

**University of Illinois at Urbana-Champaign
Facilities & Services
Division of Safety and Compliance**

Lead Program

Last Updated October 2012

Table of Contents

I. PURPOSE3

II. POLICY3

III. SCOPE3

IV. RESPONSIBILITIES3

V. OSHA STANDARDS5

VI. DETERMINATION OF THE PRESENCE OF LEAD5

VII. EXPOSURE ASSESSMENT OF EMPLOYEES.....7

VIII. OBSERVATION OF MONITORING OF EMPLOYEES9

IX. METHODS OF COMPLIANCE TO OSHA STANDARDS9

X. HOUSEKEEPING IN WORK AREAS.....11

XI. PERSONAL PROTECTIVE EQUIPMENT AND HYGIENE11

XII. TRAINING FOR EMPLOYEES13

XIII. MEDICAL SURVEILLANCE OF EMPLOYEES.....13

XIV. ENVIRONMENTAL PROTECTION15

XV. PROJECT MANAGEMENT16

XVI. IDPH LEAD POISONING PREVENTION ACT17

XVII. USEPA/HUD DISCLOSURE RULE17

XVIII. RECORD KEEPING18

Appendix A Respiratory Selection

Appendix B Sample Compliance Plan

Appendix C Environmental Lead Sampling – 77 IAC 845.200

Appendix D Disclosure of Information on Lead-Based Paint and/or Lead-Based Paint Hazards

I. PURPOSE

The University of Illinois at Urbana-Champaign (U of I) Division of Safety and Compliance (S&C) has established this Lead Program to assist U of I in protecting employees from exposure to lead and to gain compliance with State and the Federal regulations pertaining to lead. Regulations promulgated by various federal and state agencies relating to lead that affect the U of I include the following:

- Occupational Safety and Health Administration (OSHA) General Industry Standard (29CFR1910.1025) and Construction Standard (29CFR1926.62), which are enforced at the UIUC by the Illinois Department of Labor;
- Illinois Lead Poisoning Prevention Act rules and regulations (77 Ill. Ad. Code 845) enforced by the Illinois Department of Public Health (IDPH); and,
- Illinois Environmental Protection Act enforced by the Illinois Environmental Protection Agency (EPA) and applicable United States EPA rules and regulations.

The Lead Program includes the U of I policy on: administration; hazard evaluations; methods of compliance; housekeeping; personal protective equipment, including respiratory protection; medical surveillance; training; record keeping; sampling; and licensing of workers involved in lead abatement. In addition, responsibilities of S&C, deans and directors, unit heads, supervisors, employees and the designated licensed physician are established.

II. POLICY

It is the policy of U of I to provide its employees with a safe and healthful working environment. This is accomplished as far as feasible with accepted engineering controls and administrative controls. Where these methods are not feasible or adequate, respiratory protection and administrative controls will be implemented to reduce employee exposure to harmful ambient lead levels to concentrations that are predictably non-injurious to most individuals according to standards established by regulatory and/or professional organizations. In addition to protecting employee well being, it is U of I policy to protect the campus environment from known pollutants as required by the laws of the State.

It is also U of I policy to provide children frequenting campus buildings safe and healthful facilities. This is accomplished by high standards of maintenance and inspections of such facilities.

III. SCOPE

The provisions of this Lead Program shall apply to all U of I employees and projects in which people are exposed or potentially exposed to lead, lead-containing compounds (e.g., lead-containing paint), or who are engaged in work which may expose them to lead. This Program also addresses lead-based paint in facilities where children reside or frequent.

IV. RESPONSIBILITIES

- A. The Division of Safety and Compliance shall:
1. Develop the Lead Program, review it on an annual basis and revise it as necessary;
 2. Conduct hazard assessments upon request and as needed to assure adequate protection of employees is provided;
 3. Maintain lead risk assessor licenses as required by State and Federal regulations.
 4. Assist supervisors in the selection of appropriate personal protective equipment;

5. Provide, arrange, or assure the availability of lead awareness training for supervisors and employees; and,
 6. Maintain training records for the Lead Program as outlined in Section XII of this document.
- B. Other campus units shall:
1. The Maintenance Division of Facilities and Services (F&S) shall conduct lead-in-water testing as required by the rules and regulations promulgated by the US EPA.
 2. The Construction Division of F&S and the Housing Division shall assure that their employees, particularly painters, are adequately trained and licensed pursuant to this Program and the rules and regulations promulgated by the Illinois Department of Public Health and other State and Federal agencies.
 3. Insure compliance with the “Disclosure Rule” for all U of I rental-housing units as outlined in Section XVII.
- C. Deans, Directors of Academic and Administrative Units and Department Heads shall:
1. Demonstrate a commitment both fiscal and philosophical, towards the implementation of this Lead Program; and,
 2. Establish budget support for this program for his/her unit.
- D. Supervisors of employees who are subject to requirements of the Lead Program shall:
1. Contact S&C when they suspect that implementation of the Lead Program may be required for a task;
 2. Attend training on the Lead Program and its specific requirements;
 3. Supply the appropriate personal protective equipment required to safely complete the job and enforce usage of the equipment by employees;
 4. Assure that the requirements of the program are observed with respect to medical evaluations and training; and,
 5. Develop a document establishing written compliance plan such as the one found in Appendix B of this document. The purpose of the compliance plan is to delegate responsibilities to specific personnel and to record the selection of appropriate personal protective equipment that will be required for specific tasks and hazards. Refer to Section IX.B. for details of what information must be included in the plan.
- E. Employees shall:
1. Attend training on the Lead Program as required;
 2. Report to the supervisor any operation or job for which they suspect that the Lead Program may need to be implemented;
 3. Use the personal protective equipment (PPE) in accordance with instruction and training received; and,
 4. Report any hazards to the supervisor.
- F. Licensed physicians reviewing the employees' medical status shall:
1. Establish medical and physical criteria for the Lead Program, based on established regulatory requirements, e.g., 29CFR1926.62; and,
 2. Provide S&C with written results of the medical evaluation as it applies to the employees' ability to work with the Lead Program.

V. OSHA STANDARDS

- A. OSHA General Industry Lead Standard (29CFR1910.1025).
1. The OSHA General Industry Standard applies to all occupational exposure to lead, except in the construction industry or in agricultural operations. Examples of places of employment where employees might be exposed to lead would include firing ranges and machine shops.
 2. The OSHA General Industry Lead Standard is older and generally not as protective as the OSHA Lead Exposure in Construction Standard. For example, the medical removal part of the Construction Standard is more protective than that of the General Industry Standard. To lessen the confusion on which Standard will be followed, the regulations in the Construction Industry Standard will be applied to all types of occupations unless noted otherwise.
- B. OSHA Lead Exposure in Construction (29CFR1926.62).
1. Activities covered by this standard include construction, alteration or repair of lead-containing materials including but not limited to the following:
 - Demolition or salvage of structures where lead or materials containing lead are present;
 - Removal or encapsulation of materials containing lead;
 - New construction, alteration, repair or the renovation of structures, substrates, or portions thereof, of materials containing lead;
 - Installation of products containing lead;
 - Lead contamination/emergency cleanup;
 - Transportation, disposal, storage or containment of lead or materials containing lead on the site or location at which construction activities are performed;
 - Maintenance operations associated with construction activities.
 2. The OSHA Action Level for ambient lead exposure is 30 micrograms of lead per cubic meter of air ($\mu\text{g}/\text{m}^3$) calculated as an 8-hour time-weighted average.
 3. The OSHA Permissible Exposure Limit (PEL) is 50 $\mu\text{g}/\text{m}^3$ calculated as an 8-hour time-weighted average.
 4. The Illinois Department of Labor (IDOL) adopted the federal OSHA Lead Exposure in Construction Standard in June 1994.

VI. DETERMINATION of the PRESENCE of LEAD

Lead has many different environmental sources: surface coatings (e.g., paint), water, air, soil and waste. Various standards and guidelines must be applied when sampling for lead from these sources. Lead sampling and analysis procedures are found below. Accredited laboratories will be used to analyze all samples that are used to affirm compliance to the various government standards on lead. See Appendix C for sampling requirements to be used by licensed individuals for conducting lead investigations in regulated facilities.

- A. Paint and surface coating materials sampling. All surface coatings in pre-1980 constructed buildings must be sampled prior to significant disturbance of the material. Significant disturbance includes (but is not limited to) scraping, sanding, grinding and demolition.

1. The x-ray fluorescence (XRF) detectors are considered to be the sampling method of choice for screening lead in paint and other surface coatings because the paint does not have to be disturbed and the analysis is instantaneous. However, it is recommended that some XRF readings be substantiated with paint chip samples.
 2. Paint chip sampling with subsequent laboratory analysis is one of the most accurate methods of testing for lead in paint. Without the use of XRF analyzers, this is the surface coating sampling method that must be employed.
 3. Paint and other surface coatings are considered “lead-containing” if the sample contains 0.5% or greater by weight, or 1.0 mg/cm² as measured by an XRF detector.
 4. EPA-recognized lead test kits can be used by licensed inspectors and risk assessors, as well as EPA certified renovators, to determine that lead-based paint is not present on material. Currently, lead test kits are approved if they meet the negative response criterion of no more than 5 percent false negatives, with 95 percent confidence for paint containing lead at or above the regulated level of 1.0 mg/cm² or 0.5 percent by weight. A list of EPA-recognized lead test kits can be found at www.epa.gov.
- B. Surface dust sampling. Wipe sampling is the method of choice for evaluating surface contamination and providing interior space abatement clearance. Recommended clearance levels for surface contamination are as follows (based on Illinois Lead Poisoning Prevention Act rules and regulations):
1. 200 µg/ft² for windowsills;
 2. 200 µg/ft² for window wells; and
 3. 40 µg/ft² for floors and other surfaces.
- Areas in which interior lead abatement is conducted may be wipe sampled at the conclusion of the job to ensure that the job is cleaned up adequately. Contact the Department of Occupational Safety and Health of S&C at 333-1106 with questions regarding wipe sampling.
- C. Drinking water. Drinking water samples are collected by O&M on a random basis and analyzed for lead per the US EPA 239.2 standards. The EPA action level for lead in water is 0.015 mg/l.
- D. Soil sampling. Soil sampling is not currently required by any federal or state regulations, however the Illinois Department of Public Health (IDPH) has guidelines of 1000 µg/g for bare soil. The University shall follow current US EPA soil sampling protocol and the IDPH guideline level when conducting sampling.
- E. Workplace air. Air monitoring must be conducted for many lead abatement operations per the OSHA Construction and General Industry Lead Standards. Current NIOSH or OSHA Analytical Methods for air monitoring lead will be utilized. Contact the Department of Occupational Safety and Health of S&C at 333-1106 with questions regarding air monitoring.
- F. Waste. Material that is collected as lead-contaminated waste will either be assumed to be lead-containing or a toxicity characteristic leaching procedure (TCLP) analysis for lead will be conducted by collecting a representative sample of the material. Questions regarding disposal of potentially lead-contaminated waste should be directed to the Chemical Waste

Management Section at 4-0416. Lead-containing waste is considered hazardous if it is at or above 5.0 mg/l.

VII. EXPOSURE ASSESSMENT of EMPLOYEES

Employees who may be occupationally exposed to lead must have an exposure assessment conducted to determine the extent of the exposure.

- A. Initial (baseline) employee exposures must be evaluated to identify employees who may be exposed to lead at concentrations at or above the OSHA Action Level (regardless of respirator use).
- B. Initial employee monitoring shall be conducted if any of the following indicate possible lead exposure:
 1. Any information, observations, or calculations that would indicate employee exposure to lead;
 2. Any previous measurements of airborne lead concentrations; or
 3. Any employee complaints of symptoms that may be attributable to the exposure to lead.

C. The monitoring for the initial assessment of exposure may be limited to a representative sample of the employees who are believed to be exposed to the greatest airborne concentration of lead in the workplace.

- D. Employee protection during the initial assessment of exposure, in construction-related activities shall be as follows:
 1. Until the first exposure assessment is conducted, the exposure listed below shall be assumed and appropriate employee protective measures must be implemented.
 - a. If any of the tasks listed below are performed, the employees shall be treated as though they were exposed to lead at concentrations greater than the 50 $\mu\text{g}/\text{m}^3$ and not in excess of 500 $\mu\text{g}/\text{m}^3$ (up to 10 times the OSHA PEL):

Tasks where lead-containing coatings or paint are present when performing:

- Manual demolition of structures (e.g. drywall);
- Manual scraping;
- Manual sanding;
- Heat gun applications; or,
- Power tool cleaning with dust collection systems.

- b. If any of the tasks listed below are performed, employees shall be treated as though they were exposed to lead at concentrations greater than 500 $\mu\text{g}/\text{m}^3$ and not in excess of 2500 $\mu\text{g}/\text{m}^3$ (up to 50 times the OSHA PEL)

- Using lead-containing mortar;
- Lead burning;

Where lead-containing coatings or paint are present when performing:

- Rivet busting;

- Power tool cleaning without dust collection systems;
 - Cleanup activities where dry expendable abrasives are used;
 - Abrasive blasting enclosure movement or removal; or,
 - Cutting.
- c. If any of the tasks listed below are performed, employees shall be treated as though they were exposed to lead at concentrations greater than 2500 µg/m³ (greater than 50 times the PEL).

Where lead-containing coatings or paint are present on structures when performing:

- Abrasive welding;
 - Welding; or,
 - Cutting.
- d. When the supervisor has any reason to believe that an employee performing a task may be exposed to lead in excess of the PEL, until monitoring is conducted and documents that the employee's lead exposure is not greater than the PEL, then the employee shall be treated as if he/she were exposed to greater than the PEL and shall implement employee protective measures.
2. The required interim protective measures include all of the following:
- a. Respiratory protection (See Appendix A for selection, Section XI.A, and);
 - b. Personal protective clothing and equipment (See Section XI.B. and the UIUC PPE Program);
 - c. Change areas (See Section XI.C.2.);
 - d. Hand washing facilities (See Section XI.C.4.);
 - e. Biological monitoring (blood lead and zinc protoporphyrin) (See Section XIII); and,
 - f. Training (See Section XII).
3. Once exposure levels have been determined, protective measures should be modified accordingly.

C. Exposure Determination

1. If initial determination results in employee exposure below the action level, no further monitoring is required unless there is a change in equipment, process, control, personnel or a new task initiated. A written record will be kept of the assessment including:
- a. Date of assessment;
 - b. Location within the work site;
 - c. Name, employee number and job classification of each employee monitored; and,
 - d. Results of any relevant available information (previous monitoring, employee complaints, information, observation, calculations)
2. If the initial assessment shows an employee exposure at or above the action level, monitoring which is representative of the exposure must be conducted for each employee in the workplace who is exposed to lead.

3. Full shift personal samples including at least one sample for each shift (or for the shift with the highest exposure level) for each job classification must be collected.
4. Full shift personal samples must be representative of the monitored employees' regular daily exposure to lead.
5. Monitoring and analytical methods must have an accuracy to a confidence level of 95% of not less than +/-25% for airborne concentrations of lead greater than 30 µg/m³.
6. Frequency of monitoring.
 - a. If exposure is below the action level, monitoring need not be repeated unless there is a change in equipment, process, control, personnel or task.
 - b. If exposure is at or above the action level, but below the PEL, monitoring must be repeated every 6 months until two consecutive measurements, taken at least 7 days apart, are below the action level.
 - c. If exposure is at or above the PEL, monitoring must be repeated quarterly and continued at that frequency until two consecutive measurements, taken at least 7 days apart, are below the PEL. The frequency of monitoring at that time will be either every 6 months (if at or above the action level) or discontinued (if below the action level).
7. Employee Notification
 - a. Each affected employee must be notified, in writing, of the exposure results within 5 days of the receipt of the information.
 - b. Whenever the results indicate that the employee exposure exceeds the PEL, a description of the corrective actions being taken to reduce exposure to or below the PEL shall be included in the written notice.

VIII. OBSERVATION OF MONITORING of EMPLOYEES

- A. Affected employees or their designated representatives shall be provided with the opportunity to observe any monitoring of employee exposure to lead.
- B. Observers shall be provided with the appropriate personal protective equipment if the observation of monitoring is an area where the use of personal protective equipment is required. Observers must be properly trained and qualified to wear the required PPE.
- C. Without interfering with the monitoring, observers shall be entitled to:
 1. Receive an explanation of the measurement procedures;
 2. Observe all steps related to the monitoring of lead performed at the place of exposure; and,
 3. Record the results obtained, or receive copies of the results when returned by the laboratory.

IX. METHODS OF COMPLIANCE to OSHA STANDARDS

- A. Engineering and work practice controls, including administrative controls, must be

implemented to reduce and maintain employee exposures to lead below the PEL to the extent feasible. If engineering and work practices controls are not sufficient to reduce employee exposure to or below the PEL, they will be supplemented by the use of respiratory protection.

- B. Prior to the commencement of the job, a written compliance plan must be established and implemented. The written plan shall include:
1. A description of each operation in which lead is emitted (equipment used, material involved, controls in place, crew size, employee job responsibilities, operating procedures, maintenance practices, etc.);
 2. A description of the specific means that will be employed to achieve compliance and engineering plans and studies where engineering controls are required;
 3. A report of the technology considered in meeting the PEL;
 4. Air monitoring data documenting the source of lead emissions;
 5. A detailed schedule for implementation of the program (e.g. copies of purchase orders for equipment, construction contracts, etc);
 6. A work practice program which includes the regulations for use of protective work clothing and equipment, and housekeeping and hygiene facility guidelines; and,
 7. An administrative control schedule for job rotations, if used.

- C. The written compliance plan shall provide for frequent and regular inspection of the job site, materials, and equipment to be made by a competent person, and be revised and updated every 6 months to reflect the current status of the program.

NOTE: A competent person is one who is capable of identifying existing and predictable lead hazards in the surroundings or working conditions, who has authorization to take prompt corrective measures to eliminate them, and holds an IDPH license as a Lead Supervisor or as a Lead Risk Assessor.

- D. Written plans shall be submitted upon request to any affected employee or authorized employee representative, and shall be available at the work site for examination and copying by the Division of Safety and Compliance, Illinois Department of Public Health and the Illinois Department of Labor.
- E. When ventilation is used to control exposure, the mechanical performance of the system in controlling exposures shall be evaluated as necessary to maintain its effectiveness.
- F. Administrative Controls.
If administrative controls are used as a means of reducing lead exposure, a job rotation schedule must be established and implemented which includes:
1. Name and the identification number of each affected employee;
 2. Duration and exposure levels at each affected job or work station; and
 3. Other relevant information.
- G. Signs. In each work area, where the PEL is or may be exceeded, the following warning sign must be posted:

**WARNING
LEAD WORK AREA**

POISON NO SMOKING OR EATING

X. HOUSEKEEPING in WORK AREAS

- A. All surfaces must be maintained as free as practical of accumulation of lead.
- B. Cleaning floors and other surfaces where lead or lead-based products accumulate should be done in a manner that minimizes the likelihood that lead becomes airborne.
 - 1. Wherever possible vacuuming with vacuums equipped with HEPA filters should be utilized and emptied in a manner that minimizes the re-entry of lead into the workplace.
 - 2. It is prohibited to use compressed air to remove lead from any surface unless the compressed air is used in conjunction with a ventilation system designed to capture the airborne dust created by the compressed air.
 - 3. Shoveling, dry or wet sweeping, and brushing may be used only where vacuuming or other equally effective methods have been tried and found not to be effective.

XI. PERSONAL PROTECTIVE EQUIPMENT and HYGIENE

- A. Respiratory Protection.
 - 1. Respirator use. Respirators will be used in the following circumstances:
 - a. When engineering or work practice controls are not sufficient to reduce employee exposures to or below the PEL;
 - b. In the interim period prior to engineering and work practices controls being implemented;
 - c. As interim protection for employees performing tasks previously specified during the initial assessment of exposure; or
 - d. Whenever an employee who is exposed to any amount of lead pursuant to the OSHA Standards requests a respirator.
 - 2. Respirator Program. A respiratory protection program (e.g. the U of I Employee Respiratory Protection Program) in accordance to 29CFR1910.134 must be instituted whenever respirator use is required.
 - 3. Fit Testing.
 - a. Fit testing must be conducted before an employee is initially required to use a respirator.
 - b. Fit testing of respirators must follow the guidelines in the U of I Employee Respiratory Protection Program.
 - c. Prior to an employee wearing a respirator, a medical evaluation shall be conducted as required in the U of I Employee Respiratory Protection Program.
 - 4. Employees shall be permitted to leave the work areas to wash their face and respirator face piece whenever necessary to prevent skin irritation associated with respirator use.
 - 5. Respirator selection.
 - a. Respiratory protection will be selected in accordance with the respirator selection guide (see Appendix A).
 - b. Powered-air purifying respirators may be provided if the employee chooses

- to use this type of respirator, and it will provide adequate protection.
- c. Respirators and filter elements must be approved by NIOSH for lead dusts, fumes, and mists. (See Appendix A)
- B. Protective Work Clothing and Equipment
1. Provision and use.
 - a. If an employee is exposed to lead above the PEL, or where the possibility of skin or eye irritation exists, or as an interim measure during the initial assessment, protective work clothing and equipment must be provided, such as, but not limited to:
 - (i) Coveralls or similar full-body work clothing;
 - (ii) Gloves, hats and shoes or disposable coverlets; and,
 - (iii) Face shields, vented goggles, or other appropriate protective equipment.
 - b. Employees may not leave the work place wearing any clothing or equipment worn during the work shift.
 2. Cleaning and replacement.
 - a. The clothing and equipment must be cleaned, repaired, and maintained by the employer as needed to maintain their effectiveness.
 - b. All protective clothing shall be removed at the completion of the work shift only in change areas provided for that purpose.
 - c. Contaminated protective clothing, which is to be cleaned, laundered or disposed of, must be placed in a closed container in the change room to prevent dispersion of lead, outside the container.
 - d. Containers of contaminated protective clothing and equipment 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 or federal regulation.
 - e. Any person who cleans or launders protective clothing or equipment must be informed in writing of the potentially harmful effects of lead exposure.
 - f. Lead on protective clothing or equipment must not be removed by shaking, or by other means that disperses lead into the air. Protective clothing should be placed in sealed bags for disposal.
 - g. Employees must be provided with clean protective clothing (regardless of respirator use) at the following frequency:
 - (i) Weekly for employees who exposures to lead are less than 200 $\mu\text{g}/\text{m}^3$; or,
 - (ii) Daily for employees whose 8-hour TWA exposure levels are greater than 200 $\mu\text{g}/\text{m}^3$.
- C. Hygiene Facilities and Practices.
1. In areas where employee exposure to lead is above the PEL (regardless of respirator use) food, beverages, tobacco products and cosmetics are not permitted to be present, consumed, used or applied.
 2. Change Rooms. When exposure to lead is above the PEL, and as an interim protection during the initial assessment, change rooms must be provided that have separate storage facilities for protective work clothes and street clothes.
 3. Showers.

- a. Where feasible, shower facilities must be provided for employees exposed to lead above the PEL.
 - b. Where showers are available, employees who are exposed to lead, above the PEL, must shower at the end of the work shift, and shall be provided with an adequate supply of cleansing agents and towels.
4. Hand washing Facilities.
- a. Adequate hand washing facilities shall be provided for use by employees exposed to lead;
 - b. Where showers are not provided, employees shall wash their hands and face at the end of the work shift and prior to consuming beverages, food or tobacco products

XII. TRAINING for EMPLOYEES

- A. Employees exposed or potentially exposed to lead in the course of their employment shall be trained by S&C, by an S&C designated trainer or in an IDPH-approved training course. Employees will not be allowed to work in a potential lead exposure or wear a respirator unless he or she has been trained.
- B. Initial training shall be conducted prior to potential lead exposure. Refresher training shall be conducted at least on an annual basis. When job tasks and/or hazards change, additional training commensurate with the new conditions must be provided to the employee.
- C. Training shall be specific and shall include the following information:
 1. Lead identification;
 2. Health hazard data, including:
 - a. Short term exposure;
 - b. Long-term exposure; and,
 - c. Health protection goals of the standard;
 3. Components of the written lead program;
 4. Methods of compliance;
 5. Respiratory protection;
 6. Protective work clothing and equipment;
 7. Housekeeping;
 8. Hygiene facilities and practices;
 9. Medical surveillance;
 10. Medical removal; and
 11. Record keeping.

See Appendices A and B for the training content.

The training records will be kept by the employing department and S&C. Records of departmental training shall be forwarded to S&C.

XIII. MEDICAL SURVEILLANCE of EMPLOYEES

- A. Biological Monitoring
 1. Definition. Biological monitoring consists of blood sampling and analysis for blood lead level and zinc protoporphyrin level.

2. Initial monitoring. Initial biological monitoring shall be made available for employees occupationally exposed to lead on any day at or above the OSHA Action Level.
 3. Frequency. Biological monitoring shall be made available to employees occupationally exposed to lead at the following frequency:
 - a. For employees who are exposed above the OSHA Action Level for more than 30 days in any consecutive 12 months, at least every 2 months for the first 6 months and every 6 months thereafter;
 - b. For employees who are exposed above the OSHA Action Level at any time and whose last blood lead level was at or above 40 µg/dl, at least every two months until two blood lead levels are below 40 µg/dl;
 - c. For employees who are medically removed from exposure to lead, at least monthly during the removal period; and
 - d. For employees who are medically removed, within 2 weeks after receiving initial test results to confirm that removal was and is necessary.
 4. Accuracy. Blood lead level sampling and analysis must have an accuracy within plus or minus 15% (or 6 µg/dl, whichever is greater) with a 95% confidence level.
 5. Notification.
 - a. Employees must be notified in writing of the results of their biological monitoring within 5 working days after the receipt of the results.
 - b. Employees whose blood lead levels exceed 40 µg/dl must be informed that the standard requires temporary medical removal with medical removal protection when blood lead levels exceed 50 µg/dl.
- B. Medical surveillance.
1. Definition. Medical surveillance consists of a thorough medical examination and consultation including the following:
 - a. A detailed work and medical history, i.e., past lead exposures, personal habits, etc.;
 - b. A thorough physical examination;
 - c. Blood pressure measurement;
 - d. Blood sample and analysis determining:
 - (1) Blood lead level;
 - (2) Hemoglobin and hematocrit determinations, red cell indices, and examination of peripheral smear morphology;
 - (3) Zinc protoporphyrin;
 - (4) Blood urea nitrogen; and,
 - (5) Serum creatinine;
 - e. A routine urinalysis with microscopic examination; and,
 - f. Any laboratory or other test which the examining physician deems necessary.
 2. Initial medical surveillance shall be made available to employees who are or may be occupationally exposed to lead at or above the OSHA Action Level for 30 or more days in any consecutive 12 month period.
 3. Frequency. The frequency of medical surveillance which shall be made available to employees who are or may be occupationally exposed to lead at or above the OSHA Action Level for 30 or more days in any consecutive 12 month period is as follows:
 - a. At least annually for employees for whom blood lead levels are at or above 40 µg/dl at any time during the preceding 12 months;
 - b. As soon as possible:
 - (1) When an employee has developed signs or symptoms associated with lead

- intoxication;
 - (2) When the employee is pregnant. Pregnant women should not be knowingly exposed to lead. If an employee is confirmed pregnant then the employee must be removed from the potential lead exposure; or,
 - (3) As appropriate for employees medically removed from exposure to lead.
 - 4. All medical exams must be performed by or under the supervision of a UIUC designated licensed physician;
 - 5. Written medical opinions. Each affected employee will receive a copy of the written medical opinion, which will include:
 - a. Opinions regarding any detected medical condition, which would place the employee at an increased health risk from, lead exposure;
 - b. Any recommended special protective measures to be provided to the employee or limitations to be placed upon the employee's exposure to lead;
 - c. Limitations upon the employee's use of respirators; and,
 - d. Results of all prior blood lead level determinations.
- C. Medical Removal.
 - 1. An employee exposed to lead at or above the action level will be removed from work if:
 - a. A periodic and follow-up blood sampling test indicates a blood level at or above 50 µg/dl.
 - b. A final medical determination or opinion has been made that indicates a detected medical condition that increases health risks from lead exposure.
 - 2. Employees may return to their former job status when:
 - a. Two consecutive blood sampling tests indicating a blood lead level at or below 40 µg/dl for employees removed due to elevated blood lead levels.
 - b. A subsequent final medical determination indicates that there is no longer a detected medical condition that increases health risks from lead exposure.

XIV. ENVIRONMENTAL PROTECTION

- A. Pollution prevention. When disturbing lead-bearing substances (e.g., scraping lead-based paint from buildings, building features, structures or equipment) procedures must be taken to prevent discharge of lead-contaminated materials into the air, water or waste stream. Although the EPA does not have regulations specifically regarding disturbance of lead-containing surfacing coatings, e.g., lead-based paint, violation of the Illinois Environmental Protection Act (IEPAct) may occur if lead-containing materials are not contained or disposed of properly.
 - 1. Air pollution. Section 9 of the IEPAct prohibits discharge or emission of any contaminant into the environment so as to cause or tend to cause air pollution. Operations, which cause high dust levels such as dry abrasive blasting, can be a source of lead-contaminated air pollution and generally require use of fully contained enclosures.
 - 2. Water pollution. Section 12 of the IEPAct prohibits the discharge into water or deposit upon the land of any contaminant which may pollute waters. Methods that utilize high/low pressure washes or wet abrasive blasting present a particular containment problem due to the requirement that all liquid waste must be contained and collected for proper disposal. Precipitate and wash water running off of

groundcovers must also be collected for proper disposal.

3. Waste. Section 21 of the IEPA contains a general prohibition against open dumping of any waste, plus a number of additional prohibitions on the storage, treatment and disposal of specific wastes including lead. Impermeable groundcovers must be used to prevent soil contamination and collect lead-contaminated waste. All lead-contaminated waste must be collected and disposal arrangements made through the Division of Research Safety (DRS) Chemical Waste Management Section (4-0416).

B. Containment.

1. All removal activities involving lead-contaminated surface coatings should include containment procedures to prevent dispersal of lead into the environment. Containment strategies can vary significantly depending on the activities involved, but should always address the following. The containment methods should be included in the compliance plan.
 - a. Provide for the collection of all waste streams generated (dust, debris, liquid);
 - b. Minimize the risks to workers inside the containment;
 - c. Prevent public exposure to lead and deposition of lead particles on public or private property;
 - d. Ensure a design that can withstand episodes of high winds or can be lowered quickly in the event of high winds;
 - e. Consider proximity of residential areas, schools and day care facilities; and,
 - f. Consider the proximity of surface water bodies.
2. At a minimum, containment should include the use of impermeable groundcover to prevent the contamination of soils. Debris on the groundcover should be cleaned up daily and before the cover is moved. Cleaning procedures should include HEPA vacuuming the surface to remove debris and dust, and then wet wiping the cover with a solution of trisodium phosphate (TSP) and water, rolling the sheet inward and bagging it separately. (The towel used to wipe down the sheet must be disposed with the lead-contaminated waste.)

XV. PROJECT MANAGEMENT

Prior to any renovation project, which may disturb surface coatings (e.g., paint) in buildings constructed prior to 1980, paint and other materials suspected of containing lead must be sampled. F&S or an approved contractor will conduct the sampling, have all bulk samples analyzed by an IDPH-approved method and report the results in writing to the project manager. The project manager is responsible for passing along this information to the appropriate contractors or trades involved in the project. This process will take from several days to several weeks depending on scheduling, so a sampling strategy must be established very early in the planning process. Projects may be required to pay costs associated with sampling.

If the building is to remain occupied during course of work that disturbs lead surface coating, lead safe work practices must be employed.

XVI. IDPH LEAD POISONING PREVENTION ACT

- A. The Lead Poisoning Prevention Code found in 77 Ill. Adm. Code 845 shall be complied with when dealing with lead bearing substances located in areas where children may reside or frequent.
- B. Definitions from the IDPH Lead Code include:
 - 1. “Child” means any person under the age of 16.
 - 2. “Child care facility” means any structure used by a child care provider licensed by the Department of Children and Family Services or public school structure frequented by children 6 years of age and under.
 - 3. “Dwelling” means any structure all or part of which is designed or used for human habitation.
 - 4. “Lead Bearing Substance” means any dust on surfaces or in furniture or other nonpermanent elements of the dwelling and any paint or other surface coating material containing more than 0.5% lead by weight or greater than 1 mg/cm².
 - 5. “Residential Building” means any room, groups of rooms, or other interior areas of a structure designed or used for human habitation; common areas accessible by inhabitants; and the surrounding property or structures.
- C. All University employees who engage in lead abatement or mitigation activities on lead bearing substances located in a dwelling, child care facility, or residential building where a child is an occupant or frequent inhabitant shall be licensed by the Illinois Department of Public Health prior to conducting any lead abatement or mitigation.
- D. Each day care facility, preschool, kindergarten or other child care facility run by the University and licensed by the State shall require that parents/legal guardians of a child between the ages of 6 months through 6 years provide a statement from a physician or health care provider that the child has been screened for lead poisoning.

XVII. USEPA/HUD DISCLOSURE RULE

In 1996 in a joint rule, USEPA and HUD enacted the “Disclosure of Lead-Based Paint Hazards In Housing” rule. This rule requires that owners and landlords of housing built prior to 1978 disclose to any and all purchasers or renters of their property the presence of lead based paint. In addition to the disclosure, a lead safety pamphlet “Protect Your Family From Lead in Your Home” is required to be supplied to lessee’s of pre-1978 residential property.

It is the responsibility of all UIUC units that own residential property that is available for lease to families. (Undergraduate Residential facilities are exempted from the requirements of this rule) to provide the following to all lessee’s of UIUC residential property:

- A. Lead Warning Statement, signed by the lessee at the time of lease signing.
- B. “The Lead-Safe Certified Guide to Renovate Right” pamphlet.

Both the Lead Warning Statement and the “The Lead-Safe Certified Guide to Renovate Right” pamphlet are included in Appendix D. All records of compliance with this rule should be maintained by the Department for the duration of the lease of UIUC facilities.

XVIII. USEPA RULES FOR TARGET HOUSING AND CHILD OCCUPIED FACILITIES

Common renovation activities like sanding, cutting, and demolition can create hazardous lead dust and chips by disturbing lead-based paint, which can be harmful to adults and children. To protect against this a rule was issued requiring contractors performing renovation, repair and painting projects that disturb lead-based paint in homes, child care facilities, and schools built before 1978 must be certified and must follow specific work practices to prevent lead contamination.

Under the rule, child-occupied facilities are defined as residential, public or commercial buildings where children under age six are present on a regular basis. The requirements apply to renovation, repair or painting activities. The rule generally does not apply to minor maintenance or repair activities where less than six square feet of lead-based paint is disturbed in a room or where less than 20 square feet of lead-based paint is disturbed on the exterior, but this does not include window replacement, demolition, or prohibited practices (open-flame burning or torching; heat gun above 1100F; and power sanding, power grinding, power planing, needle guns, abrasive blasting, and sandblasting without HEPA vacuum attachment).

All work that will disturb paint in pre-1978 target housing or child-occupied facilities must be assessed by an EPA-certified firm to determine if the work must be conducted in accordance with the Lead Renovation, Repair, and Painting (LRRP) Rule. If it does then a licensed LRRP worker, working for an EPA-certified firm must supervise certain portions of the work. A *Renovate Right* pamphlet must also be distributed to each tenant.

If an inspection or risk assessment has been conducted in pre-1978 target housing or child-occupied facilities where quantitative test results (e.g., XRF or paint chip analysis) indicate the presence of lead-based paint or an elevated blood lead level of a child exists in pre-1978 target housing or child-occupied facilities, disturbance of lead-based paint must be conducted in accordance with the Illinois Lead Poisoning Prevention Act and Code. The Illinois Lead Poisoning Prevention Act and Code requires the use of licensed Lead Abatement Contractors employing licensed Lead Abatement Workers, and specific procedures to be followed during lead abatement and mitigation.

XIV. RECORD KEEPING

- A. OSHA Recordkeeping.
 - 1. The U of I shall establish and maintain accurate records according to the OSHA Access to Employee Exposure and Medical Records Standard (29CFR1910.20) for each employee required to have biological monitoring, medical surveillance for lead exposure, or who wears a respirator as a condition of employment with the UIUC.
 - 2. Records for those required to wear respirators shall conform to the U of I Respiratory Protection Program and the OSHA Respirator Standard (29CFR1910.134).
 - 3. Training records shall be maintained by the employing department. S&C shall maintain training records for training that they conduct.
 - 4. All monitoring and other exposure assessment records of U of I employees shall be maintained by S&C. These records shall include the following:
 - a. Date, number, duration, location and results of samples;
 - b. Type of respiratory protective devices worn;
 - c. Name, social security number (or other identifying number) and job classification of employees monitored; and,

-
- d. Environmental variables that could affect the measurement of employee exposure.
 5. Medical surveillance and medical removal records shall be maintained by S&C and/or the employing department. This record shall include:
 - a. Name, social security number (or other identifying number) and job classification;
 - b. Copy of the physician's written opinions;
 - c. Results of any exposure monitoring done on or for that employee and provided to the physician;
 - d. Any employee medical complaint;
 - e. Date and occasion of medical removals, a brief explanation of how each removal was or is being accomplished, and, a statement indicating whether or not the reason for the removal was an elevated blood lead level.
 - B. IDPH records.
 1. Licenses for lead workers, supervisors and contractors shall be maintained by the employing department, e.g., F&S Construction Division, Housing, S&C.
 2. Records for children in a day care facility, preschool, kindergarten or other childcare facility run by the University and licensed by the Department of Children and Family Services shall be maintained by the licensed facility.
 - C. Lead sampling and analysis. The department who is responsible for having the sample analyzed shall maintain results of lead samples. For example, S&C shall be responsible for maintaining air, bulk and environmental (e.g., hazardous waste) sample results. F&S Maintenance Division shall be responsible for maintaining results of water sampling that they conduct.

<u>Respirator Selection</u>	<u>OSHA PF</u>	<u>NIOSH PF²</u>	<u>MAXIMUM USE CONCENTRATION</u>
Half Mask Air- Purifying With HEPA filters	10	10	0.50 mg/m ³ (10X PEL)
Full Facepiece Air-Purifying With HEPA Filters	50	50	2.50 mg/m ³
Powered Air- Purifying (PAPR) Loose- Fitting Helmet or Hood, HEPA Filter	100	25	1.25 mg/m ³
Powered Air- Purifying (PAPR) Tight Fitting, Full Facepiece, HEPA Filter	100	50	2.50 mg/m ³
Supplied Air, Continuous Flow, Loose Fitting Helmet or Hood	100	25	1.25 mg/m ³
Supplied Air, Continuous Flow, Full Facepiece + HEPA Escape	100	50	2.50 mg/m ³
Full Facepiece Supplied Air Pressure Demand + HEPA Escape	2000	2000	100.0 mg/m ³
Full Facepiece, Supplied Air, Pressure Demand with Aux. SCBA, Pressure Demand or Continuous Flow	-	10000	500 mg/m ³
Full Facepiece, Self- Contained Beathing Apparatus operated in Positive Pressure mode	>1000	-	>100 mg/m ³ , unknown concentration or firefighting

DEPARTMENT: _____

LOCATION: _____

It is the policy of the above mentioned department to comply with the University of Illinois at Urbana - Champaign Lead Program. The purpose of this document is to complement the Campus program with site-specific written standard operating procedures.

PROGRAM ADMINISTRATION

The following competent individual has complete responsibility for the administration of the Lead Program in the above mentioned unit. It is the responsibility of this person to supervise the program, the use of respiratory protection and other appropriate personnel protective equipment. The competent individual will also administer the Engineering and Work Practice controls to maintain the employee exposure levels below the Permissible Exposure Level (PEL).

The competent individual will have completed a minimum of a 3 day approved training course and will be licensed by the Illinois Department of Public Health.

_____ (Name)

_____ (Title)

WORK OPERATION

A description of each lead operation must be included. The equipment that is used, materials that are involved, controls that are in place, crew size, employee job responsibilities, operating procedures and maintenance practices must be listed in this section.

ENGINEERING AND ADMINISTRATIVE CONTROLS

A description of the specific engineering controls and administrative controls must be listed in this section. Engineering designs and drawings must be included. A report of the technology that will maintain the employee exposure levels below the PEL will also be included. Purchase orders for equipment and construction contracts are to be included in this section.

EMPLOYEE AIR SAMPLING PROCEDURES

Air Monitoring data documenting the source of Lead emissions must be included in this section. Sampling data must also be collected during the work project to document that engineering and work practice controls are effective.

WORK PRACTICES

This section must include the type of PPE that will be worn during project. This will include respirators,

coveralls, goggles, etc. This section will also include housekeeping and hygiene practices that will be implemented into the project. Administrative control for job rotations will also be included if it is used in the project. If Administrative controls are used as a means of reducing Lead exposure then duration of work for each employee must be included.

This appendix contains standards and requirements to be used by licensed individuals for conducting lead investigation services in regulated facilities. This Subpart also outlines the specific record keeping requirements for these activities.

- a) Only licensed individuals as specified in Section 845.125 shall perform the activities specified in this Section and shall do so in accordance with the appropriate methodologies referenced in this Section.
- b) All samples shall be analyzed by an accredited laboratory that has been recognized by the USEPA as capable of performing analyses for lead compounds in paint chip, dust, soil or water, as appropriate.
- c) Paint chip samples shall be collected using methodologies outlined in the USEPA Guidance on Residential Lead-Based Paint, Lead-Contaminated Dust and Lead-Contaminated Soil. Surfaces where paint chip samples are collected with analyses reported as equal to or greater than the levels outlined in Section 845.205 are considered to be lead bearing substances.
- d) XRF testing shall be performed using the USEPA Methodology for XRF Performance Characteristic Sheets and in accordance with the XRF manufacturer's instructions. Surfaces sampled with XRF readings equal to or greater than the levels outlined in Section 845.205 are considered to be lead bearing substances.
- e) Dust sampling shall be collected using methodologies outlined in the USEPA Residential Sampling for Lead: Protocols for Dust and Soil Sampling. Composite dust sampling is not permitted. Dust samples collected with laboratory analyses reported as equal to or greater than the levels set forth in Section 845.205 are considered elevated.
- f) Soil sampling shall be collected using methodologies outlined in the USEPA Residential Sampling for Lead: Protocols for Dust and Soil Sampling. Soil samples collected with laboratory analyses reported as equal to or greater than the levels outlined in Section 845.205 are considered to be elevated.
- g) Water sampling shall be collected using methodologies outlined in the Lead and Copper Rule of the USEPA Safe Drinking Water Act. Water samples collected with laboratory analyses reported as equal to or greater than the levels outlined in Section 845.205 are considered to be elevated.
- h) Composite sampling, as outlined in the HUD Guidelines USEPA protocols, may be applied to soil sampling only. No other environmental samples shall be collected using a composite sample method.

Lead Warning Statement

Housing built before 1978 may contain lead-based paint. Lead from paint, paint chips, and dust can pose health hazards if not managed properly. Lead exposure is especially harmful to young children and pregnant women. Before renting pre-1978 housing, lessors must disclose the presence of known lead-based paint and/or lead-based paint hazards in the dwelling. Lessees must also receive a federally approved pamphlet on lead poisoning prevention.

Lessor's Disclosure

(a) Presence of lead-based paint and/or lead-based paint hazards (check (i) or (ii) below):

(i) Known lead-based paint and/or lead-based paint hazards are present in the housing (explain).

(ii) Lessor has no knowledge of lead-based paint and/or lead-based paint hazards in the housing.

(b) Records and reports available to the lessor (check (i) or (ii) below):

(i) Lessor has provided the lessee with all available records and reports pertaining to lead-based paint and/or lead-based paint hazards in the housing (list documents below).

(ii) Lessor has no reports or records pertaining to lead-based paint and/or lead-based paint hazards in the housing.

Lessee's Acknowledgment (initial)

(c) Lessee has received copies of all information listed above.

(d) Lessee has received the pamphlet *Protect Your Family from Lead in Your Home*.

Agent's Acknowledgment (initial)

(e) Agent has informed the lessor of the lessor's obligations under 42 U.S.C. 4852(d) and is aware of his/her responsibility to ensure compliance.

Certification of Accuracy

The following parties have reviewed the information above and certify, to the best of their knowledge, that the information they have provided is true and accurate.

Lessor	Date	Lessor	Date
Lessor	Date	Lessor	Date
Lessor	Date	Lessor	Date