Department of the Air Force
HQ AEDC (AFMC)
Arnold AFB, TN 37389

Safety, Health, and Environmental Standard

Title: **LEAD AND HEAVY METALS**

Standard No.: E19

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Releasability: There are no releasability restrictions on this publication.

The provisions and requirements of this standard are mandatory for use by all personnel engaged in work tasks necessary to fulfill the AEDC mission. Please contact your safety, industrial health and/or environmental representative for clarification or questions regarding this standard.

Approved:

Base Operating Contractor/ATA Director
Safety, Health and Environmental

Air Force Functional Chief

Record of Review/Revision

(Current revisions are highlighted in yellow and marked with a vertical line in the right margin.)

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Safety, Health, and Environmental Standard

Lead and Heavy Metals

Safety, Health, and Environmental Standard

LEAD AND HEAVY METALS

1.0 INTRODUCTION/SCOPE/APPLICABILITY

1.1 Introduction – This standard is intended to implement the Federal Occupational Safety and Health Administration regulation 1910.1025, 1910.62 and Air Force regulations in regard to lead and other heavy metals.

1.2 Scope – This standard provides requirements and responsibilities for procurement, use, handling, and disposal of lead and heavy metals normally found in coatings and paints. This standard also includes procedures for activities in areas where exposure to lead or heavy metals is possible such as during lead melting, welding, cutting, or burning of lead containing materials.

1.3 Applicability – This standard applies to all AEDC personnel performing work at Arnold AFB involving potential exposure to lead or other heavy metals.

2.0 BASIC HAZARDS/HUMAN FACTORS

2.1 The American Conference of Governmental Hygienists (ACGIH) lists Lead as a confirmed animal carcinogen with unknown relevance to humans.

2.2 Overexposure to these materials may cause serious damage to blood-forming organs, the brain, kidneys, lungs, the cardiovascular system, and reproductive systems in both men and women as well as other body systems.

2.3 The primary health hazard from lead and heavy metals results from the inhalation of these materials. Ingestion may also provide a significant source of exposure to the work force.

2.4 For more information concerning the toxicological effects see Annex A, Substance Data Sheet for Occupational Exposure to Lead.

3.0 DEFINITIONS

Action Level – Refers to an eight-hour time-weighted air concentration of lead that workers may be exposed to without respiratory protection. When exposures exceed the action level, air monitoring, worker training, and medical surveillance programs are required. The current action level for lead is 30 micrograms per cubic meter of air. When air exposures are below the action level, special work procedures may not be required to protect worker health. However, special work procedures may be necessary to prevent contamination of work clothes, shoes, etc. Special disposal procedures may also be required.

Base Operating Contractor – A long-term contractor directly accountable to the Air Force for the AEDC mission. ATA is the current operating contractor.

Burning and Cutting Paint – The removal of paint by burning with a welding or cutting torch. This practice is strictly prohibited unless conducted in an enclosure or the activity is conducted with proper respiratory protection and the smoke and fume is captured with high efficiency particulate air (HEPA) filtered local exhaust system.

Competent Individual – A person trained in all aspects of lead abatement, the contents of Occupational Health and Safety Administration (OSHA) Standard 1926.62, the identification of lead, lead abatement procedures, and other practices for reducing lead and heavy metal hazards. Such training shall be approved by the Base Operating Contractor Safety, Health and Environmental (SHE).

Dispensary Operating Contractor – The contractor responsible for daily operations of the Dispensary.

Hand Scrapping – The use of hand tools to remove loose paint and rust.

High Efficiency Particulate Air Filter (HEPA Filter) – A filter that is a least 99.97% efficient at removing particles down to 0.3 microns in diameter.

HUD-Trained Worker – A worker who has received lead abatement training as required in Housing and Urban Development (HUD) Regulations. Any employee who performs lead abatement activities in housing or recreational areas requires this training.

Lead and Heavy Metal Containing Materials (LHM) – Any material containing any quantity of lead or other heavy metal that has a permissible exposure level established by the OSHA or that is considered a potential hazardous waste by the Environmental Protection Agency (EPA). The EPA is concerned with any lead containing material that, when analyzed by the Total Characteristic Leachate Procedure (TCLP), yields a leachate at or above 5 parts per million (ppm). Therefore, LHM is regulated by both OSHA and EPA. Lead and heavy metal materials presently include lead, mercury, cadmium, chromium, silver, barium, and arsenic.

Lead and Heavy Metal Management Plan – The management plan that provides the documentation for all lead management efforts and the mechanisms for overseeing the entire facility lead and heavy metal management program. This program is maintained by the Air Force Lead Program Officer and the Base Operating Contractor Lead Operations Manager (LOM).

Lead and Heavy Metal Operation Plan – This plan dictates how Arnold Air Force Base carries out its lead-related projects. It assigns responsibilities, establishes inspection and abatement teams, and provides abatement procedures and personal protection instructions. AEDC Safety, Health, and Environmental Standard E19 is part of this plan.

Lead and Heavy Metal Related Work – This applies to any welding or torch cutting of painted metals where the paint is suspected to contain lead or other heavy metals. This also applies to the removal of painted walls, doors, door facings, windows and casings, cable repair involving lead, soldering, melting of lead, or any other activity where lead or heavy metals are involved.

Lead Operations Manager (LOM) – Contractor appointee who manages the implementation of the facility lead operation plan and use of the in-house lead abatement work force.

Lead Program Officer (LPO) – A member of the AEDC/SDG staff who oversees the facility lead and heavy metal management plan and acts as the focal point of contact between the Air Force, the contractor, the Tennessee Department of Environment and Conservation (TDEC), and federal EPA.

Manual Hand Removal – The use of scrapers, rags, sponges, etc., to remove paint and dirt from painted surfaces using manual and non-power tool methods.

National Pollutant Discharge Elimination System (NPDES) – EPA-regulated concentrations of lead or other heavy metals in industrial wastewaters. When these concentrations are exceeded the material may not be released into the environment without treatment.

Needle Gun with HEPA Attachment – A tool which is used to remove paint and is equipped with attachments that capture and filter paint debris through a vacuum equipped with a HEPA filter.

Outside Contractor/Subcontractor – An organization employed by a contractor or the Air Force to do construction, maintenance, repair or other work at AEDC. There is no employment relationship, control or supervision of the subcontractor's employees by AEDC contractors. Also referred to as the construction contractor.

Permissible Exposure Limit (PEL) – Refers to an eight-hour time-weighted air concentration of lead or other heavy metals to which workers may not be exposed without respiratory protection. The current PEL for lead is 50 micrograms per cubic meter of air.

Power Washing – The use of high-pressure water wash to remove paint, rust, and dirt from painted surfaces.

Prohibited Activities – Torch burning, cutting, or welding of surfaces coated with lead and heavy metal surfaces. Sanding, sawing, or scraping of painted surfaces or the cleanup of LHM debris without the use of proper protective equipment, HEPA filtered vacuum equipment, or other procedures.

Vacuum Blaster – Device used to remove paint using grit blast materials. The blaster is equipped with a HEPA filtered vacuum attachment that collects the blasting media to reduce airborne concentrations of lead and heavy metals. *The use of a vacuum blaster is restricted; exceptions shall be approved by SHE.*

4.0 REQUIREMENTS/RESPONSIBILITIES

4.1 General Requirements

Annex B contains specific information on how to comply with the requirements set forth in this Safety, Health and Environmental (SHE) Standard.

4.1.1 Operations that involve the potential exposure of lead and heavy metals shall require written procedures which shall be reviewed by SHE. This includes emergency maintenance and repair operations that can be reasonably

anticipated such as pipe and valve repair. Only properly trained lead abatement workers shall conduct any work involving lead and heavy metals.

4.1.2 Procedures for jobs of a small scale and routine nature may be written in a generic manner and used as general guidance for other similar jobs. These procedures become an integral part of the job safety analysis. Questions concerning work procedures shall be addressed to SHE.

4.1.3 Lead work procedures outlining necessary precautions taken during all phases of lead abatement work shall be prepared by the job supervisor or, in the case of a subcontractor, by the subcontractor. The written procedure shall outline the appropriate measures to be taken to control exposure to lead and heavy metals in accordance with OSHA, EPA, TDEC, and other AEDC requirements.

4.1.4 SHE shall also be contacted before any job involving lead is begun so that air sampling may be conducted and other aspects of the job evaluated as required by OSHA and the EPA.

4.1.5 The following are prohibited unless approved by SHE:

- Incorporation of lead-containing materials in new designs.
- Procurement of lead-containing materials.
- Establishing or maintaining stocks of lead-containing materials.
- Use of lead or heavy-metal-containing paints or coatings.

4.1.6 Because of the extensive use of lead based paints at AEDC, it shall be assumed that all painted materials contain lead or other heavy metals unless samples have been collected and analyzed showing otherwise.

4.2 Restricted Areas

Work locations where lead and heavy metal materials are being abated or where contamination is present shall be controlled. Entry to the area shall be restricted with ropes and/or barriers, and posted with 20-by-14 inch signs bearing the following warning which shall be readily visible at all times:

WARNING

LEAD WORK AREA/ CONTAMINATION

POISON

NO SMOKING OR EATING

NOTE: *When cadmium or heavy metals other than lead are present, SHE shall be contacted for guidance concerning the proper signs required for the situation.*

4.3 Personal Protection

Protection measures outlined in OSHA Standard 1926.62 shall be used for operations that may generate air-borne lead or heavy metals. Follow procedures in Annex B shall be as appropriate. Contact SHE for guidance.

4.4 High Efficiency Particulate Air (HEPA) Filtered Vacuum Cleaner

To facilitate the care and use of HEPA filtered vacuums, a Form GC-82, Safety Information (Tag) shall be affixed to each vacuum indicating the date of the last HEPA filter change, date of each use, and the number of hours used. Also, the date when internal bags or filters were replaced shall be indicated.

4.5 HEPA Equipped Tooling

HEPA equipped tooling shall be used whenever it is necessary to grind or mechanically remove lead - containing materials.

4.6 Waste Disposal

Lead and heavy metal materials may be hazardous waste. Procedures established in SHE Standard E18, Chemical and Petroleum Products Waste Management, shall be followed to determine if the material shall be disposed of as hazardous waste, in the regular landfill, or salvaged.

4.7 Disasters

4.7.1 In the event of disasters or emergencies involving lead and heavy metal materials, such as fires, explosions, and high winds, emergency response and cleanup personnel shall take special precautions to prevent exposure to airborne lead generated by these events.

4.7.2 Following any disaster, efforts shall be made to identify lead and heavy metal materials in the disaster area. Appropriate action shall be taken to prevent exposure and to ensure proper decontamination and disposal of the lead and heavy metal materials or to prevent contamination of other materials.

4.8 Responsibilities

4.8.1 Base Operating Contractor Organizational Unit shall

4.8.1.1 Ensure materials, especially paint and coatings containing lead or other heavy metals, are handled in accordance with the AEDC SHE Standard E6, Hazardous Materials Management.

4.8.1.2 Consult SHE for identification of lead and heavy metal materials.

4.8.1.3 Route all project designs, work requests, and work plans involving lead and heavy metal materials and paints through SHE for review.

4.8.1.4 Prepare a written documentation outlining necessary precautions before starting any job that involves lead and heavy metal materials. This procedure shall include a contingency for any predicted emergency repair work and shall be made available for use by repair personnel. Incorporate this documentation into the Job Safety Analysis (JSA). Contact SHE far enough in advance of the job to allow adequate time for assistance in the development of procedures without the delay of the required work.

NOTE: *Example specifications for use on jobs involving outside/subcontractors may be obtained from SHE or Engineering. Work procedures for in-house personnel are included in Annex B to this standard.*

4.8.1.5 Ensure that work done by subcontractors is consistent with this standard and is in compliance with State, Federal, and AEDC regulations. Work shall be monitored by contractor representatives to ensure compliance with the approved work plan.

NOTE: *Base Operating contractor and Air Force project monitors shall ensure that outside subcontractors submit work plans to SHE for approval before lead and heavy metal material removal.*

4.8.1.6 Inform employees who work with lead and heavy metal materials of its hazards, control methods, and the applicable parts of this standard and ensure that such employees receive annual training in accordance with OSHA Standard 1926.62.

4.8.1.7 Ensure that drawings, sketches, designs, and specifications address the presence of lead and heavy metal materials. Identify the presence of these materials on the drawings and in the specifications.

4.8.1.8 Provide information to SHE personnel concerning all renovations, updates of building drawings, etc., to reflect current locations of lead and heavy metal materials. This information shall be used in updating the lead and heavy metal management plan.

4.8.1.9 Provide respiratory protection and local exhaust ventilation in accordance with SHE Standard C3 Local Exhaust Ventilation. Use proper procedures during jobs involving lead and heavy metals. Ensure that employees involved in lead and heavy metal materials receive respirator fit-testing every twelve months.

4.8.1.10 Restrict access to lead and heavy metal material areas and posts signs at all approaches in accordance with the warning found in accordance with this standard.

4.8.1.11 Utilize disposable coveralls, booties, and head covers during work involving lead and heavy metals materials as appropriate.

4.8.1.12 As appropriate, ensure that employees working with lead and heavy metals receive physicals, worker training, respirator training, and fit-testing before conducting any lead work. Physical training and fit-testing are required annually.

4.8.1.13 Ensure that workers using HEPA vacuums are properly trained in the care and use of such equipment.

4.8.1.14 Monitor closely all lead and heavy metal jobs conducted by AEDC personnel or outside subcontractor as appropriate. Subcontractors shall be monitored before, during, and following lead and heavy metals

materials removal to ensure that all work plans, safety, health, and environmental concerns, and all terms and conditions of the contracts are strictly followed.

4.8.1.15 Ensure that workers receive physical exams and blood lead testing and or other chemical testing as appropriate.

4.8.1.16 Contact the contractor LOM for guidance and assistance in the estimating of lead and heavy metal abatement project costs.

4.8.2 Base Operating Contractor Safety, Health, and Environmental shall

4.8.2.1 Assist in preparation and review of the written documentation for lead and heavy metal materials work.

4.8.2.2 Assist the base operating contractor organization unit and the Air Force with the monitoring of lead and heavy metal abatement work.

4.8.2.3 Approve the use of lead and heavy metal materials when it is established that substitutes cannot be found and their use is necessary.

4.8.2.4 Review written documentation or JSA and work plans for lead and heavy metal work.

4.8.2.5 Provide general guidance to organizational units involved in lead and heavy metal work.

4.8.2.6 Conduct air sampling to determine employee exposure to lead and heavy metals.

4.8.2.7 Send written notification through appropriate management channels to employees who have been monitored for exposure to lead. This notification shall include employees exposed to air concentrations of lead above the OSHA action level in the medical surveillance program for lead workers.

4.8.2.8 Provide annual training to the base operating contractor lead and heavy metal workers or suitable training materials to management to allow appropriate training by supervision on the hazards of lead and heavy metals as required in the OSHA Standard 1926.62. Training shall include the use of respirators, HEPA vacuums, and other related information concerning lead removal policies and procedures.

4.8.2.9 Provide pre-assignment, periodic, and termination physical examinations for employees whose work may involve exposure to lead and heavy metals above the action level. Provide copies of blood test levels and other relative documentation to employee.

4.8.3 Base Operating Contractor Hazardous Waste Operations Group shall

Provide general and disposal guidance concerning hazardous waste issues.

4.8.4 Base Operating Contractor Roads and Grounds shall

Dispose of lead and heavy metal materials in accordance with AEDC Safety Standard E18.

4.8.5 Dispensary Operating Contractor shall

Provide a Physician or other Licensed Health Care Provider (PLHCP) to conduct pre-assignment, periodic, and termination physical examinations for AEDC employees with potential for exposure to lead or other heavy metals.

5.0 TRAINING

5.1 Base Operating Contractor

All personnel shall receive lead worker training prior to performing any lead abatement work.

5.2 Subcontractors/User/Non-AEDC Personnel

All personnel in this category shall provide written certification through the appropriate Project Manager or designee to SHE that their employees have received lead worker training.

6.0 REFERENCES

6.1 AEDC SHE Standard B3 Control of Hazardous Areas
6.2 AEDC SHE Standard C3 Local Exhaust Ventilation
6.3 AEDC SHE Standard E6 Hazardous Materials Management
6.4 AEDC SHE Standard E18 Chemical and Petroleum Products Waste Management
6.5 AEDC SHE Standard F4 Respiratory Protection
6.6 AEDC Lead and Heavy Metal Management and Operations Plans

6.7 29 CFR 1926.62 Lead (Construction)
6.8 29 CFR 1910.1025 Lead (General Industrial)

7.0 ANNEXES
7.1 Annex A Substance Data Sheet for Occupational Exposure to Lead
7.2 Annex B Lead Abatement Procedures

8.0 SUPPLEMENT
NFAC A321-0801-XSP E19 Lead and Heavy Metals

ANNEX A

APPENDIX A TO 1926.62—SUBSTANCE DATA SHEET FOR

OCCUPATIONAL EXPOSURE TO LEAD

I. SUBSTANCE IDENTIFICATION

A. SUBSTANCE: Pure lead (Pb) is a heavy metal at room temperature and pressure and is a basic chemical element. It can combine with various other substances to form numerous lead compounds.

B. COMPOUNDS COVERED BY THE STANDARD: The word "lead" when used in this interim final standard means elemental lead, all inorganic lead compounds and a class of organic lead compounds called lead soaps. This standard does not apply to other organic lead compounds.

C. USES: Exposure to lead occurs in several different occupations in the construction industry, including demolition or salvage of structures where lead or lead-containing materials are present; removal or encapsulation of lead-containing materials, new construction, alteration, repair, or renovation of structures that contain lead or materials containing lead; installation of products containing lead. In addition, there are construction related activities where exposure to lead may occur, including transportation, disposal, storage, or containment of lead or materials containing lead on construction sites, and maintenance operations associated with construction activities.

D. PERMISSIBLE EXPOSURE: The permissible exposure limit (PEL) set by the standard is 50 micrograms of lead per cubic meter of air (50 ug/m3), averaged over an 8-hour workday.

E. ACTION LEVEL: The interim final standard establishes an action level of 30 micrograms of lead per cubic meter of air (30 ug/m3), averaged over an 8 hour workday. The action level triggers several ancillary provisions of the standard such as exposure monitoring, medical surveillance, and training.

II. HEALTH DATA

A. WAYS IN WHICH LEAD ENTERS YOUR BODY:

When absorbed into your body in certain doses, lead is a toxic substance. The object of the lead standard is to prevent absorption of harmful quantities of lead. The standard is intended to protect you not only from the immediate toxic effects of lead, but also from the serious toxic effects that may not become apparent until years of exposure have passed. Lead can be absorbed into your body by inhalation (breathing) and ingestion (eating). Lead (except for certain organic lead compounds not covered by the standard, such as tetraethyl lead) is not absorbed through your skin. When lead is scattered in the air as a dust, fume respiratory tract. Inhalation of airborne lead is generally the most important source of occupational lead absorption. You can also absorb lead through your digestive system if lead gets into your mouth and is swallowed. If you handle food, cigarettes, chewing tobacco, or make-up that have lead on them or handle them with hands contaminated with lead, this will contribute to ingestion.

A significant portion of the lead that you inhale or ingest gets into your blood stream. Once in your blood stream, lead is circulated throughout your body and stored in various organs and body tissues. Some of this lead is quickly filtered out of your body and excreted, but some remains in the blood and other tissues. As exposure to lead continues, the amount stored in your body will increase if you are absorbing more lead than your body is excreting. Even though you may not be aware of any immediate symptoms of disease, this lead stored in your tissues can be slowly causing irreversible damage, first to individual cells, then to your organs and whole body systems.

B. EFFECTS OF OVEREXPOSURE TO LEAD:

(1) Short term (acute) overexposure: Lead is a potent, systemic poison that serves no known useful function once absorbed by your body. Taken in large enough doses, lead can kill you in a matter of days. A condition affecting the brain called acute encephalopathy may arise which develops quickly to seizures, coma, and death from cardiorespiratory arrest. A short-term dose of lead can lead to acute encephalopathy. Short-term occupational exposures of this magnitude are highly unusual, but not impossible. Similar forms of encephalopathy may, however, arise from extended, chronic exposure to lower doses of lead. There is no sharp dividing line between rapidly developing acute effects of lead, and chronic effects which take longer to acquire. Lead adversely affects numerous body systems, and causes forms of health impairment and disease which arise after periods of exposure as short as days or as long as several years.

(2) Long-term (chronic) overexposure: Chronic overexposure to lead may result in severe damage to your blood-forming, nervous, urinary and reproductive systems. Some common symptoms of chronic overexposure include loss of appetite, metallic taste in the mouth, anxiety, constipation, nausea, pallor, excessive tiredness, weakness, insomnia, headache, nervous irritability, muscle and joint pain or soreness, fine tremors, numbness, dizziness, hyperactivity and colic. In lead colic there may be severe abdominal pain. Damage to the central nervous system in general and the brain (encephalopathy) in particular is one of the most severe forms of lead poisoning. The most severe, often fatal, form of encephalopathy may be preceded by vomiting, a feeling of dullness progressing to drowsiness and stupor, poor memory, restlessness, irritability, tremor, and convulsions. It may arise suddenly with the onset of seizures, followed by coma and death. There is a tendency for muscular weakness to develop at the same time. This weakness may progress to paralysis often observed as a characteristic “wrist drop" or "foot drop" and is a manifestation of a disease to the nervous system called peripheral neuropathy. Chronic overexposure to lead also results in kidney disease with few, if any, symptoms appearing until extensive and most likely permanent kidney damage has occurred. Routine laboratory tests function arise, it is often too late to correct or prevent worsening conditions, and progression to kidney dialysis or death is possible. Chronic overexposure to lead impairs the reproductive systems of both men and women. Overexposure to lead may result in decreased sex drive, impotence and sterility in men. Lead can alter the structure of sperm cells raising the risk of birth defects. There is evidence of miscarriage and stillbirth in women whose husbands were exposed to lead or who were exposed to lead themselves. Lead exposure also may result in decreased fertility, and abnormal menstrual cycles in women. The course of pregnancy may be adversely affected by exposure to lead since lead crosses the placental barrier and poses risks to developing fetuses. Children born of parents either one of whom were exposed to excess lead levels are more likely to have birth defects, mental retardation, behavioral disorders or die during the first year of childhood. Overexposure to lead also disrupts the blood-forming system resulting in decreased hemoglobin (the substance in the blood that carries oxygen to the cells) and ultimately anemia. Anemia is characterized by weakness, pallor and fatigability as a result of decreased oxygen carrying capacity in the blood.

(3) Health protection goals of the standard: Prevention of adverse health effects for most workers from exposure to lead throughout a working lifetime requires that a worker's blood lead level (BLL, also expressed as PbB) be maintained at or below forty micrograms per deciliter of whole blood (40 ug/dl). The blood lead levels of workers (both male and female workers) who intend to have children should be maintained below 30 ug/dl to minimize adverse reproductive health effects to the parents and to the developing fetus. The measurement of your blood lead level (BLL) is the most useful indicator of the amount of lead being absorbed by your body. Blood lead levels are most often reported in units of milligrams (mg) or micrograms (ug) of lead (1 mg = 1000 ug) per 100 grams (100g), l00 milliliters (100 ml) or deciliter (dl) of blood. These three units are essentially the same. Sometime BLLs are expressed in the form of mg% or ug%. This is a shorthand notation for 100g, 100 ml, or dl. (References to BLL measurements in this standard are expressed in the form of ug/dl.)

(a) BLL measurements show the amount of lead circulating in your blood stream, but do not give any information about the amount of lead stored in your various tissues. BLL measurements merely show current absorption of lead, not the effect that lead is having on your body or the effects that past lead exposure may have already caused. Past research into lead-related diseases, however, has focused heavily on associations between BLLs and various diseases. As a result, your BLL is an important indicator of the likelihood that you will gradually acquire a lead-related health impairment or disease.

(b) Once your blood lead level climbs above 40 ug/dl, your risk of disease increases. There is a wide variability of individual response to lead, thus it is difficult to say that a particular BLL in a given person will cause a particular effect. Studies have associated fatal encephalopathy with BLLs as low as 150 ug/dl. Other studies have shown other forms of diseases in some workers with BLLs well below 80 ug/dl. Your BLL is a crucial indicator of the risks to your health, but one other factor is also extremely important. This factor is the length of time you have had elevated BLLs. The longer you have an elevated BLL, the greater the risk that large quantities of lead are being gradually stored in your organs and tissues (body burden). The greater your overall body burden, the greater the chances of substantial permanent damage. The best way to prevent all forms of lead-related impairments and diseases-both short term and long term--is to maintain your BLL below 40 ug/dl. The provisions of the standard are designed with this end in mind.

(c) Your employer has prime responsibility to assure that the provisions of the standard are complied with both by the company and by individual workers. You, as a worker, however, also have a responsibility to assist your employer in complying with the standard. You can play a key role in protecting your own health by learning about the lead hazards and their control, learning what the standard requires, following the standard where it governs your own actions, and seeing that your employer complies with provisions governing his or her actions.

(4) Reporting signs and symptoms of health problems: You should immediately notify your employer if you develop signs or symptoms associated with lead poisoning or if you desire medical advice concerning the effects of current or past exposure to lead or your ability to have a healthy child. You should also notify your employer if you have difficulty breathing during a respirator fit test or while wearing a respirator. In each of these cases, your employer must make available to you appropriate medical examinations or consultations. These must be provided at no cost to you and at a reasonable time and place. The standard contains a procedure whereby you can obtain a second opinion by a physician of your choice if your employer selected the initial physician.

ANNEX B

LEAD ABATEMENT PROCEDURES

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Annex B
LEAD ABATEMENT PROCEDURES

The following procedures shall be incorporated into the Job Safety Analysis as appropriate.

Procedure 1: Hand Scraping Surface Preparation

Training Requirements: Annual training in lead abatement procedures, annual respirator training and fit-testing, annual medical examination, and blood lead tests every six months.

Major Equipment Needed: Respirators, gloves, full body coveralls with booties and head cover, HEPA filtered vacuums, waste drums and labels, polyethylene sheeting, water pump, collection tank, or drums.

Job-Setup: Obtain work clearances before the start of the job. (Contact Base Operating Contractor Safety, Health and Environmental (SHE) so that air sampling may be conducted as necessary.)

Pre-Cleaning: Clean the work area of any visible paint debris before the start of the new work. Wear personal protective equipment during this effort. Clean surfaces using HEPA vacuum or shovel as appropriate to remove contamination. Remove all visible paint debris.

Area Preparation: Isolate the area using barricades and warning signs before the start of the work. Inside buildings, ventilation units may need to be shut down and vents sealed. Establish a decontamination area where coveralls can be removed and disposed of properly. Remember to wash hands, arms, and face before breaks or lunch and before eating, drinking, or using tobacco products. Shower at the shop at the end of the day. Signs shall be posted to alert others of the hazards. Signs shall read:

WARNING

LEAD WORK AREA/ CONTAMINATION

POISON

NO SMOKING OR EATING

Following pre-cleaning, cover the floor, ground, or any surfaces where paint could accumulate during work with 4-mil polyethylene sheeting; secure with duct tape as necessary. Overlap seams approximately one foot and seal with duct tape. Construct polyethylene wind screens when necessary to control the spread of paint debris and water.

Contact SHE for guidance.

Paint Removal Method:

1. Using hand tools (scrapers, brushes, non-powered tools), remove loose paint and rust as necessary to provide a surface suitable for repainting. Wet wipe as necessary to remove chalking paint.
2. Dispose of rags and materials (such as plastic) used for preparing surface as hazardous waste. Tools that can be cleaned may be cleaned by wet wiping. Contaminated liquids shall be disposed of as hazardous waste or cleaned of all visible lead debris.
3. If sandpaper or steel wool is required, HEPA vacuum shall be used to control release of paint dust. If wet sanding methods are used, collect all water for disposal.
4. Following paint removal, clean the area of contamination and arrange for disposal of all waste drums through the Paint Shop. Remove all visible paint debris from the plastic before removing and/or carefully fold the plastic in on itself to prevent paint debris from falling onto the ground or floor.
5. When all paint and rust removal has been accomplished to allow repainting, repaint as required.

Procedure 2: Power Washing and Cleaning

Training Requirements: Annual training in lead abatement procedures, annual respirator training and fit-testing every twelve months, annual medical examination, and blood lead tests every six months.

Major Equipment Needed: Respirators, gloves, full body coveralls with booties and head cover, HEPA filtered vacuums, waste drums and labels, polyethylene sheeting, water pump, collection tank, or drums. Rain suits and rubber boots may be substituted for full body coveralls during power washing due to the amount of liquids involved.

Job-Setup: Obtain work clearances before the start of the job. Contact SHE so that air sampling may be conducted as necessary.

Pre-Cleaning: Clean the work area of any visible paint debris before the start of the new work. Wear personal protective equipment during this effort. Clean surfaces using HEPA vacuum or shovel as appropriate to remove contamination.

Area Preparation: Isolate the area using barricades and warning signs before the start of the work. Inside buildings, ventilation units may need to be shut down and vents sealed. Establish a decontamination area where coveralls can be removed and disposed of properly. Remember to wash hands, arms, and face before breaks or lunch and before eating, drinking, or using tobacco products. Shower at the shop at the end of the day. Signs shall be posted to alert others of the hazards. Signs shall read:

WARNING

LEAD WORK AREA/ CONTAMINATION

POISON

NO SMOKING OR EATING

Following pre-cleaning, cover the floor, ground, or any surfaces where paint could accumulate during work with 4-mil polyethylene sheeting; secure with duct tape as necessary. Overlap seams approximately one foot and seal with duct tape. Construct polyethylene windscreens when necessary to control the spread of paint debris and water.

All water shall be contained for proper disposal. Therefore, build catch basins with polyethylene and lumber as necessary to capture all water and paint released during cleaning. Paint chips shall be filtered from the water using 1-micron water filters or other suitable methods that will result in the same level of cleanliness. Pump water into containers for analysis and proper disposal. Contact SHE for guidance. (Chalking paint has been shown to release lead in levels above the NPDES Permit for water. Therefore, water cannot be released into the environment without treatment.)

Power Washing and Cleaning

1. Follow normal power washing procedures but include the additional efforts indicated above.
2. Dispose of rags and contaminated materials and water as hazardous waste per SHE Standard E18.
3. Clean polyethylene used for catch basins. Remove paint chip debris if possible and dispose of paint chips as hazardous waste. Then dispose of cleaned polyethylene as normal non-hazardous waste. If paint debris cannot be removed completely from the polyethylene, dispose of the polyethylene as hazardous waste.
4. Contact SHE for any additional information as required to complete the job.

Procedure 3: Manual Hand Washing and Cleaning

Training Requirements: Annual training in lead abatement procedures, annual respirator training and fit-testing every twelve months, annual medical examination, and blood lead tests every six months.

Major Equipment Needed: Respirators, gloves, full body coveralls with booties and head cover, HEPA filtered vacuums, waste drums and labels, polyethylene sheeting, water pump, collection tank, or drums. Rain suits and rubber boots may be substituted for full body coveralls during power washing due to the amount of liquids involved.

Job-Setup: Obtain work clearances before the start of the job. (Contact SHE so that air sampling may be conducted as necessary.)

Pre-Cleaning: Clean the floor or ground of the work area of any visible paint debris before the start of the new work. Wear personal protective equipment during this effort. Clean surfaces using HEPA vacuum or shovel as appropriate to remove contamination.

Area Preparation: Isolate the area using barricades and warning signs before the start of the work. Inside buildings, ventilation units may need to be shut down and vents sealed. Establish a decontamination area where coveralls can be removed and disposed of properly. Remember to wash hands, arms, and face before breaks or lunch and before eating, drinking, or using tobacco products. Shower at the shop at the end of the day. Signs shall be posted to alert others of the hazards. Signs shall read:

WARNING

LEAD WORK AREA/ CONTAMINATION

POISON

NO SMOKING OR EATING

Following pre-cleaning, cover the floor, ground, or any surfaces where paint could accumulate during work with 4-mil polyethylene sheeting; secure with duct tape as necessary. Overlap seams approximately one foot and seal with duct tape. Construct polyethylene windscreens when necessary to control the spread of paint debris and water.

All water shall be contained for proper disposal. Therefore, build catch basins with polyethylene and lumber as necessary to capture all water and paint released during cleaning. If damp rags are used for the hand washing, then polyethylene alone should be adequate to contain the water. (Consult your supervisor or SHE for guidance.) Paint chips shall be filtered from the water using 1-micron water filters or other suitable methods that will result in the same level of cleanliness. Pump water into containers for analysis and proper disposal. Contact SHE for guidance. (Chalking paint has been shown to release lead in levels above the NPDES Permit for water. Therefore, water cannot be released into the environment or the building drainage system without treatment.)

Manual Hand Washing and Cleaning

1. Follow normal hand washing procedures but include the additional efforts indicated above as necessary. Small jobs will naturally require less effort than larger jobs.
2. Dispose of rags and contaminated materials and liquids as hazardous waste per SHE Standard E18.
3. Clean polyethylene shall be used for catch basins. Remove paint chip debris if possible and dispose of paint chips as hazardous waste. Then dispose of cleaned polyethylene as normal non-hazardous waste. If paint debris cannot be removed completely from the polyethylene, dispose of the polyethylene as hazardous waste.
4. Contact SHE for any additional information required to complete the job.

Procedure 4: Chemical Stripping

Training Requirements: Annual training in lead abatement procedures, annual respirator training and fit-testing every twelve months, annual medical examination, and blood lead tests every six months.

Major Equipment Needed: Respirators, MSDSs of the chemicals to be used, combination HEPA and chemical respirator cartridges, chemical gloves, full body coveralls with booties and head cover, HEPA filtered vacuums, waste drums and labels, polyethylene sheeting, water pump, collection tank, or drums. Safety glasses and face shields are also required.

Job-Setup: Obtain work clearances before the start of the job. (Contact SHE so that air sampling may be conducted as necessary,)

Pre-Cleaning: Clean the floor or ground of the work area of any visible paint debris before the start of the new work. Wear personal protective equipment during this effort. Clean surfaces using HEPA vacuum or shovel as appropriate to remove contamination.

Area Preparation: Isolate the area using barricades and warning signs before the start of the work. Inside buildings, ventilation units may need to be shut down and vents sealed. Establish a decontamination area where coveralls can be removed and disposed of properly. Remember to wash hands, arms, and face before breaks or lunch and before eating, drinking, or using tobacco products. Shower at the shop at the end of the day. Signs shall be posted to alert others of the hazards. Signs shall read:

WARNING

LEAD WORK AREA/ CONTAMINATION

POISON

NO SMOKING OR EATING

Following pre-cleaning, cover the floor, ground, or any surfaces where paint could accumulate during work with 4-mil polyethylene sheeting; secure with duct tape as necessary. Overlap seams approximately one foot and seal with duct tape. Construct polyethylene windscreens when necessary to control the spread of paint debris and water.

All water and chemicals used for stripping shall be contained for proper disposal. Therefore, build catch basins with polyethylene or other suitable material and lumber as necessary to capture all paint residue and rinse water. Pump water into containers for analysis and proper disposal. Contact SHE for guidance. (Paint residue and rinse water shall be treated as hazardous waste.) Contact Base Operating Contractor Environmental Hazardous Waste Operations Group for guidance.

Chemical Stripping

I. Follow normal chemical stripping removal procedures, but include the additional efforts indicated above as necessary. Small jobs will naturally require less effort than larger jobs.

2. Dispose of rags and contaminated materials and liquids as hazardous waste per SHE Standard E18. Clean scrapers, etc., of paint residue or treat as hazardous waste.

3. Dispose of polyethylene used for catch basis as hazardous waste. Also dispose of any equipment that cannot be adequately cleaned as hazardous waste.

4. Contact the SHE for any additional information as required to complete the job.

Procedure 5: Scraping and Cleaning Using Power Tools with HEPA Vacuum and Attachments (shrouded tools)

Training Requirements: Annual training in lead abatement procedures, annual respirator training and fit-testing every twelve months, annual medical examination, and blood lead tests every six months.

Major Equipment Needed Respirators, respirator cartridges, gloves, full body coveralls with booties and head cover, HEPA filtered vacuums, waste drums and labels, and polyethylene sheeting. Safety glasses and face shields are also required.

Job-Setup: Obtain work clearances before the start of the job. (Contact SHE so that air sampling can be conducted as necessary).

Pre-Cleaning: Clean the floor or ground of the work area of any visible paint debris before the start of the new work. Wear personal protective equipment during this effort. Clean surfaces using HEPA vacuum or shovel as appropriate to remove contamination.

Area Preparation: Isolate the area using barricades and warning signs before the start of the work. Inside buildings, ventilation units may need to be shut down and vents sealed. Establish a decontamination area where coveralls can be removed and disposed of properly. Remember to wash hands, arms, and face before breaks or lunch and before eating, drinking, or using tobacco products. Shower at the shop at the end of the day. Signs shall be posted to alert others of the hazards. Signs shall read:

WARNING

LEAD WORK AREA/ CONTAMINATION

POISON

NO SMOKING OR EATING

Following pre-cleaning, cover the floor, ground, or any surfaces where paint could accumulate during work with 4-mil polyethylene sheeting; secure with duct tape as necessary. Overlap seams approximately one foot and seal with duct tape. Construct polyethylene wind screens when necessary to control the spread of paint debris.

Contact SHE for guidance.

Paint and Rust Removal:

1. Follow normal paint and rust removal procedures but include the additional efforts indicated above as necessary. Small jobs will naturally require less effort than larger jobs.
2. Dispose of rags and contaminated materials and liquids as hazardous waste per SHE Standard El8. Clean scrapers, etc., of paint residue or treat as hazardous waste.
3. Dispose of polyethylene used for drop sheets as hazardous waste. Also dispose of any equipment that cannot be adequately cleaned as hazardous waste.
4. When using vacuum attachments care shall be taken to collect all paint debris from the surface as the paint is being removed. This may require working at a slower pace to ensure that the vacuum system is able to maintain adequate air flow to collect the residue and paint. The vacuum cleaner must be maintained in good condition to ensure that the system is working and collecting debris as required. See Procedure 8 for vacuum cleaner maintenance and care.
5. Clean lead residue from equipment used during the operation before storage or maintenance.
6. Contact SHE for any additional information as required to complete the job.

Procedure 6: Abrasive Blasting

Training Requirements: Annual training in lead abatement procedures, annual respirator training and fit-testing every twelve months, annual medical examination, and blood lead tests every six months.

Major Equipment Needed: Respirators, airline, gloves, full body coveralls with booties and head cover, HEPA filtered vacuums, waste drums and labels, polyethylene sheeting, negative HEPA filtered air systems, decontamination facilities, etc. Safety glasses and face shields are also required.

Job-Setup: Obtain work clearances before the start of the job. (Contact SHE so that air sampling may be conducted as necessary.)

Pre-Clean: Clean the floor or ground of the work area of any visible paint debris before the start of the new work. Wear personal protective equipment during this effort. Clean surfaces using HEPA vacuum or shovel as appropriate to remove contamination.

Area Preparation: Isolate the area using barricades and warning signs before the start of the work. Inside buildings, ventilation units may need to be shut down and vents sealed. Establish a decontamination area where coveralls can be removed and disposed of properly. Remember to wash hands, arms, and face before breaks or lunch and before eating, drinking, or using tobacco products. Shower at the shop at the end of the day Signs shall be posted to alert others of the hazards. Signs shall read:

WARNING

LEAD WORK AREA/ CONTAMINATION

POISON

NO SMOKING OR EATING

Following pre-cleaning, cover the floor, ground, or any surfaces where paint could accumulate during work with 4 mil polyethylene sheeting; secure with duct tape as necessary. Overlap seams approximately one foot and seal with duct tape. Construct polyethylene wind screens when necessary to control the spread of paint debris.

Contact SHE for guidance.

Abrasive Blasting of Painted Surfaces

1. Abrasive blasting shall not be conducted unless in a small-enclosed abrasive blast unit or other full blast enclosure approved by SHE
2. Dispose of contaminated materials such as spent blast media as hazardous waste per SHE Standard E l8.
3. In-house abrasive blasting shall be conducted following the same guidelines as found in the general lead abatement specification section 02085. This specification is attached to the Lead and Heavy Metal Operating Plan.
4. Contact SHE for any additional information.

Procedure 7: Debris Cleanup

Training Requirements: Annual training in lead abatement procedures, annual respirator training and fit-testing every twelve months, annual medical examination, and blood lead tests every six months.

Major Equipment Needed: Respirators, gloves, full body coveralls with booties and head cover, HEPA filtered vacuums, waste drums and labels, polyethylene sheeting, etc. Safety glasses and face shields may also be required.

Job-Setup: Obtain work clearances before the start of the job. (Contact SHE so that air sampling may be conducted as necessary.)

Pre-Cleaning: Non-applicable.

Area Preparation: Isolate the area using barricades and warning signs before the start of the work. Inside buildings, ventilation units may need to be shut down and vents sealed. Establish a decontamination area where coveralls can be removed and disposed of properly. Remember to wash hands, arms, and face before breaks or lunch and before eating, drinking, or using tobacco products. Shower at the shop at the end of the day. Signs shall be posted to alert others of the hazards. Signs shall read:

WARNING

LEAD WORK AREA/ CONTAMINATION

POISON

NO SMOKING OR EATING

Contact SHE for guidance.

Debris Cleanup:

1. Debris cleanup may consist of various operations. Each is briefly addressed below:
   a. Floors and concrete surfaces: These areas are HEPA vacuumed or scraped clean as necessary. Never dry sweep. Collect and drum material as hazardous waste.
   b. Soil and gravel cleanup: Soils and gravel are cleaned using shovels or heavy equipment to remove contamination from the area. In some circumstances, HEPA vacuuming may facilitate cleanup. If heavy equipment is used, such equipment is cleaned of all contamination before leaving the area. Special decontamination areas must be established to accomplish this task. Contaminated soil and gravel must be drummed as hazardous waste.
2. Conduct self-inspection of the area by visually inspecting the area for any debris present that has not been removed through the cleaning process. Use adequate light to conduct inspections in dark. areas. Inspect all surfaces from a distance of no more than 12 inches.
3. Dispose of lead or heavy metal contaminated materials such as soil, coveralls, and other protective equipment as hazardous waste per SHE Standard E 18. Contact the Base Operating Contractor Environmental Hazardous Waste Operations Group for guidance.
4. Following cleanup, contact SHE so that the area can be inspected for cleanliness and decontamination adequacy.
5. Contact SHE for any additional information.

Procedure 8: Vacuum Cleaner Maintenance and Cleanup

Training Requirements: Annual training in lead abatement procedures, annual respirator training and fit-testing every twelve months, annual medical examination, and blood lead tests every six months.

Major Equipment Needed: Respirators, gloves, full body coveralls with booties and head cover, HEPA filtered vacuums, waste drums and labels, polyethylene sheeting, negative HEPA filtered air systems, decontamination facilities, etc. Safety glasses and face shields may also be required.

Job-Setup: Obtain work clearances before the start of the job. (Contact SHE for guidance, and so that air sampling may be conducted as necessary.)

Pre-Clean: Non-applicable.

Area Preparation: Isolate the area using barricades and warning signs before the start of the work. Inside buildings, ventilation units may need to be shut down and vents sealed. Establish a decontamination area where coveralls can be removed and disposed of properly. Remember to wash hands, arms, and face before breaks or lunch and before eating, drinking, or using tobacco products. Shower at the shop at the end of the day. Signs shall be posted to alert others of the hazards. Signs shall read:

WARNING

LEAD WORK AREA/ CONTAMINATION

POISON

NO SMOKING OR EATING

Contact SHE for guidance.

Vacuum Cleaner Maintenance and Cleanup:

1. Vacuum cleaner maintenance and cleanup vary between sizes and brands. This general procedure should apply to most vacuums. The manufacturer's instructions concerning maintenance and cleanup should be read before the vacuum's use, maintenance, and cleanup.
2. Before maintenance of the motor, filters, bags, etc., a work area shall be established as described above. Wear personnel protection equipment.
3. In the work area, place a piece of 6-mil polyethylene on the floor large enough to serve as a work area. Place the top of the vacuum cleaner on a second piece of polyethylene. Do this carefully to prevent release of dust from the filters. Replace the bag. Wet wipe the inside of the vacuum to remove lead residue and then replace bags, filters, etc., as required. If there are any questions concerning filter or bag replacement, read the manufacturer's instructions or contact SHE for guidance.
4. Remember that the inside of the vacuum is highly contaminated. Never work on a vacuum without first decontaminating the inside. Always wear respirator and other protective equipment as identified above during the replacement of the bag or filter. Clean the outside of the vacuum and any hoses that may be lead contaminated.
5. Dispose of contaminated materials such as bags, rags used for cleaning, and contents of the vacuum as hazardous waste per SHE Standard E18. Contact the Base Operating Contractor Environmental Hazardous Waste Operations Group for guidance.
6. Contact SHE for any additional information.

Procedure 9: Respirator Care and Use

Clean and maintain all respirators as outlined in SHE Standard F4, Respiratory Protection. Any questions concerning respiratory protection should be addressed to your supervisor and SHE. Refer to Respiratory Specific Work Instruction for you respirator.

Procedure 10: Vacuum Blasting

Training Requirements: Annual training in lead abatement procedures, annual respirator training and fit-testing every twelve months, annual medical examination, and blood lead tests every six months.

Major Equipment Needed: Airline respirators, gloves, full body coveralls with booties and head cover, HEPA filtered vacuums, waste drums and labels, polyethylene sheeting, negative HEPA filtered air systems, decontamination facilities, etc. Safety glasses and face shields are also required.

Job-Setup: Obtain work clearances before the start of the job. (Contact SHE so that air sampling may be conducted as necessary.)

Pre-Cleaning: Clean the floor or ground of the work area of any visible paint debris before the start of the new work. Wear personal protective equipment during this effort. Clean surfaces using HEPA vacuum or shovel as appropriate to remove contamination.

Area Preparation: Isolate the area using barricades and warning signs before the start of the work. Inside buildings, ventilation units may need to be shut down and vents sealed. Establish a decontamination area where coveralls can be removed and disposed of properly. Remember of to wash hands, arms, and face before breaks or lunch and before eating, drinking, or using tobacco products. Shower at the shop at the end of the day. Signs shall be posted to alert others of the hazards. Signs shall read:

WARNING

LEAD WORK AREA/ CONTAMINATION

POISON

NO SMOKING OR EATING

Contact SHE for guidance.

Vacuum Blasting:

1. Follow normal vacuum blasting procedures but include items indicated above. Vacuum blasting shall be conducted carefully to ensure that all materials are collected by the vacuum system. Protective equipment shall be used during this operation. Vacuum blasting in test and other special areas is conducted in an air-tight enclosure. Special planning shall be required for this task.
2. Dispose of contaminated materials such as bags, rags used for cleaning, and contents of the vacuum as hazardous waste per SHE Standard E18. Contact the Base Operating Contractor Environmental Hazardous Waste Operations Group for guidance.
3. Contact SHE for any additional information.

Procedure 11: Hazardous Waste Disposal

All paint debris has the potential of being a hazardous waste. Follow guidance outlined in SHE Standard E18 for disposal of all debris and contaminated materials, water, or other items. Contact the Base Operating Contractor Environmental Hazardous Waste Operations Group for guidance.

Procedure 12: Plaster and Block Wall Removal

Training Requirements: Annual training in lead abatement procedures, annual respirator training and fit-testing every twelve months, annual medical examination, and blood lead tests every six months.

Major Equipment Needed: Respirators, airline, gloves, full body coveralls with booties and head cover, HEPA filtered vacuums, waste drums and labels, polyethylene sheeting, negative HEPA filtered air systems, decontamination facilities, etc. Safety glasses and face shields are also required.

Job-Setup: Obtain work clearances before the start of the job. (Contact SHE so that air sampling may be conducted as necessary.)

Pre-Cleaning: Clean the floor or ground of the work area of any visible paint debris before the start of the new work. Wear personal protective equipment during this effort. Clean surfaces using HEPA vacuum or shovel as appropriate to remove contamination.

Area Preparation: Isolate the area using barricades and warning signs before the start of the work. Inside buildings, ventilation units may need to be shut down and vents sealed. Establish a decontamination area where coveralls can be removed and disposed of properly. Depending on the work location, it may be necessary to completely enclose the work area or construct dust barriers. Contact SHE for guidance. Remember to wash hands, arms, and face before breaks or lunch and before eating, drinking, or using tobacco products. Shower at the shop at the end of the day. Signs shall be posted to alert others of the hazards. Signs shall read:

WARNING

LEAD WORK AREA/ CONTAMINATION

POISON

NO SMOKING OR EATING

Contact SHE for guidance.

Dry Wall and Block Wall Removal

1. Work such as sawing, sanding, drilling, and general demolition of painted walls may generate harmful concentrations of airborne lead. Therefore, work should be conducted as indicated above. Never saw or sand walls without using HEPA filtered vacuum attachments or first removing the paint from the wall.
2. Wet sanding or sawing methods may be used, but all liquids generated from the process shall be captured for disposal as hazardous waste.
3. Dispose of contaminated materials and debris as hazardous waste as indicated in She Standard, E18. Contact the Base Operating Contractor Environmental Hazardous Waste Operations Group for guidance.
4. Contact SHE for any additional information.

Procedure 13: Welding, Torch Cutting, or Burning

NOTE: These processes shall be avoided through careful planning and scheduling to allow the removal of leaded paint before welding, cutting, or burning takes place.

Training Requirements: Annual training in lead abatement procedures, annual respirator training and fit-testing every twelve months, annual medical examination, and blood lead tests every six months.

Major Equipment Needed: Respirators, airline, gloves, full body coveralls with booties and head cover, HEPA filtered vacuums, waste drums and labels, polyethylene sheeting, negative HEPA filtered air systems, decontamination facilities, etc. Safety glasses and face shields are also required.

Job-Setup: Obtain work clearances before the start of the job. (Contact SHE for approval, guidance, and so that air sampling may be conducted as necessary.)

Pre-Cleaning: Clean the floor or ground of the work area of any visible paint debris before the start of the new work. Wear personal protective equipment during this effort. Clean surfaces using HEPA vacuum or shovel as appropriate to remove contamination.

Area Preparation: Isolate the area using barricades and warning signs before the start of the work. Inside buildings, ventilation units may need to be shut down and vents sealed. Establish a decontamination area where coveralls can be removed and disposed of properly. Depending on the work location, it may be necessary to completely enclose the work area or construct dust barriers. Contact Base Operating Contractor SHE or Dispensary Operating Contractor for guidance. Remember to wash hands, arms, and face before breaks or lunch and before eating, drinking, or using tobacco products. Shower at the shop at the end of the day. Signs shall be posted to alert others of the hazards. Signs shall read:

WARNING

LEAD WORK AREA/ CONTAMINATION

POISON

NO SMOKING OR EATING

Welding, Torch Cutting, or Burning on Painted Surfaces

I. This practice is strictly prohibited unless written approval has been received from SHE and must be used only when other methods are not practical or possible. Work, if allowed, must be conducted by workers wearing full body protection, which includes continuous or positive pressure mode air-line respirator. Local ventilation of the area is also required. Special decontamination procedures, which include showers, shall also be followed.

2. Contact SHE for any additional information.

Procedure 14: Lead Soldering or Melting

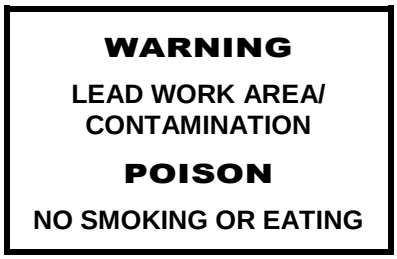
Training Requirements: Annual training in lead abatement procedures, annual respirator training and fit-testing every twelve months, annual medical examination, and blood lead tests every six months.

Major Equipment Needed: Respirators, gloves, full body coveralls with booties and head cover, HEPA filtered vacuums, waste drums and labels, polyethylene sheeting, negative HEPA filtered air systems, decontamination facilities, etc. Safety glasses and face shields are also required.

Job-Setup: Obtain work clearances before the start of the job. (Contact SHE so that air sampling can be conducted as necessary.)

Pre-Cleaning: Clean the floor or ground of the work area of any visible paint debris before the start of the new work. Wear personal protective equipment during this effort. Clean surfaces using HEPA vacuum or shovel as appropriate to remove contamination.

Area Preparation: Isolate the area using barricades and warning signs before the start of the work. Inside buildings, ventilation units may need to be shut down and vents sealed. Establish a decontamination area where coveralls can be removed and disposed of properly. Depending on the work location, it may be necessary to completely enclose the work area or construct dust barriers. Remember to wash hands, arms, and face before breaks or lunch and before eating, drinking, or using tobacco products. Shower at the shop at the end of the day. Signs shall be posted to alert others of the hazards. Signs shall read:



Lead Soldering or Melting

1. When these processes are required, follow the above guidelines, use local ventilation to control contamination in the work area, and follow established work procedures while incorporating these additional requirements.
2. Contact SHE for guidance before start of the work.
3. Extreme care must be taken while melting or soldering lead to avoid fire hazards created by protective equipment and other materials.

In areas where local ventilation systems are in use and established procedures in place, Contact SHE for possible variances to this procedure. Bench-top tin/lead soldering activities where small quantities of solder and adequate ventilation exist have already been evaluated and generally do not create a health concern.

A321-0801-XSP E19 Lead and Heavy Metals Supplement

This supplement has been approved for the NFAC Site.

Review: This supplement will be reviewed and updated using the same cycle as the AEDC Safety Standard E19 “Lead and Heavy Metal”.

References: AEDC Safety Standard E19 – Lead and Heavy Metal at the AEDC NFAC Site.

Scope:
This supplement is intended to implement the Federal Occupational Safety and Health Administration regulation 29 CFR 1910.1025, 29 CFR 1910.62 and NASA regulations in regard to lead and other heavy metals at NFAC.

This supplement provides requirements and responsibilities for procurement, use, handling, and disposal of lead and heavy metals normally found in coatings, paints and lead weights.

This supplement applies to all NFAC personnel, customers and vendors.

NFAC Worksite Application:

NFAC will follow the local NASA Ames Procedural Requirements APR 8715.1 Chapter 35 “Lead Management Plan” and APR 8800.3 Chapter 16 “Drinking Water Management”.

I. NFAC Site Management shall:

1. Ensure that the supplement is followed.
2. Provide abatement of any lead or heavy metals that could affect any personnel

II. NFAC Supervisors and Test Directors shall:

1. Ensure supplement is followed
2. Ensure staff will not disturb any lead or heavy metals throughout the facility
3. Ensure personnel working with lead weights utilize the proper level of PPE

III. NFAC Safety Engineer shall:

1. Assess and monitor all activities that could expose any personnel to lead or heavy metal
2. Review any process of abatement by license lead technician and verify that the area has been abated correctly

IV. NFAC Staff

1. Will not disturb any lead or heavy metals unless required
2. Maintain their annual training requirement on “Lead Awareness” through NASA Satern Training