ATTACHMENT A

ASBESTOS, LEAD-BASED PAINT AND HAZARDOUS MATERIALS INSPECTION AND REMOVAL

National Guard Center
DYRS Oakhill Campus
Maryland

The Contractor shall assume that asbestos is present in floor tiles and inside the ceiling (around MEP ducts, pipelines, equipment's, etc.). In addition, Contractor shall assume that lead-based paint is present on walls. For the purpose of pricing, Contractor shall provide in the cost proposal line items to include -the cost of testing for the presence of asbestos and other contaminated and or hazardous materials, and the unit cost for asbestos and lead abatements.

The Contractor must attend a mandatory site visit for a pre-proposal for an abstract of a sample location of HAZMART materials. The knowledge received during the walk thru visit shall be for informational use only. Current and applicable conditions of HAZMART must be verified in the field. Asbestos Containing Materials (ACM) are classified as either friable (the ability to be crumbled, pulverized and/or reduced to powder by hand pressure when dry) or non-friable. While a friable material may easily lend itself to fiber release, non-friable materials can also release asbestos fibers if physically disturbed and/or damaged.

Federal and District of Columbia regulations do not require that Asbestos, be removed unless disturbed by renovation or demolition. It is recommended that any and all of such be removed prior to any renovations or demolitions within the subject area that would disturb such materials. A licensed qualified asbestos abatement contractor should abate the ACM. A qualified Industrial hygiene firm with regard to work and environmental safety shall be required to monitor the abatement of any ACM.

Upon receipt of a signed contract/task order from the Contracting Officer (CO) and a Pre-construction meeting with the Contracting Officer's Technical Representative (COTR), the Contractor shall start the project with an investigation/inspection of the area of work (limited to ceiling demolition, floor tiles, and mechanical equipments) and area immediately adjacent (directly impacted by area of work) for Asbestos, Lead-Based Paint and Hazardous Materials. Such investigation shall be performed by a Certified Asbestos Inspector and DC Lead Risk Assessor. The purposed of such inspection will be to identify asbestos containing materials, lead-based paint and hazardous materials that have the potential to be disturbed during the renovation or demolition activities.

A modified environmental work area assessment shall be conducted to identify hazardous materials that have the potential of being affected during demolition activities. The site assessment must include a visual examination of the grounds around the area of work in an attempt to identify potential sources of on-site hazardous materials; such as chemicals Poly Chlorinated Biphenyls (PCB's), mold and bird/animal dropping.

Should the Contractor suspect or identify the existence of any Asbestos, Lead-Based Paint and Hazardous Materials, the Contractor shall immediately inform the COTR in writing. The Contractor shall include in such information, a plan of action of formal identification/testing of the material and the cost of testing. The formal identification/testing shall be in the form of written report that indicates the location and quantity of the Asbestos/HAZMART materials. In addition the Contractor shall develop a schedule for performing all remediation work in the area of work as (described above). Such schedule must be accompanied by a proposal for the cost of work to be performed. The cost-proposal should be in compliance with the price itemized in the IFP or the conditions stipulated in the task order document. If necessary, the COTR shall negotiate the proposed schedule and cost with the Contractor. Upon the conclusion of negotiation, the COTR shall process a Change Order or Basic Construction Directive (BCD) and forward it to the CO of approval. GC may not perform additional work without the expressed written approval of the CO.

It is recommended that hazardous material, be removed properly by a qualified disposal contractor. Contractors shall following all OSHA, EPA and District of Columbia guidelines. It is also recommended that the UST and AST be removed prior to demolitions. It is required that a qualified Remediation Contractor remove the UST and AST following all EPA, OSHA and District regulations. A qualified Industrial hygiene firm with regard to work and environmental safety shall monitor the proper removal and disposal of all hazardous materials. The Remediation Contractor shall comply with Specification Section 17085 (here in) as well as all applicable regulations and guidelines.

ATTACHMENT A

SECTION 17085 ASBESTOS ABATEMENT

PART 1 – GENERAL

1.0.1 DESCRIPTION OF WORK

A. The work required by this Section includes furnishing all required labor, equipment, materials, and transportation necessary for the proper and safe removal, handling, and disposal of friable and non-friable asbestos-containing materials (ACM). The scope also includes all work necessary to maintain air concentrations of asbestos at or below the levels, as specified in paragraph 1.02 (C), during and after the asbestos abatement process, throughout the life of the contract.

B. Asbestos containing materials confirmed to be present within the facility at unknown locations listed (Refer to Appendix I for information only). These materials and their locations are shown in Appendix I.

C. Asbestos-containing materials and their locations are thought to exist in the building. Contractors are responsible for obtaining quantities and conditions for asbestos removal. Remove all asbestos-containing materials as a Class I or II project under OSHA 29 CFR 1926.1101 as appropriate

1.0.2 QUALITY ASSURANCE

A. Contractor Qualifications: The Contractor shall be a firm of established reputation (or if newly organized, whose personnel have previously established a reputation in the same field), which is regularly engaged in, and which maintains a regular force of workers skilled in asbestos abatement, and shall have performed this work on previous projects.

1 Contractors performing asbestos abatement work are required to have current licenses to do asbestos work in the District of Columbia. The contractor shall comply with the licensing regulations of the District of Columbia Department of the Environment.

2 Contractor employees assigned to active asbestos work areas shall have, and demonstrate current District of Columbia licenses and training as an asbestos worker.

3 Pursuant to NESHAP requirements, the contractor should provide appropriate written notification at least ten (10) days prior to the start of asbestos abatement work to the US EPA Region III and the District of Columbia Department of the Environment.

B. Laboratory Qualifications: Laboratory shall be regularly engaged in asbestos

testing, and personnel used for monitoring airborne concentrations of asbestos fibers shall be proficient in this field. For the specific information that must be submitted for approval of the laboratory, see paragraph 1.04 of this specification.

C. Asbestos Control Limits: The enclosed work areas shall be defined as a regulated area in accordance with 29 CFR 1910.1001 and 29 CFR 1926.1101.

1 Inside Asbestos Work Area: For personnel wearing negative-pressure respirators, air concentrations of asbestos shall not exceed an 8-hour time weighted average of 0.1 fibers (longer than 5 microns), per cubic centimeter (f/cc) of air or a 30-minute time weighted average of 1.0 f/cc. Regardless of respirator protection worn, air concentrations inside the work area will not exceed an 8-hour time weighted average of 0.5 f/cc. If concentrations exceed 0.5 f/cc, the contractor shall reevaluate work practices to lower fiber concentrations. Contractor shall reevaluate work practices and containment configuration if inside air monitoring is void due to excess particulate.

2 Outside Asbestos Work Area: Air concentrations of asbestos shall be maintained at the lowest attainable level and shall not exceed an 8hour time weighted average of 0.01 f/cc of air under PCM-A counting rules. This applies to all areas in the building while work is in progress except for the asbestos work area, and to the entire building, including the former asbestos work area, after final cleanup.

3 To assure that the limits (inside the asbestos work area) are in compliance, and that all safety and health procedures are followed, the contractor shall provide an independent laboratory to analyze personal air monitoring less than 29 DFR 1926.1101.

4 The Contracting Officer (CO) or Contracting Officer Representative (COR) will pre-approve all asbestos containments; collect background TEM samples to be analyzed if necessary, collect PCM samples in all occupied areas adjacent to containment during abatement collect PCM samples inside the work area. COTR shall inspect the work area for visible dust and debris following final cleaning. After encapsulation, CO or COR shall collect clearance samples using TEM analysis via AHERA method.

1.0.3 REFERENCES

A. American National Standards Institute (ANSI) Publication: Z9.2-79 Fundamentals Governing the Design and Operation of Local Exhaust Systems.

B. American Society for Testing and Materials (ASTM) Publication: E 849-82 Safety and Health Requirements relating to Occupational Exposure to Asbestos

C. Code of Federal Regulations (CFR):

- 29 CFR 1926.1101 Construction Standard for Asbestos Abatement (Subpart C)
- 29 CFR 1910.1001 Asbestos Standard, General Industry Standard
- 29 CFR 1910.134 Respiratory Protection Standard
- 29 CFR 1910.147 Lockout/Tagout Safety Requirements
- 29 CFR 1910.20 Access to Employee Exposure and Medical Records
- 29 CFR 1910.1200 Hazardous Communication Equipment
- 29 CFR 1910.200 Accident Prevention Signs and Tags
- 40 CFR Part 61, Subpart A National Emissions Standard for Hazardous Air Pollutants -General Provisions. November 7, 1985
- 40 CFR Part 61, Subpart M National Emission Standards for Hazardous Air Pollutants -Asbestos. November 20, 1990
- 40 CFR Part 763, Asbestos Hazard Emergency Response Act (AHERA) INCLUDING Appendix A through D.
- 49 CFR Part 171, Hazardous Substances
- 49 CFR Part 173, Subpart M Shippers -General Requirements for Shipments and Packaging

D. State and Local Regulations: EPA Clean Water Act Applicable state and local regulations shall apply.

1.0.4 SUBMITTALS:

A. Initial Submittals of Asbestos Abatement Contractor or Subcontractor Qualification Information: Items 1.04.A.1 through 1.04.A.14 below are to be submitted after the

1. Five Projects: Name and Location of at least 5 asbestos abatement projects with a value above $10,000 performed within the last 3 years by the Contractor, including name and telephone number of contract representative.

2. Five Air Tests: Copy of daily log and air monitoring reports including final decontamination levels of last five abatement projects.
3. Experience and Qualifications of Supervision: Name and experience record of superintendent and foreman. Include evidence of knowledge of applicable regulations; evidence of participation and successful completion of EPA approved training course in asbestos removal and/or supervision of asbestos related work; and experience with asbestos related work in a supervisory position as evidenced through supervision of at least two asbestos abatement contracts.
4. Experience and Qualifications of Workers: Name and experience record of workmen who *will* be assigned to this project. Include evidence of successful completion of EPA training for each worker given by qualified personnel. Provide certification that employees have received a physical in accordance with 29 CFR 1926.134.

5. License Information: Provide copies of District of Columbia Licenses for Asbestos for all workers and supervisors to be used on the project.

6. Plan of Action: Submit a detailed plan of the procedures proposed for use in complying with

the requirements and regulations included in this specification. The plan shall include the location and layout of decontamination areas, the sequencing of asbestos work, the interface of trades involved in the performance of work, methods to be used to assure the safety of building occupants and visitors to the site. Expand upon the use of portable HEPA ventilation system, closing out of the building's HVAC system and electrical system during removal, method of removal to prohibit emissions in work area, and packaging of removed asbestos debris.

7. Disposal Plan: A disposal plan including location of approved disposal site with the appropriate EPA, state, or local license and the contractor's method for documenting proper asbestos disposal to the contracting officer or his/her designated representative.

8. Environmental Protection Agency (EPA) Notification: Provide a copy of the NESHAPS Notification of Demolition Renovation Form sent to the Regional EPA Asbestos Regulation Office.

9. Local State Notification: Provide a copy of the notification sent to the appropriate District of Columbia and EPA Region III Asbestos Regulation Office.

10. Certificates of Compliance: Submit certification that vacuums, ventilation equipment, and other equipment required to contain airborne asbestos fibers conform to ANSI Z9.2.

11. Information on Encapsulating Material: Submit written evidence that material meets the latest requirements of the Environmental Protection Agency (EPA) and the American Society for Testing Materials (ASTM).

12. Laboratory Qualifications Information: Submit proof of qualifications to testing laboratory personnel. Accreditation by the American Industrial Hygiene Associate (AIHA) for asbestos analysis and two consecutive quarterly reports showing that the laboratory analyzing the samples has been judged proficient by successful participation in the National Institute for Occupational Safety and Health (NIOSH) Proficiency Analytical Testing (PAT) Program shall be considered sufficient proof of compliance. In addition to microscopists employed by AIHA accredited laboratories, microscopists who provide similar evidence of successful participation in the AIHA Asbestos Analysts Registry may analyze the fibers-in-air on site, however, any samples which are sent to a laboratory for analysis must be analyzed by an AIHA accredited laboratory. The Contracting Office must approve this submittal prior to beginning any testing.

13. Insurance Certificate: Copy of a current insurance certificate with insurance coverage to comply with District of Columbia regulations such as worker's compensation and at least $2,000,000 in occurrence type coverage for asbestos liabilities.

14. Disposal and Transportation Certifications: Certification that transportation of waste shall be in vehicles dedicated to asbestos transportation and that the final landfill is certified to accept asbestos waste. Vehicles shall be marked in accordance with DOT and NESHAPS regulations.

15. The CO shall provide Project Monitor. If Contractor wants to provide their own Project Monitor they must meet the following qualifications: project monitor training certification, NIOSH 582 equivalent microscopy training if samples will be read on-site and 3 references on projects of similar size and complexity.

B. Asbestos Abatement Submittals to the submitted during work: Items 1.04.B.1 and 1.04. B.2 below are to be submitted to the contracting officer or his designated representative as work progresses at the time specified.

1. Air monitoring and Work Area Information:

a. Air Monitoring Results: Results of all air monitoring conducted by the contractor shall be posted within 8 hours of collection for all workers to see. A copy of the results shall be given to the contracting officer.

b. Differential Air Pressure Readings: Starting when negative pressure containment is erected and approved by the contracting officer, a copy of the strip chart record of the work area relative pressure shall be submitted within 24 hours after the recording was made.

c. Work Area Inspections: The CO or COR will perform visual inspections of the work area for the pre-removal, pre-final, and re-occupancy stages of the work. The contractor shall notify the contracting officer at least 24 hours in advance of each required inspection.

2. Transportation and Disposal of Asbestos Containing Materials (ACM):

a. Disposal Receipts: Receipts from the transporter that acknowledge the contractor's shipment of ACM from the site (NESHAPS Waste Shipment Records) shall be submitted three days following removal of ACM from the premises. Each receipt shall provide date, quantity of material removed, and signature of an authorized representative for the transporter. The Contracting Officer must receive a signed and dated copy of the Waste Shipment Record showing receipt at an authorized landfill within 30 calendar days of the date of the shipping receipt.

b. Shipping Manifest Forms: Signed and completed Shipping Manifest Forms (NESHAPS Waste Shipment Records) shall be used for the transportation of ACM. Each party who has control over the asbestos waste shall sign this form, and retain a copy as responsibility for the waste is transferred to the next party.

C. Final Submittals 1.04.C.1 and 1.04.C.2 below are to be submitted to the contracting officer at the completion of work for containments.

1. Daily Log: Copies of a daily log showing the date(s) and time(s) of entrance to and exit from the work area(s) for all persons and records of all significant events such as worker injuries, breeches of containment and power outages.

2. Reestablish Systems: Submit written certification:
a. Describing the type, application, and quantity of asbestos containing materials removed by the contractor.

b. That final inspection items were completed.

c. That mechanical and electrical systems disturbed by the contractor during work under the contract have been reinstalled and are in working order.

1.0.5 CONTRACTOR RESPONSIBILITY: The Contractor shall assume full responsibility and liability for compliance with all applicable Federal, State, and local regulations pertaining to the protection of workers, visitors to the site, and persons occupying the rest of the site. The Contractor is responsible for providing medical examinations and maintaining

medical records of personnel as required by the applicable Federal, State, and local regulations, and shall hold the government harmless for failure to comply with any applicable safety or health regulation on the part of himself, his employees, or his subcontractors.

Contractor shall participate in a pre-abatement conference with District of Columbia personnel and be prepared to present asbestos and other hazardous materials information such as containment procedures, air monitoring procedures, health and safety protection issues, etc.

1.0.6 PROJECT/SITE CONDITIONS:

A. Means of Egress: Establish and maintain emergency and fire exits from the work area.

B. Use of Existing Facilities: Use of existing toilets, showers, and/or other similar facilities as decontamination areas is prohibited.

C. Maintenance of Existing Equipment: Damage to existing equipment to remain shall be repaired by the Contractor as approved by the Contracting Officer.

D. Comply with OSHA regulations regarding construction 29 CFR 1926 such as illumination, hard hats, safety glasses, etc.

E. Decontamination Facility: Throughout the time that asbestos removal is taking place; the abatement contractor will maintain a working three-stage decontamination facility at the point of access to the containment. As a minimum, the decontamination facility will consist of a clean changing area, a shower, and a contaminated changing area. The contracting officer or his representative shall approve the size and location of the facility.

F. Most areas of the project DO NOT have working utilities. It is the contractor's responsibility to provide utilities to the work areas. This can be accomplished by using temporary utilities or extending existing utilities (if still available). All costs incurred for these utilities shall be the responsibility of the contractor and included in the base bid.

G. Access to Work Area: Access to work areas shall be through decontamination areas. The following persons shall have access to the work area: Contracting Officer or Designated Representative

1 Safety & Environmental Management Personnel representing the District of Columbia
2 OSHA Inspectors
3 EPA Inspectors
4 Local Building or Health Officials

PART 2 – PRODUCTS

2.0.1 MATERIALS

A. Materials furnished under this section shall be standard products of manufacturers regularly engaged in the production of the items and shall conform to OSHA Standard 29 CFR 1926.1101; EPA Standard 40 CFR 61, Subpart M; DOT Standards 49 CFR 171, 172, and 173; applicable state regulations; and requirements specified herein.

B. Plastic: Plastic or Polyethylene Sheet of 4-mil and 6-mil thickness shall be provided in rolls of sizes, which will minimize the frequency of joints. Fire-retardant polyethylene shall be used in all gross removal areas.

C. Duct Tape: Duct tape shall be capable of sealing joints of adjacent sheets of plastic and of attaching plastic sheeting to finished surfaces without damage to existing finish and shall be capable of adhering under both dry and wet conditions, including use of amended water.

D. Surfactant: Surfactant (Wetting Agent) shall consist of resin materials in a water base, which have been tested to ensure materials are non-toxic and non-irritating to skin and eyes and are non-carcinogenic.

E. Encapsulants: Encapsulants used during this work shall be compatible with the finish materials, which are to be installed on encapsulated surfaces after asbestos abatement work is completed. The encapsulant shall carry a Class "A" fire resistance rating and shall have an ASTM E-162 flame spread index of 15 or less. A tint shall be given by the Contractor to the encapsulant by means of the addition of non-toxic, nonflammable colorings before application. The encapsulant shall be installed according to the manufactures written instructions.

F. Silicone Sealant: Silicone Sealant shall be single component, solvent curing silicone sealant with 25% elongation capacity, -65° F to 450° F service range. Sealant shall be used to seal space around pipes when constructing a permanent barrier air seal. Sealant membrane shall be not less than 1/8" and not greater than 3/8" thick. Sealant shall be applied against a backer rod, fiberglass mat, or other suitable backup material. Sealant application shall be according to the manufactures written instructions.

G. Caulking Sealant: Caulking sealant shall be single component, non-sag elastomer with 1600% elongation capacity. Sealant shall meet the requirements of Federal Specification TT-S-00230C, Class A Type II. Sealant shall be used to form an airtight seal around plywood barriers or temporary partitions, to seal along the seams of the decontamination enclosure system's plywood sheathing, and to seal around piping or other small penetrations of the work area. Sealant application shall be according to the manufactures written instructions.

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H. Insulation Cement: Insulation Cement shall be ASTM C 195 (100 F to 1,600 F), mineral fiber, with a thermal conductivity 0.85 maximum at 200° F mean when tested per ASTM C 177.

I. Foam Sealant: Foam Sealant shall be expanding urethane foam sealant with an ASTM E-162 flame spread index of 25 or less and an operating temperature range between-30° F and 250° F.

J. Spray Adhesive: Spray Aerosol Adhesive shall be specially formulated to stick to sheet polyethylene (3M 76, 3M 77 or equivalent).

K. Glove Bags: Glove bags shall be manufactured of clear polyethylene material with shoulder length gloves, clear-plastic tool pouch and side port(s). Gloves shall be heat sealed to sleeves. No sewn type glove bags will be allowed. All bags shall be a minimum thickness of six mils and shall be seamless at the bottom. Glove bags shall be provided in sizes best suited for the work.

L. Disposal Bags: Plastic Disposal Bags shall be a minimum of six mils in thickness. Bags shall be labeled in accordance with Subparagraph "Warning Labels" of this Section.

M. Shipping Containers: Impermeable Containers shall be suitable to receive and retain any asbestos-containing or asbestos-contaminated materials until they are disposed of at an approved landfill. The containers shall be labeled in accordance with this Section. Containers shall be both airtight and watertight and conform to DOT Standard 49 CFR 178.224. Each container shall be constructed of fiber, hard plastic, or metal, with locking, airtight lids.

N. Warning Signs: Warning Signs shall be posted at the perimeter of the work area prior to abatement operations in accordance with OSHA Standard 29 CFR 1926.1101 (k) (6). Danger sign format and color shall conform to OSHA Standard 29 CFR 1926.200. The signs shall display the legend indicated below:

DANGER ASBESTOS CANCER AND LUNG DISEASE HAZARD AUTHORIZED PERSONNEL ONLY RESPIRATORS AND PROTECTIVE CLOTHING ARE REQUIRED IN THIS AREA

O. Warning Labels: Warning Labels shall be permanently affixed to all bags and containers containing ACM's in accordance with OSHA Standard 29 CFR 1926.1101(k)(7), DOT Standard 49 CFR Part 171 and 172, and EPA Standard 40 CFR Part 61.150 (a)(1)(v). Danger label format and color shall conform to OSHA Standard 29 CFR 1926.200. DOT label format and color shall conform to DOT Standard 49 CFR 172.407. Labels shall display the following legends:

DANGER CONTAINS ASBESTOS FIBERS AVOID CREATING DUST CANCER AND LUNG DISEASE HAZARD

and
HAZARDOUS SUBSTANCE, SOLID, N.O.S. ORM-E, NA 9188 (ASBESTOS)

And

(TRANSPORTER COMPANY NAME & PHONE NO.)

(NAME OF FACILITY WASTE IS BEING REMOVED FROM)

(ADDRESS OR LOCATION AT WHICH THE WASTE WAS GENERATED, INCLUDING BUILDING NO.)

P. Reuse of Containers: If impermeable containers used to transport bagged asbestos waste to the landfill are to be reused, the empty containers shall display the following label:

RESIDUE: LAST CONTAINED ASBESTOS RQ

Q. Mastic Removal Solvent: MSDS's shall be provided for any solvent proposed for use. Solvents categorized as hazardous materials are prohibited from use. 40 CFR Part 273 shall be used as the reference to determine if a solvent is hazardous.

2.0.2 EQUIPMENT

A. Equipment furnished under this section shall conform to applicable Federal and State regulations, local codes, and the requirements specified herein.

B. Communication Equipment: Devices suitable for inter-room communications, such as "walkie-talkies" or "radio band" communicators shall be provided, except in areas indicated by Owner’s Representative.

C. Spraying Equipment: Equipment used to apply amended water or removal encapsulant shall be of a low-pressure type to prevent disturbance of the asbestos prior to physical, controlled removal. Asbestos encapsulant shall be spray-applied by airless method.

D. Air Filtration Device (AFD): For local exhaust ventilation and work area air filtration, high efficiency particulate air (HEPA) filtration systems equipped with filtration equipment which complies with ANSI Z9.2. shall be provided. Air movement systems or air filtering equipment shall not discharge unfiltered air outside the work area. A sufficient quantity of AFDs shall be used in order to provide one workplace air change every 15 minutes. To calculate the minimum total air flow movement:

$$\text{Total Cubic Feet Per Minute (CFM)} = \frac{\text{Vol. of work area in ft}^3}{15 \text{ minutes}}$$

To calculate the minimum number of units needed for the abatement:

$$\text{No. of units needed} = \frac{\text{Total CFM}}{\text{capacity of AFD in CFM}}$$

Work area exhaust must be sufficient to maintain the required negative pressure (vacuum) in the work area, with respect to the adjacent surrounding non-work areas. Provisions shall be made to change filters without releasing captured asbestos fibers to the surrounding areas.

E. Differential Air Pressure Recording Device: A continual strip record of the pressure differential between the work area and the adjacent non-work areas shall be provided. The strip chart shall show the time on the horizontal axis and work area vacuum on the vertical axis.

F. Vehicles: Trucks or Vans used for the transportation of asbestos waste shall be enclosed, suitable for loading, temporary storage, transit, and unloading of asbestos-contaminated waste without exposure to persons or property, and labeled in accordance with NESHAP requirements.

G. Electrical Service: Compliance with applicable standards of the National Electric Code (NEC), Underwriter's Laboratories (UL), OSHA, local building codes, and regulations governing equipment, materials, layout, and installation of temporary electric service shall be ensured by the Contractor.

Temporary lighting within the work area and decontamination systems shall be provided. Minimum illumination level in the work area shall be ten foot-candles. Minimum illumination level in pedestrian tunnels, stairways, ladder runs, and decontamination enclosure systems shall be 20 foot-candles.

The Contractor shall provide and use ground fault circuit interrupters on all electric power service used in the work area and in decontamination enclosure systems.

H. Fire Extinguishers: Type "ABC" dry chemical extinguishers or a combination of several extinguishers of NFPA recommended types for the fire hazard exposures in each extinguisher location shall be provided. Minimum size of extinguisher shall be 4-A, and 40-B:C. Supply a minimum of one extinguisher for every 1,500 square feet of floor area, with a maximum travel distance to an extinguisher of 75feet. Supply at least one extinguisher in each decontamination enclosure equipment room, and clean room.

I. Smoke Detectors: Smoke detectors of the battery-powered, ionization type will be required at a rate of one per 5,000 square feet, with a minimum of one smoke detector in the decontamination enclosure clean room, and one in the work area.

J. Water Filtration System: A system capable of filtering and retaining particles larger than 5.0 microns in size shall be provided.

2.0.3 WORKER PROTECTIVE CLOTHING AND EQUIPMENT

A. Protective clothing and equipment shall conform to OSHA Standard 29 CFR 1926.1101

B. Protective Clothing: Workers shall be provided with sufficient sets of properly fitting, full-body, disposable coveralls, head covers, gloves, and 18-inch high boot-type foot covers. Disposable coveralls, head covers, and 18-inch high boot-type foot covers shall be constructed of material equal to DuPont "TYVEK-Type 14" or Kimberly-Clark "Kleenguard "Kleenguard", as a minimum requirement.

1. The Contractor shall provide authorized visitors, the CO or COR and the suitable, properly fitting, disposable clothing, headgear, hard hats, eye protection, and footwear (up to four sets per 8-hour shift) whenever they are required to enter the work area.

C. Equipment: Eye protection and hard hats required for job conditions or by applicable safety regulations shall be provided by the Contractor.

D. Respiratory Protection: The Contractor shall be solely responsible for providing adequate respiratory protection at all times for all individuals in the work area. Types of respirators used shall be approved by MSHA/NIOSH for asbestos in accordance with OSHA Standard 29 CFR 1926.1101(h). The Contractor shall provide a level of respiratory protection, which supplies an airborne fiber level inside the respirator below 0.01 fibers per cubic centimeter (f/cc), as the minimum level of protection allowed. Determine the proper level of protection by dividing the actual airborne fiber count in the work area by the "protection factors" given below for each

1. The Contractor shall provide workers with individually issued and marked respiratory equipment. The Contractor shall also provide CO and COTR with two full-face piece PAPR throughout the duration of the project. Respiratory equipment shall be suitable for the asbestos exposure level(s) in the work area(s), as specified in OSHA Standard 29 CFR 1926.1101, and as more stringently specified otherwise herein.

2. Where respirators with disposable filter parts are employed, the Contractor will provide sufficient filter parts for replacement as necessary or as required by the applicable regulation.
3. Air supply for Type respirators shall be a compressed air system providing Grade D breathing air, in accordance with OSHA Standard 29 CFR 1910.134(d)(1) and ANSI Z86.1-1973. The compressor shall be sized to accommodate the respirator manufacturer's recommendation of supply capacity and shall have a receiver of sufficient capacity to enable the respirator wearer to escape from contaminated atmosphere in the event of compressor failure. All compressed air systems shall have a compressor-failure alarm, a high-temperature alarm or shut-off, and a carbon monoxide monitor with alarm. Documentation of adequacy of the compressed air/respiratory protection system must be retained on site. This documentation shall include a list of components compatible with the maximum number and type of respirators that may be used with the system. Periodic testing of the compressed air shall be provided by the Contractor to ensure that the system provides air of adequate quality.
4. The Contractor shall have a minimum of two spare air hoses with connectors to permit the CO or his representative, or testing laboratory's representative to connect his assigned Type C

respirator to the air system at any time without having to wait for personnel to exit the work area in order to obtain a spare hose.

ATTACHMENT A

DECONTAMINATION ENCLOSURE SYSTEMS

A. The Contractor shall provide a personnel decontamination enclosure system, and an equipment decontamination enclosure system in accordance with OSHA Standard 29 CFR 1926.1101, and as specified herein.

B. Structure: Use modular systems, or build using wood or metal frame studs, joists, and rafters placed at a maximum of 24 inches on-center. Interior shall be sheathed with plywood and caulked or taped airtight at joints and seams. Interior and exterior shall be lined with two layers of 6-mil plastic sheeting, with a minimum overlap of 16 inches at seams and sealed airtight by tape and adhesive. If the decontamination enclosure system is constructed outside of a building, the exterior shall be covered with plywood and the structure made weatherproof. The structure shall be capable of withstanding a minimum lateral wind load of 20 pounds/ft^2. The roof of the structure shall be capable of supporting a minimum live load of 25 pounds/ft^2. The Contractor shall ensure compliance with local building codes and other regulations governing temporary structures.

C. Curtained Doorways: Two overlapping sheets of 6-mil polyethylene shall be placed over a framed doorway and secured along the top of the doorway. Secure the vertical edge of the outer sheet along one vertical side of the doorway and the vertical edge of the second sheet along the opposite vertical side of the doorway. The sheets shall be weighted at the bottom so that they close quickly after being released.

D. Personnel Decontamination Enclosure System: This system shall be the only entrance/exit for the work area. The decontamination enclosure system shall be placed adjacent to the work area and shall consist of three totally enclosed chambers and a gross clean-up system as follows:

1 Equipment Room: The equipment room shall have a curtained doorway to separate it from the work area (the workers' gross clean-up area), and share a common air lock with the shower room. The equipment room shall be large enough to accommodate at least one worker (allowing him enough room to remove his protective clothing and footwear), a 6-mil disposal bag in an impermeable container, and any other equipment, which the Contractor wishes to store when not in use.

2 Shower Room: The shower room shall have two adjacent air locks, one that separates it from the equipment room and one that separates it from the clean room. The shower room shall contain at least one shower with hot and cold water per eight workers. Careful attention shall be given to the shower to ensure against leaking of any kind. The Contractor shall supply shampoo and soap in the shower room at all times.

3 Clean Room: The clean room shall share a common air lock with the shower room and shall have a curtained doorway to separate it from outside non-contaminated areas. The clean room shall be sized to adequately accommodate the work crew. Benches for seating, lockable lockers for storage of workers' street clothing, shelves for storing respirators, and a location for postings shall be provided in this area. Clean disposable clothing, replacement filters for respirators, clean dry towels, and other necessary items shall also be provided in the clean room. A hinged, lockable door shall be placed at the entrance into the clean room to prevent unauthorized access into the work area. The clean room shall not be used for storage of tools,

equipment, or materials, or as office space.

E. Decontamination Enclosure System Utilities: The Contractor shall provide lighting, heat, and electricity as necessary and as specified herein.

2.0.5 TEMPORARY PARTITIONS AND PEDESTRIAN TUNNELS

A. Temporary partitions shall extend from the floor to the ceiling and form an airtight seal. They shall be built using wood or metal framing at 24-inch on-center and shall be braced as necessary. Both sides of the temporary partition shall be covered with a double layer of 6-mil plastic sheeting, with joints staggered and sealed with tape. Edges of the temporary partition at the floor, walls, and ceiling shall be taped and caulked airtight.

PART 3 – EXECUTION

3.0.1 PERSONNEL PROTECTION AND DECONTAMINATION PROCEDURES

A. General: The Contractor shall take all safety measures and precautions necessary to protect his employees and building occupants in accordance with OSHA Standard 29 CFR 1926, EPA Standard 40 CFR, Part 61, Subpart M, and applicable state regulations. The Contractor shall be solely responsible for enforcing personnel protection requirements. Table 3.1 summarizes the minimum levels of personnel protection required.

1 Workers shall be fully protected with respirators and protective clothing from the time of first disturbance of asbestos-containing or asbestos-contaminated materials prior to commencing actual asbestos abatement until final cleanup is completed.

2 Workers or authorized visitors shall not eat, smoke, drink, or chew gum or other substances while in the work area(s) or decontamination area(s).

3 Contaminated worker footwear, eye protection, and hard hats shall be stored in the equipment room when not in use in the work area and, upon completion of asbestos abatement, disposed of as asbestos-contaminated waste or decontaminated for reuse.

4 Except for Government inspectors with jurisdiction, no visitors except those authorized by the Owner’s Representative shall be allowed in work area.

ATTACHMENT A

MADISON SHELTER – NEW ELEVATOR & ADA COMPLIANCE TABLE 3.1 MINIMUM PERSONNEL PROTECTION REQUIREMENTS

ACTIVITY	RESPIRATORY PROTECTION	DISPOSABLE CLOTHING	SHOWER REQUIRED AFTER WORK	DECONTAMINATION UNIT
1. Removal of "loose items" prior to work – no potential asbestos exposure	None	No	No	No
2. Removal of "loose items" prior to work – potential asbestos exposure	HMHER	Yes	Yes	Yes
3. Pre-cleaning prior to abatement	HMHER	Yes	No	No
4. Sealing openings prior to abatement – no potential asbestos exposure	None	No	No	No
5. Plasticizing prior to abatement – no potential asbestos exposure	None	No	No	No
6. Plasticizing prior to abatement – potential asbestos exposure	PAPR	Yes	Yes	Yes
7. Gross removal	PAPR[b]	Yes	Yes	Yes
8. Glove bag and wrap and cut removal	PAPR	Yes	Yes	Yes
9. Asbestos-containing debris removal	PAPR	Yes	Yes	Yes
10. A-C cement board removal	PAPR	Yes	Yes	Yes
11. A-C flooring removal	PAPR	Yes	Yes	Yes
12. Preliminary cleanup (after gross removal)	PAPR[b]	Yes	Yes	Yes
13. Plastic removal after initial clearance	FFHER	Yes	Yes	Yes
14. Lockdown	PAPR	Yes	Yes	Yes
15. Cleaning and plastic removal after lockdown before final clearance	FFHER	Yes	Yes	Yes
16. Activities after final clearance	None	No	No	No
7. Loading ACM on truck (outside work area)	HMHER	Yes	No	No

C Requirement may be waived by the Engineer on an individual, case-by-case basis. Refer

a. These are minimum requirements only. The Contractor is fully responsible for the personal protection of all workers at the site. If conflict or interpretation differences arise, the text of the specifications applies.

b The Contractor shall furnish workers with Type C supplied air pressure demand respirators for each different work activity until the Contractor determines the 8-hour time-weighted average (TWA). After the TWA is established, the Contractor may furnish respirators as presented in the specifications, with the minimum requirement as indicated above.

HMHER Half facemask high efficiency respirator. FFHER Full facemask high efficiency respirator.

ACTIVITY	RESPIRATORY PROTECTION	DISPOSABLE CLOTHING	SHOWER REQUIRED AFTER WORK	DECONTAM UNI
1. Removal of "loose items" prior to work – no potential asbestos exposure	None	No	No	No
2. Removal of "loose items" prior to work – potential asbestos exposure	HMHER	Yes	Yes	Ye
3. Pre-cleaning prior to abatement	HMHER	Yes	No	No
4. Sealing openings prior to abatement – no potential	None	No	No	No

B. Worker Respiratory Protection: With approval from the CO, historical airborne-fiber level data may serve as the basis for selection of the level of respiratory protection to be used for the time interval prior to the Contractor establishing the 8-hour time weighted average (TWA) for an abatement task. Historical data provided by the Contractor shall be based on personal air monitoring of the "breathing zone" of his employees for other asbestos abatement projects within the past 12 months, and the data were obtained during work operations conducted under workplace conditions closely resembling the processes, type of material, control methods, work practices, and environmental conditions used and prevailing in the Contractor's current operations. Documentation of aforementioned results shall be presented to the Owner's Representative for review of applicability. (See "Submittals, Pre-work Information". See the Appendix for the Respiratory Protection Justification Form.) This will not relieve the Contractor in providing personal air monitoring to determine the TWA for the work under contract. The TWA shall be determined in accordance with 29 CFR 1926.1101 Appendix A. After the TWA is established the Contractor may furnish respirators as presented in the specifications. In lieu of historical data the Contractor shall furnish for use by his workers Type C supplied air pressure demand respirators for each different work activity until the Contractor determines the TWA. After the TWA is established the Contractor may furnish respirators as presented in the specifications.

C. Decontamination Procedures for Gross Removal Operations: The following entry/exit procedures shall be used for gross removal work areas.

1 Each worker or authorized visitor shall, upon entering the job site, remove street clothes in the clean room and put on a clean respirator (with new filters, if appropriate) and clean protective clothing before entering the work area through the shower room and equipment room.

2 Each worker or authorized visitor shall, each time he leaves the work area, remove gross contamination from clothing before leaving the work area, proceed to the equipment room and remove all clothing except respirator, still wearing the respirator, proceed to the shower room, clean the outside of the respirator with soap and water while showering, remove filters and wet them and dispose of them in the container provided for that purpose, wash and rinse the inside of the respirator, and thoroughly shampoo and wash himself.

3 Following showering and drying off, each worker or authorized visitor shall proceed directly to the clean room, dress in street clothes, and exit the decontamination enclosure system immediately. Disposable clothing of the type worn inside the work area is not permitted to be worn outside the work area.

D. Decontamination Procedures for Glove Bag Removal Operations: The following entry/exit procedures shall be used for areas prepared as glove bag removal work areas.

1 Each worker shall, upon entering the job site, remove street clothes in the clean room, put on a clean respirator (with new filters, if appropriate) and clean protective clothing before entering the work area through the shower room and equipment room.

2 Each worker or authorized visitor shall, each time he leaves the work area, HEPA vacuum his clothing before leaving the work area; proceed to the equipment room and remove all clothing except respirator, still wearing the respirator, proceed to the shower room, clean the outside of the respirator with soap and water while showering, remove filters and wet them and dispose of them in the container provided for that purpose, wash and rinse the inside of the respirator, and thoroughly shampoo and wash himself.

3 Following showering and drying off, each worker shall proceed directly to the clean room, dress in street clothes, and exit the decontamination enclosure system immediately. Disposable clothing of the type worn inside the work area is not permitted to be worn outside the work area.

4 The CO may waive the requirement for a shower. The conditions for waver shall be that the worker did not contact ACM, a proper glove bag technique was executed, and the ACM within the work area is in good condition.

E. Authorized visitors are not required to remove street clothes and shower each time they enter and leave the work area if they only ***observe*** the work in progress and do not make contact with ACM. They are required to wear appropriate respiratory protection and protective clothing over their street clothing while in the work area. If they do make contact with ACM, they are required to follow the decontamination procedures for workers.

F. Decontamination of Impermeable Containers and Plastic Disposal Bags: The following procedure shall be used when removing ACM from the work area:

1 Asbestos-contaminated materials which are likely to puncture plastic disposal bags (wire, bricks, pipe, etc.,) shall be placed in shipping containers for handling and transport to disposal site. Other asbestos-contaminated materials may be placed in plastic disposal bags for transport to disposal site.

Move bagged asbestos-contaminated waste to the equipment washroom, wet clean each bag thoroughly, place each bag inside a second plastic disposal bag (and inside shipping container if applicable, and move it to the holding area pending removal to uncontaminated areas. Ensure that containers are removed from the holding area by workers who have entered the equipment decontamination enclosure system from the uncontaminated non-work area. Dress workers moving asbestos waste from the holding area onto trucks in clean coveralls of a color different than the coveralls used in the work area. Ensure that workers do not enter from uncontaminated areas into the equipment washroom or the work area. Ensure that contaminated workers do not exit the work area through the equipment decontamination enclosure system.

2 3.0.2 PREPARATION OF WORK AREA

A. Subparagraph "General Preparations" outlines procedures applicable to all enclosed work areas. Work procedures specific for preparing a gross asbestos removal area and a glove bag asbestos removal area are addressed in their respective Subparagraphs. Procedures specific for preparing a non-contained work area are addressed in its respective Subparagraph.

B. General Preparations:

1. Erect barricades; post notices and warning signs.

2. Provide and install decontamination enclosure systems in accordance with Paragraph "Decontamination Enclosure Systems" of this Section.

3. Provide a system to collect all water used by the Contractor. Collected water shall be passed through a water filtration system prior to being discharged into the sanitary sewer. The final filter shall have a pore size of 5 microns or smaller.

4. Ensure that the Contractor's communication equipment is in place, in operating condition, and in operation during work described in this Section.

5. Separate by means of airtight barriers (temporary partitions) parts of the building that are not included in the work area(s) from parts of the building that will undergo asbestos abatement.

6. Seal with temporary partitions, open doorways, cased openings, and corridors, which will not be used for passage during work.
7. Isolate the area to be able to create a clean, negative pressure environment (e.g. airtight barriers).
8. Maintain emergency and fire exits from the work areas or establish alternative exits satisfactory to the local fire officials. Emergency exits and routes shall be established and clearly marked with duct tape arrows or other effective designations to permit easy location from anywhere within the work area. Emergency exits shall be secured to prevent access from uncontaminated areas and yet permit emergency exiting.
9. After sealing and plasticizing the area (see Subparagraphs "Gross Removal Area Preparations" and "Glove Bag Removal Area Preparations"), install and initiate operation of air filtration devices (see Subparagraph "Air Filtration Devices") to provide a pressure differential of at least -0.02 inches of water within the work area relative to surrounding non-work areas.
a. Locate AFD's so that makeup air enters the work area mainly through the worker entrance and transverses the work area as much as possible. AFD's shall be exhausted to the building exterior.

b. Once they are operational, do not shut down AFD's until the work area is released to the Government following final clearance procedures.

10. Piping systems designated for abatement work are to be shut down, cooled, and depressurized prior to any removal work.

C. Gross Removal Area Preparations: The Contractor shall perform the following preparations in conjunction with those outlined in Subparagraph "General Preparations", for each area to undergo gross removal asbestos abatement.

1. Shut down, isolate, and lock out or tag heating, ventilating, and air conditioning (HVAC)

systems, which serve or which pass through the work area. Vents within the work area and seams in HVAC components shall be sealed with tape and plastic sheeting. Filters in HVAC systems shall be removed and treated as asbestos-contaminated waste. Contractor shall provide the Owner's Representative with a list of locations where filters were removed.

2. Shut down, disconnect, and lock out or tag all electric power to the work area so that there is no possibility of its reactivation until after clearance testing of the work area.
3. Work Area Pre-cleaning Procedures: After establishing the decontamination enclosure systems, prepare and pre-clean the work area as specified below and as indicated by the drawing notes:
a. Movable and loose items not removed by the District of Columbia from work areas shall be cleaned using HEPA vacuum equipment and/or wet cleaning methods as appropriate and shall be removed from work areas to a location designated by the Owner's Representative or his representative. The District of Columbia will receive these items.

b. Movable and loose items noted as being contaminated shall be removed from the work areas and discarded as asbestos-contaminated waste.

c. Fixed objects within the work area shall be pre-cleaned using HEPA vacuum equipment and/or wet cleaning methods as appropriate. Joints of covers or casings shall be sealed with tape and fixed objects enclosed with a minimum of two layers of 6-mil plastic sheeting sealed airtight with tape. Disassembly of these fixed objects is not required unless otherwise noted.
d. Existing pipe insulation, which does not contain asbestos materials and is to remain, shall be cleaned using HEPA vacuum equipment and/or wet cleaning methods as appropriate prior to being wrapped and sealed airtight in two layers of 4-mil plastic sheeting.

e. Prior to being plasticized, the work areas shall be cleaned using HEPA vacuum equipment and/or wet cleaning methods as appropriate. Methods that raise dust, such as dry sweeping or vacuuming with equipment not equipped with HEPA filters, shall not be used.

4. Plasticize the area after pre-cleaning, using the following procedure:

a. Cover floor with one layer of 6-mil plastic sheet, turning layer a minimum of 16 inches up wall, and seal layer to wall.

b. Cover walls with one layer of 4-mil plastic sheet, lapping wall layer a minimum of 16 inches, and seal layer to floor layer.

c. Repeat procedure for second layer. All joints in plastic sheets shall be glued and taped in such a manner as to prohibit air passage. Joints on plastic layers shall be staggered to reduce the potential for water to penetrate.

5. Areas immediately adjacent to removal areas, such as corridors or hallways which are not in work areas but are necessary routes to and from work areas, shall be protected with two layers of 6-mil plastic sheeting on floors and two layers of 4-mil plastic sheeting on walls and ceilings. The Contractor is permitted to provide plastic-enclosed, framed-in tunnels in lieu of plasticizing walls and ceilings. Openings from these areas into areas where asbestos material is removed shall have curtained doorways to minimize fiber dispersal into adjacent areas.

D. Glove Bag Removal Area Preparations: The following preparations shall be performed in conjunction with those outlined in Subparagraph "General Preparations" for areas to undergo

glove bag removal asbestos abatement.

1. Shut down, isolate, and lock out or tag heating, ventilating, and air conditioning (HVAC) systems, which serve or which pass through the work area. During the work, vents within the work area shall be sealed with tape and plastic sheeting. Filters in HVAC systems shall be removed and treated as asbestos-contaminated waste. The Contractor shall provide the Owner's Representative with a list of locations where filters were removed.
2. Shut down, disconnect, and lock out or tag all electric power to systems on which glove bag removal will take place.
3. Work area pre-cleaning procedures:
a. Movable and loose items not removed by the District of Columbia from work areas shall be cleaned using HEPA vacuum equipment and/or wet cleaning methods as appropriate and shall be removed from work areas to a location designated by Owner's Representative. The District of Columbia will receive these items.

b. Pre-clean any gross contamination from the immediate work areas using HEPA vacuum equipment and/or wet cleaning methods as appropriate. Methods that raise dust, such as dry sweeping or vacuuming with equipment not equipped with HEPA filters, shall not be used.

c. Fixed objects within the work area shall be pre-cleaned using HEPA vacuum equipment and/or wet cleaning methods as appropriate.
4. Cover all horizontal surfaces within ten feet of the glove bagging operation, including the floor, with one layer of 6-mil plastic sheet.
5. Prepare insulation sections to be removed as follows:
a. If insulation is damaged, or if a complete pipe section is being removed, wrap the entire length of the pipe in polyethylene plastic and "candy-stripe" it with duct tape.

b. If insulation is not damaged, place one layer of duct tape around the pipe at each location where the glove bag will be attached.

c. For punctures through pipe lagging, or other areas of limited damage, place one layer of duct tape securely over damaged area.

E. Non-Contained Work Area: In areas where the construction of a sealed, enclosed work area is impracticable, the following preparations shall be performed:

1. Provide a roped-off perimeter around the area where the ACM is to be removed and handled. Post notices and warning signs around the perimeter of the work area.
2. Provide a decontamination enclosure system adjacent to the work area, in accordance with Paragraph "Decontamination Enclosure Systems" of this Section.
3. Provide a system to collect all water used by the Contractor. Collected water shall be passed through a water filtration system prior to being discharged into the sanitary sewer.

4. Seal with plastic and tape all doorways, windows, vents and other openings in the walls of the facility adjacent to the work.

5. Cover all horizontal surfaces within ten feet of the removal operation, including the ground, with one layer of 6-mil plastic sheet.

3.0.3 PRE-REMOVAL INSPECTION

A. Prior to removal of any ACM the CO or his representative shall perform a pre-removal inspection. The Contracting Representative shall be notified 24 hours prior to the inspection. Posting of warning signs, construction of temporary partitions, plasticizing of work area, building of personnel and equipment decontamination enclosure systems, and all other preparatory steps shall have been taken prior to notification of the Owner's Representative. *The Contractor shall not begin asbestos removal until the CO or COR approves the work area preparations.*

3.0.4 MAINTENANCE OF ENCLOSED WORK AREA AND DECONTAMINATION ENCLOSURES

A. Ensure that barriers and plastic linings are effectively sealed and taped. Repair damaged barriers and remedy defects immediately upon their discovery. Visually inspect enclosures at the beginning and end of each work period. Use smoke methods when directed by the Owner's Representative or his representative to test effectiveness of barriers.

B. Thoroughly clean the decontamination enclosure systems at the end of each 8-hour work shift, and more frequently if required.

3.0.5 REMOVAL OF ASBESTOS-CONTAINING MATERIAL

A. A-C Ceiling Material, Boiler Insulation. Breeching Insulation, Vibration Isolators, and Insulation and Lagging on Tanks, Pipes, Fittings, Other Equipment and Ductwork: The Contractor may use the "gross removal" procedure described below. The Contractor shall use methods and equipment, which will keep the fiber count during removal operations to less than 0.5 fibers/cc of air when tested by NIOSH Method 7400.

1. Gross removal procedure:
    a) Prepare the area as described in Subparagraph "Gross Removal Area Preparations" of this Section. Remove aluminum lagging from piping and equipment, if present, while providing a continual mist of amended water or removal encapsulant to the insulation, leaving it intact. Spray asbestos materials with a fine mist of amended water or removal encapsulant, saturating materials to substrate. Spray the asbestos material repeatedly during work process to maintain a wet condition and to minimize asbestos fiber dispersion.

b) Remove the saturated asbestos material in small sections. As it is removed, pack the material in sealable plastic bags, which shall be placed in labeled drums for transport. Remove insulation materials carefully from equipment. Do not permit them to fall to the floor.

2. After completion of all stripping work, surfaces from which ACM have been removed shall be wet brushed and sponged, or cleaned by some equivalent method to remove all visible residue. (Do not use wire brushes.)

B. A-C Insulation and Lagging on Pipes and Fittings: The Contractor shall use the procedure as described below when using the glove bag technique for the removal of ACM from piping and small tanks. The Contractor shall use methods and equipment, which will keep the fiber count during removal operations to less than 0.1 fibers/cc of air when tested by NIOSH Method 7400. District of Columbia

1. Prepare the area as described in Subparagraph "Glove Bag Removal Area Preparations" of this Section. For removal of ACM using the glove bag technique where the establishment of a sealed enclosed work area is impracticable, prepare work area as described in Subparagraph "Non-Contained Work Area".

2. Place the glove bag around the affected section of pipe, secure the glove bag, and reinforce the attachment/seal. Glove bags shall provide an airtight seal around the area from which the asbestos is to be removed and shall be under negative air pressure by a HEPA filter exhaust unit. Check for leakage by introducing smoke into the bag and then gently squeezing the bag with hand pressure. If any leaks occur, the bag shall be resealed and retested until no leakage occurs. This seal shall be continually maintained until all asbestos has been removed from the equipment surface enclosed within the glove bag.
3. If the section of pipe is covered with an aluminum jacket, this is removed first. It is important to fold in the sharp edges of the jacket to prevent cutting the bag when it is placed in the bottom. With the insulation exposed, cut the insulation inside the glove bag at each end of the section to be removed. Slit insulation from end to end and remove insulation from pipe. Throughout this process spray water on the cutting area to keep dust to a minimum.
4. When all insulation is removed, introduce water spray into the glove bag and carry out recommended washing-down procedure (tools, pipe, and upper half of bag). Scrub and wipe down the exposed pipe inside the glove bag. Apply lockdown sealant to all exposed insulation and pipe.

5. When the above operations have been completed, remove excess air from the glove bag with HEPA vacuum and remove the glove bag from pipe. Continuous stripping or sliding of the glove bag shall not be allowed. Use the glove bag for only one application prior to disposal. Place the glove bag in a plastic disposal bag and seal the bag prior to placing it in a labeled drum for transport.

C. Abandoned Pipes and Fittings with A-C Insulation and Lagging: Note that all piping scheduled for demolition shall be purged prior to cutting. The Contractor may use the wrap-and-cut technique on these materials. The Contractor shall use methods and equipment, which will keep the fiber count during removal operations to less than 0.1 fibers/cc of air when tested by NIOSH Method 7400.

1 Prepare the area as described in Subparagraph "Glove Bag Removal Area Preparations" of this Section.

2 Using the glove bag removal technique described in Subparagraph "Insulation and Lagging on Pipes and Fittings," remove stripe of insulation along the pipe to be demolished. Width of the strips should be sufficient for the use of power cutting equipment to cut the pipe while leaving the remaining insulation undisturbed.

3 Spray aerosol adhesive on the insulated pipe and wrap it airtight in one

(1) layer of 6-mil plastic sheet. Cut the pipe at exposed strips. Remove the pipe section and wrap it in a second layer of 6-mil plastic sheet. Secure plastic with duct tape prior to placing the pipe sections in labeled drums for transport and disposal.

D. A-C Drywall, Joint Compound and Mastic Patties Material: The Contractor will use the “gross removal” procedure described below. Contractor shall also, install Decontamination Enclosure System Section
2.0.4. The Contractor shall use methods and equipment, which will keep the fiber count during removal operations to less than 0.5 fiber/cc of air when test by NIOSH Method 7400.
1. Gross Removal Procedure:

a. Prepare the area as described in Subparagraph “Gross Removal Area Preparation” of this Section. Spray asbestos material with a fine a fine mist of amended water or removal encapsulant, saturating materials to substrate. Spray the asbestos material repeatedly during work to maintain a wet condition and to minimize asbestos fiber dispersion.

b. Remove the saturated asbestos material in small sections. As it is removed, pack the material in sealable plastic bags, which shall be placed in the labeled drums for transport. Remove materials carefully from support system.

2. After completion of all work, surfaces from which ACM have been removed shall be wet brushed and sponged, or cleaned by some equivalent method to remove all visible residue.

E. A-C Debris: The Contractor shall use methods and equipment which will keep the fiber count during removal operations to less than 0.1 fibers/cc of air when tested by NIOSH Method 7400.

1 Prepare the area as described in Subparagraph "Glove Bag Removal Area Preparations" of this Section.

2 Spray debris with amended water or removal encapsulant. While still wet, place loose pieces in 6-mil plastic bags and pack bags in labeled drums for transport.

3 If breaking is required to reduce the bulk size for disposal, wrap debris airtight in two layers of 6-mil plastic sheeting. Break while contained inside plastic layer. Pack into an additional plastic disposal bag and place in labeled drums for transport.

F. A-C Flooring and Mastic: The work area shall be prepared as described in Subparagraph "Gross Removal Area Preparations" of this Section. If A-C flooring and/or A-C mastic is the only ACM to be removed in a work area, modify area preparations to include the following: (1) plasticize the walls to a height of three feet to protect them from water damage and (2) do not plasticize floor area. The Contractor shall use methods and equipment, which will keep the fiber count during removal operations to less than 0.1 fiber/cc of air when tested by NIOSH Method 7400.

1. Dispose of any removed carpet and baseboard materials as asbestos waste.
2. Spray amended water onto floors covered with A-C flooring. Wet the material sufficiently to reduce the release of fibers if the materials are broken upon removal. Remove A-C flooring using a flat hoe or scraper. Flooring shall be removed intact. Continually wet the material during the removal process to minimize fiber dispersion. Do not grind or sand floor. Multiple layers of flooring may exist.
3. Remove A-C mastic using a flat hoe, approved mastic-removal solvent or other suitable method. Do not grind or sand A-C mastic.

4. As material is removed, wrap it in two layers of plastic and place it in labeled containers for transport. After completion of all stripping work, scrape, wet-brush, and wipe floor. No tile or mastic residue shall remain on the floor surface following removal and cleaning.

G. A-C Roofing Materials: The Contractor shall use methods and equipment, which will keep the fiber count during removal operations to less than 0.1 fiber/cc of air when tested by NIOSH Method 7400.

1 Follow EPA NESHAP or non NESHAP work practices when performing asbestos roofing renovation and demolition projects.

2 For guidance use EPA " Demolition Practices under the Asbestos NESHAP"

3 Follow all District of Columbia and local asbestos roofing material regulations.

H. Additional Removal Requirements:

1 *The CO shall issue a stop work order should the fiber count in work areas exceed the maximum allowable fiber concentrations specified. The CO shall stop work in work areas should the fiber count in adjacent non-work areas exceed 0.01 f/cc of air or the background count (use the greater of these two values as the reference). Work shall not resume until the Contractor corrects the condition(s) causing the increase and the Contractor receives written notice from the CO.*

2 The following refers to asbestos contamination, which occurs accidentally in an area prepared in accordance with Paragraph "Glove Bag Removal Area Preparations". All project activity in the work area shall be immediately discontinued if asbestos contamination of the general work area occurs as a result of damage to or improper use of glove bags or damage to any other friable ACM located within the area. Project activities shall not be resumed until all surfaces in the area that are likely to have become contaminated with asbestos fibers have been thoroughly cleaned with a HEPA vacuum or by wet cleaning methods. The Contractor shall notify the CO immediately of

all emergency shutdown actions. Asbestos removal work shall not resume until the Contractor receives written notice from the CO.

1 Removal of ACM at penetrations of walls and concrete slabs shall extend not less than three inches beyond the surface of the wall or slab. The remaining exposed end of insulation not removed shall be sealed with penetrating encapsulant. The remaining hole shall be filled with insulating cement or foam sealant as directed by the Engineer.

2 At the termination of asbestos removal on piping and equipment, encapsulate the exposed edges of remaining asbestos insulation. Wet and cut the rough ends true and square with sharp tools and enclose the edges with a 1/4-inch-thick layer of insulating cement troweled to a smooth, hard finish. When the insulating cement is dry, lag the end with a layer of fiberglass cloth and thermal insulation adhesive, overlapping the existing ends by four inches.

3.0.6 CLEANUP AND CLEARANCE TESTING OF WORK AREAS

A. Clearance Procedure for areas prepared as "Gross Removal" areas: Cleaning of the work areas and other contaminated areas shall be conducted in accordance with the four-step procedure described below.

Step 1 Preliminary Cleanup Visual inspection

Step 2 Initial Clearance Visual inspection and fiber count Testing <0.05 fiber/cc of air, using NIOSH Method 7400.

Step 3 Lockdown --

Step 4 Final Re-occupancy Visual Inspection and <70 structures/ Clearance sq millimeter, using TEM analysis; .45 Micron (pore size); 5 samples/area min.; In accordance with 40 CFR 763 Subpart E, Appendix A.

1. Step 1. Preliminary Cleanup:

a. Remove visible accumulation of asbestos material and debris. Wet clean all surfaces and objects in the work area and any other contaminated area. Remove asbestos waste in impermeable containers from the work area

b. After cleaning the work area, wait 24 hours to allow for the settlement of dust and again wet clean, or clean with HEPA vacuum equipment, all surfaces in the work area. (Waiting time of 24 hours may be waived.) After completion of the second cleaning operation, perform a

complete visual inspection of the work area to ensure that it is free of visible contamination.

c. The CO or COR will perform a visual inspection. If the CO or COR finds visible accumulations of dust in the work area, the Contractor shall repeat the wet cleaning as heretofore specified.

2. Step 2. Initial Clearance Testing:

a. The CO or COR will perform Initial Clearance Testing in work area.

b. Areas that do not comply with Initial Clearance Testing criteria shall continue to be cleaned by the Contractor until the specified standard of cleaning is achieved. Initial Clearance Testing results shall be submitted to the CO or COR in accordance with paragraph 3.06.A.

c. When the fiber count is acceptable, one layer of plastic sheeting shall be carefully removed from ceilings, walls, and floor (if two layers are present). The plastic sheeting shall be folded inward as it is removed to trap any debris. Plastic sheeting and seals on doors, windows, vents, and other openings shall remain in place.

3. Step 3. Lockdown:

a. After successful completion of the Initial Clearance Procedure, all surfaces and building components from which ACM was removed (ceilings, piping, and floors) and the remaining layer of protective plastic sheeting shall receive lockdown encapsulant.

b. All exposed surfaces shall be wet cleaned and/or HEPA vacuumed. After cleaning, wait a minimum of 16 hours to allow for settling of dust and then wet clean and/or HEPA vacuum again. (The CO or COR may waive waiting time of 16 hours.)

4. Step 4. Final Re-occupancy Clearance:

a. The CO or COR will perform a final inspection for re-occupancy for the purpose of observing whether the condition of cleaned areas is free of dust, dirt, and debris. Evidence of asbestos contamination identified during the inspection will necessitate further cleaning as heretofore specified.

b. When the work area passes the final inspection for re-occupancy, the CO or COR shall test for re-occupancy using aggressive sampling techniques. The CO or COR will approve re-occupancy if the recommended level in the work area is achieved. Failure to achieve this level will necessitate

further cleaning as heretofore specified. Final Air Clearance results shall be submitted to the CO in accordance with paragraph 3.06.A.

c. The second layer of plastic shall be removed from walls and floor and shall be folded inward to trap any debris. Do not remove seals from doors, windows, etc. or turn off the AFDs.

d. Next, disconnect the AFDs, and seal the intakes to the machines airtight with 6-mil plastic sheeting and tape. Remove all controls and seals established.

e. Re-clean underneath and behind all critical barriers if needed

B. Clearance Procedure for areas prepared as "Glove Bag Removal" areas: For areas in which glove bag removal area preparation was required, cleaning of the work areas and other contaminated areas shall be conducted in accordance with the three-step procedure described below.

Step 1 Preliminary Cleanup Visual Inspection

Step 2 Lockdown -

Step 3 Final Re-occupancy Visual Inspection and <70 structures/ Clearance sq millimeter, using TEM analysis; .45 Micron (pore size); 5 samples/area min.; In accordance with 40 CFR 763 Subpart E, Appendix A.

1. Step 1. Preliminary Cleanup:

a. Remove any visible accumulation of asbestos material and debris. All sealed drums, plastic bags, and equipment used in the work area shall be removed from the work area.

b. The CO or his representative will perform a visual inspection. Evidence of asbestos contamination identified during the inspection will necessitate further cleaning as heretofore specified.

2. Step 2. Lockdown: (For glove bag removal, this step should have already been completed with the glove bag still on the pipe).

a. When the work area passes the Preliminary Cleanup, all building materials and components, from which ACM was removed, as well as protective layer of plastic sheeting, shall receive a lockdown encapsulant.

b. When the encapsulant is dry, plastic sheets on the walls and floors shall be removed. Do not remove seals from doors, windows, etc. or turn off the AFDs.

3. Step 3. Re-occupancy Clearance:

a. The CO or his representative shall test for re-occupancy using aggressive sampling techniques. The CO or his representative will approve re-occupancy if the specified level in the work area is achieved according to the testing laboratory.

b. When the work area passes the re-occupancy test disconnect the AFDs, and seal the intakes to the machines airtight with 6-mil plastic sheeting and tape. Remove all controls and seals established.

C. Other Information:

Extra time required to clean work areas in order to achieve clearance criteria shall not be considered grounds for an extension of time for contract completion.

3.0.7 AIR MONITORING REQUIREMENTS

A. Air monitoring will be performed before, during, and after asbestos abatement to document airborne asbestos fiber concentrations.

1 Air Monitoring Prior to Asbestos Work. The baseline air sampling shall be established one day prior to the masking and sealing operations for each abatement area site. The background shall be established by performing area sampling in similar but uncontaminated sites in the building. These samples shall be collected by CO or COR. PCM air samples shall be collected at a minimum of three locations. These locations are: outside the building, inside the building not within the abatement area, and inside each abatement area. One sample shall be collected for every 2000 square feet of floor space for the inside samples. At least two samples shall be collected outside the building. Air monitoring results shall be submitted to the CO.

2 Air Monitoring During Removal Operations:

a. Full-shift daily personal exposure air sampling of workers shall be performed to establish the 8-hour TWA exposure. The Contractor shall collect these samples. Such sampling shall be conducted for each employee (or representative group of employees) expected to receive the highest exposure in each work area for each type of activity that removal, cleanup, or site preparation activities occur. Similarly, 30minute personal exposure air sampling shall be conducted during activities anticipated to produce the highest airborne concentrations to determine the excursion limit (EL). The Contractor shall notify CO and COR immediately of any exposures to asbestos fibers within the asbestos control area in excess of 0.1 f/cc (PEL) or the 1.0 f/cc (EL), without regard to respiratory protection. All air monitoring results shall be submitted to the CO in accordance with paragraph 1.04.B.

b. Area sampling shall be conducted at least every shift. Samples shall be taken within the containment area, outside the clean room entrance, inside the clean room, outside the load-out unit exit, and other areas surrounding the containment including the exhaust discharge point of the local exhaust system. Monitoring stations shall not be positioned in such a manner that will generate false results (e.g., within direct line of the exhaust system, facing upward). If monitoring anywhere outside the asbestos control area (barrier/perimeter, environmental, and clean room air samples) indicates airborne concentrations in excess of 0.01 f/cc or the reference background fiber concentration, whichever is greater, the Contractor shall immediately notify the CO. The Contractor shall immediately stop the removal of asbestos, investigate, and correct the condition causing the increase.

3. Air Monitoring After Removal Operations (Final Air Clearance). Final Air Clearance shall be performed as specified in Section 3.06, and submitted in accordance with paragraph 1.04.B.

B. Record Keeping: The Contractor shall keep and maintain accurate records of all air monitoring performed during this project in accordance with OSHA Standards 29 CFR 1926.1101. The Contractor shall complete and submit to the CO within 15 working days after completion of all airborne asbestos monitoring conducted under this contract, the following:

1 Negative air pressure readings, signed and dated.

2 Personal air monitoring records; signed and dated.

3.0.8 DISPOSAL AND TRANSPORTATION OF ASBESTOS-CONTAMINATED WASTE

A. As the work progresses, to prevent exceeding available storage capacity on site or to prevent stacking of drums, remove sealed and labeled drums or bags of ACM from the work area as required.

B. Sealed and labeled drums or bags shall be used to transport asbestos-contaminated waste to the landfill. Procedures for hauling and disposal shall comply with 40 CFR Part 61, 49 CFR Part 171 and 172, and other applicable state, regional, and local government regulations. Procedures for removal from the work area and disposal of waste are outlined below:

1. Asbestos-containing waste shall remain under the positive control of the Contractor and must never be left unattended in an area or on a vehicle where unauthorized persons could gain access. When control of the asbestos waste is relinquished to another party, the signature of both parties, and the time and date of the transaction, shall be recorded on the Waste Shipment Record form. Each party who has control over the asbestos waste shall retain a copy of the waste shipment record form, as the responsibility for the waste is transferred to the next party. Copies of all waste shipment record forms and waste receipts shall be provided to the CO.
2. Trucks hauling drums or bags shall be totally enclosed to prevent loss or damage to waste containers en route to approved landfill. The interior of the vehicles shall be lined with two layers of 6-mil plastic.

3. All vehicles used to transport the waste material shall be marked with a visible warning sign during the loading and unloading of asbestos-containing waste. Danger sign legend, text size,

style and arrangement shall conform to the requirements of 40 CFR Part 61.149 (d)(1).

4. Only sealed plastic bags or drums are permitted to be deposited in landfill. Damaged, broken, or leaking plastic bags shall remain in the drum, and the drum shall be deposited in landfill. Broken bags shall be re-bagged prior to disposal. Workers shall place asbestos waste in the landfill. Throwing or dumping of containers shall not be allowed. Workers unloading and handling the sealed bags/drums at the disposal site shall wear appropriate personnel protective equipment including respirators and protective clothing.

5. After the vehicle is unloaded at the landfill, the plastic sheeting that was taped to the floor, sides and top of the truck shall be carefully removed and placed in properly labeled bags for disposal with the rest of the waste.

3.0.9 RE-ESTABLISH MECHANICAL AND ELECTRICAL SYSTEMS

A. Mechanical and Electrical Systems: After final clearance of the work areas, reestablish HVAC, mechanical, and electrical systems disconnected or removed to perform asbestos abatement. The Contractor shall certify in writing that all systems disturbed or removed during this work have been reinstalled and are in proper working order.

B. Mounted Objects: When finishes have been completed the Contractor shall re-secure mounted objects removed during the course of the work to their former positions.

C. Loose and Movable Objects: Objects cleaned and removed from the work area by the Contractor shall be returned to their former positions by the Contractor. END OF SECTION