

SECTION 01 11 00

SUMMARY OF WORK

PART 1 GENERAL

1.1 SUMMARY

1. The work to be performed under this project consists of providing the labor, equipment and materials to restore parts of Test Stand B2 as shown on the associated contract documents. Test Stand B2 (TS B2) is the eastern "half" of the B-Stand Complex.
2. The project scope includes three Packages:
 - a. The Refurbishment of the Aspirator per EMI 12NCBZ 10.
 - b. Refurbishment of the Level 7 Rolling Deck per EMI 12NCBZ 11.
 - c. Refurbishment of the Level 7 Fixed Platforms, New Stairs and Diving Board per EMI 12NCBZ 12.

The following are common to all three Packages:

1. They are approximately 100 feet above grade.
2. Assume all metal surfaces contain lead and PCB's. These materials must be contained and collected per environmental regulations contained in this specification.
3. Steel surface preparation and weather conditions for coating application onsite and offsite Stennis Space Center will meet the manufacturer's instructions or NASA standards and specifications. The more restrictive limitations in these documents will be enforced.
4. All materials and equipment removed from the test stand are NASA property. Salvaged material will be removed from the test stand undamaged. Demolished steel will be disposed of in one of two ways:
 - a. NASA will provide appropriate bins for demolished materials.
 - b. The contractor will dispose of demolished materials and provide monetary credit to NASA. Haul routes are highways North or South from SSC or by marine barge through the SSC navigation lock system. Use of the Navigation Lock system will be coordinated through the NASA COTR.
5. The Contractor may use the Main Derrick Crane as indicated in the Contract Documents.

1.1.1 EMI 12NCBZ 10 Aspirator

The existing corroded aspirator is to be demolished and replaced by a new, nearly direct replacement aspirator. The aspirator is a stiffened carbon steel welded plate structure.

The north and south sides of the aspirator abut the Level 7 rail support girders which require 5/8" thick cover plates top and bottom nearly the full length. The aspirator is a plate structure subjected primarily to loads from hot, pressurized gases.

The drawings show eight pieces of infill as gray areas on the primary plans. These are not to be fabricated, furnished or installed in this

1.3.2 Required Submittals

- EMR documentation from insurance carrier
- OSHA logs (last 3 years)
- OSHA/NASA violation summaries (last 3 years)
- Written Safety and Health Manual with applicable procedures
- Accident/Incident Investigation Procedure
- Unsafe Condition Reporting Procedure
- Safety and Health Orientation Outline
- Safety and Health Training Plans for project
- Applicable training records as requested
- Activity Hazard Analysis Procedure and form
- Job site Safety and Health Inspection Procedure and forms used
- Safety and Health evaluations for subcontractors
- Safety and Health Incentive Program, and Examples
- Resume(s) of qualified Safety and Health Professional(s) and names of competent persons per area of competency
- Safety and Health awards/recognition
- Contractor Personnel Contact Information
- Safety and Health Plan re-submittal
- Pre-Use Planning for Hazardous Operations
- Permit Applications
- Storm Water Pollution Prevention Plan
- Construction Project Hazard Analysis (CPHA) form SSC-853
- Material Safety Data Sheets
- List of all Hazardous Material
- Monthly usage report
- Exposure Monitoring
- Hazardous Waste Documentation
- Mishap Exposure Report
- Abrasive Blasting Report
- Affirmative Procurement Materials List Report
- Report detailing the type(s) and amount(s) of Paint used
- SSC-883, Sustainable Acquisitions Report

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION

3.1 GENERAL SAFETY PROVISIONS

The Contractor shall read and understand all the Safety and Health policies and procedures provided, and fully understand and comply with applicable Governmental regulations related to their business and the project. This information is available for download from <http://constructionsafety.ssc.nasa.gov>.

NASA will not be liable to reimburse or increase funding to cover expenses incurred by discoveries of non-compliance or unforeseen and/or misunderstood compliance responsibilities of the Contractor.

The Contractor shall take all reasonable safety and health measures in performing work under this Contract. The Contractor is subject to (1) all applicable Federal, State, and local laws, regulations, ordinances, codes, and orders relating to safety and health in effect on the date of this Contract; and (2) compliance with safety and health standards, specifications, issuances, reporting requirements, and provisions in the current Stennis Space Center SPR 8715.1, Safety and Health Program

Requirements, and SCWI-8715-0008, John C. Stennis Space Center Construction Safety and Health Program.

The Contractor shall provide an up-to-date and well-written safety and health program designed to address the hazards/risks of the work performed and applicable governmental regulations. This shall be demonstrated by providing a copy of the safety plan, procedures, and associated forms that are tailored to fit the work at NASA SSC. This Plan shall be approved by the NASA Contracting Officer's Technical Representative (NASA COTR) prior to commencement of work.

After acceptance of the Safety and Health Plans, the Contractor shall notify the NASA COTR in writing a minimum of fourteen (14) calendar days prior to any proposed change. Proposed changes must be submitted to the Office of SMA for approval prior to any work being performed within the scope of the proposed changes.

The Contractor shall proactively manage the project through demonstrated actions of management commitment, employee involvement, worksite analysis, hazard prevention and control, and safety and health training.

The Contractor shall manage all related safety and health records so they are available for review and audit by NASA SSC.

3.2 TRAINING AND ORIENTATION

Prior to starting work at SSC, all Construction project managers, superintendants, supervisors (i.e., foremen, crew chiefs) and each construction employee shall complete the Basic Orientation Plus program (Code 08BG) and the NASA SSC Safety and Health Orientation (Code 08SSC) presented by the Gulf Coast Safety Council (GCSC). This program can be attended at any of the 26 reciprocal Safety Councils throughout the United States that are associated with the GCSC. This training will be current within two years.

(Contact can be made at <http://www.gulfcoastsafetycouncil.com> to locate the nearest council.) All arrangements and payments shall be the responsibility of the Contractor.

If it is not possible to attend the GCSC Basic Orientation program, then OSHA 10-hour (Construction Industry) training for contractor employees and 30-hour (Construction Industry) training for Managers, Supervision and Safety and Health professionals will be required. This training will also be current within two years and is also available through the GCSC. Note: All contractor employees regardless of position are still required to participate in the NASA SSC Safety and Health Orientation and provide a credential within one year of attendance.

OSHA 30-hour, 10-hour, and Orientation plus training shall not take the place of topic-specific training required under OSHA regulations, such as Confined Space Entry, Lockout, Fall Protection, and Respiratory Protection, etc.

Documentation of training and orientation must be available at the jobsite for auditing purposes. Contractor employees shall show proof of Training and Orientation to the government or their representative(s) when challenged to do so. Failure to provide a current credential will result in temporary loss of job site access until one has been obtained.

SECTION 01 35 31

PROJECT/CONTRACT SAFETY REQUIREMENTS FOR THE CONSTRUCTION, DEMOLITION, AND/OR
OPERATIONS/MAINTENANCE ON MULTI-LEVEL, OPEN STRUCTURES

PART 1 GENERAL

1.1 SUMMARY

The requirements of this Section apply to, and are a component part of, each section of the specifications and is complementary to Section 01 35 30, "PROJECT/CONTRACT SAFETY, HEALTH AND ENVIRONMENTAL REQUIREMENTS AND GUIDELINES."

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION (NASA)

NPR 8715.3 NASA Safety Manual

STENNIS PROCEDURAL REQUIREMENTS (SPR)

SPR 8715.1 SSC Safety and Health Procedural Requirements

SSP-8715-0001 SSC Safety and Health Handbook

STENNIS COMMON WORK INSTRUCTION (SCWI)

SCWI-8715-0008 SSC Construction Safety and Health Program

SCWI-8715-0012 SSC Work in Hazard Classification Areas

SCWI-8838-0002 SSC Hot Work Program Procedure

SCWI-8834-0001 SSC Lifting Devices and Equipment Management Plan

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

29 CFR 1910 Occupational Safety and Health Standards

29 CFR 1926 Safety and Health Regulations for Construction

ASTM INTERNATIONAL (ASTM)

ASTM F2413-11 Standard Specification for Performance Requirements for Protective (Safety) Toe Cap Footwear

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI Z87.1 Occupational and Educational Eye and Face Protection
ANSI Z89.1 Protective Headgear for Industrial Workers
ANSI.ASSE A10.11 Safety Requirements for Personnel and Debris Nets - American National Standard for Construction and Demolition

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 101 Life Safety Code

U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1 (2008; Errata 1-2010; Changes 1-3 2010; Changes 4-6 2011) Safety and Health Requirements Manual

CONTRACT SPECIFICATIONS

SECTION 01 35 30 Project/Contract Safety, Health and Environmental Requirements and Guidelines

SECTION 01 33 00 Submittal Procedures

1.3 SUBMITTALS

The following shall be submitted in accordance with Section 01 33 00 SUBMITTAL PROCEDURES in sufficient detail to show full compliance with the specification:

SD-01 Preconstruction Submittals

Applicable training records as requested
Construction Project Hazard Analysis (CPHA) form SSC-853 or equivalent
Scaffold erection plans
Falling object prevention plan
Demolition plan
Lift plans for critical and/or engineered crane lifts
Fire prevention plans

SD-03 Product Data

Falling Object Prevention

SD-07 Certificates

Crane Operator/Rigger Certifications
Crane and rigging certifications
OSHA Subpart Z training certifications/qualifications (as applicable)

1.4 REQUIRED REFERENCES

NPR 8715.3

SPR 8715.1
SCWI-8715-0008
SCWI-8715-0012
SCWI-8838-0002
SCWI-8834-0001
SSP-8715-0001
29 CFR 1910
29 CFR 1926
ASTM F2413-11
ANSI Z87.1
ANSI Z89.1
ANSI ASSE A10.11
NFPA 101
EM 385-1-1

1.5 REQUIRED SUBMITTALS

Applicable training records as requested
Construction Project Hazard Analysis (CPHA) form SSC-853 or
equivalent
Scaffold erection plans
Falling object prevention plan
Demolition plan
Lift plans for critical and/or engineered crane lifts
Fire prevention plans
Falling Object Prevention
Crane Operator/Rigger Certifications
Crane and rigging certifications
OSHA Subpart Z training certifications/qualifications (as
applicable)

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION

3.1 GENERAL SAFETY PROVISIONS

The Contractor shall take all safety measures prescribed herein for the construction, demolition, and/or operations/maintenance on multi-level, open structures required in performing work under this contract. The standards are applicable to all contractors on site; the contractor is responsible for their personnel and for familiarizing each of their subcontractors with the requirements of this section.

These criteria prescribe minimum standards for preventing employee exposure to dangerous activities and conditions associated with working on multi-level, open structures. The contractor is subject to all applicable Federal, State and local laws, regulations, ordinances, codes, orders and Stennis Space Center Policies and Procedures relating to safety and health in effect on the date of this contract; with the following more stringent exceptions:

3.2 SPECIFIC SAFETY REQUIREMENTS

3.2.1 Work Activity Coordination.

The Contractor shall coordinate all activities associated with this contract in advance to eliminate/preclude instances of contractor and subcontractor employees working on levels directly above or below each

other. (See exceptions/conditions in paragraph 3.2.5).

3.2.2 Contractor Coordination.

The Contractor shall be aware of other activities taking place on the multi-level, open structure to include normal facility operations and additional construction/demolition/maintenance activities, and shall coordinate work activities in advance with the Contracting Officer or designee prior to commencement of activities, to eliminate instances of contractor and subcontractor employees working on levels directly above or below facility occupants and/or other contractors.

(See exceptions/conditions in paragraph 3.2.5).

3.2.3 Personal Protective Equipment.

The minimum required Personal Protective Equipment (PPE) for construction on multi-level, open structures shall be ASTM compliant leather safety boots, safety glasses, hard hat and highly visible vest/shirt (or high visibility hard hat brim/neck shades).

3.2.4 Activity Hazard Analyses

The Contractor and subcontractors shall prepare and document daily task-specific Activity Hazard Analysis (AHA). The AHA shall be developed by the crew assigned to perform the work with guidance from their Supervisor. The Supervisor identifies the work area and task to be performed and then leads the crew in developing an AHA. The Supervisor shall solicit crew participation in identifying hazards and hazard control measures such as PPE, training requirements, permits, procedures, etc. Crew members are required to sign the AHA document to indicate their participation, their understanding of the plan, and their agreement to follow the plan. The AHA shall be readily available to all crew members and updated as conditions change.

3.2.5 Overhead Work

In the event the Contractor cannot preclude/eliminate instances of contractor and subcontractor employees working directly above or below one another (per paragraph 3.2.1) and/or cannot preclude/eliminate instances of their contractor and subcontractor employees working directly above or below normal facility operations and other construction/demolition/maintenance activities (per paragraph 3.2.2), then the Contractor shall proceed with the following:

3.2.5.1 Protection of Personnel.

Include provisions for keeping all personnel working at lower elevations safe from falling objects, as well as, ensuring their workers are safe from falling objects from work above per 29 CFR 1926.501(c). The scope of work requires the Contractor to describe and execute their plans to protect their workers, as well as, to protect other personnel and workers potentially affected by their work. Falling objects can include but are not limited to items such as large pieces of equipment and piping, as well as, hand tools and radios. At a minimum, hand-held tools, equipment and Personal Protective Equipment (e.g. hard hats) shall be tethered when working in areas where they may fall to lower levels.

3.2.5.1.1 Protective Measures and Controls.

Additional protective measures include but are not limited to the installation of horizontal and/or vertical netting/screens, barricaded areas (safety zones), buckets/bags for small material/equipment, and working alternate (pre-approved) schedules.

3.2.5.1.2 Barriers.

The Contractor shall erect barrier(s) (planking or safety netting) to protect workers and personnel below from potential falling debris from their operations, to include protection for facilities/structures that require continued occupancy throughout the duration of this contract.

- a. The barrier(s) shall be designed/manufactured/rated to sustain the force of a falling part from the highest working level weighing up to an estimated 100 lbs.
- b. The barrier(s) mesh/opening shall be sized to capture small parts such as nuts, washers, bolts, tools, etc.
- c. Netting; if used shall comply with ANSI ASSE A10.11-1989 (R1998) "Safety Requirements for Personnel and Debris Nets - American National Standard for Construction and Demolition". For safety netting, the following OSHA Construction e-tool provides a summary of the inspection, certification and testing requirements:
<http://www.osha.gov/SLTC/etools/construction/falls/safetynet.html>.

3.2.5.2 Protection of Equipment and Structures.

The requirements of Item 1 of this Subpart 3.2.5 shall also apply to protecting equipment, machinery, and structural components of the multi-level open structure or general area operations subject to damage from falling objects/debris/equipment from the contractor's construction, demolition, and/or operations/maintenance.

3.2.6 Scaffolds

3.2.6.1 Scaffold Uplift.

Due to the configuration of multi-level open structures and typical weather conditions at Stennis Space Center, winds are anticipated to cause uplift on scaffolding. Scaffold panels shall be locked together vertically by pins or their equivalent per 29 CFR 1910.28(d)(6).

3.2.6.2 Scaffold Self Closing Gates.

All working levels of scaffolding shall have self-closing access gates. Non-working levels shall have walk off protection.

3.2.7 High Hazard Areas/Conditions.

The Contractor shall install barricades/physical barriers to prevent access to high hazard areas and/or conditions (i.e. missing stair cases, guard rails, holes etc). If a common access or egress route is altered or blocked, the Contractor shall:

- a. Obtain approval from The Contracting Officer's Technical Representative (NASA COTR) to establish an alternate route of access or egress.
- b. Communicate the changed conditions to all affected occupants and

workers.

- c. Provide sufficient signage of the alternate route.
- d. Meet or exceed applicable OSHA requirements for the construction and maintenance of barricade, barriers and/or guard rails.
- e. Maintain access/egress compliant with NFPA 101.

3.2.8 Demolition Plan.

Prior to commencing any demolition work, the contractors shall prepare a comprehensive demolition plan detailing the safe means and methods of work, and sequence of demolition events in compliance with 29 CFR 1926.

EM 385-1-1, Section 23, Demolition, provides good guidance for preparing a demolition plan. No demolition work shall commence until an approved demolition plan is in place.

3.3 ELEVATED/SUSPENDED LOADS

3.3.1 Elevated Loads.

The Contractor shall not work below lifted/elevated loads.

3.3.2 Coordinated Lifts.

If the Contractor must lift a load over the work site/area of facility occupants and/or other contractor(s), the Contractor shall prearrange/coordinate the lifting activity with all affected parties and establish a designated fall area/safety zone for the lift.

3.3.3 Safety Zones for Lifts.

When other facility occupants and/or construction site contractors have prearranged/coordinated lifting loads above the work area, the Contractor shall move outside the designated fall area/safety zone during the lift.

3.4 FIRE PROTECTION

3.4.1 Hot Work

Contractor shall prevent sparks, embers, hot substances or flames from dropping to lower levels through the use of shielding, decking and/or fire blankets per the requirements of the SSC Hot Work Procedure (SCWI-8838-0002) and 29 CFR 1910.

3.4.2 Fire Watch

For instances that do not allow the containment of sparks, embers, hot substances and/or flames from falling to a lower level, the Contractor shall provide a qualified fire watch, with appropriate firefighting equipment at the effected lower level(s) in compliance with the SSC Hot Work Procedures and 29 CFR 1910 and in addition to standard fire prevention practices.

3.5 HOUSEKEEPING

3.5.1 Rocket Engine Tests.

Several multi-level, open structures at Stennis Space Center are used to support active rocket engine tests. Periodically, access to construction areas will be restricted. The contractor shall secure all tools, tool

boxes, equipment, machinery, building/demolition materials and appliances to protect them from wind, heat, water and/or vibration damage at the end of each day.

3.5.2 Daily Removal of Trash.

Contractor shall remove rubbish and debris from the project site daily, unless otherwise directed, to avoid accumulation. Materials that cannot be removed daily shall be stored in areas specified by the NASA COTR.

3.5.3 Dust Prevention.

Contractor shall prevent the spread of dust, debris, and other construction/demolition/maintenance fumes/mists/sprays to other portions of the multi-level, open structure and avoid the creation of a nuisance or hazard in surrounding areas.

3.5.4 Walking/Working Surfaces.

Due to the inherent fall hazards associated with working on multi-level, open structures, the Contractor shall maintain walking/working surfaces free from slip, trip and fall hazards to include materials, tools, hoses, leads and cords associated with each task. Contractor shall comply by:

- a. Limiting the placement of items on the walking/working to those required for the current task.
- b. Immediately removing items upon completion of task.
- c. Routing hoses, leads and cords intended for extended use away from or over walking/working surfaces.
- d. Providing, maintaining and emptying trash receptacles on each level of the structure.

3.5.5 Cords, Hoses and Welding Leads.

Cords, hoses and welding leads that ascend/descend multiple levels of the structure shall be secured to prevent structural damage to the cord, hose and/or lead due to the weight and/or wind conditions.

3.5.6 Locking and Tension Relief Mechanisms.

Connections for cords, hoses and welding leads that ascend/descend multiple levels of the structures shall be secured with locking and tension relief mechanisms to prevent damage to the connections and/or the inadvertent separation and potential damage to structure/injury to personnel. Locking and tension relief mechanisms shall be rated for the load/weight of the cords, hoses, and/or welding leads. If the locking and/or tension relief mechanisms damage/alter the structure, the Contractor shall return the structure to its original or intended state.

-- End of Section --

1.4 REGULATORY AND SAFETY REQUIREMENTS

Comply with federal, state, and local hauling and disposal regulations. In addition to the requirements of the "Contract Clauses," conform to the safety requirements contained in ASSE/SAFE A10.6.

1.5 DUST AND DEBRIS CONTROL

Prevent the spread of dust and debris to occupied portions of the building and avoid the creation of a nuisance or hazard in the surrounding area. Use wet methods. Wet methods shall be employed to suppress the generation and distribution of dust, paint chips, or debris. Wet Methods are defined as misting of surfaces with water, wet-mopping, wet-wiping using sponges or cloths, and wet-scraping of paint. Do not use water if it results in hazardous or objectionable conditions such as, but not limited to, ice, flooding, or pollution.

1.6 PROTECTION

1.6.1 General Requirements

It is solely the Contractor's responsibility to determine construction procedures and sequence to ensure the safety of the building and its components during construction. The structures have been designed for in-service loads when they are completely erected. The Contractor shall have his own Registered rigging engineer who determines the loads on structural elements at all phases of construction and evaluates the adequacy of those elements to resist the loads imposed during construction. The Contractor shall design and furnish whatever temporary shoring, bracing, falsework, guys or tie-downs for support of building components to prevent settlement or other movement that may be necessary. Such material shall remain the property of the Contractor and shall be removed after completion of the project.

1.6.2 Existing Conditions Documentation

Before beginning any demolition or deconstruction work, survey the site and examine the drawings and specifications to determine the extent of the work. Record existing conditions in the presence of the NASA COTR showing the condition of structures and other facilities adjacent to areas of alteration or removal. Photographs sized 4 inch by 6 inch will be acceptable as a record of existing conditions. Include in the record the elevation of the top of foundation walls, finish floor elevations, possible conflicting electrical conduits, plumbing lines, alarms systems, the location and extent of existing cracks and other damage and description of surface conditions that exist prior to starting work. It is the Contractor's responsibility to verify and document all required outages which will be required during the course of work, and to note these outages on the record document.

1.6.3 Items to Remain in Place

Take necessary precautions to avoid damage to existing items to remain in place, to be reused, or to remain the property of the Government. Repair or replace damaged items as approved by the NASA COTR. Coordinate the work of this section with all other work indicated. Construct and maintain shoring, bracing, and supports as required. Ensure that structural elements are not overloaded. Increase structural supports or add new supports, as may be

SECTION TABLE OF CONTENTS

DIVISION 02 - EXISTING CONDITIONS

SECTION 02 82 33.13 20

REMOVAL AND COLLECTION OF LEAD-CONTAINING PAINT

PART 1 GENERAL

- 1.1 REFERENCES
- 1.2 DEFINITIONS
 - 1.2.1 Action Level
 - 1.2.2 Area Sampling
 - 1.2.3 Competent Person (CP)
 - 1.2.4 Contaminated Room
 - 1.2.5 Decontamination Shower Facility
 - 1.2.6 Eight-Hour Time Weighted Average (TWA)
 - 1.2.7 High Efficiency Particulate Air (HEPA) Filter Equipment
 - 1.2.8 Lead
 - 1.2.9 Lead-Containing Paint (LCP)
 - 1.2.10 Lead-Based Paint Hazard (LBP Hazard)
 - 1.2.11 Lead Control Area
 - 1.2.12 Lead Permissible Exposure Limit (PEL)
 - 1.2.13 Personal Sampling
 - 1.2.14 Area Sampling
 - 1.2.14 Physical Boundary
- 1.3 DESCRIPTION
 - 1.3.1 Description of Work
 - 1.3.2 Coordination with Other Work
- 1.4 SUBMITTALS
- 1.5 QUALITY ASSURANCE
 - 1.5.1 Qualifications
 - 1.5.1.1 Qualifications of CP
 - 1.5.1.2 Training Certification
 - 1.5.1.3 Testing Laboratory
 - 1.5.1.4 Third Party Consultant Qualifications
 - 1.5.2 Requirements
 - 1.5.2.1 Competent Person (CP) Responsibilities
 - 1.5.2.2 Lead-Based Paint/Lead-Containing Paint Removal Plan (LBP/LCPRP)
 - 1.5.2.3 Occupational Sampling Results
 - 1.5.2.4 Occupational Assessment Data Report
 - 1.5.2.5 Medical Examinations
 - 1.5.2.6 Training
 - 1.5.2.7 Respiratory Protection Program
 - 1.5.2.8 Hazard Communication Program
 - 1.5.2.9 Hazard Waste Management
 - 1.5.2.10 Environmental, Safety and Health Compliance
 - 1.5.3 Pre-Construction Conference
- 1.6 EQUIPMENT
 - 1.6.1 Respirators
 - 1.6.2 Special Protective Clothing
 - 1.6.3 Rental Equipment Notification
 - 1.6.4 Vacuum Filters
 - 1.6.5 Equipment for Government Personnel

1.7 PROJECT/SITE CONDITIONS

1.7.1 Protection of Existing Work to Remain

PART 2 PRODUCTS

2.1 CHEMICALS

PART 3 EXECUTION

3.1 PREPARATION

3.1.1 Protection

3.1.1.1 Notification

3.1.1.2 Boundary Requirements

3.1.1.3 Heating, Ventilating and Air Conditioning (HVAC) Systems

3.1.1.4 Decontamination Shower Facility

3.1.1.5 Eye Wash Station

3.1.1.6 Mechanical Ventilation System

3.1.1.7 Personnel Protection

3.2 APPLICATION

3.2.1 Work Procedures

3.2.2 Personnel Exiting Procedures

3.2.2.1 Outdoor Paint Removal

3.3 FIELD QUALITY CONTROL

3.3.1 Tests

3.3.1.1 Air Sampling

3.3.1.2 Air Sampling During Paint Removal Work

3.3.1.3 Testing of Lead-Based Paint Residue and Used Abrasive

3.4 CLEANING

3.4.1 Cleanup

3.4.1.1 Clearance Certification

3.4.2 Collection and Storage of Waste

3.4.3 Hazardous/Non- Hazardous Waste

-- End of Section Table of Contents --

SECTION 02 82 33.13 20

REMOVAL AND COLLECTION OF LEAD-CONTAINING PAINT

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN INDUSTRIAL HYGIENE ASSOCIATION (AIHA)

AIHA Z88.6 (2006) Respiratory Protection

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

29 CFR 1926.103	Respiratory Protection
29 CFR 1926.21	Safety Training and Education
29 CFR 1926.33	Access to Employee Exposure and Medical Records
29 CFR 1926.55	Gases, Vapors, Fumes, Dusts, and Mists
29 CFR 1926.59	Hazard Communication
29 CFR 1926.62	Lead Exposure in Construction
29 CFR 1926.65	Hazardous Waste Operations and Emergency Response
40 CFR 260	Hazardous Waste Management System: General
40 CFR 261	Identification and Listing of Hazardous Waste
40 CFR 262	Standards Applicable to Generators of Hazardous Waste
40 CFR 263	Standards Applicable to Transporters of Hazardous Waste
40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
40 CFR 265	Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
49 CFR 172	Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response

Information, and Training Requirements

49 CFR 178

Specifications for Packagings

UNDERWRITERS LABORATORIES (UL)

UL 586

(2009) Standard for High-Efficiency
Particulate, Air Filter Units

1.2 DEFINITIONS

1.2.1 Action Level

Employee exposure, without regard to use of respirators, to an airborne concentration of lead of 30 micrograms per cubic meter of air averaged over an 8 hour period in an occupational/industrial environment.

1.2.2 Area Sampling

Sampling of lead concentrations within the lead control area and inside the physical boundaries, which is representative of the airborne lead concentrations but is not collected in the breathing zone of personnel.

1.2.3 Competent Person (CP)

As used in this section, refers to a person employed by the Contractor who is trained in the recognition and control of lead hazards in accordance with current federal, State, and local regulations. A Certified Industrial Hygienist (CIH) certified for comprehensive practice by the American Board of Industrial Hygiene or a Certified Safety Professional (CSP) certified by the Board of Certified Safety Professionals is the best choice.

1.2.4 Contaminated Room

Refers to a room for removal of contaminated personal protective equipment (PPE).

1.2.5 Decontamination Shower Facility

That facility that encompasses a clean clothing storage room, and a contaminated clothing storage and disposal rooms, with a shower facility in between.

1.2.6 Eight-Hour Time Weighted Average (TWA)

Airborne concentration of lead to which an employee is exposed, averaged over an 8 hour workday as indicated in 29 CFR 1926.62.

1.2.7 High Efficiency Particulate Air (HEPA) Filter Equipment

HEPA filtered vacuuming equipment with a UL 586 filter system capable of collecting and retaining lead-contaminated paint dust. A high efficiency particulate filter means 99.97 percent efficient against 0.3 micron or larger size particles.

1.2.8 Lead

Metallic lead, inorganic lead compounds, and organic lead soaps.

1.2.9 Lead-Containing Paint (LCP)

Lead-based paint or other similar surface coating containing lead or lead compound in excess of 0.06 percent by weight of the total nonvolatile content of the paint.

1.2.10 Lead-Based Paint Hazard (LBP Hazard)

Any condition that causes exposure to lead from lead-contaminated dust, lead-contaminated soil, lead-based paint that is deteriorated or present in accessible surfaces, friction surfaces, or impact surfaces that would result in adverse human health effects.

1.2.11 Lead Control Area

An enclosed area or structure, constructed as a temporary containment equipped with HEPA filtered local exhaust, which prevents the spread of lead dust, paint chips or debris existing as a condition of lead-based paint removal operations. The lead control area is also isolated by physical boundaries to prevent unauthorized entry of personnel.

1.2.12 Lead Permissible Exposure Limit (PEL)

Fifty micrograms per cubic meter of air as an 8 hour time weighted average as determined by 29 CFR 1926.62. If an employee is exposed for more than eight hours in a workday, the PEL shall be determined by the following formula:

$$\text{PEL (micrograms/cubic meter of air)} = 400/\text{No. hrs worked per day}$$

1.2.13 Personal Sampling

Sampling of airborne lead concentrations within the breathing zone of an employee to determine the 8 hour time weighted average concentration in accordance with 29 CFR 1926.62. Samples shall be representative of the employees' work tasks. Breathing zone shall be considered an area within a hemisphere, forward of the shoulders, with a radius of 6 to 9 inches and centered at the nose or mouth of an employee.

1.2.14 Area Sampling

Air quality measurements for lead must be determined following NIOSH ANALYTICAL method 7082 using personal monitors outside of areas or equipment that may potentially emit lead. Area sampling must be conducted at the established boundary line that demarcates that lead work area. Use of ropes, ribbons, tape, or other visible means to define the areas and prohibit entrance into the regulated area by unprotected and untrained personnel. The boundary line must ensure that the 8 hour time weighted average (TWA) is below the OSHA lead in construction Action Level (AL) of 30 micrograms per cubic meter. If the (AL) is exceeded, the Contractor must adjust their work practices and/or establish a new boundary line further from the work.

1.2.14 Physical Boundary

Area physically roped or partitioned off around an enclosed lead control area to limit unauthorized entry of personnel. As used in this section, "inside boundary" shall mean the same as "outside lead control area but inside the physical boundary."

1.3 DESCRIPTION

1.3.1 Description of Work

Remove lead-based paint / lead-containing paint as indicated on the drawings.

1.3.2 Coordination with Other Work

The Contractor shall coordinate with work being performed in adjacent areas. Coordination procedures shall be explained in the Removal Plan and shall describe how the Contractor will prevent lead exposure to other contractors and/or Government personnel performing work unrelated to lead activities.

1.4 SUBMITTALS

The following shall be submitted in accordance with Section 01 33 00 SUBMITTAL PROCEDURES in sufficient detail to show full compliance with the specification:

SD-01 Preconstruction Submittals

Lead Based Paint/Lead Containing Paint Removal Plan

Hazard Waste Management Plan

SD-03 Product Data

Respirators

Rental Equipment Notification

SD-06 Test Reports

Sampling results

Occupational Assessment Data Report

SD-07 Certificates

Qualifications of CP

Testing Laboratory qualifications

Training Certification of workers and supervisors

Third Party Consultant Qualifications

Lead-based paint/Lead-Containing paint removal Plan including CP approval (signature, date, and certification number)

Respiratory Protection Program

Hazard Communication Program

Hazard Waste Management Plan

Vacuum filters

Clearance Certification

SD-11 Closeout Submittals

Certification of Medical Examinations

Employee Training Certification

1.5 QUALITY ASSURANCE

1.5.1 Qualifications

1.5.1.1 Qualifications of CP

Submit name, address, and telephone number of the CP selected to perform responsibilities specified in paragraph entitled "Competent Person (CP) Responsibilities." Provide previous experience of the CP. Submit proper documentation that the CP is trained and licensed and certified in accordance with Federal, State, and local laws.

1.5.1.2 Training Certification

Submit a certificate for each employee, signed and dated by the approved training source, stating that the employee has received the required lead training.

1.5.1.3 Testing Laboratory

Submit the name, address, and telephone number of the testing laboratory selected to perform the air sampling, testing, and reporting of concentrations of lead. Use a laboratory accredited under the EPA National Lead Laboratory Accreditation Program (NLLAP) by either the American Association for Laboratory Accreditation (A2LA) or the American Industrial Hygiene Association (AIHA) and that is successfully participating in the Environmental Lead Proficiency Analytical Testing (ELPAT) program to perform sample analysis.

1.5.1.4 Third Party Consultant Qualifications

Submit the name, address, and telephone number of the third party consultant selected to perform the air sampling for determining concentrations of lead in the existing air. Submit proper documentation that the consultant is trained and certified as Supervisor/Competent Person for Deleading Industrial Structures.

1.5.2 Requirements

1.5.2.1 Competent Person (CP) Responsibilities

- a. Certify training as meeting all federal, State, and local requirements.
- b. Review and approve lead-based paint/lead-containing paint removal plan for conformance to the applicable referenced standards. Ensure work is performed in strict accordance with specifications at all times.
- c. Continuously inspect lead-based paint removal work for conformance with the approved plan.

- d. Perform air sampling.
- e. Control work to prevent hazardous exposure to human beings and to the environment at all times.
- f. Certify the conditions of the work as called for elsewhere in this specification.

1.5.2.2 Lead-Based Paint/Lead-Containing Paint Removal Plan (LBP/LCPRP)

Submit a detailed job-specific plan of the work procedures to be used in the removal/control of LBP/PWL. The plan shall include a sketch showing the location, size, and details of lead control areas, location and details of decontamination facilities. Include in the plan, eating, drinking, smoking and sanitary procedures, interface of trades, sequencing of lead related work, collected waste water and paint debris collection plan, air sampling plan, respirators and personal protective equipment, and a detailed description of the method of containment of the operation to ensure that lead is not released outside the lead control area. Include site preparation, cleanup and clearance procedures. Include occupational and environmental sampling, training and strategy, sampling methodology, frequency, duration of sampling, and qualifications of sampling personnel in the air sampling portion of the plan.

The Contractor is responsible for erecting a berm around the area adjacent to the test stand. Additionally, the Contractor shall place plastic sheeting around the area adjacent to the test stand to facilitate clean up at the completion of each workday.

1.5.2.3 Occupational Sampling Results

Submit occupational sampling results to the NASA Contracting Officer's Technical Representative (NASA COTR) within three working days of collection, signed by the testing laboratory responsible official, the employee that performed the sampling, and the CP.

- a. The sampling results shall represent each job classification, or if working conditions are similar to previous jobs by the same employer, provide previously collected exposure data that can be used to estimate worker exposures per 29 CFR 1926.62. The data shall represent the worker's regular daily exposure to lead.
- b. Submit worker exposure data conducted during the task based trigger operations of 29 CFR 1926.62
- c. The initial monitoring shall determine the requirements for further monitoring and the need to fully implement the control and protective requirements including the compliance program (LBP/LCP) in accordance with 29 CFR 1926.62

1.5.2.4 Occupational Assessment Data Report

Some LBP/LCP removal work may not require full implementation of the requirements of 29 CFR 1926.62. Based on the experience of the Contractor and/or the use of a specific process or method for performing the work, the Contractor may be able to provide historic data (previous 12 months) to demonstrate that exposures are controlled below the action level. Such methods or controls shall be fully presented in the LBP/LCPRP. To reduce

the full implementation of 29 CFR 1926.62, the Contractor shall provide documentation in an Assessment Data Report.

Submit occupational assessment report to the NASA COTR prior to start of work, signed by the testing laboratory responsible official, and the CP.

- a. Submit a report that supports the determination regarding the reduction of the need to fully implement the requirements of 29 CFR 1926.62 and supporting the LBP/LCP. The exposure assessment shall represent each job classification, or if working conditions are similar to previous jobs by the same employer, provide previously collected exposure data that can be used to estimate worker exposures in accordance with 29 CFR 1926.62. The data shall represent the worker's regular daily exposure to lead for stated work.
- b. Submit worker exposure data conducted during the task based trigger operations of 29 CFR 1926.62 with a complete process description in supporting a negative assessment.
- c. The initial assessment shall determine the requirement for further monitoring and the need to fully implement the control and protective requirements including the compliance program (LBP/LCPRP) in accordance with 29 CFR 1926.62.

1.5.2.5 Medical Examinations

Initial medical surveillance as required by 29 CFR 1926.62 shall be made available to all employees exposed to lead at any time above the action level. Full medical surveillance shall be made available to all employees on an annual basis who are or may be exposed to lead in excess of the action level for more than 30 days a year or as required by 29 CFR 1926.62. Adequate records shall show that employees meet the medical surveillance requirements of 29 CFR 1926.33, 29 CFR 1926.62, and 29 CFR 1926.103. Maintain complete and accurate medical records of employees for a period of at least 30 years or for the duration of employment plus 30 years, whichever is longer.

1.5.2.6 Training

Train each employee performing paint removal, disposal, and air sampling operations prior to the time of initial job assignment and annually thereafter, in accordance with 29 CFR 1926.21, 29 CFR 1926.62, and State and local regulations where appropriate.

1.5.2.7 Respiratory Protection Program

- a. Furnish each employee required to wear a negative pressure respirator or other appropriate type with a respirator fit test at the time of initial fitting and at least annually thereafter as required by 29 CFR 1926.62.
- b. Establish and implement a respiratory protection program as required by AIHA Z88.6, 29 CFR 1926.103, 29 CFR 1926.62, and 29 CFR 1926.55.

1.5.2.8 Hazard Communication Program

Establish and implement a Hazard Communication Program as required by 29 CFR 1926.59.

1.5.2.9 Hazard Waste Management

The Hazard Waste Management Plan shall comply with applicable requirements of Federal, State, and local hazardous waste regulations and address:

- a. Identification and classification of hazardous wastes associated with the work.
- b. Estimated quantities of wastes to be generated.
- c. Names and qualifications experience and training of personnel who will be working on-site with hazardous wastes.
- d. List of waste handling equipment to be used in performing the work, to include cleaning, volume reduction, and transport equipment.
- e. Spill prevention, containment, and cleanup contingency measures including a health and safety plan to be implemented in accordance with 29 CFR 1926.65.
- f. Work plan and schedule for waste containment in storage. Wastes shall be cleaned up and containerized daily.

1.5.2.10 Environmental, Safety and Health Compliance

In addition to the detailed requirements of this specification, comply with laws, ordinances, rules, and regulations of Federal, State, and local authorities regarding removing, handling and storing of lead waste materials. Comply with the applicable requirements of the current issue of 29 CFR 1926.62. Submit matters regarding interpretation of standards to the NASA COTR for resolution before starting work. Where specification requirements and the referenced documents vary, this specification or NASA direction shall apply.

1.5.3 Pre-Construction Conference

Along with the CP, meet with the NASA COTR to discuss in detail the hazardous waste management plan and the lead-based paint/lead-containing paint removal plan, including work procedures and precautions for the removal plan.

1.6 EQUIPMENT

1.6.1 Respirators

Furnish appropriate respirators approved by the National Institute for Occupational Safety and Health (NIOSH), Department of Health and Human Services, for use in atmospheres containing lead dust. Respirators shall comply with the requirements of 29 CFR 1926.62.

1.6.2 Special Protective Clothing

Furnish personnel who will be exposed to lead-contaminated dust with proper disposable, uncontaminated, protective whole body clothing, head covering, gloves, and foot coverings as required by 29 CFR 1926.62. Furnish proper disposable plastic or rubber gloves to protect hands. Reduce the level of protection only after obtaining approval from the CP.

1.6.3 Rental Equipment Notification

If rental equipment is to be used during lead-based paint handling and disposal, notify the rental agency in writing concerning the intended use of the equipment. Furnish a copy of the written notification to the NASA COTR.

1.6.4 Vacuum Filters

Provide UL 586 labeled HEPA filters.

1.6.5 Equipment for Government Personnel

Furnish the NASA COTR with two complete sets of personal protective equipment (PPE) daily, as required herein, for entry into and inspection of the paint removal work within the lead controlled area. Personal protective equipment shall include disposable whole body covering, including appropriate foot, head, and hand protection. PPE shall remain the property of the Contractor. The Government will provide respiratory protection for the NASA COTR.

1.7 PROJECT/SITE CONDITIONS

1.7.1 Protection of Existing Work to Remain

Perform paint removal work without damage or contamination of adjacent areas. Where existing work is damaged or contaminated, restore work to its original condition or better.

PART 2 PRODUCTS

2.1 CHEMICALS

Submit applicable Material Safety Data sheets for all chemicals used in paint removal work. Use the least toxic product approved by the NASA COTR.

PART 3 EXECUTION

3.1 PREPARATION

All metal surfaces should be cleaned and prepared during morning hours, 7:00 a.m. to 11:30 a.m.

3.1.1 Protection

3.1.1.1 Notification

a. Notify the NASA COTR 21 days prior to the start of any paint removal work.

3.1.1.2 Boundary Requirements

a. Provide physical boundaries around the lead control area by roping off the area designated in the work plan or providing curtains, portable partitions or other enclosures to ensure that airborne concentrations of lead will not reach 30 micrograms per cubic meter of air outside the lead control area.

b. Warning Signs - Provide warning signs at approaches to lead control

areas. Locate signs at such a distance that personnel may read the sign and take the necessary precautions before entering the area. Signs shall comply with the requirements of 29 CFR 1926.62.

3.1.1.3 Heating, Ventilating and Air Conditioning (HVAC) Systems

Shut down, lock out, and isolate HVAC systems that supply, exhaust, or pass through the lead control areas. Seal intake and exhaust vents in the lead control area with 6 mil plastic sheet and tape. Seal seams in HVAC components that pass through the lead control area.

3.1.1.4 Decontamination Shower Facility

Provide clean and contaminated change rooms and shower facilities in accordance with this specification and 29 CFR 1926.62.

3.1.1.5 Eye Wash Station

Where eyes may be exposed to injurious corrosive materials, suitable facilities for quick drenching or flushing of the eyes shall be provided within the work area.

3.1.1.6 Mechanical Ventilation System

- a. Use adequate ventilation to control personnel exposure to lead in accordance with 29 CFR 1926.62.
- b. Use locally exhausted, power actuated, paint removal tools.

3.1.1.7 Personnel Protection

Personnel shall wear and use protective clothing and equipment as specified herein. Eating, smoking, or drinking or application of cosmetics is not permitted in the lead control area. No one will be permitted in the lead control area unless they have been appropriately trained and provided with protective equipment.

3.2 APPLICATION

3.2.1 Work Procedures

Perform removal of lead-based paint in accordance with approved lead-based paint/lead-containing paint removal plan. Use procedures and equipment required to limit occupational and environmental exposure to lead when lead-based paint is removed in accordance with 29 CFR 1926.62 except as specified herein.

3.2.2 Personnel Exiting Procedures

Whenever personnel exit the lead-controlled area, they shall perform the following procedures and shall not leave the work place wearing any clothing or equipment worn during the work day:

- a. Vacuum themselves off.
- b. Remove protective clothing in the contaminated change room, and place them in an approved impermeable disposal bag.
- c. Shower.

- d. Wash hands and face at the site, don appropriate disposable or uncontaminated reusable clothing; move to an appropriate facility; shower.
- e. Change to clean clothes prior to leaving the physical boundary designated around the lead control area.

3.2.2.1 Outdoor Paint Removal

Perform outdoor removal as indicated in Federal, State, and local regulations and in the LBP/CPRP. The worksite preparation containments shall be job dependent and presented in the LBP/LCPRP.

3.3 FIELD QUALITY CONTROL

3.3.1 Tests

3.3.1.1 Air Sampling

Air sample for lead in accordance with 29 CFR 1926.62 and as specified herein. Air sampling shall be directed or performed by the CP.

- a. The CP shall be on the job site directing the air sampling and inspecting the lead-based paint removal work to ensure that the requirements of the contract have been satisfied during the entire lead-based paint removal operation.
- b. Collect personal air samples on employees who are anticipated to have the greatest risk of exposure as determined by the CP. In addition, collect air samples on at least 25 percent of the work crew or a minimum of two employees, whichever is greater, during each work shift.
- c. Submit results of air samples, signed by the CP within 72 hours after the air samples are taken. Notify the NASA COTR immediately of exposure to lead at or in excess of the action level of 30 micrograms per cubic meter of air outside of the lead control area.
- d. Before any work begins, a representative of NASA will collect and analyze baseline soil samples in accordance with methods defined in federal, State, and local standards inside and outside of the physical boundary to assess the degree of contamination in the adjacent soil prior to lead-based paint removal.

3.3.1.2 Air Sampling During Paint Removal Work

Conduct area air sampling daily, on each shift in which lead-based paint removal operations are performed, in areas immediately adjacent to the lead control area. Sufficient area monitoring shall be conducted to ensure unprotected personnel are not exposed at or above 30 micrograms per cubic meter of air. If 30 micrograms per cubic meter of air is reached or exceeded, stop work, correct the condition(s) causing the increased levels. Notify the NASA COTR. Determine if condition(s) require any further change in work methods. Removal work shall resume only after approval is given by the CP and the NASA COTR. For outdoor operations, at least one sample on each shift shall be taken on the downwind side of the lead control area.

3.3.1.3 Testing of Lead-Based Paint Residue and Used Abrasive

Paint chips that are generated as a result of surface preparation methods, paint residue and paint abrasive will be sampled and analyzed by representatives of NASA in accordance with 40 CFR 261 for hazardous waste.

Additionally, NASA will properly label any waste generated with the appropriate verbiage using indelible ink.

3.4 CLEANING

3.4.1 Cleanup

Maintain surfaces of the lead control area free of accumulations of paint chips and dust. Restrict the spread of dust and debris; keep waste from being distributed over the work area. Do not dry sweep or use compressed air to clean up the area. At the end of each shift and when the paint removal operation has been completed, clean the area of visible lead paint contamination. After visible dust, chips and debris are removed, clean all surfaces in the work area. If adjacent areas become contaminated at any time during the work, clean, visually inspect all contaminated areas. The CP shall then certify in writing that the area has been cleaned of lead contamination before restarting work.

3.4.1.1 Clearance Certification

The CP shall certify in writing that the final air samples collected inside and outside the lead control area are less than 30 micrograms per cubic meter of air; the respiratory protection used for the employees was adequate; the work procedures were performed in accordance with 29 CFR 1926.62 ; and that there were no visible accumulations of material and dust containing lead left in the work site. Do not remove the lead control area or roped off boundary and warning signs prior to the NASA COTR'S acknowledgement of receipt of the CP certification.

For exterior paint removal work, soil samples removed by a representative of NASA at the exterior of the work site shall be used to determine if soil lead levels had increased at a statistically significant level significant at the 95 percent confidence limit from the soil lead levels prior to the work. If soil lead levels do show a statistically significant increase or is above any applicable Federal or State standard for lead in soil, the soil shall be remediated back to the pre-work level.

3.4.2 Collection and Storage of Waste

- a. The Contractor must collect and store lead-contaminated waste (paint chips), scrap, debris, bags, containers and lead-contaminated clothing which may produce airborne concentrations of lead particles in 55-gallon drums with lids and locking rings provided to the Contractor by NASA. A representative of NASA will label the containers in accordance with 29 CFR 1926.62 and 40 CFR 261.
- b. Store waste materials in U.S. Department of Transportation (49 CFR 178) approved 55 gallon drums that will be provided by NASA. A representative of NASA will label each drum to identify the type of waste (49 CFR 172) and the date the drum was filled. The NASA COTR or an authorized representative will assign an area for interim storage of waste-containing drums. Coordinate the storage, management and disposal of all wastes with FOSC Environmental Services.

- c. Handle and store the lead or lead-contaminated waste in accordance with 40 CFR 260, 40 CFR 261, 40 CFR 262, 40 CFR 263, 40 CFR 264, and 40 CFR 265.
- d. Hazardous waste will be disposed of by NASA in accordance with laws and provisions and Federal, State, or local regulations. A representative of NASA will ensure waste is properly characterized.

3.4.3 Hazardous/Non- Hazardous Waste

The Government will provide the necessary containers. Store the non-hazardous waste separately from the hazardous waste. NASA/NASA COTR is charged with the responsibility of properly disposing of all hazardous waste generated on this project.

-- End of Section --

Housing

SECTION 02 82 33.13 20

REMOVAL/CONTROL AND DISPOSAL OF PAINT WITH LEAD

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI Z88.2 (1992) Respiratory Protection

U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT (HUD)

HUD 6780 (1995; Errata Aug 1996; Rev Ch. 7 - 1997)
Guidelines for the Evaluation and Control
of Lead-Based Paint Hazards in Housing

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

29 CFR 1926.103 Respiratory Protection
29 CFR 1926.21 Safety Training and Education
29 CFR 1926.33 Access to Employee Exposure and Medical
Records
29 CFR 1926.55 Gases, Vapors, Fumes, Dusts, and Mists
29 CFR 1926.59 Hazard Communication
29 CFR 1926.62 Lead
29 CFR 1926.65 Hazardous Waste Operations and Emergency
Response
40 CFR 261 Identification and Listing of Hazardous
Waste
40 CFR 262 Standards Applicable to Generators of
Hazardous Waste
40 CFR 745 Lead-Based Paint Poisoning Prevention in
Certain Residential Structures

UNDERWRITERS LABORATORIES (UL)

UL 586 (2009) Standard for High-Efficiency
Particulate, Air Filter Units

1.2 DEFINITIONS

1.2.1 Abatement

As applied to target housing and child occupied facilities, "abatement" means any set of measures designed to permanently eliminate lead-based paint hazards in accordance with standards established by appropriate Federal agencies. Such term includes:

a. The removal of lead-based paint and lead-contaminated dust, the permanent containment or encapsulation of lead-based paint, the replacement of lead-painted surfaces or fixtures, and the removal or covering of lead contaminated soil; and

b. All preparation, cleanup, disposal, and post-abatement clearance testing activities associated with such measures.

1.2.2 Action Level

Employee exposure, without regard to use of respirators, to an airborne concentration of lead of 30 micrograms per cubic meter of air averaged over an 8 hour period in a work environment.

1.2.3 Area Sampling

Sampling of lead concentrations within the lead control area and inside the physical boundaries, which is representative of the airborne lead concentrations but is not collected in the breathing zone of personnel.

1.2.4 Competent Person (CP)

As used in this section, refers to a person employed by the Contractor who is trained in the recognition and control of lead hazards in accordance with current federal, State, and local regulations. A Certified Industrial Hygienist (CIH) certified for comprehensive practice by the American Board of Industrial Hygiene or a Certified Safety Professional (CSP) certified by the Board of Certified Safety Professionals is the best choice.

1.2.5 Contaminated Room

Refers to a room for removal of contaminated personal protective equipment (PPE).

1.2.6 Decontamination Shower Facility

That facility that encompasses a clean clothing storage room, and a contaminated clothing storage and disposal rooms, with a shower facility in between.

1.2.7 Deleading

Activities conducted by a person who offers to eliminate lead-based paint or lead-based paint hazards or to plan such activities in commercial buildings, bridges or other structures.

1.2.8 Eight-Hour Time Weighted Average (TWA)

Airborne concentration of lead to which an employee is exposed, averaged over an 8 hour workday as indicated in 29 CFR 1926.62.

1.2.9 High Efficiency Particulate Air (HEPA) Filter Equipment

HEPA filtered vacuuming equipment with a UL 586 filter system capable of collecting and retaining lead-contaminated paint dust. A high efficiency particulate filter means 99.97 percent efficient against 0.3 micron or larger size particles.

1.2.10 Lead

Metallic lead, inorganic lead compounds, and organic lead soaps.

1.2.11 Lead-Based Paint (LBP)

Paint or other surface coating that contains lead in excess of 1.0 milligrams per centimeter squared or 0.5 percent by weight.

1.2.12 Lead-Based Paint Hazard (LBP Hazard)

Any condition that causes exposure to lead from lead-contaminated dust, lead-contaminated soil, lead-based paint that is deteriorated or present in accessible surfaces, friction surfaces, or impact surfaces that would result in adverse human health effects.

1.2.13 Paint with Lead (PWL)

Any paint that contains lead as determined by the testing laboratory using a valid test method. The requirements of this section does not apply if no detectable levels of lead are found using a quantitative method for analyzing paint using laboratory instruments with specified limits of detection (usually 0.01%). An X-Ray Fluorescence (XRF) instrument is not considered a valid test method.

1.2.14 Lead Control Area

A system to prevent the spread of lead dust, paint chips or debris to adjacent areas that may include temporary containment, floor or ground cover protection, physical boundaries, and warning signs to prevent unauthorized entry of personnel. HEPA filtered local exhaust equipment may be used as engineering controls to further reduce personnel exposures or building/outdoor environmental contamination.

1.2.15 Lead Permissible Exposure Limit (PEL)

Fifty micrograms per cubic meter of air as an 8 hour time weighted average as determined by 29 CFR 1926.62. If an employee is exposed for more than eight hours in a workday, the PEL shall be determined by the following formula:

$$\text{PEL (micrograms/cubic meter of air)} = 400/\text{No. hrs worked per day}$$

1.2.16 Personal Sampling

Sampling of airborne lead concentrations within the breathing zone of an employee to determine the 8 hour time weighted average concentration in accordance with 29 CFR 1926.62. Samples shall be representative of the employees' work tasks. Breathing zone shall be considered an area within a hemisphere, forward of the shoulders, with a radius of 6 to 9 inches and centered at the nose or mouth of an employee.

1.2.17 Physical Boundary

Area physically roped or partitioned off around an enclosed lead control area to limit unauthorized entry of personnel. As used in this section, "inside boundary" shall mean the same as "outside lead control area but inside the physical boundary."

1.3 DESCRIPTION

1.3.1 Description of Work

Remove/control lead-based / paint with lead in intact and in some cases in flaking condition, located on the existing metal siding as indicated on the drawings.

1.3.2 Coordination with Other Work

The contractor shall coordinate with work being performed in adjacent areas. Coordination procedures shall be explained in the Removal/Control Plan and shall describe how the Contractor will prevent lead exposure to other contractors and/or Government personnel performing work unrelated to lead activities.

1.4 SUBMITTALS

Government approval is required for all submittals. The following shall be submitted in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-03 Product Data

Vacuum Filters

Respirators

SD-06 Test Reports

sampling results

Occupational and Environmental Assessment Data Report

lead-based paint/paint with lead removal/control plan

SD-07 Certificates

Qualifications of CP

Occupant Notification

Training Certification of workers and supervisors

Third Party Consultant Qualifications

Rental equipment notification

Respiratory Protection Program

Hazard Communication Program

Lead Waste Management Plan

Vacuum filters

Clearance Certification

SD-11 Closeout Submittals

Certification of Medical Examinations

Employee Training Certification

1.5 QUALITY ASSURANCE

1.5.1 Qualifications

1.5.1.1 Qualifications of CP

Submit name, address, and telephone number of the CP selected to perform responsibilities specified in paragraph entitled "Competent Person (CP) Responsibilities." Provide previous experience of the CP. Submit proper documentation that the CP is trained and certified in accordance with Federal, State, and local laws.

1.5.1.2 Training Certification

Submit a certificate for each employee and supervisor, signed and dated by the authorized training provider meeting 40 CFR 745 (Subpart L) requirements, stating that the employee or supervisor has received the required lead training and is certified to perform or supervise deleading or lead removal. Submit proof the work will be performed by a certified firm.

1.5.1.3 Third Party Consultant Qualifications

Submit the name, address, and telephone number of the third party consultant selected to perform the wipe sampling for determining concentrations of lead in dust or soil sampling. Submit proper documentation that the consultant is trained and certified as an inspector technician or inspector/risk assessor by the USEPA authorized State (or local) certification and accreditation program.

1.5.2 Requirements

1.5.2.1 Competent Person (CP) Responsibilities

- a. Verify training meets all federal, State, and local requirements.
- b. Review and approve lead-based paint/paint with lead removal/control plan for conformance to the applicable standards. Ensure work is performed in strict accordance with specifications at all times.
- c. Continuously inspect lead-based paint removal/control work for conformance with the approved plan.
- d. Perform air and wipe sampling.

e. Control work to prevent hazardous exposure to human beings and to the environment at all times.

f. Certify the conditions of the work as called for elsewhere in this specification.

1.5.2.2 Lead-Based Paint/Paint with Lead Removal/Control Plan (LBP/PWL R/CP)

Submit a detailed job-specific plan of the work procedures to be used in the removal/control of LBP/PWL. The plan shall include a sketch showing the location, size, and details of lead control areas, location and details of decontamination facilities, viewing ports, and mechanical ventilation system. Include a description of equipment and materials, controls and job responsibilities for each activity from which lead is emitted. Include in the plan, eating, drinking, smoking and sanitary procedures, interface of trades, sequencing of lead related work, collected waste water and paint debris disposal plan, air sampling plan, respirators, personal protective equipment, and a detailed description of the method of containment of the operation to ensure that lead is not released outside the lead control area. Include site preparation, cleanup and clearance procedures. Include occupational and environmental sampling, training, sampling methodology, frequency, duration of sampling, and qualifications of sampling personnel in the air sampling portion of the plan. Include a description of arrangements made among contractors on multi-contractor worksites to inform affected employees and to clarify responsibilities to control exposures.

The Removal/Control Plan shall be developed by a certified planner/project designer.

In occupied buildings, the Removal/Control Plan shall also include an occupant protection program that describes the measures that will be taken during the work to protect the building occupants.

1.5.2.3 Occupational and Environmental Assessment Data Report

If initial monitoring is necessary, submit occupational and environmental sampling results to the Contracting Officer within three working days of collection, signed by the testing laboratory employee performing the analysis, the employee that performed the sampling, and the CP.

In order to reduce the full implementation of 29 CFR 1926.62, the Contractor shall provide documentation. Submit a report that supports the determination to reduce full implementation of the requirements of 29 CFR 1926.62 and supporting the Lead Removal/Control Plan.

a. The initial monitoring shall represent each job classification, or if working conditions are similar to previous jobs by the same employer, provide previously collected exposure data that can be used to estimate worker exposures per 29 CFR 1926.62. The data shall represent the worker's regular daily exposure to lead for stated work.

b. Submit worker exposure data gathered during the task based trigger operations of 29 CFR 1926.62 with a complete process description. This includes manual demolition, manual scraping, manual sanding, heat gun, power tool cleaning, rivet busting, cleanup of dry expendable abrasives, abrasive blast enclosure removal, abrasive blasting, welding, cutting and torch burning where lead containing coatings are present.

c. The initial assessment shall determine the requirement for further monitoring and the need to fully implement the control and protective requirements including the lead compliance plan per 29 CFR 1926.62.

1.5.2.4 Medical Examinations

Initial medical surveillance as required by 29 CFR 1926.62 shall be made available to all employees exposed to lead at any time (1 day) above the action level. Full medical surveillance shall be made available to all employees on an annual basis who are or may be exposed to lead in excess of the action level for more than 30 days a year or as required by 29 CFR 1926.62. Adequate records shall show that employees meet the medical surveillance requirements of 29 CFR 1926.33, 29 CFR 1926.62, and 29 CFR 1926.103. Maintain complete and accurate medical records of employees for a period of at least 30 years or for the duration of employment plus 30 years, whichever is longer.

1.5.2.5 Training

Train each employee performing paint removal, disposal, and air sampling operations prior to the time of initial job assignment and annually thereafter, in accordance with 29 CFR 1926.21, 29 CFR 1926.62, and State and local regulations where appropriate.

1.5.2.6 Respiratory Protection Program

a. Provide each employee required to wear a respirator a respirator fit test at the time of initial fitting and at least annually thereafter as required by 29 CFR 1926.62.

b. Establish and implement a respiratory protection program as required by ANSI Z88.2, 29 CFR 1926.103, 29 CFR 1926.62, and 29 CFR 1926.55.

1.5.2.7 Hazard Communication Program

Establish and implement a Hazard Communication Program as required by 29 CFR 1926.59.

1.5.2.8 Lead Waste Management

The Lead Waste Management Plan shall comply with applicable requirements of federal, State, and local hazardous waste regulations and address:

a. Identification and classification of hazardous wastes associated with the work.

b. Estimated quantities of wastes to be generated and disposed of.

c. Names and qualifications (experience and training) of personnel who will be working on-site with hazardous wastes.

d. List of waste handling equipment to be used in performing the work, to include cleaning, volume reduction, and transport equipment.

e. Spill prevention, containment, and cleanup contingency measures including a health and safety plan to be implemented in accordance with 29 CFR 1926.65.

f. Work plan and schedule for waste containment, removal and disposal. Wastes shall be cleaned up and containerized daily. Proper containment of the waste includes using acceptable waste containers (e.g., 55-gallon drums) as well as proper marking/labeling of the containers. Waste containers, 55 gallon drums will be provided by the Government.

g. Waste will be disposed by the Government.

1.5.2.9 Environmental, Safety and Health Compliance

In addition to the detailed requirements of this specification, comply with laws, ordinances, rules, and regulations of Federal, State, and local authorities regarding removing, handling, storing, transporting, and disposing of lead waste materials. Comply with the applicable requirements of the current issue of 29 CFR 1926.62. Submit matters regarding interpretation of standards to the Contracting Officer for resolution before starting work. Where specification requirements and the referenced documents vary, the most stringent requirement shall apply. The following local and State laws, ordinances, criteria, rules and regulations regarding removing, handling, storing, transporting, and disposing of lead-contaminated materials apply:

a. Mississippi Commission on Environmental Quality

b. Regulations for Lead-Based Paint Activities, APC-S-9

Licensing and certification in the State of Mississippi is required.

1.5.3 Pre-Construction Conference

Along with the CP, meet with the Contracting Officer to discuss in detail the lead waste management plan and the lead-based paint/paint with lead removal/control plan, including work procedures and precautions for the removal plan.

1.6 EQUIPMENT

1.6.1 Respirators

Furnish appropriate respirators approved by the National Institute for Occupational Safety and Health (NIOSH), Department of Health and Human Services, for use in atmospheres containing lead dust. Respirators shall comply with the requirements of 29 CFR 1926.62.

1.6.2 Special Protective Clothing

Furnish personnel who will be exposed to lead-contaminated dust with proper disposable protective whole body clothing, head covering, gloves, and foot coverings as required by 29 CFR 1926.62. Furnish proper disposable plastic or rubber gloves to protect hands. Reduce the level of protection only after obtaining approval from the CP.

1.6.3 Rental Equipment Notification

If rental equipment is to be used during lead-based paint handling and disposal, notify the rental agency in writing concerning the intended use of the equipment. Furnish a copy of the written notification to the

Contracting Officer.

1.6.4 Vacuum Filters

UL 586 labeled HEPA filters.

1.6.5 Equipment for Government Personnel

Furnish the Contracting Officer with two complete sets of personal protective equipment (PPE) daily, as required herein, for entry into and inspection of the paint removal work within the lead controlled area. Personal protective equipment shall include disposable whole body covering, including appropriate foot, head, and hand protection. PPE shall remain the property of the Contractor. The Government will provide respiratory protection for the Contracting Officer.

1.7 PROJECT/SITE CONDITIONS

1.7.1 Protection of Existing Work to Remain

Perform paint removal work without damage or contamination of adjacent areas. Where existing work is damaged or contaminated, restore work to its original condition or better.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.1 PREPARATION

3.1.1 Protection

3.1.1.1 Notification

a. Notify the Contracting Officer 20 days prior to the start of any paint removal work.

b. Occupant Notification

Submit occupant written acknowledgment of the delivery of lead hazard information pamphlet (EPA 747-K-99-001 "Protect Your Family From Lead in Your Home") prior to commencing the renovation work for each affected unit per 40 CFR 745 Subpart E.

3.1.1.2 Boundary Requirements

a. Provide physical boundaries around the lead control area by roping off the area designated in the work plan or providing curtains, portable partitions or other enclosures to ensure that lead will not escape outside the lead control area.

b. Warning Signs - Provide warning signs at approaches to lead control areas. Locate signs at such a distance that personnel may read the sign and take the necessary precautions before entering the area. Signs shall comply with the requirements of 29 CFR 1926.62.

3.1.1.3 Decontamination Shower Facility

Provide clean and contaminated change rooms and shower facilities in accordance with this specification and 29 CFR 1926.62.

3.1.1.4 Eye Wash Station

Where eyes may be exposed to injurious corrosive materials, suitable facilities for quick drenching or flushing of the eyes shall be provided within the work area.

3.1.1.5 Mechanical Ventilation System

a. Use adequate ventilation to control personnel exposure to lead in accordance with 29 CFR 1926.62.

b. To the extent feasible, use local exhaust ventilation connected to HEPA filters or other collection systems, approved by the CP. Local exhaust ventilation systems shall be evaluated and maintained in accordance with 29 CFR 1926.62.

c. Vent local exhaust outside the building only and away from building ventilation intakes.

d. Use locally exhausted, power actuated, paint removal tools.

3.1.1.6 Personnel Protection

Personnel shall wear and use protective clothing and equipment as specified herein. Eating, smoking, or drinking or application of cosmetics is not permitted in the lead control area. No one will be permitted in the lead control area unless they have been appropriately trained and provided with protective equipment.

3.2 ERECTION CONTAINMENT

3.2.1 Lead Control Area Requirements

Full containment - Contain removal operations by the use of a negative pressure enclosure system with decontamination facilities and with HEPA filtered exhaust if required by the CP. For containment areas larger than 1,000 square feet install a minimum of two 18 inch square viewing ports. Locate ports to provide a view of the required work from the exterior of the enclosed contaminated area. Glaze ports with laminated safety glass.

3.3 APPLICATION

3.3.1 Work Procedures

Perform removal of lead-based paint in accordance with approved lead-based paint/paint with lead removal/control plan. Use procedures and equipment required to limit occupational and environmental exposure to lead when lead-based paint is removed in accordance with 29 CFR 1926.62. Dispose of removed paint chips and associated waste in compliance with Environmental Protection Agency (EPA), State, and local requirements.

3.3.2 Lead-Based Paint Removal/Control/Deleading

Manual or power sanding of interior and exterior surfaces is not permitted

unless tools are equipped with HEPA attachments or wet methods. The dry sanding or grinding of surfaces that contain lead is prohibited. Provide methodology for LBP removal/control in work plan. Remove paint within the areas designated on the drawings in order to completely expose the substrate. Take whatever precautions necessary to minimize damage to the underlying substrate.

Avoid flash rusting of the substrate. Provide surface preparations for painting in accord with Section 09 97 13 COATINGS FOR STEEL, pstshtsph 3.1 and with Drawing EMI SL430WFB00-03, Sheet G-003.

Provide methodology for LBP/PWL abatement/control and processes to minimize contamination of work areas outside the control area with lead-contaminated dust or other lead-contaminated debris/waste and to ensure that unprotected personnel are not exposed to hazardous concentrations of lead. Describe this LBP/PWL removal/control process in the LBP/PWL.

3.3.2.1 Outdoor Paint Removal

Perform outdoor removal as indicated in federal, State, and local regulations and in the LBP/CPR/CP. The worksite preparation (barriers or containments) shall be job dependent and presented in the LBP/PWL R/CP.

3.3.3 Personnel Exiting Procedures

Whenever personnel exit the lead-controlled area, they shall perform the following procedures and shall not leave the work place wearing any clothing or equipment worn during the work day:

- a. Vacuum themselves off.
- b. Remove protective clothing in the contaminated change room, and place them in an approved impermeable disposal bag.
- c. Shower.
- c. Wash hands and face at the site, don appropriate disposable or uncontaminated reusable clothing; move to an appropriate facility; shower.
- d. Change to clean clothes prior to leaving the physical boundary designated around the lead control area.

3.4 FIELD QUALITY CONTROL

3.4.1 Tests

3.4.1.1 Air and Wipe Sampling

Air sample for lead in accordance with 29 CFR 1926.62 and as specified herein. Air and wipe sampling shall be directed or performed by the CP.

- a. The CP shall be on the job site directing the air and non-clearance wipe sampling and inspecting the lead-based paint removal/control work to ensure that the requirements of the contract have been satisfied during the entire lead-based paint removal operation.
- b. Collect personal air samples on employees who are expected to have the greatest risk of exposure as determined by the CP. In addition,

collect air samples on at least 25 percent of the work crew or a minimum of two employees, whichever is greater, during each work shift.

c. Submit results of air samples, within 72 hours after the air samples are taken.

d. Before any work begins, a third party consultant shall collect and analyze baseline wipe samples in accordance with methods defined in federal, State, and local standards inside and outside of the physical boundary to assess the degree of dust contamination in the facility prior to lead-based paint removal/control.

e. Collect surface wipe samples at a location no greater than 10 feet outside the lead control area at a frequency of once per day while lead removal work is conducted. Surface wipe results shall meet criteria in paragraph "Clearance Certification."

3.4.1.2 Air Sampling During Paint Removal Work

Conduct area air sampling daily, on each shift in which lead-based paint removal operations are performed, in areas immediately adjacent to the lead control area. Sufficient area monitoring shall be conducted to ensure unprotected personnel are not exposed at or above 30 micrograms per cubic meter of air. If 30 micrograms per cubic meter of air is reached or exceeded, stop work, correct the conditions(s) causing the increased levels. Notify the Contracting Officer immediately. Determine if condition(s) require any further change in work methods. Removal work shall resume only after the CP and the Contracting Officer give approval. For outdoor operations, at least one sample on each shift shall be taken on the downwind side of the lead control area.

3.4.1.3 Sampling After Paint Removal/Control

After the visual inspection, collect wipe samples according to the HUD protocol contained in HUD 6780 to determine the lead content of settled dust and dirt in micrograms per square meter foot of surface area and parts per million (ppm) or for soil.

3.4.1.4 Testing of Removed Paint and Used Abrasive

Test removed paint and used abrasive in accordance with 40 CFR 261 for hazardous waste.

3.5 CLEANING AND DISPOSAL

3.5.1 Cleanup

Maintain surfaces of the lead control area free of accumulations of paint chips and dust. Restrict the spread of dust and debris; keep waste from being distributed over the work area. Do not dry sweep or use compressed air to clean up the area. At the end of each shift and when the paint removal operation has been completed, clean the area of visible lead paint contamination by vacuuming with a HEPA filtered vacuum cleaner, wet mopping the area and wet wiping the area as indicated by the CP. Reclean areas showing dust or residual paint chips or debris. After visible dust, chips and debris is removed, wet wipe and HEPA vacuum all surfaces in the work area. If adjacent areas become contaminated at any time during the work, clean, visually inspect, and then wipe sample all contaminated areas. The CP shall then certify in writing that the area has been cleaned of lead

contamination before restarting work.

3.5.1.1 Clearance Certification

The CP shall certify in writing that air samples collected outside the lead control area during paint removal operations are less than 30 micrograms per cubic meter of air; the respiratory protection used for the employees was adequate; the work procedures were performed in accordance with 29 CFR 1926.62 and 40 CFR 745; and that there were no visible accumulations of material and dust containing lead left in the work site. Do not remove the lead control area or roped off boundary and warning signs prior to the Contracting Officer's acknowledgement of receipt of the CP certification.

For exterior paint removal/control work, soil samples taken at the exterior of the work site shall be used to determine if soil lead levels had increased at a statistically significant level (significant at the 95 percent confidence limit) from the soil lead levels prior to the work. If soil lead levels do show a statistically significant increase or is above any applicable Federal or State standard for lead in soil, the soil shall be remediated back to the pre-work level.

3.5.2 Disposal

a. Collect lead-contaminated waste, scrap, debris, bags, containers, equipment, and lead-contaminated clothing that may produce airborne concentrations of lead particles. Label the containers in accordance with 29 CFR 1926.62 and 40 CFR 262. Lead-contaminated waste material will be disposed by the Government.

d. All material, whether hazardous or non-hazardous shall be disposed in accordance with laws and provisions and Federal, State, or local regulations. Ensure waste is properly characterized. The result of each waste characterization (TCLP for RCRA materials) will dictate disposal requirements.

3.5.3 Payment for Hazardous Waste

Payment for disposal of hazardous and non-hazardous waste will not be made until a signed copy of the manifest from the treatment or disposal facility certifying the amount of lead-containing materials or non-hazardous waste delivered is returned and a copy is furnished to the Government.

-- End of Section --

Industrial

B2 TEST STAND BUILDING 4221 SLS BUILD-OUT: RELOCATION OF B2 MPTA 200HF-G013
SUPERSTRUCTURE, B2 SLS CORE STAGE SUPPORT SUPERSTRUCTURE, AND BATTLESHIP POINT LOAD REINF

Specs for EMI's above

SECTION TABLE OF CONTENTS

DIVISION 02 - EXISTING CONDITIONS

SECTION 02 82 33.13 20

REMOVAL AND COLLECTION OF LEAD-CONTAINING PAINT

PART 1 GENERAL

- 1.1 REFERENCES
- 1.2 DEFINITIONS
 - 1.2.1 Action Level
 - 1.2.2 Area Sampling
 - 1.2.3 Competent Person (CP)
 - 1.2.4 Contaminated Room
 - 1.2.5 Decontamination Shower Facility
 - 1.2.6 Eight-Hour Time Weighted Average (TWA)
 - 1.2.7 High Efficiency Particulate Air (HEPA) Filter Equipment
 - 1.2.8 Lead
 - 1.2.9 Lead-Containing Paint (LCP)
 - 1.2.10 Lead-Based Paint Hazard (LBP Hazard)
 - 1.2.11 Lead Control Area
 - 1.2.12 Lead Permissible Exposure Limit (PEL)
 - 1.2.13 Personal Sampling
 - 1.2.14 Area Sampling
 - 1.2.14 Physical Boundary
- 1.3 DESCRIPTION
 - 1.3.1 Description of Work
 - 1.3.2 Coordination with Other Work
- 1.4 SUBMITTALS
- 1.5 QUALITY ASSURANCE
 - 1.5.1 Qualifications
 - 1.5.1.1 Qualifications of CP
 - 1.5.1.2 Training Certification
 - 1.5.1.3 Testing Laboratory
 - 1.5.1.4 Third Party Consultant Qualifications
 - 1.5.2 Requirements
 - 1.5.2.1 Competent Person (CP) Responsibilities
 - 1.5.2.2 Lead-Based Paint/Lead-Containing Paint Removal Plan (LBP/LCPRP)
 - 1.5.2.3 Occupational Sampling Results
 - 1.5.2.4 Occupational Assessment Data Report
 - 1.5.2.5 Medical Examinations
 - 1.5.2.6 Training
 - 1.5.2.7 Respiratory Protection Program
 - 1.5.2.8 Hazard Communication Program
 - 1.5.2.9 Hazard Waste Management
 - 1.5.2.10 Environmental, Safety and Health Compliance
 - 1.5.3 Pre-Construction Conference
- 1.6 EQUIPMENT
 - 1.6.1 Respirators
 - 1.6.2 Special Protective Clothing
 - 1.6.3 Rental Equipment Notification
 - 1.6.4 Vacuum Filters
 - 1.6.5 Equipment for Government Personnel

1.7 PROJECT/SITE CONDITIONS

1.7.1 Protection of Existing Work to Remain

PART 2 PRODUCTS

2.1 CHEMICALS

PART 3 EXECUTION

3.1 PREPARATION

3.1.1 Protection

3.1.1.1 Notification

3.1.1.2 Boundary Requirements

3.1.1.3 Heating, Ventilating and Air Conditioning (HVAC) Systems

3.1.1.4 Decontamination Shower Facility

3.1.1.5 Eye Wash Station

3.1.1.6 Mechanical Ventilation System

3.1.1.7 Personnel Protection

3.2 APPLICATION

3.2.1 Work Procedures

3.2.2 Personnel Exiting Procedures

3.2.2.1 Outdoor Paint Removal

3.3 FIELD QUALITY CONTROL

3.3.1 Tests

3.3.1.1 Air Sampling

3.3.1.2 Air Sampling During Paint Removal Work

3.4 CLEANING

3.4.1 Cleanup

3.4.1.1 Clearance Certification

3.4.2 Collection and Storage of Waste

3.4.3 Hazardous/Non- Hazardous Waste

-- End of Section Table of Contents --

SECTION 02 82 33.13 20

REMOVAL AND COLLECTION OF LEAD-CONTAINING PAINT

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN INDUSTRIAL HYGIENE ASSOCIATION (AIHA)

AIHA Z88.6 (2006) Respiratory Protection

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

29 CFR 1926.103	Respiratory Protection
29 CFR 1926.21	Safety Training and Education
29 CFR 1926.33	Access to Employee Exposure and Medical Records
29 CFR 1926.55	Gases, Vapors, Fumes, Dusts, and Mists
29 CFR 1926.59	Hazard Communication
29 CFR 1926.62	Lead Exposure in Construction
29 CFR 1926.65	Hazardous Waste Operations and Emergency Response
40 CFR 260	Hazardous Waste Management System: General
40 CFR 261	Identification and Listing of Hazardous Waste
40 CFR 262	Standards Applicable to Generators of Hazardous Waste
40 CFR 263	Standards Applicable to Transporters of Hazardous Waste
40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
40 CFR 265	Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
49 CFR 172	Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response

Information, and Training Requirements

49 CFR 178

Specifications for Packagings

UNDERWRITERS LABORATORIES (UL)

UL 586

(2009) Standard for High-Efficiency
Particulate, Air Filter Units

1.2 DEFINITIONS

1.2.1 Action Level

Employee exposure, without regard to use of respirators, to an airborne concentration of lead of 30 micrograms per cubic meter of air averaged over an 8 hour period in an occupational/industrial environment.

1.2.2 Area Sampling

Sampling of lead concentrations within the lead control area and inside the physical boundaries, which is representative of the airborne lead concentrations but is not collected in the breathing zone of personnel.

1.2.3 Competent Person (CP)

As used in this section, refers to a person employed by the Contractor who is trained in the recognition and control of lead hazards in accordance with current federal, State, and local regulations. A Certified Industrial Hygienist (CIH) certified for comprehensive practice by the American Board of Industrial Hygiene or a Certified Safety Professional (CSP) certified by the Board of Certified Safety Professionals is the best choice.

1.2.4 Contaminated Room

Refers to a room for removal of contaminated personal protective equipment (PPE).

1.2.5 Decontamination Shower Facility

That facility that encompasses a clean clothing storage room, and a contaminated clothing storage and disposal rooms, with a shower facility in between.

1.2.6 Eight-Hour Time Weighted Average (TWA)

Airborne concentration of lead to which an employee is exposed, averaged over an 8 hour workday as indicated in 29 CFR 1926.62.

1.2.7 High Efficiency Particulate Air (HEPA) Filter Equipment

HEPA filtered vacuuming equipment with a UL 586 filter system capable of collecting and retaining lead-contaminated paint dust. A high efficiency particulate filter means 99.97 percent efficient against 0.3 micron or larger size particles.

1.2.8 Lead

Metallic lead, inorganic lead compounds, and organic lead soaps.

1.2.9 Lead-Containing Paint (LCP)

Lead-based paint or other similar surface coating containing lead or lead compound in excess of 0.06 percent by weight of the total nonvolatile content of the paint.

1.2.10 Lead-Based Paint Hazard (LBP Hazard)

Any condition that causes exposure to lead from lead-contaminated dust, lead-contaminated soil, lead-based paint that is deteriorated or present in accessible surfaces, friction surfaces, or impact surfaces that would result in adverse human health effects.

1.2.11 Lead Control Area

An enclosed area or structure, constructed as a temporary containment equipped with HEPA filtered local exhaust, which prevents the spread of lead dust, paint chips or debris existing as a condition of lead-based paint removal operations. The lead control area is also isolated by physical boundaries to prevent unauthorized entry of personnel.

1.2.12 Lead Permissible Exposure Limit (PEL)

Fifty micrograms per cubic meter of air as an 8 hour time weighted average as determined by 29 CFR 1926.62. If an employee is exposed for more than eight hours in a workday, the PEL shall be determined by the following formula:

PEL (micrograms/cubic meter of air) = $400/\text{No. hrs worked per day}$

1.2.13 Personal Sampling

Sampling of airborne lead concentrations within the breathing zone of an employee to determine the 8 hour time weighted average concentration in accordance with 29 CFR 1926.62. Samples shall be representative of the employees' work tasks. Breathing zone shall be considered an area within a hemisphere, forward of the shoulders, with a radius of 6 to 9 inches and centered at the nose or mouth of an employee.

1.2.14 Area Sampling

Air quality measurements for lead must be determined following NIOSH ANALYTICAL method 7082 using personal monitors outside of areas or equipment that may potentially emit lead. Area sampling must be conducted at the established boundary line that demarcates that lead work area. Use of ropes, ribbons, tape, or other visible means to define the areas and prohibit entrance into the regulated area by unprotected and untrained personnel. The boundary line must ensure that the 8 hour time weighted average (TWA) is below the OSHA lead in construction Action Level (AL) of 30 micrograms per cubic meter. If the (AL) is exceeded, the Contractor must adjust their work practices and/or establish a new boundary line further from the work.

1.2.14 Physical Boundary

Area physically roped or partitioned off around an enclosed lead control area to limit unauthorized entry of personnel. As used in this section, "inside boundary" shall mean the same as "outside lead control area but inside the physical boundary."

1.3 DESCRIPTION

1.3.1 Description of Work

Remove lead-based paint / lead-containing paint as indicated on the drawings.

1.3.2 Coordination with Other Work

The Contractor shall coordinate with work being performed in adjacent areas. Coordination procedures shall be explained in the Removal Plan and shall describe how the Contractor will prevent lead exposure to other contractors and/or Government personnel performing work unrelated to lead activities.

1.4 SUBMITTALS

The following shall be submitted in accordance with Section 01 33 00 SUBMITTAL PROCEDURES in sufficient detail to show full compliance with the specification:

SD-01 Preconstruction Submittals

Lead Based Paint/Lead Containing Paint Removal Plan

Hazard Waste Management Plan

SD-03 Product Data

Respirators

Rental Equipment Notification

SD-06 Test Reports

Sampling results

Occupational Assessment Data Report

SD-07 Certificates

Qualifications of CP

Testing Laboratory qualifications

Training Certification of workers and supervisors

Third Party Consultant Qualifications

Lead-based paint/Lead-Containing paint removal Plan including CP approval (signature, date, and certification number)

Respiratory Protection Program

Hazard Communication Program

Hazard Waste Management Plan

Vacuum filters

Clearance Certification

SD-08 Manufacturer's Instructions

Manufacturer's instructions shall be submitted for Chemicals and Equipment.

Material Safety Data Sheets for all chemicals.

SD-11 Closeout Submittals

Certification of Medical Examinations

Employee Training Certification

1.5 QUALITY ASSURANCE

1.5.1 Qualifications

1.5.1.1 Qualifications of CP

Submit name, address, and telephone number of the CP selected to perform responsibilities specified in paragraph entitled "Competent Person (CP) Responsibilities." Provide previous experience of the CP. Submit proper documentation that the CP is trained and licensed and certified in accordance with Federal, State, and local laws.

1.5.1.2 Training Certification

Submit a certificate for each employee, signed and dated by the approved training source, stating that the employee has received the required lead training.

1.5.1.3 Testing Laboratory

Submit the name, address, and telephone number of the testing laboratory selected to perform the air sampling, testing, and reporting of concentrations of lead. Use a laboratory accredited under the EPA National Lead Laboratory Accreditation Program (NLLAP) by either the American Association for Laboratory Accreditation (A2LA) or the American Industrial Hygiene Association (AIHA) and that is successfully participating in the Environmental Lead Proficiency Analytical Testing (ELPAT) program to perform sample analysis.

1.5.1.4 Third Party Consultant Qualifications

Submit the name, address, and telephone number of the third party consultant selected to perform the air sampling for determining concentrations of lead in the existing air. Submit proper documentation that the consultant is trained and certified as Supervisor/Competent Person for Deleading Industrial Structures.

1.5.2 Requirements

1.5.2.1 Competent Person (CP) Responsibilities

- a. Certify training as meeting all federal, State, and local requirements.

- b. Review and approve lead-based paint/lead-containing paint removal plan for conformance to the applicable referenced standards. Ensure work is performed in strict accordance with specifications at all times.
- c. Continuously inspect lead-based paint removal work for conformance with the approved plan.
- d. Perform air sampling.
- e. Control work to prevent hazardous exposure to human beings and to the environment at all times.
- f. Certify the conditions of the work as called for elsewhere in this specification.

1.5.2.2 Lead-Based Paint/Lead-Containing Paint Removal Plan (LBP/LCPRP)

Submit a detailed job-specific plan of the work procedures to be used in the removal/control of LBP/PWL. The plan shall include a sketch showing the location, size, and details of lead control areas, location and details of decontamination facilities. Include in the plan, eating, drinking, smoking and sanitary procedures, interface of trades, sequencing of lead related work, collected waste water and paint debris collection plan, air sampling plan, respirators and personal protective equipment, and a detailed description of the method of containment of the operation to ensure that lead is not released outside the lead control area. Include site preparation, cleanup and clearance procedures. Include occupational and environmental sampling, training and strategy, sampling methodology, frequency, duration of sampling, and qualifications of sampling personnel in the air sampling portion of the plan.

The Contractor shall place plastic sheeting around the area adjacent to the test stand to facilitate clean up at the completion of each work day.

1.5.2.3 Occupational Sampling Results

Submit occupational sampling results to the NASA Contracting Officer's Representative (NASA COR) within three working days of collection, signed by the testing laboratory responsible official, the employee that performed the sampling, and the CP.

- a. The sampling results shall represent each job classification, or if working conditions are similar to previous jobs by the same employer, provide previously collected exposure data that can be used to estimate worker exposures per 29 CFR 1926.62. The data shall represent the worker's regular daily exposure to lead.
- b. Submit worker exposure data conducted during the task based trigger operations of 29 CFR 1926.62
- c. The initial monitoring shall determine the requirements for further monitoring and the need to fully implement the control and protective requirements including the compliance program (LBP/LCP) in accordance with 29 CFR 1926.62

1.5.2.4 Occupational Assessment Data Report

Some LBP/LCP removal work may not require full implementation of the

requirements of 29 CFR 1926.62. Based on the experience of the Contractor and/or the use of a specific process or method for performing the work, the Contractor may be able to provide historic data (previous 12 months) to demonstrate that exposures are controlled below the action level. Such methods or controls shall be fully presented in the LBP/LCPRP. To reduce the full implementation of 29 CFR 1926.62, the Contractor shall provide documentation in an Assessment Data Report.

Submit occupational assessment report to the NASA COR prior to start of work, signed by the testing laboratory responsible official, and the CP.

- a. Submit a report that supports the determination regarding the reduction of the need to fully implement the requirements of 29 CFR 1926.62 and supporting the LBP/LCP. The exposure assessment shall represent each job classification, or if working conditions are similar to previous jobs by the same employer, provide previously collected exposure data that can be used to estimate worker exposures in accordance with 29 CFR 1926.62. The data shall represent the worker's regular daily exposure to lead for stated work.
- b. Submit worker exposure data conducted during the task based trigger operations of 29 CFR 1926.62 with a complete process description in supporting a negative assessment.
- c. The initial assessment shall determine the requirement for further monitoring and the need to fully implement the control and protective requirements including the compliance program (LBP/LCPRP) in accordance with 29 CFR 1926.62.

1.5.2.5 Medical Examinations

Initial medical surveillance as required by 29 CFR 1926.62 shall be made available to all employees exposed to lead at any time above the action level. Full medical surveillance shall be made available to all employees on an annual basis who are or may be exposed to lead in excess of the action level for more than 30 days a year or as required by 29 CFR 1926.62. Adequate records shall show that employees meet the medical surveillance requirements of 29 CFR 1926.33, 29 CFR 1926.62, and 29 CFR 1926.103. Maintain complete and accurate medical records of employees for a period of at least 30 years or for the duration of employment plus 30 years, whichever is longer.

1.5.2.6 Training

Train each employee performing paint removal, disposal, and air sampling operations prior to the time of initial job assignment and annually thereafter, in accordance with 29 CFR 1926.21, 29 CFR 1926.62, and State and local regulations where appropriate.

1.5.2.7 Respiratory Protection Program

- a. Furnish each employee required to wear a negative pressure respirator or other appropriate type with a respirator fit test at the time of initial fitting and at least annually thereafter as required by 29 CFR 1926.62.
- b. Establish and implement a respiratory protection program as required by AIHA Z88.6, 29 CFR 1926.103, 29 CFR 1926.62, and 29 CFR 1926.55.

1.5.2.8 Hazard Communication Program

Establish and implement a Hazard Communication Program as required by 29 CFR 1926.59.

1.5.2.9 Hazard Waste Management

The Hazard Waste Management Plan shall comply with applicable requirements of Federal, State, and local hazardous waste regulations and address:

- a. Identification and classification of hazardous wastes associated with the work.
- b. Estimated quantities of wastes to be generated.
- c. Names and qualifications experience and training of personnel who will be working on-site with hazardous wastes.
- d. List of waste handling equipment to be used in performing the work, to include cleaning, volume reduction, and transport equipment.
- e. Spill prevention, containment, and cleanup contingency measures including a health and safety plan to be implemented in accordance with 29 CFR 1926.65.
- f. Work plan and schedule for waste containment in storage. Wastes shall be cleaned up and containerized daily.

1.5.2.10 Environmental, Safety and Health Compliance

In addition to the detailed requirements of this specification, comply with laws, ordinances, rules, and regulations of Federal, State, and local authorities regarding removing, handling and storing of lead and PCB waste materials. Comply with the applicable requirements of the current issue of 29 CFR 1926.62. Submit matters regarding interpretation of standards to the NASA COR for resolution before starting work. Where specification requirements and the referenced documents vary, this specification or NASA direction shall apply.

1.5.3 Pre-Construction Conference

Along with the CP, meet with the NASA COR to discuss in detail the hazardous waste management plan and the lead-based paint/lead-containing paint removal plan, including work procedures and precautions for the removal plan.

1.6 EQUIPMENT

1.6.1 Respirators

Furnish appropriate respirators approved by the National Institute for Occupational Safety and Health (NIOSH), Department of Health and Human Services, for use in atmospheres containing lead dust. Respirators shall comply with the requirements of 29 CFR 1926.62.

1.6.2 Special Protective Clothing

Furnish personnel who will be exposed to lead-contaminated dust with proper disposable, uncontaminated, protective whole body clothing, head covering,

gloves, and foot coverings as required by 29 CFR 1926.62. Furnish proper disposable plastic or rubber gloves to protect hands. Reduce the level of protection only after obtaining approval from the CP.

1.6.3 Rental Equipment Notification

If rental equipment is to be used during lead-based paint handling and disposal, notify the rental agency in writing concerning the intended use of the equipment. Furnish a copy of the written notification to the NASA COR.

1.6.4 Vacuum Filters

Provide UL 586 labeled HEPA filters.

1.6.5 Equipment for Government Personnel

Furnish the NASA COR with two complete sets of personal protective equipment (PPE) daily, as required herein, for entry into and inspection of the paint removal work within the lead controlled area. Personal protective equipment shall include disposable whole body covering, including appropriate foot, head, and hand protection. PPE shall remain the property of the Contractor. The Government will provide respiratory protection for the NASA COR.

1.7 PROJECT/SITE CONDITIONS

1.7.1 Protection of Existing Work to Remain

Perform paint removal work without damage or contamination of adjacent areas. Where existing work is damaged or contaminated, restore work to its original condition or better.

PART 2 PRODUCTS

2.1 CHEMICALS

Submit applicable Material Safety Data Sheets for all chemicals and Manufacturer's Instructions, for Chemicals and Equipment. Use the least toxic product approved by the NASA COR.

PART 3 EXECUTION

3.1 PREPARATION

All metal surfaces should be cleaned and prepared during morning hours, 7:00 a.m. to 11:30 a.m.

3.1.1 Protection

3.1.1.1 Notification

a. Notify the NASA COR 21 days prior to the start of any paint removal work.

3.1.1.2 Boundary Requirements

a. Provide physical boundaries around the lead control area by roping off the area designated in the work plan or providing curtains, portable partitions or other enclosures to ensure that airborne concentrations

of lead will not reach 30 micrograms per cubic meter of air outside the lead control area.

- b. Warning Signs - Provide warning signs at approaches to lead control areas. Locate signs at such a distance that personnel may read the sign and take the necessary precautions before entering the area. Signs shall comply with the requirements of 29 CFR 1926.62.

3.1.1.3 Heating, Ventilating and Air Conditioning (HVAC) Systems

Shut down, lock out, and isolate HVAC systems that supply, exhaust, or pass through the lead control areas. Seal intake and exhaust vents in the lead control area with 6 mil plastic sheet and tape. Seal seams in HVAC components that pass through the lead control area.

3.1.1.4 Decontamination Shower Facility

Provide clean and contaminated change rooms and shower facilities in accordance with this specification and 29 CFR 1926.62.

3.1.1.5 Eye Wash Station

Where eyes may be exposed to injurious corrosive materials, suitable facilities for quick drenching or flushing of the eyes shall be provided within the work area.

3.1.1.6 Mechanical Ventilation System

- a. Use adequate ventilation to control personnel exposure to lead in accordance with 29 CFR 1926.62.
- b. Use locally exhausted, power actuated, paint removal tools.

3.1.1.7 Personnel Protection

Personnel shall wear and use protective clothing and equipment as specified herein. Eating, smoking, or drinking or application of cosmetics is not permitted in the lead control area. No one will be permitted in the lead control area unless they have been appropriately trained and provided with protective equipment.

3.2 APPLICATION

3.2.1 Work Procedures

Perform removal of lead-based paint in accordance with approved lead-based paint/lead-containing paint removal plan. Use procedures and equipment required to limit occupational and environmental exposure to lead when lead-based paint is removed in accordance with 29 CFR 1926.62 except as specified herein.

3.2.2 Personnel Exiting Procedures

Whenever personnel exit the lead-controlled area, they shall perform the following procedures and shall not leave the work place wearing any clothing or equipment worn during the work day:

- a. Vacuum themselves off.

- b. Remove protective clothing in the contaminated change room, and place them in an approved impermeable disposal bag.
- c. Shower.
- d. Wash hands and face at the site, don appropriate disposable or uncontaminated reusable clothing; move to an appropriate facility; shower.
- e. Change to clean clothes prior to leaving the physical boundary designated around the lead control area.
- f. Place contaminated PPE in drums for hazardous waste disposal.

3.2.2.1 Outdoor Paint Removal

Perform outdoor removal as indicated in Federal, State, and local regulations and in the LBP/CPRP. The worksite preparation containments shall be job dependent and presented in the LBP/LCPRP.

3.3 FIELD QUALITY CONTROL

3.3.1 Tests

3.3.1.1 Air Sampling

Air sample for lead in accordance with 29 CFR 1926.62 and as specified herein. Air sampling shall be directed or performed by the CP.

- a. The CP shall be on the job site directing the air sampling and inspecting the lead-based paint removal work to ensure that the requirements of the contract have been satisfied during the entire lead-based paint removal operation.
- b. Collect personal air samples on employees who are anticipated to have the greatest risk of exposure as determined by the CP. In addition, collect air samples on at least 25 percent of the work crew or a minimum of two employees, whichever is greater, during each work shift.
- c. Submit results of air samples, signed by the CP within 72 hours after the air samples are taken. Notify the NASA COR immediately of exposure to lead at or in excess of the action level of 30 micrograms per cubic meter of air outside of the lead control area.
- d. Before any work begins, a representative of NASA will collect and analyze baseline soil samples in accordance with methods defined in federal, State, and local standards inside and outside of the physical boundary to assess the degree of contamination in the adjacent soil prior to lead-based paint removal.

3.3.1.2 Air Sampling During Paint Removal Work

Conduct area air sampling daily, on each shift in which lead-based paint removal operations are performed, in areas immediately adjacent to the lead control area. Sufficient area monitoring shall be conducted to ensure unprotected personnel are not exposed at or above 30 micrograms per cubic meter of air. If 30 micrograms per cubic meter of air is reached or exceeded, stop work, correct the condition(s) causing the increased levels. Notify the NASA COR. Determine if condition(s) require any further change

in work methods. Removal work shall resume only after approval is given by the CP and the NASA COR. For outdoor operations, at least one sample on each shift shall be taken on the downwind side of the lead control area.

3.4 CLEANING

3.4.1 Cleanup

Maintain surfaces of the lead control area free of accumulations of paint chips and dust. Restrict the spread of dust and debris; keep waste from being distributed over the work area. Do not dry sweep or use compressed air to clean up the area. At the end of each shift and when the paint removal operation has been completed, clean the area of visible lead paint contamination. After visible dust, chips and debris are removed, clean all surfaces in the work area. If adjacent areas become contaminated at any time during the work, clean, visually inspect all contaminated areas. The CP shall then certify in writing that the area has been cleaned of lead contamination before restarting work.

3.4.1.1 Clearance Certification

The CP shall certify in writing that the final air samples collected inside and outside the lead control area are less than 30 micrograms per cubic meter of air; the respiratory protection used for the employees was adequate; the work procedures were performed in accordance with 29 CFR 1926.62 ; and that there were no visible accumulations of material and dust containing lead left in the work site. Do not remove the lead control area or roped off boundary and warning signs prior to the NASA COR'S acknowledgement of receipt of the CP certification.

3.4.2 Collection and Storage of Waste

- a. The Contractor must collect and store PCBs and lead-contaminated waste (paint chips), scrap, debris, bags, containers and lead-contaminated clothing which may produce airborne concentrations of lead particles in 55-gallon drums with lids and locking rings provided to the Contractor by NASA. Contractor will label the containers in accordance with 29 CFR 1926.62 and 40 CFR 261. Contractor shall label the drum as "Hazardous Waste".
- b. Store waste materials in U.S. Department of Transportation (49 CFR 178) approved 55 gallon drums that will be provided by NASA. Contractor will label each drum to identify the type of waste (49 CFR 172) and the date the drum was filled. No more than 55 gallons of hazardous waste may be stored at work site. The NASA COR or an authorized representative will assign an area for interim storage of waste-containing drums. Contractor will be responsible for transporting full drums to the designated area. Coordinate the storage, management and disposal of all wastes with FOSC Environmental Services.
- c. Handle and store the lead or lead-contaminated waste in accordance with 40 CFR 260, 40 CFR 261, 40 CFR 262, 40 CFR 263, 40 CFR 264, and 40 CFR 265.
- d. Hazardous waste will be disposed of by NASA in accordance with laws and provisions and Federal, State, or local regulations. A representative of NASA will ensure waste is properly characterized.

3.4.3 Hazardous/Non- Hazardous Waste

The Government will provide the necessary containers. Store the non-hazardous waste separately from the hazardous waste. NASA/NASA COR is charged with the responsibility of properly disposing of all hazardous waste generated on this project.

-- End of Section --

Industrial

SECTION 02 82 33.13 20

REMOVAL AND COLLECTION OF LEAD-CONTAINING PAINT

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred within the text by the basic designation only.

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI Z88.2 (1992) Respiratory Protection

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

- 29 CFR 1926.21 Safety Training and Education
- 29 CFR 1926.33 Access to Employee Exposure and Medical Records
- 29 CFR 1926.55 Gases, Vapors, Fumes, Dusts, and Mists
- 29 CFR 1926.59 Hazard Communication
- 29 CFR 1926.62 Lead Exposure in Construction
- 29 CFR 1926.65 Hazardous Waste Operations and Emergency Response
- 29 CFR 1926.103 Respiratory Protection
- 40 CFR 260 Hazardous Waste Management Systems: General
- 40 CFR 261 Identification and Listing of Hazardous Waste
- 40 CFR 262 Generators of Hazardous Waste
- 40 CFR 263 Transporters of Hazardous Waste
- 40 CFR 264 Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
- 40 CFR 265 Interim Status Standard for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
- 49 CFR 172 Hazardous Materials, Tables, and Hazardous Materials Communications Regulations
- 49 CFR 178 Shipping Container Specification

UNDERWRITERS LABORATORIES (UL)

UL 586

(1996; Rev thru Apr 2000) High-Efficiency,
Particulate, Air Filter Units

1.2 DEFINITIONS

1.2.1 Description of Work

Remove lead-based paint / lead-containing paint as indicated on the drawings.

1.2.2 Coordination With Other Work

The Contractor shall coordinate with work being performed in adjacent areas. Coordination procedures shall be explained in the Removal Plan and shall describe how the Contractor will prevent lead exposure to other Contractors and/or Government personnel performing work unrelated to lead activities.

1.2.3 Action Level

Employee exposure, without regard to use of respirators, to an airborne concentration of lead of 30 micrograms per cubic meter of air averaged over an 8 hour period in an occupational/industrial environment.

1.2.4 Area Sampling

Sampling of lead concentrations within the lead control area and inside the physical boundaries which is representative of the airborne lead concentrations but is not collected in the breathing zone of personnel.

1.2.5 Competent Person (CP)

As used in this section, refers to a person employed by the Contractor who is trained in the recognition and control of lead hazards in accordance with current federal, State, and local regulations. An industrial hygienist or safety professional certified for comprehensive practice by the American Board of Industrial Hygiene or by the Board of Certified Safety Professionals is the best choice.

1.2.6 Contaminated Room

Room for removal of contaminated personal protective equipment (PPE).

1.2.7 Decontamination Shower Facility

That facility that encompasses a clean clothing storage room, and a contaminated clothing storage and disposal rooms, with a shower facility in between.

1.2.8 Eight-Hour Time Weighted Average (TWA)

Airborne concentration of lead to which an employee is exposed, averaged over an 8 hour workday as indicated in 29 CFR 1926.62.

1.2.9 High Efficiency Particulate Air (HEPA) Filter Equipment

HEPA filtered vacuuming equipment with a UL 586 filter system capable of

collecting and retaining lead-contaminated paint dust. A high efficiency particulate filter means 99.97 percent efficient against 0.3 micron or larger size particles.

1.2.10 Lead

Metallic lead, inorganic lead compounds, and organic lead soaps.

1.2.11 Lead-Based Paint Hazard (LBP Hazard)

Any condition that causes exposure to lead from lead-contaminated dust, lead-contaminated soil, lead-based paint that is deteriorated or present in accessible surfaces, friction surfaces, or impact surfaces that would result in adverse human health effects.

1.2.12 Lead-Containing Paint (LCP)

Lead-based paint or other similar surface coating containing lead or lead compound in excess of 0.06 percent by weight of the total nonvolatile content of the paint.

1.2.13 Lead Control Area

An enclosed area or structure, constructed as a temporary containment equipped with HEPA filtered local exhaust, which prevents the spread of lead dust, paint chips, or debris existing as a condition of lead-based paint removal operations. The lead control area is also isolated by physical boundaries to prevent unauthorized entry of personnel.

1.2.14 Lead Permissible Exposure Limit (PEL)

Fifty micrograms per cubic meter of air as an 8 hour time weighted average as determined by 29 CFR 1926.62. If an employee is exposed for more than eight hours in a work day, the PEL shall be determined by the following formula:

$$\text{PEL (micrograms/cubic meter of air)} = 400/\text{No. hours worked per day}$$

1.2.15 Personal Sampling

Sampling of airborne lead concentrations within the breathing zone of an employee to determine the 8 hour time weighted average concentration in accordance with 29 CFR 1926.62. Samples shall be representative of the employees' work tasks. Breathing zone shall be considered an area within a hemisphere, forward of the shoulders, with a radius of 6 to 9 inches and centered at the nose or mouth of an employee.

1.2.16 Area Sampling

Air quality measurements for lead must be determined following NIOSH analytical method 7082 using personal monitors outside of areas or equipment that may potentially emit lead. Area sampling must be conducted at the established boundary line that demarcates that lead work area. Use of ropes, ribbons, tape, or other visible means to define the areas and prohibit entrance into the regulated area by unprotected and untrained personnel. The boundary line must ensure that the 8 hour time weighted average (TWA) is below the OSHA lead in construction Action Level (AL) of 30 micrograms per cubic meter. If the (AL) is exceeded, the Contractor must adjust their work practices and/or establish a new boundary line

further from the work.

1.2.17 Physical Boundary

Area physically roped or partitioned off around an enclosed lead control area to limit unauthorized entry of personnel. As used in this section, "inside boundary" shall mean the same as "outside lead control area but inside boundary."

1.3 SUBMITTALS

The following shall be submitted in accordance with Section 01 33 00 SUBMITTAL PROCEDURES in sufficient detail to show full compliance with the specification:

SD-01 Preconstruction Submittals

Lead Based Paint/Lead Containing Paint Removal Plan

Hazardous Waste Management Plan

SD-03 Product Data

Respirators

Rental Equipment Notification

SD-06 Test Reports

Sampling results

Assessment data report

SD-07 Certificates

Qualifications of CP

Testing laboratory qualifications

Third party consultant qualifications

Lead-Based Paint/Lead-Containing Paint Removal Plan including CP approval signature, date, and certification number

Respiratory protection program

Hazard communication program

Hazardous waste management plan

Vacuum filters

Clearance Certification

SD-08 Manufacturer's Instructions

Chemicals and equipment

Material safety data sheets for all chemicals

SD-11 Closeout Submittals

Certification of medical examinations

Employee training certification

1.4 QUALIFICATIONS OF CP

Submit name, address, and telephone number of the CP selected to perform responsibilities specified in paragraph entitled "Competent Person (CP) Responsibilities." Provide previous experience of the CP. Submit proper documentation that the CP is trained and certified in accordance with Federal, State, and local laws.

1.4.1 Competent Person (CP) Responsibilities

- a. Certify training as meeting all federal, state, and local requirements.
- b. Review and approve lead-based paint/lead-containing paint removal plan for conformance to the applicable referenced standards. Ensure work is performed in strict accordance with specifications at all times.
- c. Continuously inspect lead-based paint removal work for conformance with the approved plan.
- d. Perform air sampling.
- e. Control work to prevent hazardous exposure to human beings and to the environment at all times.
- f. Certify the conditions of the work as called for elsewhere in this specification.

1.5 THIRD PARTY CONSULTANT QUALIFICATIONS

Submit the name, address, and telephone number of the third party consultant selected to perform the air sampling for determining concentrations of lead in the existing air. Submit proper documentation that the consultant is trained and certified as Supervisor/Competent Person for Deleading Industrial Structures.

1.6 TESTING LABORATORY

Submit the name, address, and telephone number of the testing laboratory selected to perform the air sampling, testing, and reporting of concentrations of lead. Use a laboratory accredited under the EPA National Lead Laboratory Accreditation Program (NLLAP) by either the American Association for Laboratory Accreditation (A2LA) or the American Industrial Hygiene Association (AIHA) and that is successfully participating in the Environmental Lead Proficiency Analytical Testing (ELPAT) program to perform sample analysis.

1.7 LEAD-BASED PAINT/LEAD-CONTAINING PAINT REMOVAL PLAN (LBP/LCPRP)

Submit a detailed job-specific plan of the work procedures to be used in the removal of LBP/LCP. The plan shall include a sketch showing the location, size and details of lead control areas and location and details

of decontamination facilities. Include in the plan, eating, drinking, smoking and sanitary procedures, interface of trades, sequencing of lead related work, collected waste water and paint debris collection plan, air sampling plan, respirators and personal protective equipment. Include site preparation and cleanup procedures. Include occupational and environmental sampling, training and strategy, sampling methodology, frequency, duration of sampling, and qualifications of sampling personnel in the air sampling portion of the plan.

The Contractor is responsible for erecting a berm around the area adjacent to the test stand. Additionally, the contractor shall place plastic sheeting around the area adjacent to the test stand to facilitate clean up at the completion of each workday.

1.8 OCCUPATIONAL SAMPLING RESULTS

Submit occupational sampling results to the COTR within three working days of collection, signed by the testing laboratory responsible official, the employee that performed the sampling, and the CP.

- a. The sampling results shall represent each job classification, or if working conditions are similar to previous jobs by the same employer, provide previously collected exposure data that can be used to estimate worker exposures in accordance with 29 CFR 1926.62. The data shall represent the worker's regular daily exposure to lead.
- b. Submit worker exposure data conducted during the task based trigger operations of 29 CFR 1926.62.
- c. The initial monitoring shall determine the requirements for further monitoring and the need to fully implement the control and protective requirements including the compliance program (LBP/LCP) in accordance with 29 CFR 1926.62.

1.9 OCCUPATIONAL ASSESSMENT DATA REPORT

Some LBP/LCP removal work may not require full implementation of the requirements of 29 CFR 1926.62. Based on the experience of the Contractor and/or the use of a specific process or method for performing the work, the Contractor may be able to provide historic data (previous 12 months) to demonstrate that airborne exposures are controlled below the action level. Such methods or controls shall be fully presented in the LBP/LCPRP. To reduce the full implementation of 29 CFR 1926.62, the Contractor shall provide documentation in an Assessment Data Report.

Submit occupational assessment report to the COTR prior to start of work, signed by the testing laboratory responsible official, and the CP.

- a. Submit a report that supports the determination regarding the reduction of the need to fully implement the requirements of 29 CFR 1926.62 and supporting the LBP/LCP. The exposure assessment shall represent each job classification, or if working conditions are similar to previous jobs by the same employer, provide previously collected exposure data that can be used to estimate worker exposures in accordance with 29 CFR 1926.62. The data shall represent the worker's regular daily exposure to lead for stated work.

- b. Submit worker exposure data conducted during the task based trigger operations of 29 CFR 1926.62 with a complete process description in supporting a negative assessment.
- c. The initial assessment shall determine the requirement for further monitoring and the need to fully implement the control and protective requirements including the compliance program (LBP/LCPRP) in accordance with 29 CFR 1926.62.

1.10 QUALITY ASSURANCE

1.10.1 Medical Examinations

Initial medical surveillance as required by 29 CFR 1926.62 shall be made available to all employees exposed to lead at any time (1 day) above the action level. Full medical surveillance shall be made available to all employees on an annual basis who are or may be exposed to lead in excess of the action level for more than 30 days a year or as required by 29 CFR 1926.62. Adequate records shall show that employees meet the medical surveillance requirements of 29 CFR 1926.33, 29 CFR 1926.62, and 29 CFR 1926.103.

1.10.1.1 Medical Records

Maintain complete and accurate medical records of employees for a period of at least 30 years or for the duration of employment plus 30 years, whichever is longer.

1.10.1.2 Medical Surveillance

Provide medical surveillance to all personnel exposed to lead as indicated in 29 CFR 1926.62.

1.10.2 Competent Person (CP) Responsibilities

- a. Certify training as meeting all federal, State, and local requirements.
- b. Review and approve lead-based paint/lead-containing paint removal plan for conformance to the applicable referenced standards.
- c. Continuously inspect lead-based paint removal work for conformance with the approved plan.
- d. Perform air sampling.
- e. Ensure work is performed in strict accordance with specifications at all times.
- f. Control work to prevent hazardous exposure to human beings and to the environment at all times.
- g. Certify the conditions of the work as called for elsewhere in this specification.

1.10.3 Training

Train each employee performing paint removal, disposal, and air sampling operations prior to the time of initial job assignment and annually

thereafter, in accordance with 29 CFR 1926.21, 29 CFR 1926.62, and State and local regulations.

1.10.3.1 Training Certification

Submit a certificate for each employee, signed and dated by the approved training source, stating that the employee has received the required lead training.

1.10.4 Respiratory Protection Program

- a. Furnish each employee required to wear a negative pressure respirator or other appropriate type with a respirator fit test at the time of initial fitting and at least annually thereafter as required by 29 CFR 1926.62.
- b. Establish and implement a respiratory protection program as required by ANSI Z88.2, 29 CFR 1926.103, 29 CFR 1926.62, and 29 CFR 1926.55.

1.10.5 Hazard Communication Program

Establish and implement a Hazard Communication Program as required by 29 CFR 1926.59.

1.10.6 Hazardous Waste Management

The Hazardous Waste Management Plan shall comply with applicable requirements of federal, State, and local hazardous waste regulations and address:

- a. Identification and classification of hazardous wastes associated with the work.
- b. Estimated quantities of wastes to be generated.
- c. Names and qualifications, experience and training of personnel who will be working on-site with hazardous wastes.
- d. List of waste handling equipment to be used in performing the work, to include cleaning, volume reduction, and transport equipment.
- e. Spill prevention, containment, and cleanup contingency measures including a health and safety plan to be implemented in accordance with 29 CFR 1926.65.
- f. Work plan and schedule for waste containment in storage. Wastes shall be cleaned up and containerized daily.

1.10.7 Environmental, Safety and Health Compliance

In addition to the detailed requirements of this specification, comply with laws, ordinances, rules, and regulations of Federal, State, and local authorities regarding removing, handling, and storing of lead waste materials. Comply with the applicable requirements of the current issue of 29 CFR 1926.62. Submit matters regarding interpretation of standards to the COTR for resolution before starting work. Where specification requirements and the referenced documents vary, this specification or NASA

direction shall apply.

1.10.8 Pre-Construction Conference

Along with the CP, meet with the COTR to discuss in detail the hazardous waste management plan and the lead-based paint/lead-containing paint removal plan, including work procedures and precautions for the removal plan.

1.11 EQUIPMENT

1.11.1 Respirators

Furnish appropriate respirators approved by the National Institute for Occupational Safety and Health (NIOSH), Department of Health and Human Services, for use in atmospheres containing lead dust. Respirators shall comply with the requirements of 29 CFR 1926.62.

1.11.2 Special Protective Clothing

Furnish personnel who will be exposed to lead-contaminated dust with proper disposable uncontaminated, reusable protective whole body clothing, head covering, gloves, and foot coverings as required by 29 CFR 1926.62. Furnish proper disposable plastic or rubber gloves to protect hands. Reduce the level of protection only after obtaining approval from the CP.

1.11.3 Rental Equipment Notification

If rental equipment is to be used during lead-based paint handling, notify the rental agency in writing concerning the intended use of the equipment. Furnish a copy of the written notification to the COTR.

1.11.4 Vacuum Filters

UL 586 labeled HEPA filters.

1.11.5 Equipment for Government Personnel

Furnish the COTR with two complete sets of personal protective equipment (PPE) daily, as required herein, for entry into and inspection of the paint removal work within the lead controlled area. Personal protective equipment shall include disposable whole body covering, including appropriate foot, head, and hand protection. PPE shall remain the property of the Contractor. Respiratory protection for the COTR will be provided by the Government.

PART 2 PRODUCTS

2.1 CHEMICALS

Submit applicable Material Safety Data Sheets for all chemicals used in paint removal work. Use the least toxic product approved by the COTR.

PART 3 EXECUTION

3.1 PROTECTION

3.1.1 Notification

Notify the COTR 21 days prior to the start of any paint removal work.

3.1.2 Protection of Existing Work to Remain

Perform paint removal work without damage or contamination of adjacent areas. Where existing work is damaged or contaminated, restore work to its original condition or better.

3.1.3 Boundary Requirements

Provide physical boundaries around the lead control area by roping off the area designated in the work plan or providing curtains, portable partitions or other enclosures to ensure that airborne concentrations of lead will not reach 30 micrograms per cubic meter of air outside of the lead control area.

3.1.3.1 Warning Signs

Provide warning signs at approaches to lead control areas. Locate signs at such a distance that personnel may read the sign and take the necessary precautions before entering the area. Signs shall comply with the requirements of 29 CFR 1926.62.

3.1.4 Heating, Ventilating and Air Conditioning (HVAC) Systems

Shut down, lock out, and isolate HVAC systems that supply, exhaust, or pass through the lead control areas. Seal intake and exhaust vents in the lead control area with 6 mil plastic sheet and tape. Seal seams in HVAC components that pass through the lead control area.

3.1.5 Decontamination Shower Facility

Provide clean and contaminated change rooms and shower facilities in accordance with this specification and 29 CFR 1926.62.

3.1.6 Eye Wash Station

Where eyes may be exposed to injurious corrosive materials, suitable facilities for quick drenching or flushing of the eyes shall be provided within the work area.

3.1.7 Mechanical Ventilation System

- a. Use adequate ventilation to control personnel exposure to lead in accordance with 29 CFR 1926.62.
- b. Use locally exhausted, power actuated, paint removal tools.

3.1.8 Personnel Protection

Personnel shall wear and use protective clothing and equipment as specified herein. Eating, smoking, or drinking or application of cosmetics is not permitted in the lead control area. No one will be permitted in the lead control area unless they have been appropriately trained and provided with

protective equipment.

3.2 WORK PROCEDURES

Perform removal of lead-based paint in accordance with approved lead-based paint/lead-containing paint removal plan. Use procedures and equipment required to limit occupational and environmental exposure to lead when lead-based paint is removed in accordance with 29 CFR 1926.62, except as specified herein.

3.2.1 Personnel Exiting Procedures

Whenever personnel exit the lead-controlled area, they shall perform the following procedures and shall not leave the work place wearing any clothing or equipment worn during the work day:

- a. Vacuum themselves off.
- b. Remove protective clothing in the contaminated change room, and place them in an approved impermeable disposal bag.
- c. Shower.
- d. Wash hands and face at the site, don appropriate disposable or uncontaminated reusable clothing; move to an appropriate facility; shower.
- e. Change to clean clothes prior to leaving the physical boundary designated around the lead control area.
- f. Place contaminated PPE in approved containers for hazardous waste disposal.

3.2.2 Air Sampling

Air sample for lead in accordance with 29 CFR 1926.62 and as specified herein. Air sampling shall be directed or performed by the CP.

- a. The CP shall be on the job site directing the air sampling and inspecting the lead-based paint removal work to ensure that the requirements of the contract have been satisfied during the entire lead-based paint removal operation.
- b. Collect personal air samples on employees who are anticipated to have the greatest risk of exposure as determined by the CP. In addition, collect air samples on at least 25 percent of the work crew or a minimum of two employees, whichever is greater, during each work shift.
- c. Submit results of air samples, signed by the CP, within 72 hours after the air samples are taken. Notify the COTR immediately of exposure to lead at or in excess of the action level of 30 micrograms per cubic meter of air outside of the lead control area.
- d. Before any work begins, a representative of NASA will collect and analyze baseline soil samples in accordance with methods defined in federal, State, and local standards inside and outside of the physical boundary to assess the degree of contamination in the adjacent soil prior to lead-based paint removal.

3.2.2.1 Air Sampling During Paint Removal Work

Conduct area air sampling daily, on each shift in which lead-based paint removal operations are performed, in areas immediately adjacent to the lead control area. Sufficient area monitoring shall be conducted to ensure unprotected personnel are not exposed at or above 30 micrograms per cubic meter of air. If 30 micrograms per cubic meter of air is reached or exceeded, stop work, correct the condition(s) causing the increased levels. Notify the COTR immediately. Determine if condition(s) require any further change in work methods. Removal work shall resume only after approval is given by the CP and the COTR. For outdoor operations, at least one sample on each shift shall be taken on the downwind side of the lead control area.

3.2.3 Outdoor Lead Paint Removal

Perform outdoor removal as indicated in federal, State, and local regulations and in the LBP/CPRP. The worksite preparation containments shall be job dependent and presented in the LBP/LCPRP.

3.2.4 Cleanup

3.2.4.1 Cleanup

Maintain surfaces of the lead control area free of accumulations of paint chips and dust. Restrict the spread of dust and debris; keep waste from being distributed over the work area. Do not dry sweep or use compressed air to clean up the area. At the end of each shift and when the paint removal operation has been completed, clean the area of visible lead paint contamination. After visible dust, chips and debris is removed, clean all surfaces in the work area. If adjacent areas become contaminated at any time during the work, clean, visually inspect all contaminated areas. The CP shall then certify in writing that the area has been cleaned of lead contamination before restarting work.

3.2.4.2 Clearance Certification

The CP shall certify in writing that the final air samples collected inside and outside the lead control area are less than 30 micrograms per cubic meter of air; the respiratory protection used for the employees was adequate; the work procedures were performed in accordance with 29 CFR 1926.62 ; and that there were no visible accumulations of material and dust containing lead left in the work site. Do not remove the lead control area or roped off boundary and warning signs prior to the NASA COTR'S acknowledgement of receipt of the CP certification.

3.2.4.3 Testing of Lead-Based Paint Residue and Used Abrasive

Paint chips that are generated as a result of surface preparation methods, paint residue and spent abrasive will be sampled and analyzed by representatives of NASA in accordance with 40 CFR 261 for hazardous waste.

Additionally, NASA will properly label any waste generated with the appropriate verbiage using indelible ink.

3.2.4.4 Collection and Storage of Waste

- a. The Contractor must collect and store PCBs and lead-contaminated

- waste (paint chips), scrap, debris, bags, containers and lead-contaminated clothing which may produce airborne concentrations of lead particles in 55-gallon drums with lids and locking rings provided to the Contractor by NASA. Contractor will label the containers in accordance with 29 CFR 1926.62 and 40 CFR 261. Contractor shall label the drum as "Hazardous Waste".
- b. Store waste materials in U.S. Department of Transportation (49 CFR 178) approved 55 gallon drums that will be provided by NASA. Contractor will label each drum to identify the type of waste (49 CFR 172) and the date the drum was filled. No more than 55 gallons of hazardous waste may be stored at work site. The NASA COTR or an authorized representative will assign an area for interim storage of waste-containing drums. Contractor will be responsible for transporting full drums to the designated area. Coordinate the storage, management and disposal of all wastes with FOSC Environmental Services.
 - c. Handle and store the lead or lead-contaminated waste in accordance with 40 CFR 260, 40 CFR 261, 40 CFR 262, 40 CFR 263, 40 CFR 264, and 40 CFR 265.
 - d. Hazardous waste will be disposed of by NASA in accordance with laws and provisions and Federal, State, or local regulations. A representative of NASA will ensure waste is properly characterized.

3.2.5 Hazardous/Non-Hazardous Waste

The Government will provide the necessary containers. Store the non-hazardous waste separately from the hazardous waste. NASA/COTR is charged with the responsibility of properly disposing of all hazardous waste generated on this project.

-- End of Section --