

Lead Management

1. Purpose

This policy assists in protecting USPL workers from exposure to lead and to gain compliance with state and federal regulations.

2. Scope

The OSHA requirements and this policy apply to all workers who perform work with potential exposure to airborne concentrations of lead greater than 30 µg/m³ over an 8-hour time weighted average. Lead based paints and tanks in leaded gasoline service within the last 5 years are primary locations where this policy applies.

The following sections of this manual contain related requirements and should be consulted for additional information and guidance:

- Access to Employee Exposure and Medical Records
- Personal Protective Equipment (PPE)
- Hazard Communication
- Respiratory Protection

3. Minimum Requirements

	Minimum Requirements)	Supporting Documentation
1.	Exposures to lead shall be maintained below the Permissible Exposure Limit of 50 µg/m ³ .	Section 6
2.	The purchase of a lead-containing product that may create exposure hazards during its application or subsequent removal is prohibited if substituting a product that contains no lead would be feasible.	Section 6
3.	All paints to be removed, disturbed, or applied shall be tested or other wise documented to contain no lead before it is considered lead free.	Section 6
4.	A worker compliance program shall be developed by the worker's employer when personnel are performing tasks where there is potential exposure to airborne concentrations of lead.	Section 7
5.	Personal protective equipment shall be used in conjunction with, not as a substitute for, engineering and work practice controls.	Appendix II

4. Definitions

Action Level—Employee exposure, without regard to the use of respirators, to an airborne concentration of lead of 30 micrograms per cubic meter of air (30 ug/m³) averaged over an 8-hour period.

Competent person—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.

Construction activities— For purposes of this policy, construction activities involve any lead containing materials and include demolition or salvage of structures; removal or encapsulation; new construction, alteration, repair, or renovation of structures; installation of products containing lead; lead contamination and cleanup; transportation, disposal, storage, or containment of materials containing lead on site; and maintenance operations associated with construction activities.

Lead—Metallic lead, all inorganic lead compounds, and organic lead soaps. Excluded from this definition are all other organic lead compounds, such as tetra-ethyl lead (banned as fuel additive for road vehicles in 1995).

Lead-based paint—Paint containing any detectable concentration of lead when tested by reliable laboratory methods. Other federal agencies (HUD, EPA) use different definitions.

Objective data—Information demonstrating that a particular product or material containing lead or a specific process, operation, or activity involving lead cannot release dust or fumes in concentrations at or above the action level under expected conditions of use. Objective data can be obtained from an industry-wide study or from laboratory product test results from manufacturers of lead containing products or materials. The data the employer uses from an industry-wide survey must be obtained under workplace conditions closely resembling the processes, types of material, control methods, work practices, and environmental conditions in the employer's current operations.

Permissible Exposure Limit (PEL)—The maximum amount or concentration of a toxic substance to which an employee may be exposed under OSHA regulations during any 8-hour shift of a 40-hour week. These values are often expressed in parts per million (ppm) or in milligrams per cubic meter (mg/m^3). For lead, the PEL is 50 micrograms per cubic meter of air ($50 \mu\text{g}/\text{m}^3$). One microgram is one-thousandth of a milligram.

Toxicity Characteristic Leaching Procedure (TCLP)—An analytical method that uses a solvent to extract lead from a sample. Intended to simulate landfill leaching, the procedure is used to determine whether a paint or coating removed from a surface (primarily by abrasive blasting or scraping) contains lead concentrations greater than 5.0 milligrams per liter and must therefore be classified as hazardous waste, which requires specific handling, containment, and disposal methods.

5. Roles and Responsibilities

5.1. Contractors

- A. Coordinate monitoring of tasks with potential lead exposure for which objective data does not exist and release results to USPL.
- B. Prepare a worker compliance program when workers will be performing work where there is potential exposure to airborne concentrations of lead in accordance with OSHA 29 CFR 1026.62, lead standard for construction, or OSHA 1910.1025, lead standard for general industry

5.2. Team Leaders

- A. Ensure samples of paint for planned jobs which will disturb it are sampled so that the paint and primer may be tested for lead content, unless it is known that the paint and primer do not contain lead.
- B. Contact Safety and Environmental Coordinators for advice regarding lead management when those jobs are planned.

5.3. Employees

- A. Participate in lead management training as required.
- B. Report to the supervisor any operation or job for which they suspect the Lead Management policy may need to be implemented.

6. General

- A. Lead exposures can derive from certain work activities, including removing paint from surfaces coated with lead containing paint. Operations that can potentially generate lead dust and fume include the following:
 - 1. Flame torch cutting, welding, use of heat guns, sanding, scraping and grinding of lead painted surfaces in repair, reconstruction, dismantling, demolition, remodeling, or lead abatement work.
 - 2. Maintaining process equipment or exhaust ductwork and other operations such as lead soldering.
- B. The purchase of a lead-containing product that may create exposure hazards during its application or subsequent removal is prohibited if substituting a product that contains no lead would be feasible.
- C. Exposures to lead shall be maintained below the Permissible Exposure Limit (PEL) of 50 µg/m³.
- D. Training, medical surveillance, respirator fit testing, and exposure monitoring shall be provided for workers exceeding the Action Level of 30 µg/m³.
- E. The appropriate OSHA Lead standard, i.e. construction or general industry, shall be followed when there is potential exposure with materials found to contain any amount of lead.
- F. All paints to be removed, disturbed, or applied shall be tested or other wise documented to contain no lead before it is considered lead free. Testing shall be conducted by an accredited laboratory.
Note: Colorimetric indicators are not sufficient to determine if materials are lead free.
- G. Where any lead levels in paint or other materials are detected and exposure monitoring has not shown worker exposure to be below the action level, it shall be assumed the job project is subject to the provisions of the lead standard for construction.

7. Worker Compliance Program

- A. A worker compliance program shall be developed by the worker's employer when there is potential exposure to airborne concentrations of lead in accordance with OSHA 29 CFR 1026.62, lead standard for the construction, or OSHA 1910.1025, lead standard for general industry. See Appendix I.
- B. Written plans to achieve compliance with the Permissible Exposure Limit (PEL) shall be developed for each task where lead exposure exists above the action level of 30 micrograms/cubic meter.
- C. At a minimum, the following elements shall be included in the employer's worker compliance program for employees exposed to lead:
 - 1. A description of each activity in which lead is emitted; e.g. equipment used, material involved, controls in place, crew size, employee job responsibilities, operating procedures and maintenance practices;
 - 2. A description of the specific means that will be employed to achieve compliance and, where engineering controls are required engineering plans and studies used to determine methods selected for controlling exposure to lead;
 - 3. A report of the technology considered in meeting the PEL;
 - 4. Air monitoring data which documents the source of lead emissions;
 - 5. A detailed schedule for implementation of the program, including documentation such as copies of purchase orders for equipment, construction contracts, etc;

6. A work practice program which includes items required such as protective work clothing and equipment, housekeeping, and hygiene facilities and practices and other relevant work practices;
 7. An administrative control schedule, if applicable;
 8. A description of arrangements made among contractors on multi-contractor sites with respect to informing affected employees of potential exposure to lead and with respect to responsibility for compliance with this program;
 9. Other relevant information.
- D. The compliance program shall provide for frequent and regular inspections of job sites, materials, and equipment to be made by a competent person.

8. Waste

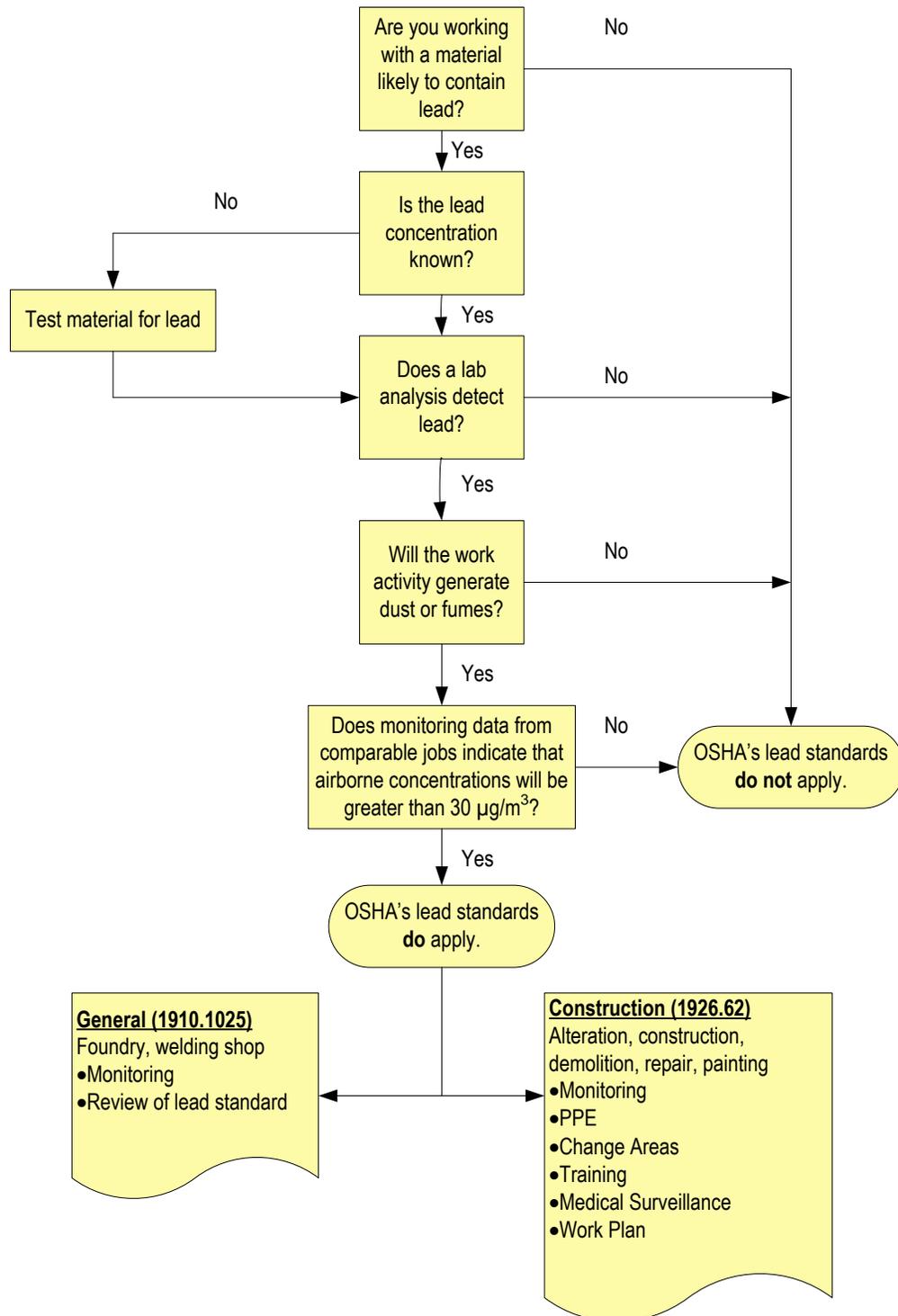
- A. Material that is collected as lead-contaminated waste shall either be assumed to be lead-containing or a toxicity characteristic leaching procedure (TCLP) analysis for lead shall be conducted.
 1. Collect one 50 gram sample of material (approximately a pint jar of spent grit or paint scrapings). Make sure the sample is representative of the material in question. If all layers of a coating are to be removed from a surface, the sample should contain representative amounts of material from each layer.
 2. Seal the sample container and label it with date, facility location, sample identifier, and any other pertinent information.
 3. Complete and retain pertinent sample records, which should include the sample date, location, facility, person collecting sample, date sent to lab, results, and facility contact person.
 4. Ship the sample and request form for TCLP analysis to a local EPA-approved laboratory.
- B. Lead-containing waste is considered hazardous if it is at or above 5.0 mg/l.
- C. Questions regarding disposal of potentially lead contaminated waste should be directed to the Environmental Coordinator.

9. References

1. OSHA, Department of Labor, 29 CFR 1910.134, "Respiratory Protection"; 1910.1025, "Lead" (General Industry); and 1926.62, "Lead" (Construction Industry).
2. OSHA, *Technical Manual*, Section V, Chapter 3: "Controlling Lead Exposures in the Construction Industry: Engineering and Work Practice Controls."

Appendix I

Guidelines for Determining the Applicability of OSHA's Lead Standards



Appendix II

Example Exposure Control Methods

The following measures may be required to minimize lead exposure. These measures consist of engineering controls, good work practices, and the use of personal protective equipment.

Engineering Controls

- A. Engineering controls are the preferred method for controlling exposures to lead and shall be considered as the first means of controlling worker exposures.
- B. Personnel shall observe the following controls, as appropriate to the task:
 - 1. When flame-torch cutting or welding on structures coated with lead-based paint, remove the paint at least 4 inches in all directions from the cut or weld.
 - 2. Increase the length of the cutting torch to increase the distance to the source of the contamination.
 - 3. When feasible, avoid open abrasive blasting. If blasting is permitted, construct a partial enclosure to reduce exposure outside the work area.
 - 4. Instead of aggressive abrasive blasting or grinding, consider alternative methods that minimize or isolate dust particles. These include:
 - a) vacuum blasting or wet abrasive blasting
 - b) high-pressure water blasting with vacuum recovery
 - c) rotary peening, needle scaling, or angle sanders with vacuum recovery
 - d) chemical stripping systems
 - 5. When working indoors, use local exhaust ventilation with the movable hood placed as near the source of lead emission as practical.
 - 6. When welding or cutting in confined spaces, use adequate ventilation to prevent the accumulation of toxic materials.
- C. All vacuuming equipment must be equipped with high-efficiency particulate air (HEPA) filters to minimize lead discharge.
- D. Mechanical ventilation systems must be properly designed to capture and control airborne concentrations of lead.
 - 1. Any system that disperses the toxic materials to adjacent work areas is prohibited.
 - 2. A HEPA-filtered system is required.
 - 3. The performance of mechanical ventilation systems must be evaluated periodically to ensure their effectiveness.

Work Practice Controls

- E. If a job task may create lead exposures reasonably likely to exceed the PEL, the lead work area shall be designated a restricted area with access limited to authorized and properly equipped personnel.
 - 1. The restricted work area shall be identified by a rope, banner, tape, or the equivalent.
 - 2. Signs shall be posted in each work area where an employee's exposure to lead is above the PEL. Posted signs shall read:

DANGER

LEAD WORK AREA
MAY DAMAGE FERTILITY OR THE UNBORN CHILD
CAUSES DAMAGE TO THE CENTRAL NERVOUS SYSTEM
DO NOT EAT, DRINK, OR SMOKE IN THIS AREA

- F. For the removal of paints and coatings, a protective skirting, at least 6 mil in thickness, must be placed on the ground of the work area to contain contamination and allow for easier cleanup.
 - 1. All loose debris must be removed from the ground at the end of each work day, at a minimum, and preferably after each task.
 - 2. The debris must be placed into properly labeled leak-free containers and held for proper testing and disposal in accordance with federal, state, and local regulations.
- G. Procedures shall be developed for using tools and equipment in a manner that minimizes dust generation.
- H. At the end of the work day, all equipment and surfaces must be wiped clean or vacuumed with a HEPA vacuum. Cleaning by dry sweeping, brushing, or using compressed air is not permitted. Respirators must be worn during the vacuuming process.
- I. Eating, drinking, and smoking shall not be permitted in the work area.
- J. Employees working in a lead work area shall be provided with the following:
 - 1. A clean change of coveralls daily and other appropriate personal protective equipment. Street clothes may not be worn into the lead work area as the outermost layer of clothing.
 - 2. Separate changing or storage areas for clean and contaminated clothing
 - 3. Adequate facilities for washing or showering after leaving the lead work area
 - 4. Access to a lunch area that is as free as practical from lead contamination
 - 5. Personal hygiene guidelines that can minimize lead exposure
- K. Immediately after exiting the lead work area and before leaving the work site, employees shall remove contaminated protective clothing and equipment in areas designated for this purpose.
- L. Contaminated articles shall be placed in properly labeled, closed containers for proper cleaning, laundering, or disposal. Any footwear worn in the lead work area must be decontaminated properly before it can be taken into lead-free areas.
 - 1. Containers must be labeled as follows: "Caution: Clothing contaminated with lead. Do not remove dust by blowing or shaking. Dispose of lead-contaminated wash water in accordance with applicable local, state, and federal regulations."
 - 2. Launderers must be given specific written instructions and information on the potential harmful effects of exposure to lead.
 - 3. Depending on TCLP test results, containers for disposal may require a hazardous waste label.
- M. Lead-contaminated surfaces shall not be dry-swept or blown with air. A HEPA vacuum shall be used to remove gross lead contaminant.
- N. Rags and mop heads used in the lead work area shall be placed in properly labeled, closed containers after each use.

Personal Protective Equipment (PPE)

- O. Personal protective equipment shall be used in conjunction with, not as a substitute for, engineering and work practice controls. Respirators are the least preferred method of controlling lead exposure and *should not be used as the only means of preventing or minimizing exposures*.
- P. Employees shall wear appropriate personal protective equipment while engaged in tasks with the potential for exposure to lead. Protective clothing shall be free of tears, cracks, or breaks. Damaged clothing and equipment shall be replaced immediately.

1. Full-body disposable coveralls or similar full-body protection shall be worn to prevent skin exposure and contamination of underlayers of clothing.
 2. Respiratory protection shall be provided and used in the following situations:
 - a) During the initial assessment to determine potential exposure levels to lead
 - b) When engineering controls and work practices are not feasible or sufficient in reducing exposures below the PEL
 - c) When an employee requests it
 3. Appropriate eye and face protection must be worn during blasting, sweeping, chipping, cutting, or welding tasks.
 4. The following types of protective gear shall be considered to prevent lead exposure where appropriate.
 - a) Rubber boots or disposable shoe coverlets. Protective footwear should be taped to the cuffs of the coveralls to prevent gaps.
 - b) Gloves suitable for the work to be performed. Gloves should be taped at the wrist.
- Q. When respiratory equipment is used, a written respiratory plan shall be implemented in accordance with OSHA's respiratory protection standard. The minimum required level of respiratory protection is as follows:

Airborne Concentration of Lead	Minimum Respiratory Protection
Less than or equal to 500 $\mu\text{g}/\text{m}^3$ (up to 10 x PEL)	Any air-purifying respirator with a high-efficiency particulate (HEPA) filter
Less than or equal to 1,250 $\mu\text{g}/\text{m}^3$ (up to 25 x PEL)	Any powered, air-purifying respirator with a HEPA filter, or Any supplied-air respirator equipped with a hood or helmet and operated in a continuous-flow mode
Less than or equal to 2,500 $\mu\text{g}/\text{m}^3$ (up to 50 x PEL)	Any air-purifying, full-facepiece respirator with a HEPA filter, or Any powered, air-purifying respirator with a tight-fitting facepiece and a HEPA filter
Less than or equal to 50,000 $\mu\text{g}/\text{m}^3$ (up to 1,000 x PEL)	Any supplied-air respirator equipped with a half-mask and operated in a pressure-demand or other positive pressure mode
Less than or equal to 100,000 $\mu\text{g}/\text{m}^3$ (up to 2,000 x PEL)	Any supplied-air respirator equipped with a full facepiece and operated in a pressure-demand or other positive-pressure mode
Greater than 100,000 $\mu\text{g}/\text{m}^3$ or firefighting	Any self-contained breathing apparatus (SCBA) equipped with a full facepiece and operated in a positive pressure mode

Adapted from NIOSH, *Preventing Lead Poisoning in Construction Workers*, Publication 91-116a, Table 3.