instruction provides specific guidance for Navy personnel to prevent lead intoxication and related injuries during the use, handling, removal, and melting of materials containing lead at Navy activities. Requirements of this instruction are not included in contracts.

NOTE: The current version of this document is OPNAVINST 5100.23D. It is important to determine the most recent version of each requirement prior to awarding any abatement contract.

NFGS 13283A, Removal and Disposal of Lead-Containing Paint. This guide specification covers the requirements and procedures for limiting occupational and environmental exposure to lead when removing lead based paint under a contract.

Additional Department of Defense (DOD) guidance:

EM 385-1-1, Safety and Health Requirements Manual. The DOD has adopted this U.S. Army Corps of Engineers manual for application to contract work. The manual implements the safety and health standards and requirements of 29 CFR 1910, 29 CFR 1926, 29 CFR 1960, 30 CFR 56, Executive Order 12196, and DODI 6055.1, as well as, other guidance.

The manual requires the development of a written plan delineating compliance with OSHA and EPA requirements whenever a lead hazard is identified. The Quality Assurance representative must accept the plan prior to beginning of work.

CONTRACT REVIEW

Well-designed and detailed contract specifications provide the overall guidance for each lead paint removal project. The contract should be based on NFGS 13283A, *Removal and Disposal of Lead-Containing Paint.* The contract specification should include, but is not limited to the following:

CONTRACT REVIEW CHECKLIST		
CHECK √	CHECKLIST ITEM DESCRIPTION	REFERENCE
	1. Does the contract identify all potential waste streams?	NFGS 13283A, par. 1.3.6
	2. Does the contract clearly identify the condition, quantity, and location of lead paint to be removed in the description of work?	NFGS 13283A, Introduction Note & par. 1.4
	3. Does the contract clearly indicate if removal of the lead paint is to the substrate?	NFGS 13283A, IntroductionNote
	4. Does the contract require use of certified lead workers and supervisors?	40 CFR 745.225 (d)
	5. Is the Contractor responsible for supplying personal protective equipment to the Contract Officer and government representatives for entry into the lead control area?	NFGS 13283A, par. 1.7.5
	6. Does the contract require that waste be adequately characterized to determine if it is a hazardous waste?	NFGS 13283A, IntroductionNote 40 CFR 261

Detailed Discussion.

Checklist Item #1. The identification of potential waste streams must be performed in the design phase of the project. In general, three broad categories of waste may be produced at a lead abatement job. They are: non-hazardous solid waste, non-hazardous liquid waste, and hazardous waste (either liquid or solid).

Checklist Item #2. Because of the need for extreme environmental and personnel exposure control, both the Contractor and the government representative or contract administrator should have a firm grasp of the amounts, condition, and locations of all lead paint to be removed, and understand the degree of removal difficulty. The accessibility of the lead paint should be described in detail. Accessibility impediments may include: drop ceilings, obstruction by other objects, or scuttle ports through which personnel must enter. Failure to properly evaluate the scope of the project could inadvertently produce a disastrous situation.

Checklist Item #3. No discussion.

Checklist Item #4. Employees performing lead paint removal, disposal, and air sampling operations must be trained prior to the time of initial job assignment. It is strongly recommended that all lead paint workers and supervisors be certified under an EPA accredited training program, per 40 CFR 745. The minimum hours of training required are summarized in Table 1.

NOTE: Training requirements of 40 CFR 745 apply to target housing and child occupied facilities.

TABLE 1. LEAD TRAINING REQUIRED UNDER 40 CFR 745

TYPE OF PERSONNEL	TRAINING REQUIRED
Workers	- 16 hours, with a minimum of 8 hours hands-on training
Supervisor	- 32 hours, with a minimum of 8 hours hands-on training
Project Designer	- 8 hours minimum

Checklist Item #5. Prior to entry into any lead control area, all personnel must wear the proper personal protective equipment, including respirators. The contract usually requires the Contractor to provide government representatives personal protective clothing on a daily basis.

NOTE: Government representatives must have respirator training, medical screening, and fit testing prior to using any respiratory equipment. The Contractor is responsible for informing the contract representatives of the proper respirator and cartridges to be used. The Government usually supplies respirators for government personnel.

Checklist Item #6. Removal specifications should clearly indicate that it is the responsibility of the Contractor to characterize the waste and determine if lead paint debris is classified as hazardous waste. The classification of waste as hazardous is performed during the course of work in accordance with 40 CFR 261. Additionally, this classification is a prerequisite to determine the requirements of special handling, storage, and disposal according to the federal and local hazardous waste management regulations.

PRE-REMOVAL

The removal of lead paint is a hazardous, complicated, and costly process that should not be considered normal contract work. Disturbance of lead coatings during the course of other work is also of concern. Allow only lead paint removal contractors/workers,certified by an EPA accredited training course, to perform removal actions.

It is mandatory that lead paint removal actions comply with both EPA and OSHA regulations. If the regulations are not followed, personnel can be exposed to and the environment can be contaminated with excessive lead dust. Thus, the Contractor and the employees must be knowledgeable in all health, safety, and environmental regulations.

PRE-REMOVAL CHECKLIST		
CHECK √	CHECKLIST ITEM DESCRIPTION	REFERENCE
	1. Has the Contractor notified the Contracting Officer 20 days prior to the commencement of work?	NFGS 13283A, par. 3.1.1
	2. Has the Contractor provided proof, and is it available on-site, that all lead workers and supervisors are trained in the proper lead paint removal procedures?	29 CFR 1926.21 (b)(2) 29 CFR 1926.62 (l) NFGS 13283A, par. 1.3.3 & 1.3.3.1
	3. Has the Contractor provided the name, address, and phone number of the Competent Person with documentation of training and, where required, licensing?	29 CFR 1926.62 NFGS 13283A, par. 1.3.2 & 1.5.3.1
	4. Has the Contractor provided proof that all of the employees has received medical examinations, and that medical records are kept?	29 CFR 1926.62 (j)(1)(i) 29 CFR 1910.139 OPNAVINST 5100.23 Ch. 21 NFGS 13283A, par. 1.3.1 & 1.3.1.1
	5. Has the Contractor provided proof that all of the employees are respirator trained and fit tested?	29 CFR 1926.62 (f)(4) 29 CFR 1910.139 (b), (d), (e), (f) OPNAVINST 5100.23 Ch. 21 NFGS 13283A, par. 1.3.4
	6. Has the Contractor provided a detailed Lead Paint Removal Plan, signed by the Competent Person, which complies with EPA/OSHA Safety and Health requirements? (Refer to the Lead Paint Removal Plan Section for details.)	NFGS 13283A, par. 1.5.3.c & 1.5.3.3 EM 385-1-1, par. 06.B.05 a.
	7. Has the Contractor provided the name, address, and phone number of the testing laboratory for all lead sampling analysis?	NFGS 13283A, 1.5.3.b, & 1.5.3.2
	8. Has the laboratory shown proof of participation in a proficiency analytical testing (PAT) program?	40 CFR 745.227 (f)(2) NFGS 13283A, 1.5.3.2
	9. Have baseline dust/wipe samples been taken?	NFGS 13283A, 3.2.2.d

Detailed Discussion.

Checklist Item #1. A timetable should be established for commencement and completion of the project during a pre-construction conference. The Contractor, Competent Person, Contracting Officer, and activity representatives from the Safety Office, Environmental Office, and Public Works, should meet to discuss details of the removal project. Notify all parties prior to commencement of work to ensure proper employee notification and work sequencing.

Checklist Item #2. Each employee performing lead paint removal work, disposal, and air sampling operations who are exposed to lead at or above the action level, on any day, must be trained per 29 CFR 1926.62. Training is provided prior to the time of initial job assignment and annually thereafter. Submit, to the Contracting Officer, a certificate for each employee, signed and dated by the approved training source, stating that the employee has received the required lead training. Most specifications will also require the contractor to provide a written statement, signed by each employee, stating that the employee has received training in the proper lead techniques.

> NOTE: It is strongly recommended that all employees conducting lead paint removal activities be trained in accordance with 40 CFR 745. If accredited training is required (see Contract Review Checklist) the Contractor must submit training certificates to the Contracting Officer, signed by an accredited instructor, stating that the employee has successfully completed the appropriate training.

The Contractor employees should have the required training and medical surveillance prior to contract award. Require proof of training as part of the contract bid package.

Checklist Item #3. The Competent Person is a contractor employee who is trained in the recognition and control of lead hazards in accordance with current federal, State, and local regulations. An industrial hygienist or safety professional certified for comprehensive practice by the American Board of Industrial Hygiene or by the Board of Certified Safety Professionals is the best choice. The Competent Person is responsible for:

- Certifying that training meets all federal, State, and local requirements (some states may require licensing);
- Reviewing and approving the Lead Paint Removal Plan (LPRP) conformance to the applicable referenced standards;
- Continuously inspecting lead paint removal work for conformance with the approved plan;
- Performing air and wipe sampling;
- Ensuring work is performed in accordance government reviewed LPRP;
- Notifying the Contracting Officer of any deviations from the LPRP;
- Controlling work to prevent hazardous exposure to human beings and to the environment at all times; and
- Certifying the conditions of the work as called for elsewhere in the specification.

Checklist Item #4. All employees must have a physical examination prior to beginning lead paint removal projects. Most specifications will require the Contractor to provide a written statement, signed by each employee, showing that the employee has had a recent physical examination. The employer is required by law to provide specific medical exams, i.e., pulmonary function, x-ray, etc., for pre-placement, annual and termination physicals for all employees working with lead.

Checklist Item #5. Respirators are required during most lead paint removal operations. Training in the proper use, limitations, and fitting of the respirators is mandatory to ensure that workers do not inhale lead dust. The Contractor must submit proof that employees have been respirator trained, in accordance with 29 CFR 1910.139.

Checklist Item #6. The Lead Paint Removal Plan (LPRP) is a detailed job-specific plan of work procedures to be used in the removal of the lead. The LPRP should be submitted to the Safety Officer for review prior to acceptance by the Contracting Officer. Refer to the Lead Paint Removal Plan Section for further discussion.

Checklist Item #7. The Contractor must submit to the contracting office the name, address, and telephone number of the testing laboratory that will perform testing and reporting of the airborne lead dust and soil samples.

Checklist Item #8. The laboratory must be accredited under the EPA National Lead Laboratory Accreditation Program (NLLAP) by either the American Association for Laboratory Accreditation (AALA) or the American Industrial Hygiene Association (AIHA) and that is successfully participating in the Environmental Lead Proficiency Analytical Testing (ELPAT) program to perform sample analysis.

Checklist Item #9. Before any work begins, collect and analyze baseline surface dust samples according to methods defined in federal, State, and local standards inside and outside of the regulated areas to avoid liability for previous contamination. These samples are compared to surface dust samples taken after contract completion.

LEAD PAINT REMOVAL PLAN

The purpose of the Lead Paint Removal Plan (LPRP) is to establish and implement work-site procedures to protect workers and the environment. The Contractor must provide the Contracting Officer with a detailed work plan for use during the removal of lead paint. Review the plan prior to beginning any lead paint removal work. The Contractor and Contractor's Competent Person shall meet with the Contracting Officer to thoroughly discuss the LPRP, including work procedures and safety precautions. The plan shall include, but is not limited to the following:

LEAD PAINT REMOVAL PLAN CHECKLIST		
CHECK √	CHECKLIST ITEM DESCRIPTION	REFERENCE
	1. Has the Competent Person approved (signature, date, and certification number) and submitted the LPRP to the Contracting Officer?	NFGS 13283A, par. 1.5.3.c
	2. Does the LPRP detail the job-specific work procedures to use during lead paint removal and during area cleanup?	NFGS 13283A, par. 1.5.3.3
	3. Does the LPRP include drawings showing the location, size, and details of the lead control areas?	NFGS 13283A, par. 1.5.3.3
	4. Does the LPRP show the location and details of the decontamination facilities, viewing ports, and mechanical ventilation system (if needed)?	NFGS 13283A, par. 1.5.3.3 EM 385-1-1, par. 06.B.05
	5. Does the LPRP include a safety and health compliance plan, including proper hygiene procedures?	OPNAVINST 5100.23, Ch. 2 NFGS 13283A, par. 1.5.3.3 EM 385-1-1, 02C 01
	6. Does the LPRP include a detailed description of the interface of trades and the sequence of lead related work?	NFGS 13283A, par. 1.5.3.3
	7. Does the LPRP include a waste water and paint debris disposal plan, including packaging of removed lead paint, dust, and debris, and the location of the approved disposal site?	NFGS 13283A, par. 1.5.3.3
	8. Does the LPRP include a collected wastewater disposal plan?	NFGS 13283A, par. 1.5.3.3
	9. Does the LPRP include a detailed description of the method of containment of the lead-based paint removal operations to ensure that airborne lead concentrations and baseline lead dust concentrations are not reaching or exceeding regulatory levels outside of the lead control area?	NFGS 13283A, par. 1.5.3.3
	10. Does the LPRP include occupational and environmental sampling, exposure assessment, training and strategy, sampling methodology, frequency and duration of sampling, and qualifications of the air sampling personnel?	29 CFR 1926.62 (d) NFGS 13283A, par. 1.5.3.3

Detailed Discussion

Checklist Item #1. The Competent Person must review the LPRP for conformance to the applicable referenced standards (federal, State, and local). The Competent Person must submit an approved copy of the LPRP that includes their signature, signed date, and certification number to the Contracting Office.

Checklist Item #2. The LPRP must provide detailed descriptions on how the lead paint will be removed. This should include a sequencing of lead paint removal work, specific worker roles, and an interface of trades involved in the performance of work. Additionally, detailed descriptions of how and who will perform the area cleanup (daily and final) should be included.

Checklist Item #3. A physical boundary, to prevent unauthorized entry, must be placed around the general work area that ensures airborne concentrations of lead will not exceed the Action Level (AL = 30 micrograms per cubic meter ($\mu g/m^3$)) outside this boundary area. The lead control area, where the actual lead paint removal work is performed, must have a containment that ensures airborne concentrations of lead will not exceed the Permissible Exposure Limit (PEL = 50 $\mu g/m^3$) outside the containment area. The type of containment, whether it includes a negative pressure enclosure or not, will depend on if the lead paint removal activities generate airborne lead containing dust.

Checklist Item #4. All lead control areas should have decontamination facilities and viewing ports. A mechanical ventilation system will be required if the lead control area containment requires a negative pressure enclosure (refer to Checklist Item #3).

Checklist Item #5. To ensure the safety and health of all the individuals associated with the lead paint removal work, comply with all the applicable requirements in the most current issue of 29 CFR 1926.62, and all other safety and health federal, State, or local regulations. Where regulations vary, the most stringent requirements shall apply.

Proper hygiene procedures include restrictions and limitations for eating, drinking, smoking, and personal cleaning procedures.

OPNAVINST 5100.23 requires safety and occupational health aspects are designed into all construction projects. NAVFACINST 5100.11 and MIL-STD-882 require a system safety review prior to the start of work. The government representative should request the cognizant Bureau of Medicine and Surgery (BUMED) Industrial Hygienist (IH) and Engineering Field Division (EFD)/Engineering Field Activity (EFA) safety personnel to perform this review of the LPRP.

Checklist Item #6. No discussion.

Checklist Item #7. Refer to the Lead Paint Debris Waste Disposal Section.

Checklist Item # 8. Collect wastewater, including shower water, for filtration. Wastewater can be filtered effectively by using a 20μm pore size filter. Arrangements should be made with the local waste water treatment facility before commencement of work to determine specific pretreatment standards needed prior to discharging the liquid.

Checklist Item #9. Refer to the Area Preparation Section Checklist Item #1.

Checklist Item #10. Refer to the Environmental, Health and Safety Monitoring Section.

AREA PREPARATION

This section addresses lead paint removal which can occur in one part or the entire building.

AREA PREPARATION CHECKLIST		
CHECK √	CHECKLIST ITEM DESCRIPTION	REFERENCE
	1. Has the lead control area been established?	29 CFR 1926.62 (d)(9)
	2. Does the lead control area have physical boundaries?	NFGS 13283A, par. 3.1.4
	3. Has the building HVAC system been deactivated or isolated to preclude building contamination with lead?	NFGS 13283A, par. 3.1.6
	4. If chemicals are used in paint removal, are their MSDS available at the removal site?	29 CFR 1910.1200 (g) NFGS 13283A, par. 2.1
	5. Have adequate warning signs been placed on all approaches to regulated areas?	29 CFR 1926.62 (m) OPNAVINST 5100 23 Ch.. 21 NFGS 13283A, par. 3.1.10
	6. Does the local exhaust ventilation system meet ACGIH and ANSI Z9.2 standards?	OPNAVINST 5100.23 Ch. 21 NFGS 13283A, par. 3.1.8.b
	7. Has HEPA filtered local exhaust ventilation been provided for portable hand and power tools?	NFGS 13283A, par. 3.1.8.d
	8. Is the worker decontamination facility properly designed?	29 CFR 1926.62 (i) OPNAVINST 5100.23 Ch. 21 NFGS 13283A, par. 3.1.7 & 3.2.1
	9. Is protective equipment required, such as disposable coveralls, gloves, shoe covers, eye protection, and hard hats?	29 CFR 1926.62 (g) OPNAVINST 5100.23 Ch. 21 NFGS 13283A, par. 1.7.2

Detailed Discussion

Checklist Item #1. The lead control area is a temporary area, structure, or containment that prevents the spread of lead dust or debris. Usually critical barriers and physical boundaries are employed to prevent migration of lead contamination and unauthorized entry of personnel.

The lead control area, designated in the work plan, is established by providing curtains, portable partitions, or other enclosures as a means of isolation. The implementation of these engineering controls are required to ensure that airborne concentrations and employee exposure to lead will not reach the level of 30 $\mu g/m^3$.

Checklist Item #2. Provide physical boundaries around the lead control area by roping off the area to restrict entry by unauthorized personnel.

Checklist Item #3. The heating, ventilation, and air-conditioning (HVAC) system can be sealed off from regulated areas with a double layer of 6-mil polyethylene plastic or equivalent. Be aware that the rest of the facility may still require environmentally controlled air. If the HVAC systems must remain operational to supply other areas, then special isolation techniques must be used to ensure that lead dust does not migrate to other areas of the building. Such techniques include caulking of duct joints and pressurizing ducts that are in the regulated area. Ventilation systems used to confine lead dusts cannot be directly exhausted to the adjacent workplace or atmosphere without high efficiency particulate air (HEPA) filtration.

Checklist Item #4. The Contractor must submit applicable Material Safety Data Sheets (MSDS) for all chemicals used in paint removal work. Use the least toxic product approved by the Contracting Officer. The MSDS must be made available for inspection at all times.

In addition, all chemicals used should be reported to the Environmental Department for the purposes of compliance with the Emergency Planning and Community Right to Know Act (EPCRA) under the Superfund Amendments and Reauthorization Act (SARA) Title III.

Checklist Item #5. Place warning signs at all approaches to regulated areas. Locate the following sign at such a distance that people can see and read them from all directions of approach.

WARNING
LEAD WORK AREA
POISON
NO SMOKING OR EATING

The employer shall assure that the signs are illuminated and cleaned as necessary so that the legend is readily visible.

Checklist Item #6. Design, construct, install, and maintain a local exhaust ventilation system in accordance with the American Conference of Governmental Industrial Hygienists (ACGIH) *Industrial Ventilation, A Manual of Recommended Practice,* and American National Standards Institute (ANSI) Z9.2, *Fundamentals Governing the Design and Operation of Local Exhaust Systems.* Systems not complying with the above standards are not approved.

Checklist Item #7. HEPA filtered local exhaust ventilation is required for all hand and power tools that may produce or release lead dusts in excess of the PEL.

Checklist Item #8. Provide adequate handwashing facilities for use by employees exposed to lead. Employees shall wash their hands and face prior to eating, drinking, smoking, applying cosmetics, and at the end of the work shift.

For airborne exposures above the PEL, and when required by the contract specifications, the Contractor shall provide employees with a Decontamination Shower Facility. The facility shall include a clean clothing storage room, and contaminated clothing storage and disposal rooms. Locate a shower facility between the clean and contaminated clothing storage rooms, unless it is

demonstrated that they are not feasible. Provide shower facilities with towels, soap, and hot and cold water feeding a common discharge line. The employer shall assure, where shower facilities are available, that employees shower at the end of the work shift.

Checklist Item #9. Use the following protective clothing:

- Disposable coveralls, full-body with hood (head covering), fire retardant, one-piece, constructed of Tyvek 1422 material or material comparable in weight and strength.
- Gloves, two pairs. The outer pair of gloves are the gauntlet type that protects the area above the wrist and, if taped to the Tyvek coveralls, provide sufficient elbow room to preclude tearing of the coveralls. The inner pair is a cotton type or similar material that removes moisture from the surface of the skin.
- Heavy polyethylene shoe covers with slip-resistant soles, or lightweight rubber boots.
- Goggles or full-length face shields.

LEAD PAINT REMOVAL

A number of methods are available to remove lead paint coatings. It is beyond the scope of this guide to discuss all of the existing lead paint removal methods. Detailed descriptions of removal methods can be found in *Industrial Lead Paint Removal Handbook*, by Kenneth A. Trimbler, (KTA-Tator, Inc., Pittsburgh). The location and condition of the lead paint will determine the removal method to use. Select the lead paint removal process that minimizes contamination of work areas with lead-contaminated dust or other lead-contaminated debris/waste. A description of the lead paint removal process chosen must be included in the Lead Paint Removal Plan.

LEAD PAINT REMOVAL CHECKLIST		
CHECK √	CHECKLIST ITEM DESCRIPTION	REFERENCE
	1. Is the Competent Person available during the removal?	40 CFR 745.227 (e)(2) NFGS 13283A, 3.2.2.a
	2. Will the lead paint removal process generate airborne exposures above the PEL?	29 CFR 1926.62 (d)(2) & Table I NFGS 13283A, Introduction Note
	3. Are MSDS's available for all chemicals used in the lead paint removal process?	29 CFR 1910.1200 (g) NFGS 13283A, 2.1
	4. Are surfaces kept free of lead dust as much as possible during the removal process?	29 CFR 1926.62 (h) NFGS 13283A, 3.2.4.1
	5. Is lead waste bagged in 6-mil thick polyethylene plastic bags or other impermeable containers?	40 CFR 262 Subpart C OPNAVINST 5100.23 Ch 21 NFGS 13283A, 3.2.4.4.a
	6. Are waste bags and dumpsters labeled with lead hazard warning and hazardous waste labels?	40 CFR 262 Subpart C OPNAVINST 5100.23 Ch 21 NFGS 13283A, 3.2.4.4.a
	7. Has the quantity of generated hazardous waste been predetermined?	40 CFR 261.5

Detailed Discussion.

Checklist Item #1. The Competent Person shall be onsite during all work site preparation and during the post-removal cleanup of work areas. At all other times, when lead paint removal activities are conducted, the Competent Person shall be onsite or available by telephone, pager, or answering service, and be able to be at the work site in no more than 2 hours.

Checklist Item #2. Until the employer performs an exposure assessment and documents that employees are not exposed above the PEL, the employer must treat employees performing certain operations as if they were exposed above the PEL. This means providing respiratory protection, protective work clothing and equipment, change areas, hand washing facilities, biological monitoring, and training for the following tasks:

- manual demolition of structures, manual scraping, manual sanding, and use of heat guns where lead paint is present;
- abrasive/sand blasting, rivet busting, or welding, cutting, or burning on any structure containing lead paint;
- removal with HEPA equipped hand power tools; and,
- clean-up activities where dry expendable abrasives are used.

Checklist Item #3. If performing lead paint removal by chemical stripping, material safety data sheets (MSDS) are required at the removal site for each chemical used.

Checklist Item #4. Daily clean-up of floors and other surfaces where lead accumulates shall, when possible, be cleaned by HEPA vacuuming or other methods that minimize airborne lead dust. Compressed air shall not be used to clean lead from surfaces.

Checklist Item #5-6. The waste packaging must be capable of preventing leakage during normal transportation conditions. Labels should identify contents, origin, and date. The waste must be packaged and marked in accordance with the applicable Department of Transportation regulation, including: 49 CFR 172, 49 CFR 173, 49 CFR 178, and 49 CFR 179. All containers with HW must have labels if stored onsite. Refer to the Lead Paint Debris Waste Disposal Section for HW accumulation and storage requirements and an example of a HW label.

Checklist Item #7. If less than 100 kg (approximately 220 lbs. or half of a 55 gallon drum) of hazardous waste is generated per month it is considered "conditionally exempt". If allowed by local regulatory requirements, it can be managed as solid non-hazardous waste and delivered to a State-licensed or permitted solid waste management facility. In addition, a hazardous waste manifest is not required when shipping this waste to an offsite disposal facility.

If more than 100 kg (approximately 220 lbs.) of hazardous waste per month will be generated comply with requirements of 40 CFR 262.34, Resource Conservation and Recovery Act (RCRA) hazardous waste regulations.

If more than 1000 kg (approximately 2,200 lbs.) of hazardous waste per month is generated at a site, do not accumulate hazardous waste for more than 90 days. A hazardous waste storage permit is required for storage for storage exceeding 90 days.

ENVIRONMENTAL, HEALTH, AND SAFETY MONITORING

Throughout the removal process, environmental, health, and safety monitoring for airborne lead, both inside and outside the regulated areas, must be accomplished by the Competent Person. The exact sampling regimen must be detailed in the Lead Paint Removal Plan.

ENVIRONMENTAL, HEALTH, AND SAFETY MONITORING CHECKLIST		
CHECK √	CHECKLIST ITEM DESCRIPTION	REFERENCE
	1. Has the contractor initially determined if any employee may be exposed to lead at or above the AL?	29 CFR 1926.62 (d)(1)(i) & (d)(3) NFGS 13283A, par. 3.2.2.c & 3.2.2.1
	2. Have personal air samples been collected which represent a full work shift?	29 CFR 1926.62 (d)(1)(iii) (iv)
	3. Have personal air samples been collected for each job classification in each work area for workers who are anticipated to have the greatest risk of exposure as determined by the competent person?	29 CFR 1926.62 (d)(1)(iii) (iv) NFGS 13283A, par. 3.2.2.b
	4. In addition, have personal air samples been collected for at least 25% of the work crew or a minimum of two employees, whichever is greater, during each work shift?	NFGS 13283A, par. 3.2.2.b
	5. Is the Competent Person on the job site to direct or perform the air sampling?	NFGS 13283A, par. 3.2.2.a
	6. Has area air sampling been conducted daily in areas immediately adjacent to the lead control area on each shift in which lead paint removal is performed?	NFGS 13283A, par. 3.2.2.1
	7. Have employees been notified of exposure assessment results in writing within five working days of completion?	29 CFR 1926.62 (d)(8)(i) NFGS 13283A, par. 3.2.2.c

Detailed Discussion.

Checklist Item #1. The employer shall base initial determinations on the exposure monitoring results and any of the following relevant considerations:

- any information, observations, or calculations which would indicate employee exposure to lead;
- any previous measurements of airborne lead; and
- any employee complaints of symptoms which may be attributable to exposure to lead.

If the exposure level is below the AL, no further monitoring is required except where a new task has been initiated or subsequent equipment, process, control, or personnel changes. If the

exposure level is at or above the AL then full scale representative monitoring for all exposed employees is required. The work area must be designated as a regulated area whereby; medical surveillance of exposed personnel and a respiratory protection program may be required. Consult with the Competent Person or cognizant BUMED IH for sample interpretations.

If the employee exposure level is at or above the AL but below the PEL, monitoring is required every six months. If the employee exposure level above PEL, monitoring is required every three months.

Discontinue monitoring if two consecutive measurements, taken at least seven days apart, are below the AL.

Checklist Item #2. Full shift personal samples should represent the monitored employee's regular, daily exposure to lead.

Checklist Item #3. The sampling results should represent each job classification in each work area for either each shift or the shift with the highest exposure level.

Checklist Item #4. The number of personal air samples taken should represent the entire work crew. At least 25%, or a minimum of two, of the work crew should be sampled.

Checklist Item #5. No Discussion.

Checklist Item #6. Conduct air monitoring inside the physical boundary to identify lead dust migration outside of the lead control area. If the monitoring shows that the AL is reached or exceeded, stop work, correct the condition(s) causing the increased levels, and notify the Contracting Officer immediately. The air monitoring ensures that unprotected personnel outside the physical boundary are not exposed at or above the AL. **The government retains the right to concurrently conduct monitoring during all phases of the contract.**

Checklist Item #7. An exposure assessment is required to determine and document employee exposure while performing specific lead-related tasks. The employer is mandated to implement protective measures to ensure employees are not exposed above the PEL or in excess of ten (10) times the PEL.

AREA CLEANUP

Cleaning is the process of removing visible debris and dust particles too small to be seen by the naked eye. Provide cleaning workers with training of the established clearance standards for lead paint removal cleanup. Many cleaning workers are used to cleaning up only visible dust. Therefore, cleaning workers should understand the critical importance of cleaning in a lead paint removal project. Proper sequencing of cleanup operations prevents re-cleaning and repeated air monitoring of the work areas.

AREA CLEANUP CHECKLIST		
CHECK √	CHECKLIST ITEM DESCRIPTION	REFERENCE
	1. Have all workers been trained and certified for lead paint removal work?	29 CFR 1926.62 (l)(1) 29 CFR 1926.21 29 CFR 1926.59 NFGS 13283A, par. 1.3.3
	2. Are HEPA vacuuming or other methods that minimize the likelihood of lead becoming airborne used to clean up floors and other surfaces where lead dust and debris accumulate?	29 CFR 1926.62 (h)(2) OPNAVINST 5100.23 Ch. 21 NFGS 13283A, par. 3.2.4.1
	3. Are all surfaces maintained as free as practicable of accumulations of lead dust and debris?	29 CFR 1926.62 (h)(1) OPNAVINST 5100.23 Ch. 21 NFGS 13283A, par. 3.2.41.
	4. Do filters on vacuums and exhaust equipment meet UL586 standards for HEPA filters, and are the filters labeled?	29 CFR 1926.62 (h)(4) OPNAVINST 5100.23 Ch. 21 NFGS 13283A, par. 1.7.4
	5. Are shoveling, dry or wet sweeping, and brushing methods avoided?	29 CFR 1926.62 (h)(3) OPNAVINST 5100.23 Ch. 21 NFGS 13283A, par. 3.2.4.1
	6. Has compressed air been prohibited in cleaning work surfaces or floors?	29 CFR 1926.62 (h)(5) OPNAVINST 5100.23 Ch. 21 NFGS 13283A, par. 3.2.4.1

Detailed Discussion.

Checklist Item #1. Employers must provide hazard communication training for all employees exposed to lead at any level before they start their job assignment. Provide basic training in cleaning methods, wet wash and vacuum cleaning technique. Ensure all workers are certified for lead paint removal work (refer to Table 1 in the Contract Review Section).

Checklist Item #2. Where vacuuming methods are selected, use HEPA filters.

Checklist Item #3. No discussion.

Checklist Item #4. Each filter should be individually tested and certified by the manufacturer to have an efficiency of not less than 99.97% when challenged with 0.3µm diotylphthalate (DOP) aerosol. Testing should be in accordance with Military Standard Number 282 and Army Instruction Manual 136-300-175A. Each filter should bear a Underwriters Laboratory (UL) 586 label to indicate ability to perform under specific conditions. Each filter should be marked with the name of the manufacturer, serial number, airflow rating, efficiency and resistance, and the direction of test airflow. Prefilters and intermediate filter are recommended to prolong the operating life of the expensive HEPA filter.

Checklist Item #5. Use shoveling, dry or wet sweeping and brushing methods only when other methods have been tried and found to be ineffective or infeasible.

Checklist Item #6. No discussion.

FINAL ACCEPTANCE

Since most types of lead paint removal work generate a considerable amount of lead dust, it is necessary to complete a thorough area cleaning. To determine if the cleaning was successful, final air and wipe samples are required. Conduct final air and wipe sampling only after the site has passed a visual inspection. If any of the samples exceed the required acceptance or background levels, the work area must be re-cleaned and the samples re-taken.

FINAL ACCEPTANCE CHECKLIST		
CHECK √	CHECKLIST ITEM DESCRIPTION	REFERENCE
	1. Has the Competent Person certified in writing that the area is clean of visible accumulations of lead base paint and dust?	NFGS 13283A, par. 3.2.4.2
	2. Have final air and wipe samples been collected?	NFGS 13283A, par. 3.2.3.3 & 3.2.4.2
	3. Has the Competent Person certified in writing that the final air and surface wipe samples meet contract specifications?	NFGS 13283A, par. 3.2.4.2

Detailed Discussion.

Checklist Item #1. After the final cleaning has been performed, the Competent Person performs a visual examination for settled dust and debris. The visual inspection is performed no sooner than 1 hour after completion of the final cleaning, to permit airborne leaded dust to settle. There should be no evidence of settled dust following the final cleaning effort. If dust is observed, the Contractor must complete a re-cleaning effort before final air and wipe samples are collected. Any settled dust following removal work provides sufficient evidence that cleanup work was not adequate.

Checklist Item #2. Conduct final air sampling inside the lead control area and outside of the lead control area but within the boundary area.

Conduct final wipe sampling inside the lead control area and outside of the lead control area but within the boundary area. Take surface wipe samples near the area where lead paint removal work was performed, or where the Competent Person determines is the best site. Perform wipe sampling of the following building components: floors, interior window sills, window troughs, and exterior concrete surfaces. The size of the lead paint removal project will determine the number of wipe samples to take and should be specified in the LPRP.

Checklist Item #3. The Competent Person shall certify in writing that the final air samples, collected inside and outside the lead control area are less than 30 ug/m^3. The CP shall also certify that surface wipe sample results collected inside and outside the lead control area are less than:

- 200 microgram per square foot (µg/ft^2) for uncarpeted floors;
- 500 µg/ft^2 for interior window sills; and
- 800 µg/ft^2 for window troughs and exterior concrete surfaces.

Conduct final air and wipe sampling only after the site has passed a visual inspection. If any of the air or wipe samples exceed the specified levels, re-clean the work area and re-take the samples. Use of a third party to conduct final air and wipe sampling is also encouraged.

LEAD PAINT DEBRIS WASTE DISPOSAL

The primary federal statute governing waste management from generation to disposal ("cradle to grave") is the Resource Conservation and Recovery Act (RCRA). These regulations apply to the generator of a hazardous waste (HW), the transporter of the waste, and the treatment, storage, and disposal site. The Generator is typically the owner of the facility where the Lead Paint (LP) is being removed. The Generator is ultimately liable for the waste being created, and cannot contract away responsibility for the waste. It is very important to always review State and local HW requirements, in some cases, State and local governments may institute HW requirements that are more stringent than federal standards. Waste debris which tests non-hazardous may fall under RCRA Subtitle D disposal regulations, and can be treated as solid waste (SW).

Additional Navy HW and SW guidance can be found in OPNAVINST 5090.1B, *Environmental and Natural Resources Program Manual*, Chapter 12 - Hazardous Waste Management Ashore, and Chapter 14 - Solid Waste Management and Resource Recovery Ashore.

LEAD PAINT DEBRIS WASTE DISPOSAL CHECKLIST		
CHECK √	CHECKLIST ITEM DESCRIPTION	REFERENCE
	1. Is the removed lead paint debris classified as a HW?	40 CFR 261.24 40 CFR 262.11 NFGS 13283A, par. 1.3.6.a
	2. Has the generator status been determined?	40 CFR 261.5 40 CFR 262
	3. Does the Generator have an EPA identification number?	40 CFR 262.12 NFGS 13283A, par. 1.3.6.c
	4. Has the Generator signed a completed a waste manifest?	40 CFR 262 Subpart B NFGS 13283A, par. 1.3.6.c & 3.2.5
	5. Has the HW been packaged and labeled correctly?	40 CFR 262 Subpart C OPNAVINST 5100.23 Ch. 21 NFGS 13283A, par. 1.3.6.g & 3.2.4.4.a
	6. Has the total number of days the HW is stored at the onsite facility been determined?	40 CFR 262.34 40 CFR 265 NFGS 13283A, par. 3.2.4.4.b
	7. Has a contingency plan been developed to minimize hazards to human health and the environment from unplanned releases of HW?	40 CFR 265 Subpart D NFGS 13283A, par. 1.3.6.c & 1.3.6.f
	8. Is the transporter licensed to transport HW off-site and does the generator have an EPA ID number?	40 CFR 263 NFGS 13283A, par. 1.3.6.c
	9. Does the HW treatment, storage, or disposal facility have a permit?	40 CFR 264 NFGS 13283A, par. 1.3.6.c, 3.2.4.4.c, & 3.2.5

Detailed Discussion.

Checklist Item #1. The Generator must determine if the waste debris is hazardous by testing or by applying knowledge of the hazardous characteristics. Lead paint debris may be classified as hazardous due to the characteristic of toxicity. The EPA HW number for lead is D008.

Waste tested (using the Toxicity Characteristic Leaching Procedure (TCLP) Method 1311, 40 CFR 261 Appendix II) which results in a leachable amount greater than or equal to 5.0 milligrams per liter (mg/L) or 5.0 parts per million (ppm) is considered hazardous. A laboratory accredited by either the AIHA or the AALA should perform testing of waste. A "Chain of Custody" form, which contains the sample number, sampler's signature, date and time of collection, waste type, signature of persons involved with inclusive dates of possession may be required.

> NOTE: Other elements can be present in paint debris that could render the waste hazardous including Arsenic (D004), Barium (D005), Cadmium (D007), Mercury (D009), Selenium (D010), and Silver (D011). Using a chemical stripper may classify the waste as hazardous due to corrosivity (D002).

Checklist Item #2. The generation of HW during the removal project may change the generator status or the activity. This will then affect their HW accumulation and reporting requirements.

Generator status is determined by the following:

- Large Quantity Generator (LQG): Generates over 1000 kg (2,200 lbs.) of HW per month, or stores more than 6000kg (13,200 lbs.) of HW at the site at any one time.
- Small Quantity Generator (SQG): Generates more than 100 kg (220 lbs.) but less than a Large Quantity Generator and accumulates less than 6000 kg (13,200 lbs.) at any one time.
- Conditionally Exempt Small Quantity Generator: Generates less than 100 kg (220 lbs.) of HW per month, and accumulates no more than 1000 kg (2,200 lbs.) of HW at any one time.

Both the Large Quantity Generator and Small Quantity Generator must comply with all the regulations found in 40 CFR 262. The Conditionally Exempt Small Quantity Generator need not comply with the detailed regulations, but must assure that the HW is properly disposed of.

Checklist Item #3. The Generator is not permitted to treat, store, dispose of, or transport HW without an EPA identification number. Use EPA form 8700-12 to apply for an EPA identification number.

Checklist Item #4. Any generator who transports HW for off-site treatment, storage, or disposal must prepare a manifest on EPA form 8700-22, and, if necessary, EPA form 8700-22A. Refer to the Appendix to 40 CFR 262 for a copy of the HW manifest and instructions. The Generator, not the Contractor, must sign the manifest. The manifest includes: HW description, waste handling facility, and the Generator signature. Also, obtain a signature and date from the transporter when it's picked up (keep a copy).

Once the disposal or storage facility receives the waste, they must sign a copy of the manifest and return the signed copy to the Generator. If the Generator has not received a facility signed copy of the manifest within 35 days of acceptance from the transporter, the Generator must contact the transporter and disposal or storage facility. If a manifest has not been returned to the Generator by 45 days, the Generator must submit an Exception Report to the EPA Regional Administrator.

Note: Small Quantity Generators are allowed 60 days to receive the facility-signed manifest.

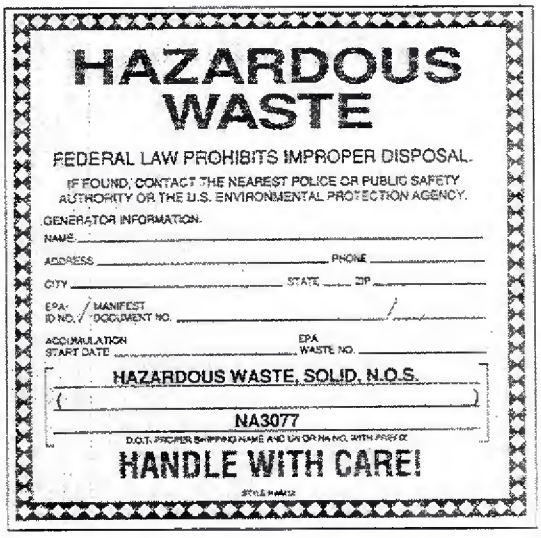
Checklist Item #5. The packaging must be capable of preventing leakage during normal transportation conditions. Labels should identify contents, origin, and date. The waste must be packaged and marked in accordance with the applicable Department of Transportation regulation, including: 49 CFR 172, 49 CFR 173, 49 CFR 178, and 49 CFR 179.

Checklist Item #6. LQG cannot store HW for more than 90 days. SQG cannot store HW for more than 180 days. For all HW storage, a secure area must be used that complies with the regulations in 40 CFR 265. Storage drums must be leak proof and have secured lids. All containers with HW must have labels. Incompatible materials should not be mixed. A weekly container inspection for leaks and corrosion must be conducted and documented.

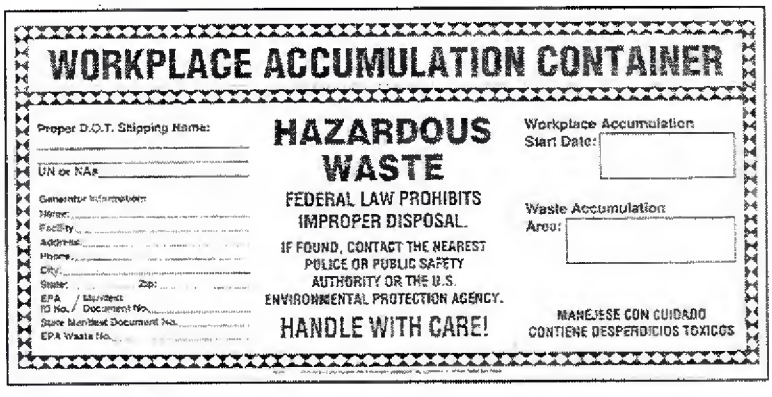
Checklist Item #7. Arrangements must be made with local authorities (fire, police, and ambulance) in the event of a spill. An emergency coordinator must be designated and be on-call 24 hours and be capable of reaching the facility in a short time. Train personnel in appropriate spill and emergency procedures.

Note: the National Response Center (1-800-424-8802) must be notified if an emergency could threaten human health outside the site, or if a spill has reached surface water.

SAMPLE HAZARDOUS WASTE LABEL



SAMPLE HAZARDOUS WASTE ACCUMULATION LABEL



Checklist Item #8. A HW transporter must have an EPA identification number. The HW transporter must comply with the manifest system, and be capable of taking immediate action to protect health and environment if a release occurs. Additionally, the HW transporter must comply with the requirements of each state they travel through.

Checklist Item #9. There are extensive requirements to become a HW treatment, storage, or disposal facility. The facility must comply with all the regulations detailed in 40 CFR 264, and for interim treatment, storage, or disposal status with 40 CFR 265.

APPENDIX A - ACRONYMS

AALA:	American Association for Laboratory Accreditation (also known as A2LA)
ACGIH:	American Conference of Governmental Industrial Hygienists
AIHA:	American Industrial Hygiene Association
AL:	Action Level
ANSI:	American National Standards Institute
BUMED:	Bureau of Medicine and Surgery
CIH:	Certified Industrial Hygienist
CFR:	Code of Federal Regulations
DOT:	Department of Transportation
EFD:	Engineering Field Division
ELPAT:	Environmental Lead Proficiency Analytical Testing
EPA:	Environmental Protection Agency
FR:	Federal Register
HEPA:	High Efficiency Particulate Air
HVAC:	Heating, Ventilation, and Air Conditioning
HW:	Hazardous Waste
IH:	Industrial Hygienist
LBP:	Lead-Based Paint
LCP:	Lead-Containing Paint
LP:	Lead Paint
LPRP:	Lead Paint Removal Plan
MSDS:	Material Safety Data Sheets
NFESC:	Naval Facilities Engineering Service Center
NFGS:	Naval Facilities Guide Specification
NLLAP:	National Lead Laboratory Accreditation Program
OICC:	Officer in Charge of Construction
OSHA:	Occupational Safety and Health Administration
PEL:	Permissible Exposure Limit
ppm:	parts per million
RCRA:	Resource Conservation and Recovery Act
ROICC:	Resident Officer in Charge of Construction
SW:	Solid Waste
TCLP:	Toxicity Characteristic Leaching Procedure
TSCA:	Toxic Substances Control Act
TWA:	Time-Weighted Average
UL:	Underwriters Laboratory

APPENDIX B – GLOSSARY OF TERMS

Abatement	A measure or set of measures designed to permanently eliminate lead-based paint hazards or lead-based paint. Abatement strategies include the removal of lead-based paint, enclosure, encapsulation, replacement of building components coated with lead-based paint, removal of lead-contaminated dust, and removal of lead-contaminated soil or overlaying of soil with a durable covering such as asphalt (grass and sod are considered interim control measures).
Abatement Worker	See **Worker**
Accredited Laboratory	A laboratory that has been evaluated and approved by the **NLLAP**, to perform lead measurement or analysis, usually over a specified period of time.
Action Level (AL)	An employee exposure, without regard to the use of respirators, to an airborne concentration on lead of 30 $\mu g/m^3$ calculated as an 8-hour TWA.
Area Sampling	Sampling of lead concentrations within the lead control area and inside the physical boundaries which is representative of the airborne lead concentrations, but is not collected in the breathing zone of personnel.
Biennial Report (for HW)	A report (EPA Form 8700-13A) submitted by generators of hazardous waste to the EPA Regional Administrator. The report includes information on the generator's activities during the previous calendar year. The owners and operators of treatment, storage, and disposal facilities must also prepare and submit biennial reports using EPA Form 8700-1313.
Building Component	Any element of a building that may be painted or have dust on its surface, e.g. walls, stair treads, floors, railings, doors, window sills, etc.
Certified	The designation for contractors who have completed training and other requirements to allow them to safely undertake risk assessments, inspections, or abatement work. Risk assessors, inspectors, and abatement contractors should be certified by the appropriate local, State or Federal agency.
Certified Industrial Hygienist (CIH)	A person who has passed the 2-day certification exam of the American Board of Industrial Hygiene, and who has at least 4 years of experience in industrial hygiene and a graduate degree or a total of 5 years of experience.
Certified Safety Professional	A person who has passed the 2-day certification exam of the Board of Certified Safety Professionals, and who has at least 4 to 7 years experience in safety and an Associate in Safety or Bachelors degree.

Chain of Custody Form	Form used to track samples (by signature and date) from the time samples are taken, through transportation, receipt at the laboratory, and testing.
Chemical Stripping	The use of chemical materials to soften existing paint for removal by scraping and/or flushing.
Child Occupied Facility	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, provided that each day's visit lasts at least 3 hours and the combined weekly visit lasts at least 6 hours, and the combined annual visit lasts at least 60 hours.
Clearance Examination	Visual examination and collection of environmental samples by an inspector or risk assessor and analysis by an accredited laboratory upon completion of an abatement project, interim control intervention, or maintenance job that disturbs LBP (or suspected of being LBP). The clearance examination is performed to ensure that lead exposure levels do not exceed standards established by the EPA pursuant to Title IV of TSCA, and that any cleaning following such work adequately meets those standards.
Code of Federal Regulations (CFR)	The codification of the regulations of Federal agencies. The regulations are published in the Federal Register. See also **Federal Register (FR)**.
Competent Person	As defined in the OSHA Lead Construction Standard (29 CFR 1926.62), a person who is capable of identifying or predicting hazardous working conditions and work areas, and who has authorization to take prompt, corrective measures to eliminate the hazards. A competent person is not necessarily a risk assessor, inspector, or abatement project supervisor.
Compliance Plan	A document that describes the types of tasks, workers, protective measures, and tools and other materials that may be employed in lead-based paint hazard control to comply with the OSHA Lead Exposure in Construction standard.
Construction Work	Any work for construction, alteration, and/or repair, including painting and decorating.
Containment	A process to protect workers and the environment by controlling exposures to the lead-contaminated dust and debris created during abatement.
Contingency Plan	A document that describes an organized, planned, and coordinated course of action to be taken during any event that threatens human health or the environment, such as a fire, explosion, or the release of hazardous waste or its constituents from a treatment, storage, or disposal facility.
D008	The EPA hazardous waste number assigned to lead.

Decontamination Facility	A facility that encompasses a clean clothing storage room, and a contaminated clothing storage and disposal room, with a shower facility in between.
Disposal (of HW)	The discharge, deposit, injection, dumping, spilling, leaking, or placement of solid or hazardous waste on land or in water so that none of its constituents can pollute the environment by being emitted into the air or discharged into a body of water, including groundwater.
Disposal Facility	A facility or part of one in which hazardous waste is placed on land or in water to remain there after the facility closes.
Environmental Lead Proficiency Analytical Testing (ELPAT)	A program to evaluate and improve the performance of laboratories conducting analyses associated with lead.
Engineering Controls	Measures other than respiratory protection or administrative controls that are implemented at the work site to contain, control, and/or otherwise reduce exposure to lead-contaminated dust and debris usually in the occupational health setting. The measures include process and product substitution, isolation, and ventilation.
Exposure Monitoring	The sampling and analysis of air both inside and outside the work area to determine the degree of worker and resident exposure to lead or other airborne contaminants, often involving air sampling inside a worker's breathing zone.
Federal Register (FR)	A daily Federal publication that contains proposed and final regulations, rules, and notices.
Generator	Any person whose act or operation produces hazardous waste identified or listed in 40 CFR Part 261 or whose act causes a hazardous waste to come under regulation (40 CFR 260.10).
Generator Identification Number	The unique number assigned by EPA to each generator; transporter of hazardous waste; and treatment, storage, or disposal facility.
Hazardous Waste (HW)	As defined in EPA 40 CFR 261.3, HW is solid waste or a combination of solid wastes that because of its quantity; concentration; or physical, chemical, or infectious characteristics may cause or significantly contribute to increases in mortality, serious and irreversible or incapacitating but reversible illnesses, or pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed. For lead-based paint abatement waste, HW is waste that contains more than 5 ppm of leachable lead as determined by the TCLP test, or is waste that is corrosive, ignitable, or reactive and not otherwise excluded.
HEPA/Wet Wash/HEPA Cycle	The cleaning cycle that begins with HEPA vacuuming, followed by a wet wash with a lead-specific cleaning agent, such as trisodium phosphate detergent or another liquid cleaning agent, followed by a final pass with a HEPA vacuum over the surface.

High-Efficiency Particulate Air (HEPA) Filter	A filter capable of removing particles of 0.3 microns or larger from air at 99.97 percent or greater efficiency.
Housing/Target Housing	Any housing constructed prior to 1978, except housing for the elderly or persons with disabilities (unless any one or more children age 6 years or under resides in such housing for the elderly or persons with disabilities) or any 0-bedroom dwelling.
Inspector	An individual who has completed an accredited training program and is licensed or certified by the appropriate State or local agency to: (1) perform inspections to determine and report the presence of LBP on a surface-by-surface basis through onsite testing; (2) report the findings of such an inspection; (3) collect environmental samples for laboratory analysis; (4) perform clearance testing; and (5) document successful compliance with LBP hazard control requirements or standards.
Landfill	A State-licensed or permitted disposal facility that meets municipal solid waste standards (40 CFR 268).
Lead	Includes metallic lead and inorganic and organic compounds of lead.
Lead-Based Paint (LBP)	Any paint, varnish, shellac, or other coating that contains lead equal to or greater than 1.0 milligram per square centimeter (mg/cm^2) as measured by x-ray florescence (XRF) or laboratory analysis, or 0.5% by weight (5,000 µg/g, 5,000 ppm, or 5,000 mg/kg) as measured by laboratory analysis. (Local definitions may vary.)
Lead-Containing Paint (LCP)	For consumer use, paint or other surface coating material containing lead or lead compounds, where the lead content (calculated as lead metal) exceeds 0.06% by weight (600ppm) of the dried paint film.
Lead Control Area	A temporary area, structure, or containment, sometimes equipped with HEPA filtered local exhaust, which prevents the spread of lead dust or debris. Usually critical barriers and physical boundaries are employed to prevent migration of lead contamination and unauthorized entry of personnel.
Lead Paint (LP)	Any paint or coating that contains lead in any amount.
Licensed	Holding a valid license or certification issued by EPA or by an EPA-approved State program pursuant to Title IV of the Toxic Substances Control Act. The license is based on certification for lead-based paint hazard control work. See also **Certified.**
Manifest	The shipping document (EPA Form 8700-22 or a comparable form required by the State or locality) used for identifying the quantity, composition, origin, routing, and destination of hazardous waste during its transport from the point of generation to the point of treatment, storage, or disposal. Also, a shipping document used to keep track of items being transported. All hazardous waste must be accompanied by a manifest.

Medical Removal	The temporary removal of workers from the job because of the occurrence of elevated blood lead levels as defined in the OSHA Lead Exposure in Construction standard (29 CFR 1926.62).
Medical Surveillance Program	A program required under OSHA 29 CFR 1926.62 for detailed medical examinations for employees exposed above the AL for more than 30 days a year.
μg or Micrograms	The prefix micro- means 1/1,000,000 (or one-millionth); a microgram is 1/1,000,000 of a gram and 1/1,000 of a milligram.
mg or Milligram	The prefix milli- means 1/1,000; a milligram is 1/1,000 of a gram.
National Lead Laboratory Accreditation Program (NLLAP)	Requirements, specified by the EPA NLLAP, for accreditation for the lead analysis of paint, soil, and dust matrixes by an EPA-recognized laboratory accreditation organization.
Owner	A person, firm, corporation, guardian, conservator, receiver, trustee, executor, government agency or entity, or other judicial officer who, alone or with others, owns, holds, or controls the freehold or leasehold title or part of the title to property, with or without actually possessing it. This definition includes a vender who possesses the title, but does not include a mortgagee or an owner of a reversionary interest under a ground rent lease.
Paint Removal	An abatement strategy that entails the removal of lead-based paint from surfaces. For lead hazard control work, this can mean using chemicals, heat guns below 1,100 °F, and certain contained abrasive methods. Open flame burning, open abrasive blasting, sandblasting, water blasting, and extensive dry scraping are prohibited paint removal methods. (Methylene chloride paint removers and dry scraping are also not recommended.)
Permissible Exposure Limit (PEL)	The OSHA enforced airborne exposure limit. The PEL for lead in the construction industry is 50 $\mu g/m^3$ calculated as an 8-hour TWA.
Personal Sampling	Air samples collected from the breathing zone of a worker but outside the respirator to determine the 8-hour TWA concentration in accordance with OSHA 29 CFR 1926.62. Samples shall be representative of the employees' work tasks.
Physical Boundary	Area physically roped or partitioned off around the lead control area to restrict unauthorized entry of personnel. As used in NFGS 13283A, "inside boundary" shall mean the same as "outside lead control area but inside physical boundary."

Polyethylene Plastic	All references to polyethylene plastic refer to 6-mil plastic sheeting or polyethylene bags (or doubled bags if using 4-mil polyethylene bags), or any other thick plastic material shown to demonstrate at least equivalent performance. Plastic used to contain waste should be capable of completely containing the waste and, after being properly sealed, should remain leak-tight with no visible signs of discharge during movement or relocation.
Project Designer	An individual who has completed an accredited training program on planning and designing lead-based paint abatement projects.
Quality Assurance (QA)	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 stated level of confidence.
Quality Control (QC)	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 a level of quality that is satisfactory, adequate, dependable, and economical.
Regulated Area	Designated area where lead airborne concentration may exceed the action level.
Resource Conservation and Recovery Act (RCRA)	The primary Federal statute governing waste management from generation to disposal. RCRA defines the criteria for hazardous and non-hazardous waste.
Respiratory Protection Program	A written program required by 29 CFR 1910.139 addressing procedures for the selection, use and training of respiratory protection.
Risk Assessor	A certified individual who has completed training with an accredited training program and who has been certified to: (1) perform risk assessments; (2) identify acceptable abatement and interim control strategies for reducing identified lead-based paint hazards; (3) perform clearance testing and reevaluations; and, (4) document the successful completion of lead-based paint hazard control activities.
Site	The land or body of water where a facility is located or an activity is conducted. The site includes adjacent land used in connection with the facility or activity.
Small Quantity Generator	Owners (generators), contractors, or both who produce less than 100 kg of hazardous waste per month and accumulate less than 100 kg of hazardous waste at any one time, or who produce less than 1 kg of acutely hazardous waste per month and accumulate less than 1 kg of acutely hazardous waste at any one time.

Solid Waste	As defined by RCRA, the term solid waste means garbage; refuse; sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility; or other discarded materials, including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations or from community activities.
Time-Weighted Average (TWA)	Employees' average airborne exposure in any 8-hour work shift of a 40-hour work week.
Toxicity Characteristic Leaching Procedure (TCLP)	A laboratory test to determine if excessive levels of lead or other hazardous materials could leach from a sample into groundwater; usually used to determine if waste is hazardous based on its toxicity characteristics.
Trained	Successful completion of a training course in a particular discipline. For lead hazard control work, the training course must be accredited by EPA or by an EPA-approved State program, pursuant to Title IV of the Toxic Substances Control Act.
Transporter	A person who transports hazardous waste, requiring a manifest under 40 CFR Part 260.10, within the United States by air, rail, highway, or water.
Treatment	Hazardous waste "treatment" is a method, technique, or process (such as neutralization) that is designed to change the physical, chemical, or biological character or composition of hazardous waste to neutralize it; render it non-hazardous or less hazardous; recover it; make it safer to transport, store, or dispose; or allow for easier recovery, storage, or volume reduction.
Treatment, Storage, and Disposal Facility	A facility licensed to handle hazardous waste.
Worker	An individual who has completed training in an accredited program to perform lead-based paint hazard control in housing.
Worksite	Any interior or exterior area where lead-based paint hazard control work takes place.
XRF Analyzer	An instrument that determines lead concentration in milligrams per square centimeter (mg/cm^2) using the principle of x-ray fluorescence (XRF). The two types of XRF analyzers used are: direct readers and spectrum analyzers. In these Guidelines, the term XRF analyzer only refers to portable instruments manufactured to analyze paint, and does not refer to laboratory-grade units or portable instruments designed to analyze soil.

APPENDIX C - SUMMARY OF CHECKLISTS

The following is an accumulation of all the checklists discussed in this manual. These checklists can be photocopied and used as working checklists during any lead paint removal project.

Project Title: _____

Contract Number: _____ Building/Room: _____

Name: _____ Date: _____

CONTRACT REVIEW CHECKLIST		
CHECK √	**CHECKLIST ITEM DESCRIPTION**	**REFERENCE**
	1. Does the contract identify all potential waste streams?	NFGS 13283A, par. 1.3.6
	2. Does the contract clearly identify the condition, quantity, and location of lead paint to be removed in the description of work?	NFGS 13283A, Introduction Note & par. 1.4
	3. Does the contract clearly indicate if removal of the lead paint is to the substrate?	NFGS 13283A, IntroductionNote
	4. Does the contract require use of certified lead workers and supervisors?	40 CFR 745.225 (d)
	5. Is the Contractor responsible for supplying personal protective equipment to the Contract Officer and government representatives for entry into the lead control area?	NFGS 13283A, par. 1.7.5
	6. Does the contract require that waste be adequately characterized to determine if it is a hazardous waste?	NFGS 13283A, IntroductionNote 40 CFR 261

Project Title: _____

Contract Number: _____ Building/Room: _____

Name: _____ Date: _____

PRE-REMOVAL CHECKLIST		
CHECK √	CHECKLIST ITEM DESCRIPTION	REFERENCE
	1. Has the Contractor notified the Contracting Officer 20 days prior to the commencement of work?	NFGS 13283A, par. 3.1.1
	2. Has the Contractor provided proof, and is it available on-site, that all lead workers and supervisors are trained in the proper lead paint removal procedures?	29 CFR 1926.21 (b)(2) 29 CFR 1926.62 (l) NFGS 13283A, par. 1.3.3 & 1.3.3.1
	3. Has the Contractor provided the name, address, and phone number of the Competent Person with documentation of training and, where required, licensing?	29 CFR 1926.62 NFGS 13283A, par. 1.3.2 & 1.5.3.1
	4. Has the Contractor provided proof that all of the employees has received medical examinations, and that medical records are kept?	29 CFR 1926.62 (j)(1)(i) 29 CFR 1910.139 OPNAVINST 5100.23 Ch. 21 NFGS 13283A, par. 1.3.1 & 1.3.1.1
	5. Has the Contractor provided proof that all of the employees are respirator trained and fit tested?	29 CFR 1926.62 (f)(4) 29 CFR 1910.139 (b), (d), (e), (f) OPNAVINST 5100.23 Ch. 21 NFGS 13283A, par. 1.3.4
	6. Has the Contractor provided a detailed Lead Paint Removal Plan, signed by the Competent Person, which complies with EPA/OSHA Safety and Health requirements? (Refer to the Lead Paint Removal Plan Section for details.)	NFGS 13283A, par. 1.5.3.c & 1.5.3.3 EM 385-1-1, par. 06.B.05 a.
	7. Has the Contractor provided the name, address, and phone number of the testing laboratory for all lead sampling analysis?	NFGS 13283A, 1.5.3.b, & 1.5.3.2
	8. Has the laboratory shown proof of participation in a proficiency analytical testing (PAT) program?	40 CFR 745.227 (f)(2) NFGS 13283A, 1.5.3.2
	9. Have baseline dust/wipe samples been taken?	NFGS 13283A, 3.2.2.d

Project Title: _____

Contract Number: _____ Building/Room: _____

Name: _____ Date: _____

LEAD PAINT REMOVAL PLAN CHECKLIST		
CHECK √	CHECKLIST ITEM DESCRIPTION	REFERENCE
	1. Has the Competent Person approved (signature, date, and certification number) and submitted the LPRP to the Contracting Officer?	NFGS 13283A, par. 1.5.3.c
	2. Does the LPRP detail the job-specific work procedures to use during lead paint removal and during area cleanup?	NFGS 13283A, par. 1.5.3.3
	3. Does the LPRP include drawings showing the location, size, and details of the lead control areas?	NFGS 13283A, par. 1.5.3.3
	4. Does the LPRP show the location and details of the decontamination facilities, viewing ports, and mechanical ventilation system (if needed)?	NFGS 13283A, par. 1.5.3.3 EM 385-1-1, par. 06.B.05
	5. Does the LPRP include a safety and health compliance plan, including proper hygiene procedures?	NFGS 13283A, par. 1.5.3.3 EM 385-1-1, 02C 01
	6. Does the LPRP include a detailed description of the interface of trades and the sequence of lead related work?	NFGS 13283A, par. 1.5.3.3
	7. Does the LPRP include a waste water and paint debris disposal plan, including packaging of removed lead paint, dust, and debris, and the location of the approved disposal site?	NFGS 13283A, par. 1.5.3.3
	8. Does the LPRP include a collected waste water disposal plan?	NFGS 13283A, par. 1.5.3.3
	9. Does the LPRP include a detailed description of the method of containment of the lead-based paint removal operations to ensure that airborne lead concentrations and baseline lead dust concentrations are not reaching or exceeding regulatory levels outside of the lead control area?	NFGS 13283A, par. 1.5.3.3
	10. Does the LPRP include occupational and environmental sampling, exposure assessment, training and strategy, sampling methodology, frequency and duration of sampling, and qualifications of the air sampling personnel?	29 CFR 1926.62 (d) NFGS 13283A, par. 1.5.3.3

Project Title: _____

Contract Number: _____ Building/Room: _____

Name: _____ Date: _____

AREA PREPARATION CHECKLIST		
CHECK √	CHECKLIST ITEM DESCRIPTION	REFERENCE
	1. Has the lead control area been established?	29 CFR 1926.62 (d)(9)
	2. Does the lead control area have physical boundaries?	NFGS 13283A, par. 3.1.4
	3. Has the building HVAC system been deactivated or isolated to preclude building contamination with lead?	NFGS 13283A, par. 3.1.6
	4. If chemicals are used in paint removal, are their MSDS available at the removal site?	29 CFR 1910.1200 (g) NFGS 13283A, par. 2.1
	5. Have adequate warning signs been placed on all approaches to regulated areas?	29 CFR 1926.62 (m) OPNAVINST 5100 23 Ch.. 21 NFGS 13283A, par. 3.1.10
	6. Does the local exhaust ventilation system meet ACGIH and ANSI Z9.2 standards?	OPNAVINST 5100.23 Ch. 21 NFGS 13283A, par. 3.1.8.b
	7. Has HEPA filtered local exhaust ventilation been provided for portable hand and power tools?	NFGS 13283A, par. 3.1.8.d
	8. Is the worker decontamination facility properly designed?	29 CFR 1926.62 (i) OPNAVINST 5100.23 Ch. 21 NFGS 13283A, par. 3.1.7 & 3.2.1
	9. Is protective equipment required, such as disposable coveralls, gloves, shoe covers, eye protection, and hard hats?	29 CFR 1926.62 (g) OPNAVINST 5100.23 Ch. 21 NFGS 13283A, par. 1.7.2

Project Title: _____

Contract Number: _____ Building/Room: _____

Name: _____ Date: _____

LEAD PAINT REMOVAL CHECKLIST		
CHECK √	CHECKLIST ITEM DESCRIPTION	REFERENCE
	1. Is the Competent Person available during the removal?	40 CFR 745.227 (e)(2) NFGS 13283A, 3.2.2.a
	2. Will the lead paint removal process generate airborne exposures above the PEL?	29 CFR 1926.62 (d)(2) & Table 1 NFGS 13283A, Introduction Note
	3. Are MSDS's available for all chemicals used in the lead paint removal process?	29 CFR 1910.1200 (g) NFGS 13283A, 2.1
	4. Are surfaces kept free of lead dust as much as possible during the removal process?	29 CFR 1926.62 (h) NFGS 13283A, 3.2.4.1
	5. Is lead waste bagged in 6-mil thick polyethylene plastic bags or other impermeable containers?	40 CFR 262 Subpart C OPNAVINST 5100.23 Ch 21 NFGS 13283A, 3.2.4.4.a
	6. Are waste bags and dumpsters labeled with lead hazard warning and hazardous waste labels?	40 CFR 262 Subpart C OPNAVINST 5100.23 Ch 21 NFGS 13283A, 3.2.4.4.a
	7. Has the quantity of generated hazardous waste been predetermined?	40 CFR 261.5

Project Title: _____

Contract Number: _____ Building/Room: _____

Name: _____ Date: _____

ENVIRONMENTAL, HEALTH, AND SAFETY MONITORING CHECKLIST		
CHECK √	CHECKLIST ITEM DESCRIPTION	REFERENCE
	1. Has the contractor initially determined if any employee may be exposed to lead at or above the AL?	29 CFR 1926.62 (d)(1)(i) & (d)(3) NFGS 13283A, par. 3.2.2.c & 3.2.2.1
	2. Have personal air samples been collected which represent a full work shift?	29 CFR 1926.62 (d)(1)(iii) (iv)
	3. Have personal air samples been collected for each job classification in each work area for workers who are anticipated to have the greatest risk of exposure as determined by the competent person?	29 CFR 1926.62 (d)(1)(iii) (iv) NFGS 13283A, par. 3.2.2.b
	4. In addition, have personal air samples been collected for at least 25% of the work crew or a minimum of two employees, whichever is greater, during each work shift?	NFGS 13283A, par. 3.2.2.b
	5. Is the Competent Person on the job site to direct or perform the air sampling?	NFGS 13283A, par. 3.2.2.a
	6. Has area air sampling been conducted daily in areas immediately adjacent to the lead control area on each shift in which lead paint removal is performed?	NFGS 13283A, par. 3.2.2.1
	7. Have employees been notified of exposure assessment results in writing within five working days of completion?	29 CFR 1926.62 (d)(8)(i) NFGS 13283A, par. 3.2.2.c

Project Title: _____

Contract Number: _____ Building/Room: _____

Name: _____ Date: _____

AREA CLEANUP CHECKLIST		
CHECK √	CHECKLIST ITEM DESCRIPTION	REFERENCE
	1. Have all workers been trained and certified for lead paint removal work?	29 CFR 1926.62 (l)(1) 29 CFR 1926.21 29 CFR 1926.59 NFGS 13283A, par. 1.3.3
	2. Are HEPA vacuuming or other methods that minimize the likelihood of lead becoming airborne used to clean up floors and other surfaces where lead dust and debris accumulate?	29 CFR 1926.62 (h)(2) OPNAVINST 5100.23 Ch. 21 NFGS 13283A, par. 3.2.4.1
	3. Are all surfaces maintained as free as practicable of accumulations of lead dust and debris?	29 CFR 1926.62 (h)(1) OPNAVINST 5100.23 Ch. 21 NFGS 13283A, par. 3.2.41.
	4. Do filters on vacuums and exhaust equipment meet UL586 standards for HEPA filters, and are the filters labeled?	29 CFR 1926.62 (h)(4) OPNAVINST 5100.23 Ch. 21 NFGS 13283A, par. 1.7.4
	5. Are shoveling, dry or wet sweeping, and brushing methods avoided?	29 CFR 1926.62 (h)(3) OPNAVINST 5100.23 Ch. 21 NFGS 13283A, par. 3.2.4.1
	6. Has compressed air been prohibited in cleaning work surfaces or floors?	29 CFR 1926.62 (h)(5) OPNAVINST 5100.23 Ch. 21 NFGS 13283A, par. 3.2.4.1

Project Title: _____

Contract Number: _____ Building/Room: _____

Name: _____ Date: _____

FINAL ACCEPTANCE CHECKLIST		
CHECK √	CHECKLIST ITEM DESCRIPTION	REFERENCE
	1. Has the Competent Person certified in writing that the area is clean of visible accumulations of lead base paint and dust?	NFGS 13283A, par. 3.2.4.2
	2. Have final air and wipe samples been collected?	NFGS 13283A, par. 3.2.3.3 & 3.2.4.2
	3. Has the Competent Person certified in writing that the final air and surface wipe samples meet contract specifications?	NFGS 13283A, par. 3.2.4.2

Project Title: _____

Contract Number: _____ Building/Room: _____

Name: _____ Date: _____

LEAD PAINT DEBRIS WASTE DISPOSAL CHECKLIST		
CHECK √	**CHECKLIST ITEM DESCRIPTION**	**REFERENCE**
	1. Is the removed lead paint debris classified as a HW?	40 CFR 261.24 40 CFR 262.11 NFGS 13283A, par. 1.3.6.a
	2. Has the generator status been determined?	40 CFR 261.5 40 CFR 262
	3. Does the Generator have an EPA identification number?	40 CFR 262.12 NFGS 13283A, par. 1.3.6.c
	4. Has the Generator signed a completed a waste manifest?	40 CFR 262 Subpart B NFGS 13283A, par. 1.3.6.c & 3.2.5
	5. Has the HW been packaged and labeled correctly?	40 CFR 262 Subpart C OPNAVINST 5100.23 Ch. 21 NFGS 13283A, par. 1.3.6.g & 3.2.4.4.a
	6. Has the total number of days the HW is stored at the onsite facility been determined?	40 CFR 262.34 40 CFR 265 NFGS 13283A, par. 3.2.4.4.b
	7. Has a contingency plan been developed to minimize hazards to human health and the environment from unplanned releases of HW?	40 CFR 265 Subpart D NFGS 13283A, par. 1.3.6.c & 1.3.6.f
	8. Is the transporter licensed to transport HW off-site and does the generator have an EPA ID number?	40 CFR 263 NFGS 13283A, par. 1.3.6.c
	9. Does the HW treatment, storage, or disposal facility have a permit?	40 CFR 264 NFGS 13283A, par. 1.3.6.c, 3.2.4.4.c, & 3.2.5

APPENDIX D - LEAD-BASED PAINT REGULATIONS MATRIX

The following appendix includes a matrix of Lead-Based Paint (LBP) regulations. At the present time, many LBP regulatory issues are in a dynamic situation. Promulgation of certain mandates of Title X, *The Residential Lead-Based Paint Hazard Reduction Act of 1992*, are pending until more information is obtained and research is completed.

The matrix contains final rules from the following federal agencies: Occupational Safety and Health Administration (OSHA), Environmental Protection Agency (EPA), and Housing and Urban Development (HUD). The matrix includes proposed laws, guidelines, and LBP references, as well as current Navy policy documents.

Since LBP issues are occurring and changing frequently, it is important to make sure you have the most current information. Additionally, it is very important to check state and local agencies for LBP regulations that may apply in your area. Sometimes state and local regulations are more stringent than federal regulations.

NFESC LEAD-BASED PAINT REGULATION MATRIX

	OSHA[1] 29CFR1910.1025	OSHA[2] 29CFR1926.62	HUD[3] Guidelines	OPNAVINST 5100.23D[4]	Additional Regulations
Employee exposure; Action level (AL) 30 μg/m³ 8-hour Time Weighted Average	(b)	(b)	Ch. 9 Sec. V	2102b	
Work performed by private contractors. The contractor shall measure and control lead dust outside of the work boundary to less than the AL at all times				2109c	
Competent person means one who is capable of identifying existing and predictable lead hazards in the surroundings or working conditions and who has authorization to take prompt corrective measures to eliminate them		(b)	Ch. 9 Sec. V.A.2		
Permissible Exposure Limit (PEL) 50 μg/m³ 8-hour Time Weighted Average	(c)(1)	(c)(1)	Ch. 9 Sec. V	2102a	
Each employer shall determine if any employee may be exposed to lead at or above the AL.	(d)(2)	(d)(1)(i)	Ch. 9 Sec. V.B.1	2102b(1) 2106a	
Sampling airborne particulate for lead (NIOSH Method 7082)			App. 13.4		
Additional employee monitoring shall be conducted whenever there's been a production, process, control or personal change which may result in new or additional exposure to lead	(d)(7)	(d)(7)		2106a	
Notify employees of their exposure results within 5 days after the receipt of monitoring results	(d)(8)	(d)(8)	Ch. 9 Sec. V.B.2	2107	
Where any employee is exposed to lead above the PEL limit for 30 days per year, implement engineering and work practices controls to reduce employee exposure to lead	(e)(1)(i)	(e)(1)	Ch. 9 Sec. V.D	2102b(2)	
Where engineering and work practice controls do not reduce exposure below the PEL, supplement these controls with respirators	(e)(2)	(e)(1)	Ch. 9 Sec. V.E	2103d(1)(a)	
Each employer shall establish a written compliance program to reduce exposures below the PEL	(e)(3)	(e)(2)(i)	Ch. 9 Sec. V.A.1		
Sample OSHA written compliance plan			Ch. 9 Form 9.1		
Provide a local exhaust system at the point of airborne particulate generation				2103b(1)	29 CFR 1910.94 29 CFR 1926.57
When mechanical ventilation is used to control exposure, measurements of the system effectiveness shall be made at least every 3 months or within 5 days of any process change	(e)(5)(i)	(e)(3)		2103b(3)	
Recirculation of air from operations generating lead is not permitted				2103b(4)	
If exhaust air ventilation is recirculated into the workplace, ensure the system has a high efficiency (HEPA) filter, controls to monitor lead in the air and a bypass recirculation system	(e)(5)(ii)				
Industrial hygienists shall review all ventilation design and maintenance requirements.				2103b(6) 2103b(7)	

	OSHA[1] 29CFR1910.1025	OSHA[2] 29CFR1926.62	HUD[3] Guidelines	OPNAVINST 5100.23D[4]	Additional Regulations
If administration controls are used to reduce exposure, establish a job rotation schedule	(e)(6)	(e)(4)			
Where required, the employer must provide, at no cost to the employees, respirators	(f)(1)	(f)(1)			
Respirator selection	(f)(2)(i) Table II	(f)(2)(i) Table I	Ch. 9 Sec. V.E.1	2103d(2) Table 21-1	29 CFR 1910.139 29 CFR 1926.103
Employers shall perform respirator fit tests at the initial fitting and at least every 6 months	(f)(3)(ii)	(f)(3)(ii)	Ch. 9 Sec. V.E	2103d(1)(d)	
The employer shall institute a respirator protection program in accordance with 29 CFR 1910.139	(f)(4)	(f)(4)		2103d(1)(b)	
If exposed above the PEL, employer shall provide at no cost to the employee protective work clothing and equipment	(g)(1)	(g)(1)	Ch. 9 Sec. V.F	2103c(1)	29 CFR 1910.132 29 CFR 1926.28
Prohibit the removal of lead from protective clothing or equipment by blowing, shaking, or any means that disperses lead into the air	(g)(2)(viii)	(g)(2)(viii)	Ch. 9 Sec. V.F.	2103c(3)	
All surfaces shall be maintained as free as practicable of accumulations of lead	(h)(1)	(h)(1)	Ch. 9 Sec. V.G	2103a(3) 2103f(1)	29 CFR 1926.25
Floors and surfaces where lead accumulates may not be cleaned by the use of compressed air	(h)(2)(i)	(h)(5)	Ch. 9 Sec. V.G	2103f(3)	
Vacuums shall be used and emptied in a manner that minimizes the reentry of lead	(h)(3)				
Vacuums should be equipped with HEPA filters and be emptied in a manner that minimizes the reentry of lead		(h)(4)	Ch. 9 Sec. V.G	2103f(2)	
In areas above the PEL assure food or beverage are not present or consumed, tobacco products are not present or used, cosmetics are not applied	(i)(1)	(i)(1)	Ch. 9 Sec. V.H	2103g(4)	
Provide clean change rooms for employees who work in areas above the PEL	(i)(2)(i)	(i)(2)(i)	Ch. 9 Sec. V.H.2	2103c(3)	29 CFR 1910.141 29 CFR 1926.51
Assure employees, who work in areas above the PEL, shower at the end of the work shift	(i)(3)(i)	(i)(3)(ii)	Ch. 9 Sec. V.H.3	2103c(4)	
Provide lunchroom facilities for employees who work in areas above the PEL	(i)(4)(i)	(i)(4)(i)	Ch. 9 Sec. V.H.4	2103g(1)	
The employer shall provide an adequate number of lavatory facilities	(i)(5)	(i)(5)(i)	Ch. 9 Sec. V.H.5		
Institute a medical surveillance program for all employees who are or may be exposed above the AL for more than 30 days per year	(j)(1)(i)	(j)(1)(ii)	Ch. 9 Sec. V.I	2108a	
Make available initial medical surveillance to employees exposed on any day to lead at or above the AL		(j)(1)(i)	Ch. 9 Sec. V.I.1		
Make available blood sampling and analysis for lead levels to each employee	(j)(2)(i)	(j)(2)(i)	Ch. 9 Sec. V.I.2	2108b(2)	
Make available medical examinations and consultations to each employee exposed above the AL for more than 30 days per year	(j)(3)(i)	(j)(3)(i)	Ch. 9 Sec. V.I.2		

	OSHA[1] 29CFR1910.1025	OSHA[2] 29CFR1926.62	HUD[3] Guidelines	OPNAVINST 5100.23D[4]	Additional Regulations
The employer shall ensure that any person does not engage in prophylactic chelation	(j)(4)(i)	(j)(4)(i)	Ch. 9 Sec. V.I.2		
The employer shall remove an employee from work, exposed at the AL, if the blood lead level is at or above 50 microgram per deci-liter (µg/dL)	(k)(1)(i)(D)	(k)(1)(i)	Ch. 9 Sec. V.J	2108b(3)(a)	
The employer shall institute an annual training program who are exposed to lead above the AL	(l)(1)(ii)	(l)(1)(iv)	Ch. 9 Sec. V.K	2105	29 CFR 1926.21
The employer shall communicate information concerning lead hazards according to the OSHA's Hazard Communication Standard 29 CFR 1926.59		(l)(1)(i)	Ch. 9 Sec. V.K		29 CFR 1910.1200 29 CFR 1926.59
Post warning signs in each work area where the PEL is exceeded	(m)(2)(i)	(m)(2)(i)	Ch. 9 Sec. V.L	2103e	29 CFR 1910.145 29 CFR 200
The employer shall establish and maintain an accurate record of all monitoring	(n)(1)(i)	(n)(1)(i)	Ch. 9 Sec. V.M.1	2106e	29 CFR 1910.20
The employer shall establish and maintain an accurate record of all medical surveillance	(n)(2)(i)	(n)(2)(i)	Ch. 9 Sec. V.M.2	2108d(2)	
The employer shall establish and maintain an accurate record of all medical removals	(n)(3)(i)	(n)(3)(i)	Ch. 9 Sec. V.M.3		
Lead paint coatings containing less than 0.3% dry weight of lead (3000 ppm) shall be used in place of high lead containing paints				2103a(1)	
Only low lead paint coatings containing less than 0.06% dry weight of lead (600 ppm) shall be applied to the interior of residential structures or to other surfaces which may pose a potential lead ingestion hazard.				2103a(1)	16 CFR 1303
RISK ASSESSMENT: Performed to determine the presence or absence of LBP hazards			Ch. 5 All		40 CFR 745.227(d) 61 FR 29170
Hazard level for deteriorated paint 5,000 µg/g (ppm) or 1.0 mg/cm^2			Ch. 5 Sec. V.A.2 Table 5.7		40 CFR 745.223 60 FR 47247
Paint chip sampling			App. 13.2		40CFR745.227(d)(4) 60 FR 47247
Hazard levels for hard floors or carpeted floors in housing and child occupied facilities 100 µg/ft^2			Ch. 5 Sec. V.A.1 Table 5.7		60 FR 47247
Hazard levels for hard floors or carpeted floors in non-housing/non-child occupied facilities 200 µg/ft^2					OSHA CPL 2-2.58, 13 Dec 1993
Hazard level for interior window sills 500 µg/ft^2			Ch. 5 Sec. V.A.1 Table 5.7		60 FR 47247
Hazard level for window troughs 800 µg/ft^2			Ch. 5 Sec. V.A.1 Table 5.7		60 FR 47247

	OSHA[1] 29CFR1910.1025	OSHA[2] 29CFR1926.62	HUD[3] Guidelines	OPNAVINST 5100.23D[4]	Additional Regulations
Wipe sampling for settled lead-contaminated dust			App. 13.1		40CFR745.227(d)(5) 60 FR 47247
Hazard level for bare soil (small high-contact areas) where children are likely to be present 400 µg/g (ppm)			Ch. 5 Sec.V.A.3 Table 5.7		Federal Register 60 FR 47247
Hazard level for bare soil (dwelling perimeter and yard) where children are unlikely to be present 2,000 µg/g (ppm)			Ch. 5 Sec. V.A.3 Table 5.7		60 FR 47247
Soil sampling protocol for housing			App. 13.3		40CFR745.227(d)(8) 60 FR 47247
Laboratory analytical procedures: Methods used for lead sample analysis should be the methods used by the EPA to analyze ELPAT			App. 14.1		40 CFR 745.227(f) See EPA Notes Below
LBP INSPECTION: Determines the location and amount of LBP in a building			Ch. 7 All		40 CFR 745.227(b) 61 FR 29170
A LBP inspection testing combination is characterized by the room equivalent, component, substrate, and visible color of the paint			Ch. 7 Sec. IV.A		40 CFR 745.227 (b)(2)(i)/(b)(2)(ii)
CONTAINMENT: Interior worksite preparation			Ch. 8 Table 8.1		40 CFR 745.223
HAZARDOUS WASTE: Generators producing hazardous and nonhazardous solid waste should comply with the regulations outlined in RCRA			Ch. 10 All	2104	40 CFR 745.223 See EPA Notes Below
Toxicity Characteristic Leaching Procedure (TCLP); The allowable lead threshold is 5 ppm			Ch. 10 Sec. II.A		See EPA Notes Below
Architectural debris require the generator to evaluate their potential to be hazardous waste			Ch. 10 Sec. III.C.2		See EPA Notes Below
Hazardous waste management requirements			Ch. 10 Sec. IV		See EPA Notes Below
INTERIM CONTROLS are intended to make buildings "lead" safe by temporarily controlling LBP hazards			Ch. 11 All		40 CFR 745.223
Paint Film Stabilization interim control			Ch. 11 Sec. II		
Friction and Impact Surface Treatment interim control			Ch. 11 Sec. III		
Dust removal interim control			Ch. 11 Sec. IV		
Soil interim controls			Ch. 11 Sec. V		
ABATEMENT refers to any measure designed to permanently eliminate (capable of lasting 20 years) LBP hazards			Ch. 12 All		40 CFR 745.227(e)
Prohibited abatement methods			Ch.12 Table 12.1		40CFR745.227(e)(6)

	OSHA[1] 29CFR1910.1025	OSHA[2] 29CFR1926.62	HUD[3] Guidelines	OPNAVINST 5100.23D[4]	Additional Regulations
Abatement: Building Component Replacement			Ch. 12 Sec. II		
Abatement: Enclosure Methods			Ch. 12 Sec. III		
Types of LBP enclosure systems			App. 7.2		
Abatement: Paint Removal Methods			Ch. 12 Sec. IV		
Soil and Exterior Dust Abatement			Ch. 12 Sec. V		40CFR745.227(e)(7)
ENCAPSULATION			Ch. 13 All		40 CFR 745.223
CLEANING: Two basic cleaning methods are effective, when used together, in LBP hazard control: initial pass with HEPA vacuum, followed by wet washing with cleaning agents and rinsing, and a final pass with HEPA vacuum			Ch. 14 All Sec. III.B Sec. III.B.3		
CLEARANCE occurs in two phases: Visual examination and environmental sampling			Ch. 15 All		40 CFR 745.227 (e)(8)/(e)(9)
Clearance dust sampling levels 100 $\mu g/ft^2$ on floors, 500 $\mu g/ft^2$ on interior window sills, 800 $\mu g/ft^2$ on window troughs and exterior concrete			Ch. 15 Sec. IV Table 15.2		
Step-by-step clearance summary: How to do it			App. 7.3		
CHILDREN WITH ELEVATED BLOOD LEVELS			Ch. 16 All		BUMEDINST 6200.14
ROUTINE BUILDING MAINTENANCE			Ch. 17 All		

ELPAT: Environmental Lead Proficiency Analytical Testing Administration
EPA: Environmental Protection Agency
HEPA: High Efficiency Particulate Air
HUD: U.S. Department of Housing and Urban Development
LBP: Lead-Based Paint
NIOSH: National Institute for Occupational Safety and Health
OSHA: Occupational Safety and Health
ppm: parts per million
RCRA: Resource Conservation and Recovery Act

[1] OSHA 29 CFR 1910.1025 is Title 29 (Labor), Code of Federal Regulations (CFR), Part 1910 (Occupational Safety and Health Standards), Section 1025, *Lead*, the Lead General Industry Standard. It applies to all occupational exposures to lead.

[2] OSHA 29 CFR 1926.62 is Title 29 (Labor), Code of Federal Regulations (CFR), Part 1926 (Safety and Health Regulations for Construction), Section 62, *Lead Exposure in Construction*; Interim Final Rule. It applies to all construction work in which lead, in any amount is present in an occupationally related context. Construction work is defined as work involving construction, alteration and/or repair, including painting and decorating.

[3] HUD Guidelines is the U.S. Department of Housing and Urban Development *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing.* The HUD Guidelines provides the best guidance on how to perform lead-related construction work.

[4] OPNAVINST 5100.23D is *The Navy Occupational Safety and Health (NAVOSH) Program Manual.*

ENVIRONMENTAL PROTECTION AGENCY

The EPA has many responsibilities involved in lead regulation development. However, at the present time, the EPA is the process of researching certain lead-based paint activities. After the research is completed, regulations and standards will be developed.

Title X, the Residential Lead-Based Paint Hazard Reduction Act requires EPA and individual states to develop training and certification regulations for individuals engaged in lead-based paint activities. On August 29, 1996, the EPA issued 40 CFR 745, Lead; Requirements for Lead-Based Paint Activities, in Target Housing and Child-Occupied Facilities; Final Rule.

Additionally, Title X requires EPA to identify lead-based paint hazards from deteriorated lead-based paint, lead-contaminated dust, and lead-contaminated soil in residential settings. The EPA has not issues a final rule at the present time, however, EPA produced information in Federal Register, Vol. 60, September 11, 1995, (60 FR 47242) titled Guidance on Identification of Lead-Based Paint Hazards.

Other EPA regulations may apply to lead inspection and abatement activities. Because these regulations might not apply some of the time, it is difficult to list them all. Listed below are some important EPA regulations which may apply.

These standards are more for industrial factories emitting lead into the atmosphere. Some large paint removal projects may have to comply with these standards.
40 CFR 50.12, "National Primary and Secondary Ambient Air Quality Standards for Lead" provides a lead emission limit of 1.5 $\mu g/m^3$ averaged over 90 days.
40 CFR 50.6, "National Primary and Secondary Ambient Air Quality Standards for Particulate Matter" provides emission limits on particulate matter.

40 CFR Parts 240 through 280 is the Resource Conservation and Recovery Act (RCRA) and provides controls over the handling & disposal of hazardous wastes.
40 CFR 261, "Identification and Listing of Hazardous Waste", provides definitions of hazardous waste and methods for testing waste.
40 CFR 261.24, "Toxicity Characteristic", assigns a hazardous waste number to materials that exhibit the characteristic of toxicity. The leachable level of lead that establish its debris as hazardous is 5.0 mg/L (5.0 ppm). Appendix II addresses the laboratory testing procedure (Method 1310, Toxicity Characteristic Leaching Procedure (TCLP)) required to characterize hazardous waste.
40 CFR 262 establishes standards for the generators of hazardous waste, including manifest preparation for hazardous waste.
40 CFR 263 establishes standards for the transporters of hazardous waste.
40 CFR 264 establishes standards for hazardous waste disposal facilities.
40 CFR 265.16, "Personnel Training" requires workers involved in the handling of hazardous waste classroom or on-the-job training to assure personnel are trained in the necessary waste management procedures.

40 CFR Subchapter D, "Clean Water Programs", Parts 100 through 149 is the Clean Water Act.
40 CFR 222 requires a National Pollutant Discharge Elimination System (NPDES) permit to discharge a pollutant into the waters of the United States.

Laboratory sample analysis for lead should comply with the Environmental Lead Proficiency Analytical Testing (ELPAT) Program. Use only laboratories accredited through the EPA's National Lead Laboratory Accreditation Program. Call the EPA Lead Hotline at 1-800-424-LEAD for a list of recognized laboratories.

EPA Report: "Applicability of RCRA Disposal Requirements to Lead-Based Paint Abatement Wastes", March 1993

NAVY POLICY

The following references contain specific policies of the U.S. Navy regarding lead-based paint.

OPNAVINST 5100.23 Series, *The Navy Occupational Safety and Health (NAVOSH) Program Manual*, Chapter 21. The goal of this chapter is to prevent lead intoxication and related injuries at Navy activities.

COMNAVFACENGCOM ltr 11101 ser FAC 08T/1822B, 09 Nov 92, *Navy Family Housing Lead-Based Paint/Asbestos Inventory Program.* The goals of this program are to locate lead-based paint in Navy family housing, determine its condition, assess lead-based paint health risk to family housing occupants, and develop data for managing those risks.

NAVFACENGCOM Design Policy Letter: DPL-09B-0001, 26 Mar 92, *Lead-Containing Paint on Non-Residential Structures.* The purpose of this document is to provide policy on the use and control of lead pigments in paint during maintenance, repair, and construction of new and existing non-residential structures and facilities.

NAVFAC INSTRUCTION 10360.1, 09 Jul 1984, provides information necessary for implementing laws regulating the use of lead-based in residential structures.

CNO ltr 11000 ser N444B/5U596033, 12 Jan 1995, *Lead Paint at BRAC Properties.* This document provides DoD policy on lead-based paint at BRAC properties.

NAVFACENGCOM Guide Specification NFGS-13283A, *Removal and Disposal of Lead-Containing Paint.* This guide specification covers the requirements and procedures for limiting occupational and environmental exposure to lead when removing lead-based paint.

BUMED ltr 6262/9 ser 243/3U762117, 01 Feb 1993, *Pediatric Lead Poisoning Prevention (PLPP).* This documents establishes policy requiring Pediatric Lead Poisoning Prevention programs at all military medical treatment facilities and military housing and facilities commands.

BUMEDINST 6200.14 of 6 July 1994, *Pediatric Lead Poisoning Prevention (PLPP) Screening Plan.*

OTHER LEAD-BASED PAINT REFERENCES

ATLANTIC DIVISION NAVFACENGCOMINST 10360.1, 17 May 1994, *Command Lead-Based Paint Policy*. This document provides comprehensive policy on lead-based paint issues by focusing on three major concepts: worker protection; minimizing the risk of exposure to occupants of naval facilities; and management and disposal of waste.

Consumer Product Safety Act (CPSA) Standard 16 CFR 1303, *Ban of Lead-Containing Paint and Certain Consumer Products Bearing Lead-Containing Paint*.

Centers for Disease Control and Prevention (CDC), *Screening Young Children for Lead Poisoning: Guidance for State and Local Public Health Officials*, November 1997.

DoD Interagency Lead-Based Paint Task Force, *Lead; A Quick Reference Guide for the Industrial Hygienist* (April 1995)

Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing, United States Department of Housing and Urban Development (HUD), July 1995, "HUD Guidelines"

HUD Standard 24 CFR 35, *Elimination of Lead-Based Paint Hazards in Federally-Owned Properties Prior To Sale for Residential Habitation*

HUD Standard 24 CFR 35-37 (Found in Federal Register 61 FR 29170, 7 June 1996) *Requirements Notification, Evaluation, and Reduction of Lead-Based Paint Hazards in Federally Owned Residential Property and Housing Receiving Federal Assistance; Proposed Rule*

HUD Standard 25 CFR 35/EPA Standard 40 CFR 745 (6 March 1996) *Lead; Requirements for Disclosure of Known Lead-Based Paint and Lead-Based Paint Hazards in Housing; Final Rule*

Industrial Lead Paint Removal Handbook, 2nd Edition, Kenneth A Trimbler, SSPC Book 93-02, KTA-Tator, Inc.

Inspection and Compliance Procedures for Lead Exposure in Construction, OSHA Instruction CPL 2-2.58, 13 December 1993, Office of Health Compliance Assistance

National Institute of Building Sciences, *Lead-Based Paint Operations and Maintenance Work Practices Manual for Homes and Buildings*

Preventing Lead-Poisoning in Young Children, Centers for Disease Control, October 1991

Putting the Pieces Together: Controlling Lead Hazards in the Nation's Housing, a report from the Lead-Based Paint Hazard Reduction and Financing Task Force.

Title X, *Residential Lead-Based Paint Hazard Reduction Act* (Public Law 102-550), October 1992

APPENDIX E - BIBLIOGRAPHY

Environmental Protection Agency Title 40, Protection of Environment, Parts 260 to 265, *Solid Wastes* (EPA 40 CFR 260 - 265).

EPA 40 CFR 745, *Lead; Requirements for Lead-Based Paint Activities, in Target Housing and Child-Occupied Facilities; Final Rule.*

National Institute of Building Sciences (NIBS), *Guide Specifications for Reducing Lead-Based Paint Hazards.*

NIBS, *Lead-Based Paint Operations and Maintenance Work Practices Manual for Homes and Buildings.*

Naval Facilities Engineering Command Guide Specification NFGS-13283A, *Removal and Disposal of Lead-Containing Paint.*

Occupational Safety and Health Administration (OSHA), Title 29, Labor, Part 1926, Section 62, *Lead Exposure in Construction; Interim Final Rule* (29 CFR 1926.62).

OSHA 29 CFR 1926.21, *Safety Training and Education.*

OSHA 29 CFR 1926.59, *Hazard Communication.*

OSHA 29 CFR 1910.139, *Respiratory Protection.*

OSHA 29 CFR 1910.1200, *Hazard Communication.*

OPNAVINST 5090.1B, *Environmental and Natural Resources Program Manual*, Chapter 12, Hazardous Waste Management Ashore, and Chapter 14, Solid Waste Management and Resource Recovery Ashore.

OPNAVINST 5100.23D, *The Navy Occupational Safety and Health (NAVOSH) Program Manual*, Chapter 21, Lead.

Steel Structures Painting Council (SSPC), *Supervisor/Competent Person Training Manual for Deleading of Industrial Structures, Parts A & B.*

SSPC Book 93-02, KTA-Tator, Inc., *Industrial Lead Paint Removal Handbook*, 2nd Edition. Kenneth A. Trimbler.

United States Department of Housing and Urban Development (HUD), *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing*, July 1995.

U.S. Army Corps of Engineers, *Safety and Health Requirements Manual*, EM 385-1-1.