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**SPECIFICATION  
ENVIRONMENTAL CONSULTANTS FOR LEAD ABATEMENT**

SECTION XXXXX  
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**PART 1 - GENERAL**

1.1 BACKGROUND

- A. The University of California, Berkeley (UCB) routinely hires lead abatement contractors to engage in lead based paint removal and lead abatement projects. Along with the abatement contractor, the University occasionally hires environmental consultants under a separate, independent contract to oversee the abatement contractor's work, ensure compliance with construction specifications, and act as a liaison on technical matters involving lead abatement. This specification outlines the environmental consultant's duties to the University.

1.2 WORK INCLUDED

- A. Duties of this Specification: The environmental consultant shall carry out all outlined duties contained within this specification and the contractor construction specification.
- B. Industrial Hygiene Oversight: The environmental consultant is responsible for the complete industrial hygiene and environmental oversight of all activities involving the removal, encapsulation, and clean up of lead-containing construction materials. This includes oversight duties during planning, site pre-cleaning and preparation, LBP removal and abatement, surface preparation, restoration, painting, and packaging and disposal of both lead-containing and non-lead-containing construction wastes.
- C. Regulatory Compliance Oversight: The environmental consultant shall monitor the contractor for compliance with all applicable federal, state, and local government regulations pertaining to lead based paint and other lead-containing wastes including the following regulations:
- U.S. Environmental Protection Agency (US EPA)
  - U.S. Department of Transportation (U.S. DOT)
  - Cal/OSHA regulations with special attention to the California Lead in Construction Standard (8 CCR 1532.1), Illness Prevention Program (8 CCR 5144), Hazard Communication Program (8 CCR 5194), and Respiratory Protection Program (8 CCR 5144)
  - Bay Area Air Quality Management District (BAAQMD)
  - California State Environmental Protection Agency - Department of Toxic Substances Control (DTSC)
  - East Bay Municipal Utility District (EBMUD)
  - City of Berkeley, Alameda County
- D. HUD Guidelines: The environmental consultant shall ensure that the contractor complies with the provisions and responsibilities contained in *Guidelines for the Evaluation and Control of*

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*Lead Based Paint Hazards in Housing*, U.S. Department of Housing and Urban Development, June 1995.

- E. Construction Specifications: The environmental consultant shall ensure that the contractor complies with all applicable University construction specifications.

## 1.3 ENVIRONMENTAL CONSULTANT REQUIREMENTS

The following are requirements for the environmental consultant:

- A. Certified Industrial Hygienist: All work performed by the environmental consultant shall be done under the direct supervision of an Industrial Hygienist currently certified by the American Board of Industrial Hygiene (C.I.H). All reports, correspondence, and documentation shall be reviewed and signed off by the C.I.H.
- B. California Department of Health Services: The environmental consultant shall have current LBP abatement training by a program accredited by the EPA or the California Department of Health Services, and must have current certification at the level of "Lead-Related Construction Supervisor."

## PART 2.0 - EXECUTION

### 2.1 ASSIST IN PRE-PROJECT PLANNING AND REVIEW PRE-START SUBMITTALS

The environmental consultant assists the University Project Manager on all health, safety, and environmental issues during the pre-project planning stage of the project, and shall review all contractor pre-start submittals for compliance with the construction specification and applicable regulations. Submittals listed below must be reviewed by the environmental consultant.

- A. Contractor Programs Required by 8CCR1532.1: All programs required by 8 CCR 1532.1, including employee training certifications, employee medical surveillance and monitoring, respiratory protection program, and compliance program (required under 8 CCR §1532.1(e)(2)).
- B. Contractor Environmental Programs: Including a lead disposal plan as required by the construction specification.
- C. Contractor Site-Specific Emergency Action and Fire Prevention Plan: As required by the construction specification.
- D. Contractor Materials List: Review contractor materials list for compliance with construction specifications.

### 2.2 PROVIDE DAILY OVERSIGHT OF PROJECT

The environmental consultant shall provide the necessary complete and comprehensive oversight of the project. This oversight includes the job duties listed below.

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- A. Ensure Compliance with HUD LBP Guidelines: Ensure that the contractor complies with the provisions, responsibilities, and work practices contained in the *Guidelines for the Evaluation and Control of Lead Based Paint Hazards in Housing*, U.S. Department of Housing and Urban Development, June 1995.
- B. Review all Contractor Submittals: Review all submittals generated by the contractor, and summarize important information for the University Project Manager and the UCB Office of Environment, Health & Safety (EH&S). Include all summarized information inside of the daily report supplied to the University Project Manager and EH&S.
- C. Provide Daily Job Progress Information to the University: Inform University Project Manager and UCB EH&S of daily work progress, sampling results, work difficulties, and contractor compliance with specification and regulations. Include this information in a daily report that is forwarded to both the project manager and UCB EH&S. This report shall be forwarded to the University Project Manager and UCB EH&S within 18 hours of the completion of the day's abatement activities.
- D. Advise Project Manager to Stop Work as Necessary: Advise the University Project Manager to stop work should the contractor violate applicable regulations, engage in activities that spread lead contamination or endanger human health, or fail to maintain the required controls or barriers. The following conditions and prohibited activities may warrant project shut down:
- Breakdown of existing barriers or engineering controls;
  - Elevated perimeter sample results;
  - Visible emissions from work area;
  - Violation of Cal/OSHA, EPA, DOT, or other regulations;
  - Poor personal decontamination practices; and
  - Poor work practices such as removal of LBP with a torch or flame, abrasive removal without dust collection, dry scraping, dry sanding, sweeping, or cleaning with compressed air.
- E. Ensure Adequacy of Engineering Controls: The environmental consultant shall periodically inspect and monitor the performance of all engineering controls used to control contaminants with special attention to the following:
- Conduct daily perimeter air monitoring to ensure University personnel are not being exposed to elevated levels of airborne lead;
  - Ensure all power tools used to remove LBP are equipped with HEPA exhaust dust collector systems; and
  - Ensure all required negative air pressure units produce at least four air changes per hour, maintain a pressure differential of negative 0.02-inch water gauge between the interior and the exterior of the work area.
- F. Ensure Compliance with Cal/OSHA Title 8CCR 1532.1: The environmental consultant shall ensure that the contractor complies with Cal/OSHA Title 8CCR 1532.1, with special attention to the following:

- Check compliance with Cal/OSHA's task-related triggers (8 CCR 1532.1) to ensure that the appropriate controls, work practices, and respiratory protection are used during abatement operations; and
- Review all air sampling carried out by the contractor for compliance with Cal/OSHA regulations.

G. Ensure the Safety of Occupied Buildings:

- Ensure all lead abatement work conducted in occupied buildings is performed off-hours, or performed under negative pressure with a two-stage decontamination chamber.
- Ensure that lead abatement work performed during working hours in occupied buildings takes place only if the contractor supplies evidence that the work can be carried out under conditions generating less than 30  $\mu\text{g}/\text{m}^3$  (TWA) in the breathing zone of the worker(s), and less than 1.0  $\mu\text{g}/\text{m}^3$  in all areas outside of the work area.

H. Ensure the Contractor Compliance with Products and Materials Sections of the Construction Specification: Ensure that the contractor follows the Products and Materials sections of the construction specification, with special attention to the following the areas:

- Materials/products must be in original manufacturer's packages and not be damaged or deteriorating;
- Materials/products have labeling as required by CCR 8, Section 5194, Hazard Communication Standard;
- MSDS must be present for all materials/products;
- Polyethylene sheeting must be new and fire retardant;
- Methylene chloride-based, glycol ether-based, or corrosive paint strippers are not permitted; and
- Encapsulants must be approved by the environmental consultant and the University Project Manager prior to use.

2.3 CARRY OUT ALL NECESSARY INSPECTIONS

The environmental consultant will conduct all necessary inspections listed below.

A. Pre-Abatement Inspection: An inspection of the site preparation prior to active lead removal. This inspection includes the evaluation of the following:

- Containment, decontamination, and barrier systems;
- Negative air pressure systems (where applicable);
- Window coverings and interior protective coverings;

- Wind barriers are present as necessary;
  - Personal protective equipment is available; and
  - Warning signs are present and meet the requirements of 8 CCR 1532.1.
- B. Post-Abatement Inspection: A visual inspection of the work area to ensure that all of the visible LBP has been removed.
- C. Encapsulation/Re-Painting Inspection: An inspection after the completion of the encapsulation and/or repainting.
- D. Clearance Inspection: An inspection (prior to any clearance sampling) for the presence of uncleaned surfaces and lead debris or dust.
- E. Waste Inspections: An inspection of waste which leaves the abatement area to ensure that it has been packaged, labeled, and handled as required by this specification, and in accordance with applicable regulations.

2.4 PERFORM NECESSARY CLEARANCE SAMPLING.

The environmental consultant shall carry out all necessary clearance sampling according to the criteria and method listed below.

- A. Clearance Criteria: Established in the *Guidelines for the Evaluation and Control of Lead Based Paint Hazards in Housing*, U.S. Department of Housing and Urban Development, June 1995 (listed below):
- Interior Floors - 100 µg /ft<sup>2</sup>;
  - Window Sills - 500µg /ft<sup>2</sup>;
  - Window Troughs - 800µg /ft<sup>2</sup>;
  - Exterior Asphalt - 800 µg /ft<sup>2</sup>;
  - Exterior Concrete Surfaces - 800 µg /ft<sup>2</sup>;
  - Soils from buildings used for family residences, child care centers, and playground Areas - 400 ppm lead; and
  - Areas not mentioned - clearance levels set by University.
- B. Clearance Sampling Method: Wipe samples will be collected by the utilization of commercial wipes moistened with non-alcohol wetting agents. A one square foot pattern will be wiped in a "S" pattern. The samples will be analyzed using the method described in EPA SW846.

2.5 OVERSIGHT OF ENVIRONMENTAL ISSUES AND WASTE DISPOSAL

The environmental consultant shall ensure that the contractor follows all applicable federal, state, and local regulations regarding the environment and the handling, managing, packaging, transporting, and disposing of waste. The environmental consultant shall ensure the following duties are carried out.

- A. Perimeter Sampling: The environmental consultant shall conduct daily perimeter air monitoring to ensure that ambient air outside of the containment area or the controlled workspace does not exceed the BAAQMD air discharge limit for lead of 1.0 µg/m<sup>3</sup> (averaged

over 24 hours). Air monitoring results shall be provided to the University Project Manager and UCB EH&S within 24 hours from the end of each work day.

- B. Waste Profiling/Analysis: The profiling and analysis of hazardous waste is in compliance with all applicable regulations and all documentation is forwarded to the University Project Manager and to UCB EH&S prior to any waste shipment.
- C. Waste Packaging: The contractor follows all required U.S. DOT regulations for waste packaging, materials, and shipping.
- D. Waste Segregation/Packaging/Labeling: Incompatible wastes (e.g., acid and caustics) are properly segregated.
- E. Transporter and Disposal Site Approval: The contractor uses a transporter and disposal site that has been approved by the University, and copies of all manifest forms, along with a written notice from the landfill, are forwarded to the University Project Manager and UCB EH&S.
- F. Waste Manifest System: The contractor establishes a waste manifest system that meets federal, state, and local regulations and accounts for all waste at all times. The waste manifest must be reviewed and approved by UCB EH&S prior to each waste shipment. The contractor shall forward final manifests to the UCB EH&S within five days of the removal of the waste from the site. The University will supply the contractor with information required on the manifest, such as a site specific EPA generator identification number, generator mailing address, etc., upon request.

2.6 PROVIDE COMPREHENSIVE DOCUMENTATION OF OVERSIGHT ACTIVITIES

- A. Provide Daily Progress Reports: Produce daily reports of oversight activities, job progress, and contractor compliance with this specification. These reports should include daily air monitoring results and detailed work practice observations, and should be faxed to the University Project Manager and UCB EH&S the morning following the day of the report. Reports are not required for days on which the contractor does not work.
- B. Provide a Comprehensive Final Report: Produce a final report that documents all oversight activities during the course of the job, including field observations, inspections, air monitoring results, and clearance sampling. This report should include a brief section that details how all sections of this specification have been complied with. This report shall be submitted to the University Project Manager and UCB EH&S within two weeks of the completion of the lead abatement activities.

**PART 3 - DEFINITIONS**

BAAQMD – Bay Area Air Quality Management District.

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**BARRIER** – A physical structure, such as a wooden or tape (yellow ribbon with lead hazard warning signs) barricade, which defines the limits of access to the containment area wherein LBP abatement is occurring.

**CCR** – The California Code of Regulations.

**CONTAINMENT** – A process for protecting both workers and the environment by controlling lead dust and debris exposures created during lead abatement through the use of temporary barriers and negative air machines.

**CONTRACTOR** – Any business entity, public unit, or person serving as the LBP abatement contractor for the project.

**EBMUD** – East Bay Municipal Utilities District.

**EH&S** – University of California, Berkeley, Office of Environment, Health & Safety.

**ENGINEERING CONTROLS** – Measures implemented at the work site to physically/mechanically contain, control, and/or otherwise reduce lead dust and debris exposure. Does not include administrative and/or respiratory protection controls.

**EPA** – Environmental Protection Agency.

**EPA IDENTIFICATION NUMBER** – The unique number assigned by EPA to each generator or transporter of hazardous waste, and each treatment, storage, or disposal facility.

**EXPOSURE MONITORING** – Worker air monitoring to establish initial or to document ongoing lead exposure levels. Must be done to enable each employee's exposure level to be reasonably represented by at least one full shift (at least 7 hours) air sample.

**GENERATOR** – Any person who first creates a hazardous waste or any person who first makes the waste subject to the Subtitle C regulation (i.e., imports a hazardous waste; initiates a shipment of a hazardous waste from a hazardous waste treatment, storage, or disposal facility (TSD); or mixes hazardous wastes of different DOT shipping descriptions by placing them into a single container).

**HUD** – United States Department of Housing and Urban Development.

**HUD LBP Guidelines** – *Guidelines for the Evaluation and Control of Lead Based Paint Hazards in Housing*, U.S. Department of Housing and Urban Development, June 1995

**INDUSTRIAL HYGIENIST** – A person certified by the American Board of Industrial Hygiene; an industrial hygienist in training; or an individual with equivalent education or experience.

**LBP** – Lead based paint. The University of California recognizes the Consumer Product Safety Commission lead level as any surface coating containing greater than or equal to 0.06% lead by weight on a dried paint film adhered to a substrate surface. The term "LBP" will also include other materials (containing greater than or equal to 0.06 % lead by weight) encountered during construction or demolition such as lead flashing, lead rivets, lead coatings, and lead-contaminated dust or dirt.

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**LBP ABATEMENT** – A comprehensive process (removal, encapsulation, enclosure, etc.) of eliminating exposure or potential exposure to lead paint and lead dust which must include monitoring, measures for worker protection, dust and debris containment, waste cleanup and disposal, and clearance testing.

**MANIFEST** – The shipping document, EPA Form 8700-22 (and 8700-22a, if necessary), used for identifying the quantity, composition, origin, routing, and destination of hazardous waste during its transportation from the point of generation to the point of treatment, storage, or disposal.

**MSDS (Material Safety Data Sheet)** – OSHA Form 20, or equivalent forms containing health hazard information about chemical products.

**NEGATIVE AIR MACHINE** – A HEPA filtered self-contained local exhaust machine.

**NIOSH** – National Institute for Occupational Safety and Health.

**OSHA** – Occupational Safety and Health Administration.

**PD&C** - UC Berkeley Planning Design and Construction.

**PERMIT** – An authorization license or equivalent control document issued by EPA or an authorized state to implement the regulatory requirements of Subtitle C, Parts 264 and 265 for TSDs.

**SITE** – The land or water area where any facility or activity is physically located or conducted, including adjacent land used in connection with the facility or activity.

**SUBSTRATE** – A surface upon which paint or varnish has been or may be applied. Examples of substrates include wood, plaster, metal, and drywall.

**SURFACTANT (Wetting Agent)** – A chemical wetting agent added to water to improve penetration.

**TIME-WEIGHTED AVERAGE (TWA)** – The TWA is an 8 hour, time-weighted average of airborne concentration for lead in micrograms of lead per cubic meter of air, which represents the employee's 8 hour workday.

**TRANSPORTER** – Any person engaged in the offsite transportation of hazardous waste within the United States, by air, rail, highway, or water, if such transportation requires a manifest under CFR 40, Part 262.

**TWA** – Time-weighted average.

$\mu\text{g}/\text{m}^3$  – Micrograms per cubic meter.

**UCB EH&S** - The University of California Office of Environment, Health & Safety.

**UNIVERSITY** - The Project Manager, as assigned by the University of California, Berkeley, and his or her designee.

**WORK AREA** – A room or location in which lead is indicated to be removed by the contractor.