SECTION 02085 - SUPPLEMENTAL

LEAD BASED PAINT REMOVAL

PART 1-GENERAL

1.01 SCOPE OF WORK

A. This section includes requirements for the removal and disposal of lead-based paint from affected surfaces, including provision of independent third party testing and clean-up inspection services.

1.02 RELATED WORK

A. Divisions 0 and 1, as applicable.

B. Section 02050 –Demolition

C. Section 02075 – Hazardous and Toxic Materials Remediation

1.03 References

A. Code of Federal Regulations:

1. 29 CFR 1910, “Occupational Safety and Health Standards:” (General Industry Standards).
2. 29 CFR 1910.134, “Respiratory Protection”.
3. 29 CFR 1910.1025, “Lead”.
4. 29 CFR 1910.1200, “Hazard Communication”
5. 29 CFR 1926, “Safety and Health Regulations for Construction” (Construction Industry Standards).
6. 40 CFR 50, “National Primary and Secondary Ambient Air Quality Standards”.
7. 40 CFR 60, “Standards of Performance for New Stationary Sources”.
8. 40 CFR 117, “Determination of Reportable Quantities for Hazardous Substances”.
9. 40 CFR 122, “EPA Administered Permit Program: The National Pollutant Discharge Elimination System.”
10. 40 CFR 261, “Identification and Listing of Hazardous Waste”.
11. 40 CFR 263, “Standards Applicable to Transporters of Hazardous Waste”.
12. 40 CFR 265, “Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage and Disposal Facilities”.
13. 40 CFR 268, “Land Disposal Restrictions”.
14. 40 CFR 300, “National Oil and Hazardous Substances Pollution Contingency Plan”.
15. 40 DFR 302, “Designation, Reportable Quantities and Notification”.

B. State of Michigan Regulations:

1. MCLA 299.9101 – 299.11107 “Michigan Hazardous Waste Management”.

C. National Institute for Occupational Health and Safety: NIOSH Method 7082, “Sampling Airborne Particulates for Lead”.

D. American Society for Testing and Materials:

1. ASTM D3335, “Test Method for Low Concentrations for Lead, Cadmium, and Cobalt in Paint by Atomic Absorption Spectroscopy”.

E. EPA (Environmental Protection Agency) Publications:

1. SW-846, Test Methods for Evaluating Solid Waste – Physical/Chemical Methods.
2. EPA Method 3050, “Acid Digestion of Sediments, Sludges and Soils”.

F. SSPC (Steel Structures Painting Council): Guide 61 (CON), Guide for Containing Debris Generated During Paint Removal Operations.

G. “Industrial Lead Paint Removal Handbook“, 2nd Edition, Kenneth A. Trimber.

1.04 DEFINITIONS

A. Lead-Containing Paint: Paint containing a minimum of 1.0 mg/cm2 (milligram per square centimeters) lead or containing 0.5 percent lead by weight as determined by on-site testing of the coating with a portable X-ray fluorescence (XRF) detector, or through laboratory testing in accordance with ASTM D3335.

B. Hazardous Waste: Lead paint debris is classified as hazardous due to the characteristic of toxicity, if after testing by Toxicity Characteristic Leaching Procedures (TCLP), the leachate contains any of the elements in the concentrations listed below (or greater):

Arsenic	5 ppm
Barium	100 ppm
Cadmium	1 ppm
Chromium	5 ppm
Lead	5 ppm
Mercury	0.2 ppm
Selenium	1 ppm
Silver	5 ppm

Note: Other Elements can cause a material to be hazardous as defined in 40 CFR 261 and must be taken into consideration. The list above includes only those elements typically associated with paint solids. If chemical strippers are used, the debris may be hazardous waste, due to corrositivity, if the pH is less than or equal to 2 or greater than or equal to 12.5.

C. Generator: The facility Owner or Operator or person who first creates or produces the hazardous waste.

1. Large Quantity Generator: Generates over 2,200 pounds (1,000 kilograms) of hazardous waste or 2.2 pounds of acutely hazardous waste per month or stores more than 13,200 pounds (6,000 kilograms) of waste or more than 2.2 pounds of acutely hazardous waste at the site at any one time.

2. Small Quantity Generator: Generates more than 220 pounds (100 kilograms), but less than 2,200 pounds (1000 kilograms) of hazardous waste per month and accumulates less than 13,200 pounds (6,000 kilograms) at any one time.

3. Conditionally Exempt Small Quantity Generator: Generates less than 220 pounds (100 kilograms) of hazardous waste per month, and accumulates no more than 2,200 pounds (1,000 kilograms) of hazardous waste at any time.

D. Containment and Ventilation Systems: Includes the containment structure (i.e. containment walls, floor, supporting structure, entryways); ventilation system (i.e. and input and exhaust); and dust collection.

E. Milligram (mg): A milligram is 1/1,000 of a gram.

F. Microgram (ug): A microgram is 1/1,000,000 or a gram of 1/1,000 of a milligram.

1.05 SUBMITTALS

A. Lead Abatement Work Plan: A minimum of 30 days prior to beginning work provide a written plan for the methods to be employed for surface preparation, containment and ventilation, and collection of debris. When designing the system, the Contractor shall recognize the load bearing capacity and integrity of the structure to be abated. The Contractor shall have the containment and ventilation plan reviewed by a Professional Engineer and submit drawings for review. In addition the Work Plan shall contain the following:

1. Name and address of licensed abatement contractor to undertake the Work.

2. Site specific Health and Safety Plan.

3. Site specific Lead Abatement Plan, including quantities to be removed, and abatement contractor's policies and procedures relating to lead abatement work.

4. Employee Training Accreditations/Certifications and Physician Clearances, including accreditation certificate from the State of Michigan of Abatement Contractor's Project Designer.

5. Lead Abatement License.

6. Documentation of Respiratory Equipment Fit Tests.

7. Manufacturer's information for materials and equipment to be utilized in the work, including Material Safety Data Sheets (MSDS).

8. Documentation of abatement contractor's insurance (certificates).

9. Credentials of independent, third party consultant who will provide testing and clean-up inspection services as specified herein.

10. Programs for the Protection of the Ambient Air and Water: Submit written testing and evaluation that will be used to confirm that the work does not violate Federal, State and Local regulations. Refer to Item 1.07 for acceptance criteria.

    a. Ambient Air Quality: Submit a written program for air monitoring at the project site to confirm that fugitive dust emissions do not exceed specified criteria. The following shall be addressed:

        i. Particulate Matter: Monitor emissions of particulate matter equal to or greater than 10 micrometers (PM 10) in aerodynamic size in accordance with 40 DFR 50. Include the type and number of samplers to be used, their proposed locations, provisions for background monitoring, and the duration of testing.

        ii. Visible Emissions: Submit a written plan for the observations that will be made to verify that the visible emissions criteria of this specification are not exceeded.

        iii. Total Suspended Particulate (TSP) Lead: Submit a program for the analysis of airborne lead emissions in accordance with 40 CFR 50. Include the type and number of samplers to be used, their proposed locations, provisions for background monitoring and duration of testing.

        iv. Lead Emissions Using Personal Monitors: Submit a program that identifies the proposed monitoring sites for the use of personal monitors in accordance with NIOSH Method 7082. The duration of monitoring, provisions for background monitoring, laboratory qualifications, and evaluation procedures to be employed shall be included.

    b. Water Analysis: Submit a written program for verification of the following:

i. National Pollutant Discharge Elimination system (NPDES) Permit: If waste water will be discharged to sewers or surface water, obtain an NPDES permit for the work in accordance with 40 CFR 122, and that its requirements will be strictly followed.

ii. Reportable Releases: Prepare a program for reporting releases of lead into the water in accordance with 40 CFR 117.

iii. Water and Sediment Analysis: Outline the sampling and testing protocol proposed for the pre-job and post-job analysis of lead in the water and sediment, and provide the qualifications of testing laboratory to be used.

iv. Handling, Disposal and Analysis of Debris Criteria: Submit the following:

a. Handling and Site Storage: A written plan that addresses the handling and site storage of lead-containing debris in accordance with the requirements of 40 CFR 262 and 40 CFR 265. The Contractor shall confirm that an EPA identification number shall be obtained if one has not already been assigned to the facility, that proper manifesting of the waste shall be addressed, and that all site storage limitations, including the time of storage, container requirements, contingency plan, and personnel training, shall be observed.

b. Sampling and Testing of Debris: Written procedures that will be followed for the sampling and testing of debris to determine if it is hazardous waste. The sampling procedure shall be in accordance with the requirements of SW 846, with the testing accomplished by TCLP, defined in Appendix II of 40 CFR 261. The program shall include the name of the testing laboratory to be utilized.

c. Transportation: Written confirmation that proper transportation of the debris shall be accomplished in accordance with the requirements of 40 CFR 263. The name of the transporter shall be included.

11. Disposal: Written confirmation that the debris will be treated and disposed of in accordance with the requirements of 40 CFR 264 and 40 CFR 268. The program shall provide assurance that the debris is handled properly from cradle to grave, and include the necessary notifications and certifications on shipments, provide the name of the disposal facility, and include a schedule for the submittal of the completed manifests.

12. Clearance Testing: The Contractor will provide written programs for the decontamination for reusable items prior to removal from the project site, or for the proper testing and disposal of the materials if decontamination is not possible or desirable.

13. The submitted Work Plan shall address the criteria outlined in items 1.06, 1.07, 108 and 1.09.

B. Prior to commencing abatement work in any area or sub-area, if the removal will not be prosecuted continuously, the Contractor shall provide ten (10) days notice. The notice shall include the following information:

1. Construction contract number and title.

2. Name of general contractor, general contractor's superintendent and on-site telephone number.

3. Name of abatement contractor, abatement contractor's superintendent and on-site telephone number.

4. Exact location of abatement work and estimated quantities involved.

5. Estimated dates and times of commencement and completion.
6. Date of submittal of Abatement Work Plan.

7. Copies of any updated notifications to regulatory agencies.

C. The following shall be submitted on a weekly basis while abatement work is in process:

1. Updates of Respiratory Fit Tests, if applicable.

2. Monitoring equipment calibration logs.

3. Daily logs of work completed.

4. Daily logs of employees conducting the abatement.

5. Environmental monitoring results.

6. Disposal manifests, if removed material is characterized as a hazardous waste and disposal occurs within the reporting period. The name, address and identification number of the licensed transporter/disposer shall be provided.

D. The following shall be provided prior to re-occupancy of an abated area:

1. Certification of Visual Inspection and Authorization for Re-Occupancy as provided by an independent, third party consultant (see Items 3.05 and

3.06).

E. Upon completion of the abatement submit the abatement project records specified in Item 1.10.

1.06 Criteria for Containment Systems

A. Design a containment system for the work area to control environmental emissions according to the criteria listed in Item 1.07 and control working environment within containment according to the criteria listed in Item 1.08.

B. Thoroughly examine the structure to be prepared to verify its ability to support a containment system, including the wind loads, if any that can be imparted by such a system. Submit containment drawings in accordance with the requirements of Item 1.05.

1.07 Criteria for Control of Environmental Emissions

A. Ambient Air Quality – Particulate Matter and Visible Emissions: Monitor and control ambient air particle matter and visible emissions in accordance with the following criteria:

1. Ambient Air Quality for Particulate Matter (40 CFR 50): Emissions in excess of 150 ug/m^3 of PM 10 over a 24-hour period shall be cause for shut down of the project, until corrections to the containment are made to comply with this level. Use high volume air samplers in accordance with 40 CFR 50 to monitor for this level. Prior to project startup, perform a minimum of three days baseline monitoring to determine pre-existing conditions.

2. Ambient Air Quality – Visible Emissions: Visible emissions shall be used as a criterion for project shut down until corrections to the containment are made. Visible emissions shall be determined in accordance with 40 CFR 60. As determined by SSPC Guide 61, visible emission in excess of 20 percent capacity for any 3-minute period in 60 minutes, shall be cause for shut down of the project until corrections to the containment are made to comply with this level.

B. Ambient Air Quality – Lead Emissions: Monitor and control ambient airborne lead concentration to conform to the EPA Limit of 1.5 µg/m^3 average over a 90 day period. Emissions of lead in excess of 15 µg/m^3 over an eight hour period shall be cause for shut down of the project until corrections are made to comply with this level. Airborne lead monitoring shall be accomplished using high volume air samplers in accordance with 40 CFR 50. (Refer to Item 1.05 A.2.a.)

C. Ambient Air Quality for Lead – Personal Air Monitoring to Establish Regulated Areas:

1. Establish a regulated area surrounding activities where lead exposures

exceed the OSHA Personal Exposure Level (PEL) (refer to Item 1.08). This includes the paint removal area, dust collection equipment, abrasive recycling equipment, and locations where lead-containing debris is handled or transferred to storage containers.

2. Demarcate the regulated area by use of ropes, tape, walls, or other similar means, and post appropriate warning signs. Limit access to these areas to those persons properly trained and protected.

D. Water Quality: Do not allow the release of lead into bodies of water or storm sewers. Stop work if spills or emissions are observed entering into bodies of water, or are found in areas where storm water run-off could carry the debris into bodies of water or storm sewers.

1. NPDES Permit: If waste water is discharged to storm sewers or surface water, an NPDES permit shall be obtained in accordance with the requirements of 40 CFR 122. The requirements of the permit shall be strictly followed.

2. The Contractor is advised that certain discharges of lead compounds into water are a violation of the Clean Water Act. More specifically, 40 CFR 117.3 establishes reportable quantities of hazardous substances released in a 24-hour period, and 40 CFR 117.21 requires immediate notification of the release of a reportable quantity to the appropriate agency (in Michigan, the Michigan Department of Natural Resources). Examples of reportable quantities of lead compounds include: lead arsenate $\geq$ 1 lb., lead sulfate $\geq$ 10 lb., lead acetate $\geq$ 10 lb., lead stearate $\geq$ 10 lb.

3. Provide protection at drains to prevent paint debris from entering the storm sewer system.

1.08 Criteria for Controls over Worker Protection

A. Submit written program for worker protection consistent with OSHA lead standard for construction (29 CFR 1926.62)

B. In addition to the requirements of the OSHA lead standard for construction, the written program shall apply:

1. Name the individuals responsible for implementing the various requirements of the written program.

2. Specify that analysis of air monitoring filters shall be performed by an American Industrial Hygiene Association (AIHA) accredited laboratory.

3. Require that blood level testing shall be conducted by an OSHA-

approved laboratory.

4. Include the name, address, and telephone number of the hospital to which injured workers will be taken, and a map showing the route to be traveled.

5. Include the telephone number of the ambulance service to be used.

6. Include the emergency telephone numbers of the local police and fire departments.

7. Include specifications for the construction of a work area containment. The containment shall be designed to contain debris generated by the removal process applied (such as dust, waste paint, waste abrasive, and water), in accordance with Item 1.06. Information on the design of containment can be found in Appendix F of OSHA Asbestos Standards for the Construction Industry, 29 CFR 1926.58, and Chapter 6 of the "Industrial Lead Paint Removal Handbook".

8. Identify the location at which Material Safety Data Sheets (MSDS) will be maintained and identify the individual responsible for compliance with the OSHA hazard communication standard (29 CFR 1910.1200).

9. Include the following minimum emergency response requirements:

   a. The site Health and Safety (H&S) coordinator (or site superintendent if no H&S coordinator is designated) shall assure someone trained in first aid and cardiopulmonary resuscitation (CPR) is present during normal working hours. The site H&S coordinator shall assure that a first aid kit and appropriate fire extinguishers are available at the site and shall inform site workers of their location. The H&S coordinator shall contact the medical facility identified in Item 1.08 to determine if it has facilities to accept workers contaminated with debris present at the site.

   b. In the event of a worker injury, the responding worker shall inform the site H&S coordinator. The site first-aider shall perform first aid. If the worker should be taken to a medical facility, the designated first-aider shall decide whether to decontaminate the worker beforehand, or transport the worker without being clean.

   c. In the event of a fire, the site H&S coordinator shall determine whether conditions warrant assistance from the fire or police department and shall call for assistance. In the absence of the H&S coordinator, the site superintendent shall make the determination.

1.09 Criteria for Handling of Hazardous Waste and Reporting Releases

A. The Owner is considered to be the generator of the waste for this project. The contractor is responsible for implementing the following:

1. Sampling and testing of debris:

   a. Representative samples of the debris shall be tested by TCLP according to method EPS SW-846 to determine if it is hazardous in accordance with Appendix II of 40 CFR 261.

   b. In the case of wet methods of preparation, the use of chemical strippers, or containerized hygiene water, all liquids and sludge shall be tested, including pH to determine corrositivity, if appropriate.

2. Hazardous waste: If the tests of the sampled debris indicate the waste to be hazardous, the following requirements apply:

   a. Site Storage and Handling: Store and handle the on-site hazardous waste debris in accordance with the requirements of 40 CFR 262 and 40 CFR 265, with special attention given to proper labeling, time of storage, amount of material stored at any one time, use of proper containers, and personnel training. Confirm that an EPA identification number will be obtained, if one has not already been assigned to the facility. Do not place paint debris on the unprotected ground. Adequately shield paint debris to prevent dispersion of the debris by wind or rain water. Provide preparedness, prevention, and contingency plans (PPCP) in accordance with 40 CFR 265 Subpart C and Subpart D for the steps to be taken in the event of an unplanned release or emergency. Evidence of improper storage shall be cause for immediate shutdown of the project until corrective action is taken.

   b. Transportation and Disposal of Debris: Arrange to have the debris transported from the site in accordance with the requirements of 40 and 40 CFR 268. Use only licensed transporters and disposal facilities. Provide signed manifests to verify that all steps of the handling and disposal process have been completed properly.

   c. Clearance Testing: Thoroughly vacuum, wash, or otherwise decontaminate reusable items prior to removal from the project site. Items include, but are not limited to, equipment, containment materials, ground covers, scaffolding, and change and shower facilities. If adequate cleaning is not possible, the materials shall be treated as waste and tested and disposed of properly.

   d. CERCLA Release – The Contractor is advised that the discharge of one or more pounds of lead waste or dust (4 mils or less in diameter) into the atmosphere or water within a 24-hour period is considered a reportable release in accordance with 40 CFR 300 and 40 CFR 302.

1.10 Record Keeping and Abatement Management

A. Document and maintain records of the abatement process. Submit the records upon completion of the abatement of an area, and prior to final payment. The records for each abated area shall clearly describe in non-technical language where the lead was found, and how it was abated. At a minimum, the records shall also include the following:

1. Complete identification of area(s) receiving abatement.

2. Results of testing.

3. General description of abatement methods.

4. Results of abatement clearance inspections and tests.

5. Chronology of project-specific abatement from beginning of planning through final clearance testing.

6. Pertinent Federal, State, and Local requirements under which abatement was undertaken.

7. Final medical monitoring results.

8. Drawings clearly showing the location, extent and quantity of lead-based paint removal.

9. Any outstanding disposal manifests.

1.11 Third Party Inspection and Testing

A. The Contractor shall arrange and pay all associated costs for the services of an independent, third-party consultant who will perform the following activities:

1. Perform environmental monitoring to review compliance with the intent of the specification.

2. Perform a preliminary visual inspection as specified in Item 3.04 D.3.

3. Perform final inspections and clearance testing as specified in Items 3.05 and 3.06.

B. The third-party consultant shall have all appropriate certifications for providing the required testing and inspection services.

PART 2 - PRODUCTS

2.01 EQUIPMENT

A. HEPA vacuums: HEPA (High Efficiency Particle Air) vacuums differ from conventional vacuums in that they contain high-efficiency filters that trap extremely small, micron-sized particles. These filters can filter out particles of 0.3 microns or greater (from a body of air) at 99.97 percent efficiency or greater. Lead dust tends to break down into extremely fine, micron-sized particles. Vacuuming by conventional means is unacceptable at any time, especially in lead-paint abatement final cleanup, because much of the fine lead dust will simply be exhausted back into the environment. Consequently, the use of a HEPA vacuum is required.

1. Related attachments: As necessary for the conditions encountered, and including items such as brushes of various sizes, crevice tools, and angular tools.

B. Other equipment, including personal safety equipment, as necessary to comply with the requirements of this specification.

2.02 MATERIALS

A. High-phosphate detergent: Detergents with a high-phosphate content [containing at least 5 percent tri-sodium phosphate (TSP)].

1. Related cleaning supplies: As necessary to accommodate the conditions encountered, and including such items as wringer buckets, mops, squeegee sponge mops, variously sized hand sponges, and rags.

B. Polyethylene sheeting: 4-mil and 6-mil thickness

C. Polyethylene spray: Product approved for intended use by the manufacturer.

D. Miscellaneous materials such as storage drums, framing lumber, masking adhesive tapes, spray glues, stapling devices, as necessary to meet the requirements of this specification.

PART 3 - EXECUTION

3.01 SITE PREPARATION: PRIOR TO WORK START

A. Post warning signs at all entrances and exits to work areas. The warning signs shall read as follows:

"CAUTION LEAD HAZARD
DO NOT ENTER WORK AREA UNLESS AUTHORIZED"

B. Ensure that heat, electricity, and water are available in the areas to be abated. Ensure that there are no existing water leaks of any type (including from such

sources as roofs, windows, or plumbing related components).

C. Correct other conditions that can impede abatement or cause the abatement to fail.

D. Initiate containment procedures to protect surfaces and contain and control lead dust debris as specified in Item 3.02.

3.02 CONTAINMENT

A. If the abatement plan necessitates the breaking or disturbing of leaded surfaces or other dust generating procedures, and therefore the generation of lead dust, provide containment procedures in accordance with the criteria in Items 1.06 and 1.07 and as indicated below. If abatement does not break or disturb lead-painted surfaces, provide containment measures only as necessary to protect surfaces from damage.

B. The following materials may be used for containment:

1. Polyethylene (plastic) sheets at least 6 mils thick;

2. Heavy duty tape (e.g., duct tape) to fasten plastic sheets;

3. Staple gun with heavy duty staples for fastening plastic sheets.

C. Alternate products include:

1. Polyethylene spray instead of plastic sheeting (the dry film can be removed later by peeling);

2. Spray glue in aerosol can for fastening plastic sheets.

3.03 CONTROLLING OFF-SITE DISPERSAL

A. Limiting access: Prior to satisfactory clearance testing, limit access to the abatement work areas to the following:

1. Contractor and designated employees;

2. State, County or Local enforcement officials, or their designees;

3. Inspectors with a security interest in the building; and,

4. Federal, State or Local officials, or their designee, engaged in research on lead.

B. Limiting Tracking of Dust and Debris:

1. Persons entering a work area during a lead abatement project involving breaking or disturbing lead-painted surfaces shall wear disposable shoe

covers. The shoe covers shall be removed upon leaving the work area and placed with abatement waste.

2. Persons entering a work area during lead paint removal activity (e.g., by heat gun, scraping, HEPA sander, or chemical) or during replacement and during the cleanup process shall also wear appropriate respirator protection. Worker protection shall be in accordance with Item 1.08.

C. Program of On-Going Cleanup: Implement a program of on-going cleanup in the lead abatement work area. The frequency and intensity of cleaning will be the greatest with on-site paint removal methods, and methods that create a lot of construction debris. On-going cleanup shall include the regular cleaning of all tools, equipment, and worker protection gear to minimize worker exposure, and the risk of transferring lead to other job sites.

3.04 CLEANUP

A. General:

1. Perform cleanup activities as previously specified and as indicated in this item.

2. Coordinate abatement activities to ensure proper conformance to the project cleanup requirements.

B. Cleanup Methods and Procedures: The following two basic cleaning methods shall be used to clean the surfaces of the galleries at the conclusion of the active lead based paint abatement activities:

1. Dry cleaning method, using HEPA vacuums:

a. Operation instructions: Operate the HEPA vacuum in accordance with the requirements and recommendations of the vacuum manufacturer. If possible, arrange training sessions with the manufacturer's representative.

b. Special attachments needed: Ensure that a variety of vacuum attachments (such as brushes of various sizes, crevice tools, and angular tools) are available to accommodate the conditions encountered. Ensure that the attachments are properly used.

c. HEPA vacuuming procedures: Include all rooms of the property in this HEPA process, except for rooms that were found free of lead paint and lead dust before the abatement process began, and were never entered during the process:

i. Thoroughly and completely vacuum all abated surfaces in the abatement area. These surfaces include, but are not limited to: ceilings, walls, floors, pipes and fixtures of any

kind (light, electrical).

ii. Thoroughly and completely vacuum all unabated surfaces exposed to lead dust generated by the abatement process.

iii. Start vacuuming at the ceilings and work down to the floors. Pay particular care to rough or porous surfaces, such as weathered or worn surfaces and masonry surfaces, particularly concrete, where lead dust tends to tenaciously adhere.

d. Maintenance of the HEPA vacuum: Properly maintain HEPA vacuums in accordance with the vacuum manufacturer's instructions.

i. Use extreme caution when opening the HEPA vacuum for filter replacement or debris removal, due to the high potential for accidental release of accumulated lead dust into the environment. This can occur if the vacuum's seal has been broken and the vacuum's bag is disturbed.

ii. Operators shall wear a full set of protective clothing and equipment, including appropriate respirators, when performing these maintenance functions.

2. Wet cleaning method, using a high phosphate detergent wash:

a. Manufacturer's instructions: Carefully follow the specific manufacturer's instructions for the proper use of the product, especially the dilution ratio recommended. Wear waterproof gloves when handling the detergent wash to prevent skin irritation.

b. Cleaning equipment: Ensure that a variety of cleaning equipment is available (such as wringer buckets, mops, squeegee sponge mops, variously sized hand sponges, and rags) to accommodate the conditions encountered. Ensure that the cleaning equipment is properly used.

c. Wet cleaning procedures:

i. After the HEPA vacuuming, thoroughly and completely wash all surfaces in the abatement area with the high phosphate solution. These surfaces include, but are not limited to: ceilings, walls, floors, doors and fixtures of any kind (light, electrical).

ii. Thoroughly and completely wash all unabated surfaces exposed to lead dust generated by the abatement process.

iii. Begin the washing activities at the ceilings and work down to the floor.

iv. Change cleaning mixture regularly: To avoid re-contaminating the area by using overly dirty water, users should carefully follow the surface area limits provided by the manufacturer and change the cleaning mixture accordingly. In cases where the manufacturer does not indicate surface area limits, the cleaning mixture should be changed at least after each room has been washed. Each time the cleaning mixture is changed, users must ensure that the dirty water does not recontaminate the environment.

C. Special Procedures During Abatement:

1. Daily cleanup: Perform the following cleanup activities daily. Handle, store, and dispose of debris in accordance with Items 1.09 and 1.10.

a. Small debris: Spray the affected surfaces with a fine mist of water, to keep surface dust from becoming airborne. Place the swept debris in double 4-mil or single 6-mil plastic bags, properly seal the bags, and move them to the designated trash storage area. Do not overload trash bags to ensure that no ruptures or punctures occur during handling and transport.

b. During daily cleanup activities, workers shall wear protective clothing and equipment. Also, during daily cleanup activities, abatement workers shall inspect for areas of the plastic requiring repair. Holes and rips found shall be patched with 6-mil plastic and duct tape immediately after cleaning.

D. Special Procedures After Abatement:

1. Preliminary final cleanup: Prior to final cleanup and painting or sealing of the abated surfaces, remove and properly dispose of the plastic sheeting used for containment.

a. Begin removals with the upper-level plastic. Spray or mist the plastic with water to hold down dust and then fold the plastic in upon itself to trap any dust residue inside.

b. Before removal of floor plastic, spray the plastic and sweep as indicated in Item 3.04C. Fold the plastic carefully from the corners/ends to the middle to trap any remaining lead dust. Place the plastic into double 4-mil or single 6-mil plastic bags, properly seal the bags, and remove the bags from the premises.

c. As with daily cleanups, this plastic removal process requires the use of protective equipment, especially appropriate respirators.

d. Do not remove plastic sheets used to isolate contaminated rooms from non-contaminated rooms at this time. These sheets shall remain in place until after the preliminary final cleanup is complete and then carefully removed as described above.

e. After the plastic has been removed from the contaminated area, perform the following cleanup activities:

i. HEPA vacuum the entire area as specified in Item 3.04 B.1. Start with the galleries farthest from the entrance to avoid re-tracking dust through the already-cleaned area. In each gallery, begin vacuuming at the ceilings and proceed down the walls, making sure every surface is treated, including, but are not limited to: ceilings, walls, floors, pipes and fixtures of any kind (light, electrical).

ii. Wash down the entire affected area with a high phosphate detergent as specified in Item 3.04 B.2.

iii. HEPA-vacuum the affected area again, as specified in Item 3.04 B.1.

2. Cleaning of workers, tools, equipment and vehicles:

a. Personal hygiene: Workers shall carefully follow the personal hygiene procedures of 29 CFR 1926.62.

b. Supplies: Regularly replace consumable/disposable supplies, such as mop heads, sponges, and rags, at least at the end of each abatement project or monthly, whichever comes first. Treat soiled items as contaminated debris.

c. Equipment: Clean durable equipment, such as power and hand tools, generators, and vehicles, at least at the end of each abatement project or monthly, whichever comes first. This cleaning shall consist of a thorough HEPA vacuuming and washing with a high phosphate solution.

3. Preliminary visual inspection:

a. After the preliminary final cleanup effort is completed, the independent, third-party consultant shall visually inspect the entire affected area to ensure that all surfaces requiring abatement have been addressed, and all visible dust and debris have been removed. If the results of the visual inspection are unsatisfactory,

affected surfaces shall be re-abated and/or re-cleaned, in accordance with the inspector's instructions, at the Contractor's expense, until satisfactory results are achieved.

4. Final cleanup: After painting/sealing is complete, perform the following final cleanup activities in the entire affected area:

   a. HEPA-vacuum the area as specified in Item 3.04 B.1.

   b. Wash down the area with a high phosphate detergent as specified in Item 3.04 B.2.

   c. HEPA-vacuum again as specified in Item 3.04 B.1.

5. Final inspection:

   a. After the final cleanup is complete, the independent, third-party consultant shall perform a final inspection to:

      i. Verify that the abatement work is in compliance with the specifications.

      ii. Detect the presence of lead dust.

   b. The Owner's Environmental Consultant will perform both a visual inspection and clearance testing of lead levels in surface dust as specified in Items 3.05 and 3.06.

3.05 Post-Abatement Visual Inspection

A. The independent, third-party consultant shall confirm job completeness by determining whether all surfaces have been abated according to the approved abatement plan. Special attention will be given to areas where lead paint has been removed adjacent to paint that is intact (for example, where paint has been removed from a door frame but non-lead paint is left on the baseboard). Ensure that paint at this joint is sound. The independent consultant shall verify that all abated surfaces and floors have been repainted or otherwise sealed.

B. The independent, third-party consultant shall determine whether the area has been adequately cleaned by observing all surfaces for dust and debris.

3.06 Testing Associated with the Clearance Process

A. Upon completion of final cleanup and post-abatement visual inspection, the independent, third-party consultant shall test remaining surface dust to verify that only acceptable levels of lead dust remain before returning the area to active operation. This surface dust testing process is referred to as clearance criteria.

   1. Surface dust sampling and testing shall be performed no sooner than 24

hours after completion of post-abatement cleanup activities, to allow any airborne lead dust present to settle

a. The surface wipe sampling method will be used for surface dust sampling. This method uses commercial wipes moistened with a non-alcohol wetting agent. Surface dust sampling will not be performed if there is a visible accumulation of dust or debris. In this case, surface wipe sampling will be deferred until the contractor completes a thorough cleanup.

2. Upon determination that lead dust is within acceptable levels the independent third-party consultant shall issue an “Authorization for Re-Occupancy” and “Certification of Visual Inspection”.

3.07 Waste Disposal - General

A. Prior to the start of abatement operations, determine which waste materials may be hazardous. Keep hazardous waste segregated from solid waste, so that proper disposal of the waste material can be achieved.

B. Do not leave waste on the property in an unsecured area. Do not dump waste by the roadside, or in a nearby unauthorized dumpster. Do not burn or incinerate waste, due to the danger from lead fumes.

C. Do not flush lead-contaminated wash water into storm drains or sanitary sewers without permission of local authorities.

3.08 Solid Waste (Non-Hazardous) Disposal:

A. Dispose of solid waste which has been evaluated and determined not to be hazardous in a State approved landfill. Wrap large debris in 6-mil plastic, seal with tape, and move to the trash storage area.

B. Transport the waste to the disposal facility in covered vehicles. Do not use residential or commercial trash collection services without approval of State and local authorities. Covered dumpster services are acceptable, if the service company is informed of the presence of lead, and that appropriate disposal methods are used.

3.09 Hazardous Waste Disposal

A. Dispose of hazardous waste at a hazardous waste disposal facility, usually called a treatment storage and disposal facility (TSD). A TSD shall have an EPA ID number and authorization (either a permit or “interim status”) to operate. It is the responsibility of the abatement contractor to ensure that the TSD meets all legal requirements. The TSD can advise on appropriate packaging of waste, restrictions on disposal (e.g., liquids in landfills), and technical issues, such as methods for removing liquids from wastes.

B. Transporters shall have an EPA ID Number and must meet U.S. Department of Transportation (DOT) requirements for shipping containers. A good transporter will be able to advise the abatement Contractor on bagging and special handling of hazardous wastes.

C. Take special care when removing hazardous waste from the abatement site, in order to avoid environmental contamination or injury to workers or residents. While in the work area, the exterior of the filled waste containers shall be HEPA vacuumed and wet-wiped to remove residual contamination. If plastic bags are used, they shall be bagged again as they come out of the work area. Remove waste from work areas at times when employee use of hallways and stairwells is low. The path from the work area to the truck or dumpster shall be planned in advance to minimize contacts with employees.

D. Containers shall be moved and packed into the truck with care. When possible, use hand trucks, dollies, or pull cars, along with ramps or trucks with lift gates. These procedures will help minimize container breakage and consequent exposure of residents or employees to hazardous waste.

E. Submit signed manifests to verify that all steps of the handling and disposal process have been completed properly.

END OF SECTION 02085