

SECTION 02 82 00
REMOVAL OF ASBESTOS CONTAINING MATERIALS

PART 1 GENERAL

1.1 STIPULATIONS

- A. The specifications sections "General Conditions of the Construction Contract", "Special Conditions", and "Division 1 - General Requirements" form a part of this Section by this reference thereto, and shall have the same force and effect as if printed herewith in full.

1.2 GENERAL PROVISIONS

- A. Attention is directed to the Contract and General Conditions and all Sections within that are hereby made a part of this Section of the Specifications.
- B. Equality of material, article, assembly, or system other than those named or described in this Section shall be determined in accordance with the provisions of the Contract and General Conditions.
- C. Refer to Specification 01 04 00 Coordination and Control sections 1.5, 1.6 and 1.7.

1.3 SCOPE OF WORK

- A. The asbestos containing materials (ACM) abatement work covered by this specification is for the Pennsylvania Department of General Services (DGS), Loysville Youth Development Center Project. The address for this site is the following:

Loysville Youth Development Center ZB Cottage
10 Opportunity Drive
Loysville, PA 17047
Tyrone Township-Perry County

1.4 PROJECT CONTROL

- A. The Quality Assurance Consultant Project Monitor if required, contracted, and coordinated through the professional shall at all times have access to the work during its progress and shall be furnished with every reasonable work area for ascertaining that the work is proceeding in accordance with the requirements and intentions of the Contract Specifications. All work will be subject to the inspection and approval of the Quality Assurance Consultant Project Monitor. If at any time, the Quality Assurance Consultant Project Monitor decides that work practices are in violation of pertinent regulations or are endangering workers, he/she shall immediately instruct the on-site Contractor representative/foreman to cease operations until corrective action is taken and verify the order in writing.

1.5 ASBESTOS REMOVAL – GENERAL

- A. Requirements
 - 1. Abatement work will be performed in compliance with applicable regulatory standards including but not limited to OSHA 29 CFR 1926.1101 (Occupational Exposure to Asbestos; Standards Industry Standard), The 25 Pennsylvania Code Chapter 124.3 which adopted National Emission Standards for Hazardous Air Pollutants (NESHAP)

in its entirety, and the U.S Environmental Protection Agency guidelines for asbestos remediation. All provisions of this work plan relating to health and safety of workers, the public, and protection of the environment are of minimum standards. The abatement contractor is responsible for determining whether any additional and/or more stringent protective measures are required by any local, state, or federal regulations, ordinances, or guidelines. Failure on behalf of the abatement contractor to comply with all applicable requirements does not relieve the contractor from any liability and/or requirements for performance of the work. Regulations, in the most current version, are applicable throughout this project.

2. It is the Asbestos Contractor's responsibility to determine the most efficient method to legally perform this work. Unless specifically noted, this specification does not dictate specific means and methods to be implemented in the performance of the work. The entire application of all ACMs shall be removed inclusive of any substrate contamination, whether present on the substrate surface or embedded in the matrix of the substrate component. After abatement is complete, the building or equipment component must be rendered completely free of asbestos and rendered recyclable, reusable, and/or disposable in accordance with all applicable regulations. All reused / recycled materials must meet clean fill requirements.
3. This section covers the furnishing of all labor, materials, facilities, equipment, services, employee training, permits, notifications and insurance necessary to perform the work required for asbestos removal in accordance with these specifications, the Environmental Protection Agency (EPA), Occupational Safety and Health Administration (OSHA), National Institute of Occupational Safety and Health (NIOSH), the Pennsylvania Department of Environmental Protection (PADEP), and Pennsylvania Department of Labor and Industry (PADL&I), regulations and recommendations, and any other applicable federal, state and local government regulations. Whenever there is a conflict or overlap of the above references, the most stringent provisions are applicable.
4. The Client Agency shall provide water and power supply (i.e., electricity) from existing sources, where the Contractor's use is not excessive and does not interfere with the building's normal usage. Where existing utilities or facilities are not adequate or cannot be used, the Contractor is responsible for providing alternative sources of potable water, personal hygiene, and electrical power. The contractor is responsible for providing negative air machines with ground fault circuit interrupters (GFCIs) and manometers in a quantity large enough to maintain appropriate air flow in areas of containment. The Contractor shall supply additional circuit and distribution panels, as necessary for the situation.
5. The Contractor will coordinate with the Client Agency/manager for use of existing hygiene facilities and if these are not available to workers, the contractor will provide portable hygiene facilities for remediation workers, including access to potable water for drinking and personal hygiene. The Contractor will consider weather conditions, provide for worker safety, and comfort during periods of high or low ambient temperatures.
6. Only authorized individuals, in the employment of the contractor, will be permitted to enter the areas isolated for remediation work. Individuals entering the remediation work area will sign the entry log and will wear appropriate PPE, especially an approved respirator; therefore, the individual must meet OSHA regulations for wearing a respirator. All authorized individuals who enter the containment must be certified by Pennsylvania's Department of Labor and Industry and provide written documentation of fit testing, physicians' written opinion, and medical surveillance in binder form and

posted for review. In an emergency, emergency response personnel will be allowed access without log entry or PPE.

7. The contractor shall establish visible emergency and fire exits from the work area. Emergency egress plans shall be provided to remediation workers and posted in areas readily visible and accessible to the workers. The appropriate emergency response agencies shall be contacted, immediately, for assistance. Engineering controls for remediation work shall not impede common access to emergency exits in the building.
8. The Contractor shall secure and maintain throughout the Contract period General Liability Insurance and Asbestos Liability Insurance in the amount of \$2,000,000.00. The Contractor shall have Workers' Compensation Insurance as required by the Commonwealth of Pennsylvania. Evidence of these insurances must be submitted with the bid.
9. Description of the Work
 - a. Bulk samples of specific building materials at the Project location have been collected and tested for asbestos content by KU Resources, Inc., as described in their *Hazardous Materials Survey Report, dated May- 2022*. This report provides information on the substrates that were tested, presumed asbestos, analytical results, referenced materials and quantities of confirmed asbestos containing materials. The quantities are provided for guidance and may not correspond exactly to the quantity to be removed.
 - b. The intent of the Work is to completely remove all Asbestos Containing Materials (ACM) from the site in preparation for demolition.
 - c. The Asbestos Contractor shall furnish all labor, material, supervision, construction tools, transport vehicles and equipment necessary to perform the work.
 - d. Remove the asbestos containing materials described below:

TABLE 1 – ASBESTOS CONTAINING MATERIALS

Location	ACM type	Quantity	Additional details
Areas above ceilings	Plaster or Insulation	Not Determined	Presumed ACM
Main Building	Exposed Fiberglass Pipe Insulation	1000 LF	Presumed non-ACM

- e. The above referenced locations and quantities of ACM and any reference throughout this specification are intended to be used for informational purposes only and may not necessarily indicate all locations and exact quantities of ACM. It shall be the responsibility of the Asbestos Abatement Contractor to field-verify actual site conditions, the extent to which ACM is present and the actual amount of such material to be removed for bidding purposes.
 - f. The Contractor is advised that paints and debris existing within the building may contain lead. The Contractor shall at all times be in compliance with EPA Lead; Renovation, Repair, and Painting Program; Lead Hazard Information Pamphlet; Notice of Availability; Final Rule 40 CFR Part 745, OSHA regulation 29 CFR 1926.62 *Lead in Construction; Interim Final Rule* as well as other applicable

regulatory requirements and other applicable portions of the contract documents.

- g. Hazardous building materials such as fluorescent light units, refrigeration units, mercury switches, cleaning supplies, paints, exit signs, water tanks, and breaker box panels. A hazardous materials assessment is recommended as part of the pre-demolition work plan to ensure proper handling and disposal of all hazardous wastes generated. These impacted items must be removed prior to demolition activities in accordance with 40 CFR Part 273 (Standards for Universal Waste Management) if exempt.
- 10. Perform the work and provide the services as follows:
 - a. PADL&I required trained workers, OSHA required respiratory protection and fit-testing, and medical surveillance program.
 - b. Work plan in accordance with 29 CFR 1926.62 shall include but not limited to the control methods to ensure the safety of the workers and occupants.
 - c. Work area preparation.
 - d. Asbestos abatement in accordance with NESHAP 40 CFR Part 61.141 (definitions), Part 145 (standard for demolition and renovation), and Part 150 (standard for waste disposal).
 - e. Provide access, support and protection to all authorized visitors and inspectors.
- 11. Work schedule: work may commence as soon as permissible.
- 12. Qualifications
 - a. Personnel: superintendent, foreman and workers:
 - i. Training and knowledge of applicable regulations and expertise in safety and environmental protection as evidenced by the participation and successful completion of an EPA accredited course and is appropriately certified in the state of Pennsylvania.
 - ii. Experience with abatement work, as evidenced through participation in at least three asbestos abatement projects of a similar size and scope completed in compliance with Pennsylvania Department of Environmental Protection (PADEP) requirements. Provide documentation, which shall include the names and addresses of the departments and locations of the work performed.
 - iii. Evidence of participation in a respirator program and a medical surveillance program.
 - b. Evidence that the Contractor is licensed to perform asbestos abatement within the state of Pennsylvania.
- 13. Notifications, Permits, Warning Signs, Labels and Posters
 - a. The Contractor will provide the required notification to EPA, and any other regional, state, and local authority having jurisdiction prior to the start of the

project. Secure all permits required for the work, including disposal of asbestos in an approved landfill.

- b. Provide warning signs in accordance with OSHA and EPA around the workspace and at every point of potential entry from the outside. Provide the OSHA required labels for all plastic bags and all drums utilized to transport contaminated material to the landfill. The use of bladder bags (roll off dumpster liners) of a 10-30 mil thickness can also be used for bulk transportation. Post in a prominent and convenient place for the work area a copy of the latest applicable regulations and recommendations from OSHA, EPA, and NIOSH.
 - c. Proper removal, packaging, transport, and disposal of all asbestos containing materials as specified herein, according to NA 2212 USDOT regulations, PA Bureau of Waste Management Act 109 – Solid Waste Management Act, and the PADEP Act 101 Section 1101(e) for vehicle signage. Note that vehicles transporting bulk-loaded demolition debris containing a reportable quantity (greater than 1 pound) of asbestos shall be properly placarded in accordance with USDOT regulations. All drivers shall be appropriately trained and licensed to transport this material.
14. Protection and Damage: Protection for employees, inspectors, and other approved personnel.
- a. Provide all labor, materials, and equipment necessary for protection of personnel, furnishings, equipment or building structure from contamination and/or damage.
 - b. Asbestos containing debris shall be removed from the work area daily. Premises shall be left neat and clean after each work shift, so that business may proceed with the next regular workday without interruption. Debris removed from the containment area can be stored onsite in leak-tight containers or within closed roll off boxes containing bladder bags with proper OSHA signage.
15. Respiratory Systems
- a. Instruct and train each worker involved in asbestos abatement of asbestos containing materials in proper respiratory use and require that each worker always wear a respirator, properly fitted on the face in the work area from the start of any operation which may cause airborne asbestos fibers until the work area is completely decontaminated. Use respiratory protection appropriate for the fiber level encountered in the workplace or as required for other toxic or oxygen-deficient situations encountered.
 - b. Provide all workers, foremen, superintendents, authorized visitors, and inspectors personally issued and marked respiratory equipment approved by NIOSH and OSHA. All authorized individuals who enter the containment must be fit tested with an irritant smoke or use of a distinctive odor product such as iso amyl acetate (banana oil), with the results documented. The Contractor is responsible for providing a negative exposure assessment obtained within the **past 12 months** from prior monitoring of work operations closely resembling the current work operations. If no negative exposure assessment is available, the contractor is responsible for conducting initial exposure assessments to determine if employees are exposed at or above the OSHA 8-hour Permissible Exposure Limit and Short-Term Exposure Limit (STEL). A half-face respirator is the minimum level required following a successful initial exposure assessment /

negative exposure assessment. When respirators with disposable filters are employed, provide sufficient filters for replacement as necessary by the worker.

- c. Respiratory protection shall be in accordance with OSHA Regulation 1926.1101, ANSI Z88.2-1992, and shall be approved by NIOSH under the provisions of 42 CFR Part 84.
- d. Require that a respirator be worn by anyone in a work area at all times, regardless of activity, during a period that begins with any operation, which could cause airborne fibers until the area has been cleared for re-occupancy, as documented by visual inspection and PCM analysis results below 0.01 fibers per cubic centimeter (f/cc).
- e. Regardless of airborne fiber levels, the minimum level of respiratory protection is half-face air-purifying respirators with HEPA type filters as defined below.
- f. Do not use single use, disposable or quarter face respirators.
- g. The Abatement Contractor shall provide historic time-weighted average (TWA) air sampling data, which documents that the respirator used provides sufficient protection for the workers performing specific asbestos abatement operations.
- h. Provide half face or full-face type respirators. Equip full-face respirators with a nose cup or other anti-fogging device as appropriate when used in air temperatures less than 32 degrees Fahrenheit.
- i. Provide, at a minimum, HEPA type filters labeled with NIOSH and MSHA Certification for "Radionuclides, Radon Daughters, Dust, Fumes, Mists including Asbestos-Containing Dusts and Mists" and color coded in accordance with ANSI Z228.2 (1992). In addition, a chemical cartridge section may be added, if required, for solvents, etc., in use. In this case, provide cartridges that have each section of the combination canister labeled with the appropriate color code and NIOSH/MSHA certification.

16. Protective Clothing

- a. Provide to all workers, foremen, superintendents and authorized visitors and inspectors, protective disposable clothing consisting of full body coveralls, head covers, gloves and 18 inch high boot covers or reusable footwear, as required by EPA, OSHA, state, and local regulations. Eye protection and hard hats should be available as appropriate.

17. Decontamination-All workers, without exception

- a. At a minimum, the contractor shall provide a decontamination unit with at least three stages (clean room, equipment room, and shower). Each stage of the decontamination unit must be separated with air locks.
- b. Disposable protective clothing must be discarded and disposed of as asbestos waste every time the wearer exits from the workspace to the outside through the decontamination facility.
- c. Workers shall shower after leaving containment area. The Contractor will provide all decontamination and shower facilities. The effluent water must be microsocked from 20 to 5 microns and then either collected and reused or discharged to the open sanitary sewer.

18. Precautions

- a. No smoking, eating, or drinking is to take place once beyond the clean room at the job site. Prior to smoking, eating, or drinking, workers shall fully decontaminate by showering. Each worker shall then dress into a new clean disposable coverall to eat, smoke or drink. This new coverall may then be used to re-enter the work area.
- b. Work footwear must remain inside the work area until completion of the job.

19. Project Log Book

- a. A logbook, containing as a minimum, the information listed below, shall be kept on the jobsite, and be available / posted for inspection by the Client Agency, the Quality Assurance Consultant Project Monitor, or governing agencies inspectors during normal working hours.
 - i. Pre-work Documentation: This section shall contain any EPA, OSHA, or state notification forms – posting is required, any necessary federal, state, licenses or permits (including contractor licenses, building permits, disposal permits, etc.), records regarding insurance, bonds, and size of bonds.
 - ii. Personnel Records: This section shall contain personnel employment records, worker training certificates, certificate of worker's release, respirator training, physicians' opinion documentation, fit test verification, and Pennsylvania Certification Cards.
 - iii. Notification Data: This section shall include data, which will allow the Client Agency to notify each worker, the worker's family, and responsible contractor parties if an emergency should arise.
 - iv. Sign-in Sheets: This section shall contain the daily sign-in sheets. This daily sign-in sheet (log) shall be kept daily by the project superintendent and placed in the project daily log at the end of each day's work. The daily log shall include as a minimum the following:
 - a) Name of person entering the work area
 - b) Time the person entered the work area
 - c) Time the person exited the work area
 - d) The person's affiliation and purpose for entering the work area
 - e) Date
 - f) Brief description of day's work activities
 - g) Brief description of any damage to items in the work area
 - h) If negative air pressure was present in work area, and if not, why, what time and when negative pressure was not present

- i) Brief description of weather conditions, including approximate outside and inside work area temperatures
 - j) Each daily log sheet shall be signed and dated by the project superintendent
- v. Subcontractors: This section shall include any information concerning project subcontractors, including work to be performed, names and dates on job site.
- vi. Air Monitoring: All air sampling performed by the Contractor shall have the results included in this section. The contractor must conduct (OSHA Exposure) personnel air sampling for 1 out of 4 employees with results identified by PCM analysis. A description of the sampling methods, location and test methods shall also be included. The name and location of the laboratory performing the analytical work shall be listed. The Quality Assurance Project Monitor will not perform sampling for the Contractor.
- vii. Waste Disposal: This section shall include the location, date, and time of all asbestos disposals, as well as signed and dated trip tickets by the landfill disposal operator stating the quantity and/or number of containers accepted. The location of the landfill shall also be provided. Waste shipment records must be maintained according to the most stringent NESHAP / EPA format as described in 40 CFR 61.145-150.
- viii. Miscellaneous: This section shall include any reported injury/illness of employees, inspection reports by EPA, OSHA or other state and local government agencies, or any other pertinent information.
- b. At the completion of the work, the Contractor will provide the Client Agency with a complete copy of the Project Logbook.

B. Definitions

1. Abatement: Procedures to control fiber release from asbestos-containing materials. Includes encapsulation, enclosure, and removal, according to NESHAP regulations 40 CFR 61.141 and 61.145(c), and 61.150.
2. Air Monitoring: The process of measuring the fiber content of a specific volume of air in a stated period of time.
3. Amended water: Water to which surfactant (wetting agent) has been added to increase the ability of the liquid to penetrate ACM. The standard ratio is 10 parts of water to 1 part of surfactant.
4. Asbestos: The name given to a number of naturally occurring hydrated mineral silicates that possess a unique crystalline structure, are incombustible and are separated into fibers. Asbestos includes chrysotile, crocidolite, amosite, anthophyllite, and actinolite.
5. ACM or Asbestos-containing materials: Any material containing more than one percent by weight of asbestos of any type or mixture of types.
6. Category I Nonfriable ACM: Asbestos-containing packings, gaskets, resilient floor covering, and asphalt roofing products containing more than one percent asbestos as determined by Polarized Light Microscopy (PLM).

7. Category II Nonfriable ACM: Any material, excluding Category I Nonfriable ACM, containing more than one percent asbestos as determined by PLM that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.
8. Containment Area: An engineered space within a designated work area designed to control the migration of contaminants to adjacent, non-contaminated regions outside the work area during remediation. This is accomplished by the use of negative air machines at 1000/1500/2000 cubic feet per minute with manometers, ground fault circuit interrupters, and prefilters, intermediate filters, and HEPA filters, which shall be checked on a daily basis to ensure proper functioning of the containment.
9. Critical barrier: An engineered barrier that is impervious to penetration by bioaerosols, vapors, and particulates. The barrier may be constructed of wood, metal, or plastic, as long as aerosols cannot diffuse or migrate past the barrier. (Generally considered part of a containment area.)
10. Decontamination: The process of cleaning surfaces and objects includes thorough cleaning with HEPA vacuums and/or detergents. Also applies to a chamber or series of chambers used as ingress/egress portals to a contained work area.
11. Encapsulation: All herein specified procedures necessary to coat all asbestos-containing materials with an encapsulant to control the possible release of asbestos fibers into the ambient air.
12. Enclosure: All herein specified procedures necessary to complete enclosure of all ACM behind airtight impermeable, permanent barriers using 6 mil poly with criticals established.
13. Friable ACM: Any material containing more than one percent asbestos as determined by PLM that, when dry, can be crumbled, pulverized, or reduced to powder by hand pressure.
14. Generator: If the acts or processes of an asbestos renovation or demolition operation contractor produce asbestos-containing waste material, then the contractor is a waste generator and must affix the contractor's name to the label on the waste container. In the case of this project, it is advised by PADEP to label the container as follows: Route 30 Project / Contractor's Name / 30 Lincoln Highway East / Jeannette, PA 15644.
15. HEPA Filter: A high efficiency particulate air (HEPA) filter capable of trapping and retaining 99.97 percent of all mono-dispersed particles equal to or greater than 0.3 micrometers in mass median aerodynamic equivalent diameter.
16. HEPA Vacuum Equipment: Vacuuming equipment with a HEPA filter system to remove particles from the exhaust air stream.
17. Isolation: The sealing of all openings into a work area with six-mil polyethylene sheeting and duct tape to contain dust and contaminants within the work area. It is the supervisor's responsibility to ensure that critical barriers are maintained with no breeches or delamination of tape until clearance of the area is achieved.
18. Miscellaneous material: Interior building material on structural components, structural members, or fixtures, such as floor and ceiling tiles, and does not include surfacing material and thermal system insulation.
19. MSDS: Material Safety Data Sheet

20. Negative Air Pressure: Lower air pressure created in a defined area (containment space) by a HEPA-filtered exhaust fan or vacuum device. The pressure differential (generally >5 Pascals [Pa] or –0.02 inches of water in a manometer) allows air movement from adjacent areas of higher pressure into the area of lower pressure. The function is to prevent contaminants from escaping the contained area.
21. Occupied Area: An area adjacent to the remediation work area that is occupied, or potentially accessible, by unprotected employees, residents, or the public.
22. OSHA: Occupational Safety and Health Administration.
23. PADEP: Pennsylvania Department of Environmental Protection.
24. Personal protective equipment (PPE): clothing or equipment worn to protect the worker or other individual from hazards or exposure to hazardous materials.
25. PACM: Presumed asbestos-containing materials.
26. Quality Assurance Consultant Project Monitor: The on-call Environmental Consultant's employee, who is qualified to provide the project oversight and air monitoring services. The Project Monitor function as the on-site representative of the facility Client Agency or other persons, interpret asbestos abatement project specifications or asbestos management plans and monitor and evaluate Asbestos Contractor or employee compliance with applicable rules, regulations, or specifications, including collection of the air samples at asbestos project sites.
27. Remediation: The overall process of correcting problems related to removal of asbestos, and asbestos contaminated building materials. This process includes personal and environmental air monitoring.
28. Removal: All herein specified procedures necessary to strip all ACM and mold from designated areas and to dispose of these materials at an acceptable site.
29. Respirator: A device designed to protect the wearer from the inhalation of harmful atmospheres.
30. Surfacing Material: Material that is sprayed troweled-on, or otherwise applied to surfaces, such as acoustical plaster on ceilings and fireproofing materials on structural members, or other materials on surfaces for acoustical, fireproofing, and other purposes.
31. TSI: Thermal system insulations which include all types of insulating materials on boilers, tanks, heat exchangers, pipes, ducts, breeching and other machinery, equipment and components which require insulation.
32. TWA: Time-weighted average limit. The Asbestos Contractor shall ensure that no employee is exposed to an airborne concentration of asbestos in excess of 0.1 fibers per cubic centimeter of air as an eight (8)-hour TWA.
33. Work Area: Designated rooms, spaces, or areas of the subject site in which remediation actions are to be undertaken. A contained work area is a work area, which has been isolated, equipped with controlled access portals and a decontamination unit, and is under a negative air pressure regime with the use of the proper formulas to determine the number of negative air machines and ground fault circuit interrupters.

A. References

1. Environmental Protection Agency (EPA):
 - a. Code of Federal Regulations, 40 CFR Part 763, Asbestos.
 - b. National Emission Standard for Asbestos, 40 CFR, Chapter 61, Subpart M.
 - c. Guidance for Controlling Friable Asbestos-Containing Materials in Buildings.
 - d. A Guide to Respiratory Protection for the Asbestos Abatement Industry.
 - e. Code of Federal Regulations, 40 CFR Part 273, Standards for Universal Waste Management
2. Occupational Safety and Health Administration (OSHA):
 - a. Asbestos Construction Standard, 29 CFR 1926.1101.
 - b. Asbestos General Industry Standard, 29 CFR 1910.1001.
 - c. Respiratory Protection, 29 CFR 1910.134
3. National Institute for Occupational Safety and Health (NIOSH):
 - a. "Respiratory Protection A Guide for the Employee."
 - b. "Asbestos Fibers by Phase Contrast Microscopy (PCM)," NIOSH Method 7400.
4. American National Standards Institute (ANSI):
 - a. Z86.1-1973 - Commodity Specification for Air.
 - b. Z9.2 - HEPA Filter Specifications.
 - c. Z88.2-1980-Respiratory Protective Equipment
5. Commonwealth of Pennsylvania:
 - a. Pennsylvania Act 1990-194 – Pennsylvania Department of Labor and Industry (PADL&I) – Asbestos Occupation Accreditation and Certification.
 - b. Pennsylvania Code Title 25, Chapter 124 – National Emission Standards for Hazardous Air Pollutants, as adopted in Section 124.3.
 - c. Pennsylvania Bureau of Waste Management Act 109 – Solid Waste Management Act.
 - d. Pennsylvania Department of Environmental Protection Act 101, Chapter 11 – Assistance to Municipalities, Section 1101 (e).
 - e. Worker Community Right-to-Know Act of Pennsylvania PL. 734, No. 159; 35 PS. 7317

6. U.S. Department of Transportation (USDOT)
 - a. Shippers - Hazardous Materials Regulations, 49 CFR 171 – 172 (NA 2212 designation).
 - b. Shippers-General Requirements for Shipments and Packaging; Carriage by Rail; Carriage by Aircraft; Carriage by Vessel; and Carriage by Public Highway, 49 CFR 173; 174; 175; 176; and 177.
 - c. Hazardous Materials Regulations, Amendments and Reportable Quantities, 40 CFR 302.4.

PART 2 EXECUTION

2.1 REMOVAL OF ASBESTOS CONTAINING MATERIALS

- A. The asbestos abatement workers will utilize double disposal suits and use at least air-purifying respirator masks with replaceable HEPA filter cartridges for asbestos removal. Examples of appropriate respirator manufacturers are North 7700, MSA, Glenair, and 3M. Initial / negative exposure assessments must be conducted prior to respirator selection.
- B. The Contractor shall post OSHA signs at all entrances to the work area and along the work limits of the site or along the perimeter of the sections of the site where asbestos containing waste material were deposited at intervals of 25 feet or less. The signs shall be posted in such a manner and location that a person may easily read the legend, at each entrance and exit door and outside the containment, as well as areas for loading and unloading of waste.
- C. ACM to be abated:
 1. Concealed Thermal System Insulation (TSI) Pipe, Fittings, Valves and Debris – friable – adequately wetted, HEPA vacuumed.
 - a. The Asbestos Contractor may encounter and shall investigate all areas of the building to locate concealed TSI pipe insulation, perform selective demolition to access all concealed TSI, remove and dispose of all TSI and contaminated porous building materials (or properly decontaminated thereof) and provide certification that all concealed TSI has been removed prior to demolition. If, during the course of demolition, TSI is found, the Asbestos Contractor shall access and abate TSI. Demolition activities will be suspended until the Quality Assurance Consultant Project Monitor determines that identified TSI is successfully abated, however, demolition may be permitted to proceed in other buildings or locations where ACM will not be impacted.
 2. Friable Asbestos-Containing Materials – Class I Removal of Thermal System Insulation and Surfacing Materials (Excluding Glove bag Removal):
 - a. All asbestos-containing materials (including contaminated debris) to be removed shall be contained within a negative pressure enclosure system, wetted with amended water, and carefully removed to prevent droppage and creation of airborne dust.
 - b. Once the removal of all asbestos-containing material is complete, all surfaces and walls within the area shall be thoroughly cleaned by wet wiping/cleaning, followed by thorough drying, and then HEPA vacuumed. A satisfactory

encapsulant (lockdown material) shall be applied to all surfaces from which friable asbestos has been removed.

- c. The exterior of disposal bags, drums, and other containers shall be vacuumed and washed free of all visible asbestos fibers before their removal from the work area. Encapsulants shall be used for fiber lockdown.
- d. If bulk loading of waste materials is employed, the trailer shall be backed up to the doorway and remain under negative air pressure. All heavy materials should be placed at the rear of a van trailer to avoid the potential of compromised offloading of waste materials (bag puncture) at the landfill.
- e. The Quality Assurance Consultant Project Monitor must approve removal work involving the use of remote decontamination facilities and procedures.

3. Friable Asbestos-Containing Materials (Using Glove bag Removal Methods):

- a. All glove bag removal operations shall be conducted in accordance with OSHA regulation 29 CFR 1926.1101 and applicable state regulations. Glove bags cannot be slid on pipes or reused.

4. Nonfriable Asbestos-Containing Materials:

- a. If the Asbestos Contractor and the Quality Assurance Consultant Project Monitor determine that the non-friable ACM can be removed without creating any airborne dust or loose friable asbestos, the specific practices listed herein shall be followed as approved in the Asbestos Contractor's written work plan. Otherwise, the nonfriable asbestos must be removed under the conditions of a full negative-pressure enclosure.
- b. All nonfriable asbestos removal areas shall be properly segregated by posting caution signs meeting the specifications of OSHA regulation 29 CFR 1926.1101 at all locations and approaches to any location where airborne concentrations of asbestos have potential to exceed ambient background levels. Workers shall don all protective equipment prior to entering the regulated work area. The material shall be removed very carefully to minimize any breakage that may release airborne fibers, only if concrete is used as clean fill.

5. Floor Coverings, Mastics and Floor Leveling Compounds – Class II Removal of Miscellaneous Materials

- a. The Asbestos Contractor shall remove all asbestos-containing floor coverings, including but not limited to 9"x 9" floor tile, 12"x 12" floor tile, floor sheeting, mastics on wood, mastic on concrete and multilayered floor coverings.
- b. Asbestos-containing floor coverings and mastics requiring abatement exist. Current building conditions vary from clean floors with accessible floor coverings to floor finishes covered with furnishings and equipment. If asbestos-containing floor tile adhesive is applied directly onto wood flooring, the Asbestos Abatement Contractor may be required to remove the wood contaminated by adhesive and dispose of contaminated wood as asbestos waste.
- c. The Asbestos Contractor shall remove and dispose of all asbestos-containing floor coverings, associated mastics, tar papers and floor levelers. The Contractor will encounter and shall remove floor coverings, etc. under the following conditions: ACM is under varying quantities of a) deteriorating non-asbestos wall

& ceiling plaster, b) ceiling tile and paint debris, some of which is lead containing; c) under floor boards; d) under plywood; e) under building equipment (desks, chairs, shelving, cabinets, radiators, toilets, baseboard heating, etc.); f) under damaged thermal system insulation, g) on concrete, and h) on various wood underlayment. The Contractor is also responsible for the removal of cabinets and partition walls to access asbestos floor covering and adhesive mastic.

6. Accessible TSI, Pipe, Fittings, Valves, and Debris

- a. The Asbestos Contractor shall remove and dispose of all accessible TSI pipe, fitting and valve insulation as identified in the abatement schedule.
 - b. In areas of building conduit spaces where limited headroom or the condition of the conduit prevents safe access by workers, as determined by the Architect/Engineer, the Asbestos Contractor will be allowed to "wrap and cut" segments of intact TSI pipe insulation while insulation remains on the pipe. The Asbestos Contractor shall then transport the cut pipe section to a full containment area and remove insulation from the pipe. The Asbestos Contractor shall fine clean pipe and remove from full containment as non-ACM. The Asbestos Contractor must ensure the "cutting points" of the pipe are free of ACM prior to cutting. This action is specified for limited areas within crawlspaces or conduits only. In areas with sufficient access and headroom, the abatement of ACM pipe insulation shall follow standard removal practices. The Asbestos Contractor will be required to remove asbestos insulation by the glove bag removal methodology to create a clean space to cut the pipe surface.
- D. After all asbestos containing materials are removed, seal the surface with an approved encapsulation material. Encapsulation materials shall be applied after clearance visual inspection has been performed by the Quality Assurance Consultant Project Monitor. The Asbestos Contractor shall inform the Quality Assurance Consultant Project Monitor whenever any asbestos containing materials cannot be removed, whether in total or in part prior to encapsulating.
- E. The encapsulant shall be prepared and applied according to the manufacturer's specifications. A MSDS must be submitted to the Quality Assurance Consultant Project Monitor for acceptance for the encapsulant prior to its use at the Project Site. A copy of the MSDS must be available to the workers and the workers shall wear appropriate personal protective equipment as designated on the MSDS during the preparation and application of the encapsulant.
- F. CFR 61.150 prescribes a leak-tight container, the integrity of which is the Contractor's responsibility until after deposition at a sanitary landfill, which is operated in accordance with 40 CFR 61.25. Therefore, caution must be used in the choice of container types and consideration given to the method of unloading at the landfill. Fragile containers shall be unloaded by hand to prevent rupture and possible visible emissions. Leak-tight containers can include roll off boxes as long as they are lined with bladder bags. All containers shall include OSHA reportable quantity signage, and no visible emissions may occur during the disposal process.
- G. All asbestos materials, wastes, plastics, disposable equipment, and supplies shall be disposed of as contaminated waste in accordance with the EPA, and PADEP regulations and accompanied by the proper manifests and waste shipment records.
- H. It is the responsibility of the Contractor to determine current waste handling, transportation, and disposal regulations for the work site and for each waste disposal landfill. The Contractor

must comply fully with these regulations and all U.S., PA Department of Transportation, and EPA requirements and regulations.

- I. The Contractor will document actual disposal of the waste at the designated landfill by completing a Disposal Certificate and forwarding it to the Client Agency.
- J. The Contractor shall provide, at the completion of the project, a manifest or dump ticket, duly executed by the Contractor, transporter, and disposal facility. The manifest shall be all-inclusive describing volume of materials, dates of transportation, and date of disposal.
- K. The Contractor shall submit all appropriate EPA, PADL&I and OSHA notifications upon award of the Contract. The asbestos abatement will commence as soon as permissible.
- L. The Contractor will provide his/her own electricity, water, shower, and sanitary facilities for this project.

2.2 AIR MONITORING AND INSPECTION

- A. Continuous monitoring and inspection will include work area samples and samples outside of the work area to ensure these areas are free from contamination. Asbestos air samples shall be collected for PCM analysis. Samples outside of the work area shall include areas downgradient of open windows to monitor the potential for fugitive emissions from within the building.
- B. The Quality Assurance Project Monitor shall be responsible to perform a visual inspection of the work area to ensure complete removal. If the visual inspection fails, the abatement contractor will be instructed to decontaminate remaining asbestos per scope of work to the satisfaction of the Quality Assurance Consultant Project Monitor.
- C. The Quality Assurance Project Monitor is responsible for ensuring 8 hour TWA personal monitoring air samples in workers breathing zone per OSHA regulations is performed daily by Asbestos Abatement Contractor or its air monitoring firm.
- D. At the completion of the abatement project, the Quality Assurance Project Monitor shall certify using specific forms that all asbestos have been completely removed (This will include visual inspection and final air clearance sampling with aggressive air sampling if necessary).

PART 3 ENVIRONMENTAL REQUIREMENTS

3.1 QUALITY ASSURANCE

- A. The Quality Assurance Project Monitor shall submit reports to the Client Agency so that, if required, modifications to work methods and/or practices may be implemented as soon as possible, if such action is required. Advance verbal reports shall be made to expedite action.
- B. At the completion of this project, the Quality Assurance Project Monitor shall certify, using the following Asbestos Certification of Visual Inspection form that all asbestos containing materials have been completely and satisfactorily removed, decontaminated, and disposed of in accordance with project specifications and all applicable codes, laws, and regulations.
- C. Applicable standards listed in these specifications include, but are not necessarily limited to standards promulgated by the following agencies and organizations:
 - 1. EPA – Environmental Protection Agency, Region III
Sixth and Walnut Streets, Philadelphia, Pennsylvania 19106

2. OSHA – Occupational Safety and Health Administration, 2nd and Chestnut Streets, Philadelphia, Pennsylvania 19106
 3. NIOSH – National Institute for Occupational Safety and Health Region 3, P.O. Box 13716, Philadelphia, Pennsylvania 19101
 4. PADL&I - Pennsylvania Department of Labor and Industry, Bureau of Occupational and Industrial Safety, Harrisburg, Pennsylvania 17120-0019
 5. PADEP – Pennsylvania Department of Environmental Protection, Bureau of Air Quality, Bureau of Waste Management, Bureau of Radiation Protection, New Stanton District Office, 131 Broadview Road, New Stanton, Pennsylvania 15672.
- D. The Contractor has the responsibility of informing itself and all employees fully of the requirements of these agencies and shall satisfy completely these specifications and all referenced regulations.

ASBESTOS CERTIFICATION OF VISUAL INSPECTION

Project Name:_____

Project Number:_____

Building Name:_____

Work Area Location:_____

ABATEMENT CONTRACTOR CERTIFICATION

In accordance with Project Specifications and scope of work, the abatement contractor hereby certifies that the Abatement Contractor has visually inspected the work area (all surfaces including pipes, beams, ledges, walls, ceiling and floor, decontamination unit, sheet plastic, etc.) and has found no asbestos dust, debris, or residue.

Abatement Contractor Name: _____

Signature: _____ Print Name: _____

Print Title: _____ Date: _____

QUALITY ASSURANCE PROJECT MONITOR

The Quality Assurance Consultant Project Monitor hereby certifies that he/she has accompanied the Abatement Contractor on the visual inspection and verifies that this inspection has been thorough and to the best of his/her knowledge and belief, the Abatement Contractor's certification above is a true and honest one.

Quality Assurance Company Name: _____

Project Monitor Signature: _____ Date: _____

Print Quality Assurance Project Monitor Name: _____

DECLARATION OF ABATEMENT PROJECT DESIGNER

The undersigned accredited Abatement Project Designer prepared the above Asbestos Abatement Technical Specifications.

SCI-TEK CONSULTANTS, INC.



Paula South

Project Designer

Pennsylvania License No.: 030760

END OF SECTION

