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LEAD-BASED PAINT RENOVATION SPECIFICATION - DRAFT

FOR

Jasper Power Plant
1163 East 15th Street
Jasper, Indiana 47546
Cardno ATC Project No. 170IN1503H

Prepared For:

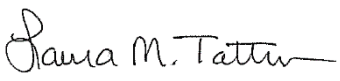
Indiana 15 Regional Planning Commission
221 East First Street
Ferdinand, Indiana 47532

Attn: Mr. Elliot Englert

c/o
City of Jasper

April 28, 2015

Prepared by:



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Jasper Power Plant
April 28, 2015

SECTION 02085 – LEAD ABATEMENT

PART 1 – GENERAL

1.1. PROJECT IDENTIFICATION The Project name is the Lead-Based Paint Abatement of the Jasper Power Plant located in Jasper, Indiana, as shown on the Contract Documents, including the Specifications.

1.2. SCHEDULE Schedules and work shifts to be determined in future submissions by Abatement Contractor and Property Manager, the Building Owner, and the Environmental Consultant

1.3. REFERENCES Except to the extent that more explicit or more stringent requirements are written directly into the Contract Documents, all applicable codes, regulations, and standards have the same force and effect (and are made a part of the Contract Documents by reference) as if copied directly into the Contract Documents, or as if published copies are bound herewith.

1.3.1. FEDERAL CODES AND REGULATIONS: Federal regulations and/or requirements that govern lead abatement work or hauling and disposal of lead waste materials include, but are not limited to, the following:

1. Occupational Safety and Health Administration (OSHA) Lead Standard 1910.1025 and 29 CFR 1926.62 (1993);
2. Department of Housing and Urban Development (HUD) Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing, except Chapter Seven (June 1995); Chapter Seven of the Guidelines, Lead-based Paint Inspection (revised 1997);
3. RCRA Hazardous Waste Regulations

1.3.2. STATE CODES AND REGULATIONS: State requirements that govern lead abatement work or hauling and disposal of lead waste materials include, but are not limited to, the following:

1. 329 IAC 2-21
2. 329 IAC 3.1-6-1
3. 329 IAC 10-8.1
4. 410 IAC 32

1.3.3. STANDARDS: The Contractor shall assume full responsibility and liability for the compliance with all standards pertaining to work practices, transport, disposal, and protection of workers, visitors to the site and persons occupying areas adjacent to the site. The Contractor shall hold the Owner and Consultant harmless for failure to comply with any applicable standard on the part of the Contractor, the Contractor's employees or the Contractor's subcontractors.

1.3.4. NOTICES TO STATE AND LOCAL AGENCIES: Lead Abatement Notification is not required by Indiana State Department of Health for non-targeted housing (residential or child occupied facilities built before 1978).

1.3.5. LICENSES: Maintain current licenses as required by applicable state or local jurisdiction for the removal, transporting, disposal or other regulated activity relative to the work of this Contract.

1.3.6. POSTING OF NOTICES: Post all notices required by applicable federal, state and local regulations.

1.4. DEFINITIONS: The following list of definitions is applicable to this project unless a Variance has been issued from the Office of the Regional Environmental Engineer.

1. “Abatement” means removal, encapsulation, enclosure and/or repair of lead containing materials.

2. “Adequately Wet” means sufficiently mix or penetrate with liquid to prevent the release of particulates.

3. “Amended water” means water to which a surfactant has been added to improve water penetration.

4. “Area Air Sampling” means any form of air sampling or monitoring where the sampling device is placed at some stationary location.

5. “Authorized Visitor” means the Property Manager or Project Manager, or any person designated by the Property Manager or the Project Manager, the Regional Environmental Engineer, and any representative of a regulatory or other agency having jurisdiction over the project.

6. "Building Risk Assessment" means an on-site investigation to determine the existence, nature, severity, and location of lead-based paint hazards and the provision of a report, by the individual or the firm conducting the risk assessment, explaining the results of the investigation and options for reducing lead-based paint hazards.

7. "Chemical Spot Test" means the use of sodium rhodizonate to obtain a qualitative determination of lead.

8. ”Clean Room” means a “clean side” area or room which is a structural part of the Worker Decontamination Enclosure System (WDES) with provisions for storage of workers’ street clothes and protective equipment.

9. "Compliance Sampling" means the activity of taking dust wipe samples after completion of mitigation or abatement activities, for the purpose of determining compliance with the standard for lead dust levels or horizontal surfaces of less than 200 micrograms per square foot (or as specified).

10. “Contained Area” means an enclosed work area in a building where negative air pressure and High Efficiency Particulate Absolute (HEPA) filtration are use to contain airborne lead dust during removal and mitigation during a lead project.

11. “Critical Barrier” means one or more layers of plastic sealed over openings into a work area or any similarly placed physical barrier, sufficient to prevent airborne fibers in a work area from migrating to adjacent areas.

12. “Curtained Doorway or ‘Z’-Flap” means a devise that consists of at least three (3) overlapping sheets of plastic over an existing or temporary framed doorway. One sheet shall be secured at the top and left side, the second sheet at the top and the right side, and the third sheet at the top and the left side. The sheets shall have weights attached to the bottom to ensure that the sheets hang straight and maintain a seal over the doorway when not in use. Curtained doorways shall be installed at each end of each airlock and each end of each room of the Decontamination Enclosure Systems.

13. “Decontamination Enclosure System (DES)” means a series of connected rooms, separated from each other by air locks, used for the decontamination and exit from the work area. A Worker’s Decontamination Enclosure System (WDES) shall be constructed for use by personnel entering and exiting the work area. An Equipment Decontamination Enclosure System (EDES) shall be constructed for cleaning and removing of containerized waste material from the work area. Both enclosure systems shall be erected and used on this project.

14. "Defective Surface" means peeling, flaking, chalking, scaling or chipping paint; paint over crumbling,

cracking or falling plaster or plaster with holes in it; paint over a defective or deteriorating substrate; or paint that is damaged or worn down in any manner such that a person could get paint from the damaged area.

15. "Elevated results" means a blood lead test result of 10 micrograms/deciliter or higher.

16. “Encapsulation” means the treatment of lead based paints or dust with a material that surrounds or embeds lead paints and lead dust bundles in an adhesive matrix that prevents the release of lead particulates.

17. “Enclosure” means the construction of an airtight, impervious, and permanent wall and ceiling between the lead abatement and the occupied space of the building.

18. “Equipment Decontamination Enclosure System or EDES” means a decontamination enclosure system designed for the controlled transfer of materials, equipment, and containerized waste into and out from the work area. The EDES shall consist of the following (from “dirty” side to “clean” side): a. Curtained Doorway b. Wash Room c. Curtained Doorway d. Airlock e. Curtained Doorway f. Holding Area g. Curtained doorway

19. “Equipment Room” means a room or area on the “dirty side” which is part of the WDES with provisions for the storage or contaminated clothing and equipment that is intended for reuse. The equipment room shall be separated from the work area and from additional rooms in the WDES by air locks with curtained doorways.

20. "Exposed Surface" means any interior or exterior surface of a building.

21. “Exterior Project” means that all of the work shall be performed outside of the building and at no time will waste, workers, materials, tools, or debris enter the building as a result of the project.

22. “HEPA” means High Efficiency Particulate Absolute.

23. “HEPA Filter” means a high efficiency particulate absolute filter capable of retaining 99.97 percent of particles (including fibers) that are greater than 0.3 micrometers in mass median aerodynamic equivalent diameter, with an efficiency designation of 100 in accordance with NIOSH 42 CFR 84, Respiratory Protection Devices.

24. “HEPA vacuum equipment” means vacuuming equipment with a high efficiency particulate absolute filter system.

25. “Holding Area” means a room or area on the “clean side” which is part of the EDES with provisions for the storage of containerized waste that has been decontaminated in the wash room of the EDES. The Holding Area shall be separated from the work area and from additional rooms in the EDES by air locks with curtained doorways.

26. “Inspection for Lead-Based Paint" means a surface-by-surface investigation to determine the presence of lead-based paint and the provision of a report explaining the results of the investigations.

27. "Intact surface" means a surface with no loose, peeling, chipping or flaking paint. Intact surfaces that are painted must be free from crumbling, cracking or falling plaster and must not have any holes. Intact surfaces must not be damaged or worn down in any way that would make paint from the damaged area accessible to humans.

28. "Lead Abatement" means any activity that will result in the removal of windows, walls, floors, ceilings or exterior surfaces which may result in the creation of a hazardous level of leaded chips, flakes, dust or any other form of leaded substance that can be ingested or inhaled during such activity.

29. "Lead Abatement Supervisor" means any person employed by a lead abatement contractor and licensed in the State where the work is to occur, to perform lead abatement and mitigation, and supervise lead abatement workers who perform lead abatement and mitigation.

30. "Lead Bearing Substance" means any dust on surfaces or in furniture or other nonpermanent elements of the building and any paint or other surface coating material containing more than five-tenths of one percent (0.5%) lead by weight (calculated as lead metal) in the total nonvolatile content of liquid paint. The term "lead bearing substance" also includes lead bearing substances containing greater than one milligram per square centimeter or any lower standard for lead content in residential paint as may be established by federal law or regulation; or more than 1 milligram per square centimeter in the dried film of paint or previously applied substance; or object containing lead in excess of the amount established by federal regulation.

31. "Lead Hazard" means a lead bearing substance that poses an immediate health hazard to humans.

32. "Lead Inspector" means an individual who has been trained by the Licensing Agency in the State where the work is to occur, to conduct inspections, sample for the presence of lead in dust and soil, and conduct abatement clearance testing.

33. "Lead Management Plan" means a written statement that describes how an intact surface with lead-based paint will be monitored to assure that, if the intact surface becomes defective, the defective surface will be abated or mitigated.

34. "Lead Mitigation" means the remediation of a lead hazard so that the lead bearing substance does not pose an immediate health hazard to humans. A lead hazard is deemed to have been mitigated if the surface that is the source of the lead hazard is no longer in a condition that produces a hazardous level of leaded chips, flakes, dust or any other form of leaded substances, that can be ingested or inhaled by humans; or if the leaded surface is accessible to children, the surface coating is covered or the access to the leaded surface by children is otherwise prevented.

35. "Lead Poisoning" means the conditions of having blood lead levels in excess of those considered safe under federal rules and regulations.

36. "Lead Risk Assessor" means an individual who has been trained by the Licensing Agency in the State where the work is to occur, to conduct risk assessments, sample for the presence of lead in dust and soil and conduct abatement clearance testing.

37. “Leak-tight” means that solids or liquids cannot escape or spill out. Leak-tight also means dust-tight.

38. "Local Health Department" means the health department or board of health as recognized by the Federal Government which has jurisdiction over the particular geographical area in which the person lives or where the building is located.

39. "Negative Blood Lead Test Result" means a blood lead test with a blood lead level (PbB) of 9 micrograms/deciliter (mcg/dL) or less of whole blood in a child under age 16 years.

40. "Permissible limits" for reporting purposes means a confirmed blood lead level (PbB) of less than 10 micrograms/deciliter (mcg/dL) of whole blood in a child under age 16 years, less than 10 mcg/dL for a pregnant or breast-feeding woman and less than 25 mcg/dL for all other persons.

41. “OSHA” means the Occupational Safety and Health Administration.

42. “Outside Air” means air from outside of the work area.

43. “Personal Air Monitoring or Exposure Monitoring” means a method used to determine employees’ exposure to airborne fibers through the collection of air samples from the breathing zone of an individual in the work area.

44. "Person" means any one or more natural persons, legal entities, governmental bodies, or any combination.

45. "Positive Blood Lead Test Result" means a blood lead level test with a blood lead level (PbB) of 10 micrograms/deciliter (mcg/dL) or higher of whole blood in a child under age 16 years.

46. “Secure Separation Barriers” means a rigid barrier constructed of ½ inch minimum thickness plywood, gypsum board, or similar sheathing material with sufficient framing to support the barrier designed to prevent the possible access by building occupants into areas where project activities will occur. A Secured Separation Barrier shall not be used as a containment area barrier.

47. “Separation Barrier” means a rigid barrier that is erected in a building space to reduce the volume of a work area, such as erecting a barrier along the perimeter of a series of rooms in order to remove materials from windows without making the entire room a work area. This type of Barrier SHALL NOT be used to separate occupied areas of the building from the work area. This type of Separation Barrier shall be of ½ inch minimum thickness plywood gypsum board or similar sheathing material with suitable framing to support the Separation Barrier. The seams and edges of the Separation Barrier shall be caulked and the work area side of the Separation Barrier shall be covered with two layers of six-mil plastic sheeting equivalent.

48. “Shall” means the stated provision is mandatory.

49. “Shower Room” means a “clean side” area or room separated from the Clean Room and from the Equipment Room by airlocks with curtained doorways, which is a structural part of the Worker Decontamination Enclosure System (WDES) with hot and cold running water controllable at the tap and arranged for complete showering during decontamination.

50. “Shut Down and Lock Out Power” means to switch off every electrical circuit breaker serving power or lighting circuits which run to, or through, the work area. Lock the electrical panel or door with separate locks.

51. “Structural Member” means any load supporting member of a facility, such as beams and load supporting walls, or any non-load supporting member such as ceilings and non-load supporting walls.

1.5. SUBMITTALS

1.5.1. Lead Abatement Action Plan. Contractor shall prepare and submit a Lead Abatement Action Plan (Plan). The Plan shall be submitted to the Property Manager, the Building Owner, and the Environmental Consultant for review and approval at least three (3) calendar days prior to the start of the work. No work shall be allowed until the Plan has been approved. The Plan shall include drawings and narratives, sufficient in detail to demonstrate and indicate the following:

1. The specific areas of work on the property.
2. Locations of barriers.
3. Delineation of each regulated area (if applicable).
4. Location of Decontamination Enclosure Systems and/or remote decontamination enclosure system (if applicable).
5. Location of waste dumpster.
6. A narrative sequencing plan with a detailed schedule clearly indicating the various aspects of the work.

1.5.2. Sample Submittals. Contractor shall submit for review and approval at two (2) calendar days prior to the scheduled start of the work, samples of encapsulants, solvents, adhesives, and any other chemical product that is proposed to be used on this project. No products may be brought into the building until approved by either the Property Manager, the Building Owner, or the Environmental Consultant, or as specified elsewhere in this document. The samples shall be in their original containers and shall be accompanied by their Material Safety Data Sheets.

1.5.3. Additional Submittals. At one (1) calendar day prior to the commencement of any work, the contractor shall submit the following information to the Property Manager, the Building Owner, and the Environmental Consultant for review and approval prior to starting the work:

1. Documentation that arrangements have been made for the transport and disposal of waste generated at this project and the name and location of the disposal sites.
2. Documentation that each worker and supervisor is licensed in the State where the work is being performed.
3. Drawings for layout and construction details for Decontamination Enclosure Systems and barriers for isolation of the work area.

1.5.4. Contractor shall provide the following information during the lead abatement work:

1. Results of air monitoring from the previous 24-hour period.
2. Lead containing waste shipment records.
3. Job progress reports detailing the abatement/mitigation activities, including review of progress with respect to previously established schedules, problems, and actions taken, injury reports, and equipment breakdowns, if applicable.
4. Copies of worksite entry logs showing the name, date and time for worker and visitor access to the work area.
5. Logs documenting fugitive dust engineering controls.

1.5.5. At the completion of the project. The contractor shall submit the following:

1. Contractor's report detailing the work that was completed and the procedures that were used.
2. Contractor's air sampler's report summarizing the results of all exposure monitoring that occurred.
3. A complete set of the contractor's daily logs, Toxicity Characteristic Leaching Procedure (TCLP) results, and waste shipment records.

1.6. ALTERNATE PROCEDURES AND VARIANCES

A Variance to the Work Practices may be requested by submitting a written proposal to the Environmental Consultant a minimum of two (2) calendar days before the commencement of work. The written proposal shall include a detailed description of the procedure(s) to be used in lieu of the requirements described herein. The Environmental Consultant will notify the applicant in writing of it decision to either grant or deny the variance within two (2) calendar days of receipt of the request.

1.7. REMOVAL ACTIVITIES

Affected areas must be abated in a controlled environment and the steel support beams are to be treated as lead contaminated materials. The Environmental Consultant will perform daily area air monitoring to ensure the environment is not being exposed, additionally, the Contractor under the supervision of the Environmental Consultant will separate the waste into lead containing/contaminated or general construction debris and each will be shipped to the appropriate landfill.

The following methods SHALL NOT be used for mitigation of lead-based paint.

1. Dry-sanding.
2. Open abrasive blasting.
3. Methylene chloride.
4. Dry-scraping.
5. Open flame burning

Mitigation of lead-bearing substances shall employ only the following methods:

Replacement. Any component part of a building may be abated by replacement with a part free of lead-bearing substances.

Removal. Lead-based paint shall be removed from the substrate using the following techniques:

1. Offsite chemical stripping;
2. Heat gun (The temperature of the heat gun shall not exceed 1,100~ F.);
3. Nonflammable chemical strippers which do not contain methylene chloride.
4. Sander equipped with HEPA vacuum;
5. Vacuum-blasting in exterior work areas only;
6. Mechanical paint removal systems equipped with a HEPA vacuum.
7.

1.8. SITE INSPECTION

Prior to the commencement of work, the Contractor shall inspect the work site to become familiar with the conditions of the project. The Contractor is responsible for verifying the quantities and locations of all work to be performed as outlined in this section. Failure to do so shall not relieve the Contractor of the obligation to furnish all materials and labor necessary to carry out the provisions of the Contract.

1.9. CONTRACTOR'S DUTIES

1. Except as specifically noted, the Contractor shall provide and pay for all labor, materials, tools, construction equipment and machinery, and other facilities and services necessary for proper execution and completion of work, including all legally required sales, consumer, use, payroll, privilege and other taxes.
2. The Contractor shall secure and pay for all Permits, Government Fees, Licenses and Waste Disposal Permits and Costs as necessary for proper execution and completion of the work and as applicable at the time of bids, and shall be responsible for giving all required notices.
3. The Contractor shall comply with all codes, ordinances, rules, regulations, orders and other legal requirements of public authorities (including EPA and OSHA) which bear on work performance, including laws regarding job discrimination and payment of prevailing wage rates. Where conflicts occur between these specifications and/or the above-mentioned regulations, the more stringent shall govern.
4. If the Contractor observes that any of the Contract Documents are at variance with the above-mentioned regulations, the Contractor shall promptly notify the consultant in writing, and any necessary changes will be made by appropriate modification. It is the Contractor's responsibility to make certain that the Contract Documents are in accordance with all applicable laws, ordinances, statutes, building codes, rules and regulations. If the Contractor performs any work knowing it to be contrary to such laws, ordinances, statutes, building codes, rules and regulations, and without such notice to the owner's representative, the Contractor shall assume full responsibility therefore and shall bear all cost attributable thereto.
5. The Contractor assumes all responsibility for the proper and safe execution of the work, and shall enforce strict discipline and good order among employee, and shall not employ on the project unfit persons or persons not skilled in their assigned task.
6. The Contractor shall use the best available technology, procedures and methods for preparation, execution, cleanup, disposal and safety.
7. The contractor shall maintain the existing temporary fencing or install like fencing around the work area.
8. The Contractor shall be responsible for cleaning spaces outside and adjacent to the work area and work area entrance.

1.10. STOP WORK:

If the Owner or the Owner's Representative presents a written or verbal stop work order, immediately stop all work or that portion of the work designated. A verbal stop work order will be confirmed by a written stop work order within 24 hours. Do not re-commence work until authorized in writing by the Owner.

1.11. OWNER OCCUPANCY:

The building is currently occupied by other construction trades and will remain semi-occupied by the general public during this project.

1.12. DECONTAMINATION UNITS

Provide personnel and equipment decontamination facilities. Require that the personnel decontamination unit be the only means of ingress and egress for the work area by personnel. Require that all materials exit the work area through the equipment decontamination unit.

1.13. CONSTRUCTION OF REMOTE DECONTAMINATION UNITS

1. WALLS AND CEILING: Construct airtight walls and ceiling using polyethylene sheeting, at least 6 mils in thickness. Attach to existing building components or a temporary framework.
2. FLOORS: Use two layers minimum of 6-mil polyethylene sheeting to cover plywood floors in all areas of the decontamination units. Provide an additional layer in the equipment room for every shift change expected. Roll two layers of plastic from equipment room into the work area after each shift change. Use only clear plastic to cover floors.
3. DOORS: Fabricate doors from overlapping sheets with openings a minimum of 3 feet wide. Configure so that the sheeting overlaps adjacent surfaces. Weight sheets at bottoms as required so that they quickly close after being released. Put arrows on sheets to indicate direction of overlap and/or travel. Provide a minimum of 3 feet between the entrance and exit of any room.
4. AIRLOCK: Provide an airlock between the Clean Room and Shower Room. This is a transitional area for workers. Separate this room from the Clean Room and Shower Room by sheet plastic-flapped doorways. Separate this room from the rest of the building with airtight walls fabricated of 6-mil polyethylene.
5. VISUAL BARRIER: Where the decontamination area is immediately adjacent to and within view of occupied areas, provide a visual barrier of black polyethylene sheeting at least 4 mils in thickness so that worker privacy is maintained and work procedures are not visible to building occupants. Where the area adjacent to the decontamination area is accessible to the public, construct a solid barrier on the public side of the sheeting to protect the sheeting. Construct the barrier with wood or metal studs covered with minimum 1/4-inch thick hardboard or 1/2-inch plywood. Where the solid barrier is provided, sheeting need not be black.

Alternate methods of providing decontamination facilities may be submitted to the Consultant for approval. Do not proceed with any such method(s) without written authorization of the Consultant.

1.14. PERSONNEL DECONTAMINATION UNIT

Provide a Personnel Decontamination Unit consisting of a serial arrangement of Change Room, Shower Room and Equipment Room. Require all persons, without exception, to pass through this decontamination unit for entry into and exiting from the work area for any purpose.

1. WORK AREA: If the airborne lead level in the work area is expected to be high, as in dry removal, add an intermediate cleaning space between the Equipment Room and the work area. Wet-wipe clean all surfaces after each shift change. Provide one additional floor layer of 6-mil polyethylene per shift change and remove contaminated layer after each shift.
2. ENTERING WORK AREA: Worker enters the Changing Room and removes street clothing, puts on clean disposable overalls and respirator, and passes through the shower room into the Equipment Room. Any additional clothing and equipment stored in the Equipment Room needed by the worker are put on in the Equipment Room. Worker proceeds to work area.
3. EXITING WORK AREA: Before leaving the work area, require the worker to remove all gross contamination and debris from overalls and feet. This should be accomplished by using the buddy system. The worker then proceeds to the Equipment Room and removes all clothing except respiratory protection equipment. Extra work clothing may be stored in the contaminated end of the equipment room. Disposable coveralls are placed in a properly marked bag for disposal as contaminated waste. After showering, the worker moves to the Clean Room and dresses in either new overalls for another entry into work area or street clothes if leaving.
4. CLEANING OF DECONTAMINATION UNITS: Clean debris and residue from inside the decontamination units on a daily basis. Wet-wipe or hose-down all surfaces after each shift

change. Clean debris from shower pans on a daily basis.

5. EQUIPMENT DECONTAMINATION
6. EQUIPMENT OR MATERIAL: Take all equipment or material from the work area wet clean the bags and/or equipment. When cleaning is complete, remove decontaminated equipment and/or containers for disposal. Require these workers to wear full protective clothing and to wear appropriate respiratory protection.

1.15. WORK PLACE ENTRY AND EXIT PROCEDURES

Personnel Entry and Exit Procedures. All of the following procedures shall be printed and posted in the Clean Room of the Worker's Decontamination Enclosure System by the contractor. These procedures shall be enforced by the contractor and shall be followed throughout the project until clearance wipe samples have been collected and the area has passed final clearance.

1. All personnel and authorized visitors shall enter the work area through the Worker's Decontamination Enclosure System.
2. All personnel who enter the work area shall sign the entry log, located in the clean room, upon entry and exit.
3. All personnel, before entering the work area, shall read and be familiar with all posted regulations, personal protection requirements, and emergency procedures.
4. For entry into the work area, all personnel shall proceed first to the Clean Room, remove all clothing and don respiratory protection, disposable coveralls, head covering and foot covering. Clean respirators and protective clothing shall be provided by the contractor and utilized by each person for each separate entry into the work area.
5. Personnel wearing designated personal protective equipment shall proceed from the Clean Room, through the Shower Room and the Equipment Room, into the work area.
6. Before leaving the work area, all personnel shall remove gross debris from the outside of respirators and protective clothing by brushing and/or wet cleaning procedures. Each person shall clean the bottoms of protective footwear immediately prior to entering the Equipment Room.
7. Personnel shall proceed to the Equipment Room where all protective equipment, except for the respirator, shall be removed. Disposable clothing shall be placed in labeled containers for disposal.
8. Reusable contaminated footwear (i.e. steel-shanked rubber boots) and hand tools shall be stored in the equipment room when not in use.
9. Still wearing respirators, personnel shall proceed to the Shower Room, clean the outside of the respirator and the exposed face area under the shower's running water prior to removal of the respirator, and then shower and shampoo to remove residual debris.
10. After showering and drying, personnel shall proceed to the Clean Room and don street clothes, if leaving the work site, or a clean set of disposable clothing for re-entry to the work area.

Contractor shall clearly mark exits from the work area.

1.16. BUILDING PROTECTION

The areas outside of the work area shall be protected at all times. The use of negative pressure in the work area is one measure of protection that the contractor shall maintain.

1. A negative air pressure differential of at least 0.02 inches of water column, relative to ambient outside ambient air pressure, shall be maintained at all times throughout the contained area during the work to ensure that air inside of the work area does not filter back and enter the building's spaces outside of the work area. Instrumentation, such as a manometer (with a readable tape) for measuring the pressure differential shall be provided and maintained by the contractor for each work area.
2. Once the contained area is established, the negative air pressure system shall operate continuously, 24 hours a day, until final air clearance criteria have been met.
3. The contractor shall be responsible for cleaning spaces outside and adjacent to the work area where lead dust is observed.

The contractor shall install and operate a sufficient number of filtration machines to completely change the air in the work area at least four times per hour. The contractor shall submit verification that the intended machines will be sufficient. Contractor shall also have on site one spare filtration machine for each five machines (or fraction thereof) that are planned to be used on the project.

1.17. WORK AREA PREPARATION (for aggressive demolition and renovation)

The contractor shall perform the following steps, in the order that they appear, to prepare the work area:

1. Establish the work area (s) with the placement of Separation Barriers. These barriers, such as temporary walls, ceilings, and floors that are necessary for enclosing the work area, shall be erected and inspected and approved by the Government's Environmental Consultant prior to performing any other work.
2. Demarcate the Work Area and post appropriate signs.
3. Post Caution Signs meeting the requirements of 29 CFR 1926.62. Caution signs shall be posted to permit a person to read the sign and then take the necessary protective measures in order to avoid personal exposure before entering a work area.
4. Shut Down and Lock Out electric power to the work areas. "Shut Down and Lock Out Power" means to switch off every electrical circuit breaker serving power or lighting circuits which run to, or through, the work area. Label circuit breakers with tape over the breakers with the notation "DANGER, Circuit being worked on" Lock the electrical panel or door with separate locks, one for the contractor's supervisor and one for the Property Manager/Project Manager.
5. Provide temporary power and lighting to the work area. Power to and for the work area shall be brought in from outside the area through ground-fault circuit interrupters at the source.
6. Shut down and isolate heating, cooling, and ventilation air systems to prevent dispersal of dust and fibers from the work area into other areas of the building.
7. Seal off all openings to windows, corridors, doorways, skylights, ducts, grills, diffusers, and any other penetrations of the work areas, with six mil plastic or equivalent sheeting sealed with tape. Also seal seams in system components that pass through the work areas.
8. Clean moveable objects within the proposed work area using HEPA filtered equipment and/or wet cleaning methods using water with a phosphate-containing detergent or trisodium phosphate (TSP), or a phosphate-free lead-dissolving detergent and remove the objects from work areas to a temporary location.
9. Utilize the "top-down" cleaning method to clean the designated work area prior to lead mitigation activities. Prior to cleaning, remove the contents of any cabinet, shelves, and removable miscellaneous materials within the "Designated Work Area".

10. Open the HVAC return grills, vacuum the inside of the duct and the face of the grill.
11. HEPA vacuum surfaces, from top to bottom
12. HEPA vacuum the floor.
13. Clean fixed objects and items which will remain in the work area using HEPA filtered vacuums and/or wet wiping methods. After cleaning using water and a phosphate-containing detergent or trisodium phosphate (TSP), or a phosphate-free lead-dissolving detergent, the contractor shall cover the objects with one layer of six mil plastic or equivalent
14. Clean the proposed work area using HEPA filtered vacuums and/or wet wiping methods. Dry sweeping and the use of non-HEPA filtered vacuums is prohibited. Asbestos Containing Material shall not be disturbed during cleaning or work area preparation.
15. Construct the Worker's Decontamination Enclosure System and ensure that there is hot and cold running water in each shower enclosure and that the water temperature is controllable by the shower user.
16. Cover the floors and walls of the proposed work areas with plastic sheeting sealed with duct tape. Us a minimum of two layers of six mil plastic or equivalent on the floors (no plastic on the floors is required when the project includes removal of lead-based paint from the floor) and one layer of four mil plastic sheeting or equivalent on walls. Cover floors first so that plastic extends at least 12 inches up the walls, then cover walls with plastic sheeting to the floor level, thus overlapping the floor plastic by a minimum of 12 inches. Seams shall be staggered.
17. Remove and clean ceiling mounted objects such as light fixtures, electrical tracks, ventilation equipment, and other items that were not previously sealed off, that interfere with the work.
18. Maintain emergency and fire exits from the work area. Spray paint the wall plastic with red paint using arrows to indicate the direction to the exits from the work area. Each wall of the containment area must have a directional arrow painted on it. After the wall plastic is removed, paper signs with red arrows shall be affixed to each interior wall showing the direction to the work area exits.
19. Collect lead waste daily and accumulate the waste in appropriate containers.
20. If at any time water, visible emissions or breaches in the containment are detected, the work inside of the work area shall cease until the source of the emissions or the breeches are repaired.

1.18. SIGNS

1.18.1. Post a caution sign as required by 29 CFR 1926 and these specifications.

1.18.2. Post a sign approximately 10-inches-by-14-inches at each entrance of each work area displaying the following:

LEGEND	NOTATION
No Food, Beverages or Tobacco Permitted	3/4-inch Block
All Persons Shall Don Protective Clothing (Coverings) Before Entering the Work Area	3/4-inch Block
All Persons Shall Shower Immediately After Leaving the Work Area and Before Entering the Changing Area	3/4-inch Block

1.19. DISPOSAL OF LEAD-CONTAMINATED MATERIAL

Disposal includes packaging of lead-containing waste materials.

1.19.1. Waste collection and disposal procedures.

1. Deposit all lead waste, including sealing tape and plastic sheeting, in double plastic bags at least 4 mils thick or single bags 6 mils thick or equivalent, and seal the bags;
2. Deposit all lead waste from clean-up, including mop heads, sponges, filters, and disposable clothing, in double plastic bags at least 4 mils thick or single bags 6 mils thick, and seal the bags.
3. Remove lead waste from the site no later than 48 hours after completing the final cleanup.
4. Place lead-based paint chips, debris, and lead dust in double 4-mil or single 6-mil polyethylene bags or equivalent that is air-tight and puncture-resistant. Pieces of wood or other large items that do not fit into plastic bags shall be wrapped with double 4-mil or single 6-mil plastic sheeting and sealed.
5. Place all disposable cleaning materials, such as sponges, mop heads, filters, disposable clothing, and brooms in double 4-mil or single 6-mil plastic bags, or equivalent, and seal.
6. Remove plastic sheeting and tape from covered surfaces. Prior to removing the plastic sheeting, the sheeting shall be lightly misted in order to keep dust down and folded inward to form tight small bundles to bag for disposal. All plastic sheeting shall be placed in double 4-mil or single 6-mil thick plastic bags, or equivalent, and shall be sealed.
7. Bag and seal vacuum cleaner bags and filters in double 4-mil or single 6-mil thick plastic bags or equivalent.
8. Place all contaminated clothing or clothing covers used during abatement and cleanup in plastic bags for disposal prior to leaving equipment room, work site or work area.
9. Place solvent residues and residues from strippers in drums made from materials that cannot be dissolved or corroded by chemicals contained in those solvents and strippers. Solvents shall be tested to determine if they are hazardous. Solvents and caustic/acid waste shall not be stored in the same containers.
10. Contain and properly dispose of liquid waste, including lead dust contaminated wash water.
11. HEPA vacuum the exterior of all waste containers prior to removing the waste containers from the work site or area and wet wipe the containers to ensure that there is no residual contamination. Containers that have been cleaned shall be moved out of the work site or area into a designated storage area.
12. Carefully place the containers into the truck or dumpster used for disposal.
13. Ensure that all waste is transported in covered vehicles to a landfill approved by its State to accept lead waste.

1.19.2. Hazardous Waste.

1. The waste must be tested to determine if it is a hazardous waste. The entire waste stream (e.g., rags, collected dust, disposable coveralls, filters, etc) must be analyzed. LBP waste that meets the definition of special waste is hazardous if it has a concentration of lead equal to or greater than 5.0 mg/l as determined by the Toxicity Characteristic Leaching Procedure (TCLP). In addition, other parameters must be below the regulatory limits for toxicity and other characteristics and listings. The handling and disposal of hazardous waste must be conducted in accordance with applicable State laws and the Resource Conservation and Recovery Act (RCRA) regulations applicable to the activity being conducted.
2. If the generator/contractor determines that the LBP waste is hazardous, then the waste must be treated prior to disposal at a facility permitted by the EPA to receive the waste. The treatment technology that is used is stabilization. The treatment of hazardous LBP

waste must render the waste non-hazardous prior to disposal at a properly permitted facility.

3. Hazardous LBP waste may not be stored on-site for greater than 90 days (or 180 days for a small-quantity generator; 270 days for a small-quantity generator that transports his/her waste greater than 200 miles) without a RCRA permit.
4. If the special waste is determined to not be a hazardous waste, the waste may be certified by the generator to be just solid waste provided it does not exhibit certain characteristics. The generator of the special waste may certify the waste, if the waste passes the paint filter test (is not a liquid), does not contain PCBs, is not a hazardous waste, is not regulated asbestos-containing material, does not result from shredding recyclable metals, and is not former hazardous waste rendered non-hazardous. Documentation of the certification must be maintained by the generator and supplied to the Project Manager. If the special waste is certified, it may be handled as general refuse and no manifest or additional recordkeeping requirements are applicable.

1.20. FINAL CLEANING

A. Perform the first cleaning operations of all surfaces of the work areas, including items of remaining sheeting, tools, scaffolding and/or staging, using wet cleaning and mopping methods and/or a HEPA-filtered vacuum.
B. Do not perform dry-dusting or dry-sweeping. Use each surface of a cleaning cloth one time only and then dispose of as contaminated waste.
C. Continue the cleaning until there is no visible debris from removed materials or residue on plastic sheeting or other surfaces.
D. Comply with regulations of authorities having jurisdiction and safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on the Owner's property. Do not discharge volatile, harmful or dangerous materials into drainage systems. Remove waste materials from the site and dispose of in a lawful manner.

1.21. VISUAL INSPECTION

A. When the area is visually clean, notify the Consultant that the work area is ready for visual inspection and provide ladders, scaffolding and lifts as required to provide access to all surfaces in the area to be subject to visual inspection. Access is to allow touching of all surfaces.
B. The Consultant shall perform the visual inspection and complete the certification at the end of this section. Visual inspection is not complete until confirmed in writing on the certification by the Environmental Consultant. After inspection results are given, the Contractor shall begin re cleaning or proceed to the next step.

1.22. CLEARANCE SAMPLING

A. Clearance Sampling shall be conducted in accordance with HUD protocol for surface wipe testing.
B. Clearance Requirement is < or equal to 100 ug/ft2. Action: Criteria are met and abatement area may be released for general use.
C. If the Clearance Requirements are not met, the work area shall be re-cleaned by the contractor and the clearance sampling repeated.

1.23. REMOVAL OF WORK AREA ISOLATION:

After all requirements of this section have been met, remove the work area isolation in the sequence outlined in this paragraph. Remove personnel decontamination units. Remove the critical barriers separating the work area. Remove any small quantities of residual material found. If significant quantities, as determined by the Consultant, are found, then the entire area affected shall be decontaminated. Remove all equipment, materials and debris from the work site. Dispose of all remaining lead containing waste material as specified.

1.24. CONTRACTOR CERTIFICATION

At the completion of the work, the Contractor shall certify that the work was performed in compliance with applicable OSHA, EPA, and State rules and regulations. The lead-based paint materials were mitigated and wastes have been removed from the site with the work areas cleaned, waste legally transported, treated, disposed of at a permitted facility, and the manifests delivered to the building owner.