Shaping the Future
7988 Centerpoint Drive, Suite 100
Indianapolis, Indiana 46256-3345
(317) 849-4990

ASBESTOS SPECIFICATION - DRAFT

FOR

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

Prepared For:

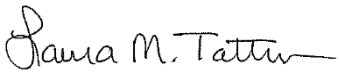
Indiana 15 Regional Planning Commission
221 East First Street
Ferdinand, Indiana 47532

Attn: Mr. Elliot Englert

c/o
City of Jasper

April 28, 2015

Prepared by:



Laura M. Totten
Asbestos Project Designer
License No.19A006069
for Cardno ATC
Direct Line +1 317 579 4081
Email: laura.totten@cardno.com

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DEFINITIONS AND STANDARDS

1.1 DEFINITIONS RELATIVE TO ASBESTOS ABATEMENT

1.1.1 ACCREDITED OR ACCREDITATION: When referring to a person or laboratory accredited in accordance with section 206 of Title II of the Toxic Substances Control Act (TSCA).

1.1.2 AEROSOL: A system consisting of particles, solid or liquid, suspended in air.

1.1.3 AMENDED WATER: Water to which a surfactant has been added to decrease the surface tension to 35 dynes or less.

1.1.4 ASBESTOS: The asbestiform varieties of serpentine (chrysotile), riebeckite (crocidolite), amphibole (amosite) cummingtonite-grunerite, anthophyllite, and actinolite-tremolite. For purpose of determining respiratory and work protection both the asbestiform and non-asbestiform varieties of the above minerals and any of these materials that have been chemically treated and/or altered shall be considered as asbestos.

1.1.5 ASBESTOS-CONTAINING MATERIAL (ACM): Any material containing more than 1% by weight of asbestos of any type or mixture of types.

1.1.6 ASBESTOS-CONTAINING BUILDING MATERIAL (ACBM): Surfacing ACM, thermal system insulation ACM, or miscellaneous ACM that is found in or on interior structural members or other parts of a building.

1.1.7 ASBESTOS-CONTAINING WASTE MATERIAL: Any material that is or is suspected of being or any material contaminated with an ACM that is to be removed from a work area for disposal.

1.1.8 ASBESTOS DEBRIS: Pieces of ACM that can be identified by color, texture, or composition. This can also refer to dust, if the dust is determined by an accredited inspector to be ACM.

1.1.9 AUTHORIZED VISITOR: The Owner or the Owner's Representative, testing lab personnel, the Consultant or a representative of any federal, state and local regulatory or other agency having authority over the project.

1.1.10 BARRIER: Any surface that seals off the work area to inhibit the movement of fibers.

1.1.11 BREATHING ZONE: A hemisphere forward of the shoulders with a radius of approximately 12 inches.

1.1.12 CEILING CONCENTRATION: The concentration of an airborne substance that shall not be exceeded.

1.1.13 CERTIFIED INDUSTRIAL HYGIENIST (C.I.H.): An industrial hygienist certified in Comprehensive Practice by the American Board of Industrial Hygiene.

1.1.14 DEMOLITION: The wrecking or removal of any building component, system, finish or assembly of a facility together with any related handling operations.

1.1.15 DISPOSAL CONTAINER: A properly labeled six mil thick leak-tight plastic bag or a drum lined with such bags used for transporting asbestos waste from work area and to disposal site. Warning labels on the disposal containers shall bear the following information: Provide in accordance with 29 CFR 1910.1200(f) of OSHA's Hazard Communication standard:

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

Provide in accordance with U.S. Department of Transportation regulation on hazardous waste marking (49 CFR Parts 171, 172 AND 181, Hazardous Substances):

RQ ENVIRONMENTALLY HAZARDOUS SUBSTANCE
NOS (ASBESTOS)
9 UN 3077, PG III

Provide in accordance with NESHAPS Regulation Revision 1990; label containers or wrapped materials with the name of the waste generator (Owner), and the location at which the waste was generated. Also, include on this label the name of the Transporter/Contractor and the Transporter/Contractor's address.

1.1.16 ENCAPSULANT: A material that surrounds or embeds asbestos fibers in an adhesive matrix, to prevent the release of fibers. 1) Bridging Encapsulant: An encapsulant that forms a discrete layer on the surface of an in situ asbestos matrix. 2) Penetrating Encapsulant: An encapsulant that is absorbed by the in situ asbestos matrix without leaving a discrete surface layer. 3) Removal Encapsulant: A penetrating encapsulant specifically designed for removal of ACM rather than for in-situ encapsulation.

1.1.17 ENCAPSULATION: Treatment of ACM with an encapsulant.

1.1.18 ENCLOSURE: The construction of an air-tight, impermeable, permanent barrier around ACM to control the release of asbestos fibers into the air.

1.1.19 FRIABLE: Material that can be crumbled, pulverized or reduced to powder by hand or other pressure when dry.

1.1.20 GLOVE-BAG: A sack (typically constructed of 6-mil transparent polyethylene or polyvinylchloride plastic) with two inward projecting long-sleeve gloves, that is designed to enclose an object from which an ACM is to be removed.

1.1.21 HIGH-EFFICIENCY PARTICULATE AIR FILTER (HEPA FILTER): A filter that removes from the air 99.97 percent or more of monodispersed dioctylphthalate (DOP) particles having a mean particle diameter of 0.3 microns.

1.1.22 HEPA VACUUM: Vacuum collection equipment with a HEPA filter system capable of collecting and retaining 99.97 percent or more of asbestos fibers 0.3 microns or larger in diameter.

1.1.23 NEGATIVE-PRESSURE RESPIRATOR: A respirator in which the air pressure inside the respiratory-inlet covering is positive during exhalation in relation to the air pressure of the outside atmosphere and negative during inhalation in relation to the air pressure of the outside atmosphere.

1.1.24 NEGATIVE-PRESSURE VENTILATION SYSTEM: A local exhaust system utilizing HEPA filtration capable of maintaining a negative pressure inside the work area and a constant air flow from adjacent areas into the work area and exhausting filtered air outside the work area.

1.1.25 NEGATIVE DIFFERENTIAL PRESSURE: Air pressure lower than surrounding areas, generally caused by exhausting air from a sealed space (work area).

1.1.26 PERSONAL MONITORING: Sampling of the asbestos fiber concentrations within the breathing zone of an employee.

1.1.27 PROTECTION FACTOR: The ratio of the ambient concentration of an airborne substance to the concentration of the substance inside the respirator at the breathing zone of the wearer. The protection factor is a measure of the degree of protection provided by a respirator to the wearer.

1.1.28 REPAIR: Returning damaged ACM to an undamaged condition or to an intact state so as to prevent fiber release.

1.1.29 WARNING SIGNS: Signs in multiple languages may be required in certain instances. Warning signs to be posted at each locked door leading to the work area shall read as follows:

KEEP OUT
BEYOND THIS POINT ASBESTOS
ABATEMENT WORK IN PROGRESS
BREATHING ASBESTOS DUST
MAY BE HAZARDOUS TO YOUR HEALTH

As required by OSHA regulations 29 CFR 1926.1001, warning signs inside the door and outside critical barriers shall bear the following information:

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

Project identification signs or contractor/supplier informational signs in excess of that required by law shall be subject to approval by the Owner. Allow no other signs to be displayed without Owner's approval. Remove all signs upon completion of construction.

1.1.30 SURFACTANT: A chemical wetting agent added to water to improve penetration, thus reducing the quantity of water required for a given operation or area.

1.1.31 TIME-WEIGHTED AVERAGE (TWA): The average concentration of a contaminant in air during a specific time period.

1.1.32 VISIBLE EMISSIONS: Any emissions containing particulate asbestos material that are visually detectable without the aid of instruments. This does not include condensed uncombined water vapor.

1.1.33 WET-CLEANING: The process of eliminating asbestos contamination from building surfaces and objects by using cloths, mops, or other cleaning utensils that have been dampened with amended water or diluted removal encapsulant and afterwards thoroughly decontaminated and/or disposed of as asbestos contaminated waste.

1.1.34 WORK AREA: The area where asbestos related work or removal operations are performed that is defined and/or isolated to prevent the spread of asbestos dust, fibers or debris, and entry by unauthorized personnel. The work area is a Regulated Area as defined by 29 CFR 1926.

1.2 DRAWING SYMBOLS: Except as otherwise indicated, graphic symbols used on the abatement drawings are those symbols recognized in the abatement industry for the purpose indicated.

1.3 INDUSTRY STANDARDS

1.3.1 GENERAL APPLICABILITY OF STANDARDS: Except to the extent that more explicit or more stringent requirements are written directly into the Contract Documents, applicable standards of the abatement industry have the same force and effect (and are made a part of the Contract Documents by reference) as if copied directly into the Contract Documents, or as if published copies were bound herewith.

1.3.2 REFERENCED STANDARDS (referenced directly in the Contract Documents or by governing regulations): Referenced Standards have precedence over non-referenced standards that are recognized in the industry for applicability of the work.

1.3.3 NON-REFERENCED STANDARDS: Non-referenced standards are hereby defined to have no particular applicability to the work, except as general requirements of whether the work complies with the standards recognized in the abatement industry.

1.3.4 PUBLICATION DATES: Except as otherwise indicated, where compliance with an industry standard is required, comply with the standard in effect as of the date of the Contract Documents.

1.3.5 UPDATED STANDARDS: At the request of the Consultant, submit a change order proposal where an applicable industry code or standard has been revised and reissued after the date of the Contract Documents and before the performance of the work affected. The Consultant will decided whether to issue the change order to proceed with the updated code or standard requirements.

1.3.6 CONFLICTING REQUIREMENTS: Where compliance with two or more standards is specified, and the standards establish different or conflicting requirements for minimum quantities or quality levels, the most stringent requirement will be enforced, unless the Contract Documents indicate otherwise. Refer requirements that are different and uncertainties as to which quality level is more stringent to the Consultant for a decision before proceeding.

1.3.7 COPIES OF STANDARDS: The Contract Documents require that each entity performing work be experienced in that part of the work being performed. Each entity is also required to be familiar with recognized industry standards applicable to that part of the work. Copies of applicable standards are not bound within the Contract Documents. Where copies of standards are needed for proper performance of the work, the Contractor shall be required to obtain such copies. Although certain copies of standards needed for enforcement of the requirements may be required submittals, the Consultant reserves the right to require the Contractor to submit additional copies of these standards as necessary for enforcement of the requirements.

1.4 ABBREVIATIONS AND NAMES: Where acronyms or abbreviations are used but not identified in the Specifications or other Contract Documents they are defined to mean the industry recognized name of the trade association, the standards generating organization, the governing authority or other entity applicable to the context of the text provision. Refer to "Encyclopedia of Associations," published by Gale Research Co. and available in large libraries, for complete names, addresses and telephone numbers.

1.5 TRADE UNION JURISDICTIONS: It is a procedural requirement that the Contractor and prime subcontractors to maintain, complete current information on jurisdictional matters, regulations, actions and pending actions, as applicable to the work. Discuss new developments at appropriate project meetings at the earliest feasible dates, and record information of relevance along with the agreed-upon action. The manner in which contract documents have been organized and sub-divided is not intended to be an indication of jurisdictional or trade union agreements. Assign and subcontract the work, and employ tradesmen and laborers, in a manner that will not unduly risk jurisdictional disputes of a kind that could result in conflicts, delays, claims and losses in the performance of the work.

END OF SECTION

SECTION 00100 - GENERAL CONDITIONS

BIDDER'S REPRESENTATION

Each bidder, by virtue of bid submittal, represents that the bidder has read and understands the bidding documents and that the bid is made in accordance therewith. The bidder also represents that he/she has visited the site and is familiar with the conditions under which the work is to be performed. This includes location, accessibility, general character and extent of the site, existing work or work being performed by others within or adjacent to the site, the availability of labor and utilities, and the conditions that might occur because of weather. The bidder also represents that he/she has correlated his observations with the requirements of the proposed contract documents.

Bids will not be accepted from any contractor unless the contractor has inspected the job site.

INTERPRETATION

Bidders and sub-contractors shall promptly notify the Industrial Hygiene Consultant of any ambiguity, omission, inconsistency or error which they may discover upon examination of the bidding documents or of the site and location conditions.

Bidders and sub-contractors requesting clarification or interpretation of the bidding documents shall make a written request which shall be received by the Industrial Hygiene Consultant at least three days prior to the date for receipt of bids.

Any interpretation, correction or change of the bidding documents will be made by addendum. Interpretations, corrections or changes of the bidding documents made in any other manner will not be binding, and bidders shall not rely upon such interpretations, corrections and changes.

SUBSTITUTIONS

Any item specified by reference to a commercial standard, federal specifications, trade association standard, or other similar standard, shall comply with the requirements for design, manufacture, and installation of the latest revision thereto in effect on the date of the advertisement for bids. Where this specification requires a better quality than such standard, the specification shall govern and the better quality shall be provided without additional charge.

Where a proprietary material or method is specified for use, the intention is to establish a standard of quality, performance or size and not to exclude another product of equal merit.

For proprietary items, bids shall be based on the items named in the specification, or on items which the Industrial Hygiene Consultant designates by addendum as an approved equal. An item named in the specification by addendum will be acceptable only when it meets all other requirements of the specifications, including the specification of the manufacturer as of the date of the advertisement for bids. Requests for approval of an item as equal will not be considered unless sufficient data for evaluation is received by the Industrial Hygiene Consultant prior to bid opening. The Industrial Hygiene Consultant approval of an item for a previous project does not constitute approval for this project. The Industrial Hygiene Consultant will consider delivery time and availability of service as well as the product itself, in acting on a request for approval under provision of this paragraph.

Where the bidder chooses to use an item approved as above, but other than the one shown on the details or specified, he shall be responsible for coordinating any necessary changes in other work and shall bear the cost of such changes and responsibility for any resultant delays.

If the Industrial Hygiene Consultant approves any proposed substitution prior to receipt of bids, such approval will be set forth in a written addendum.

ADDENDA

Addenda will be mailed or delivered to all who are known by the Industrial Hygiene Consultant to have received bidding documents.

Each bidder is required to acknowledge receipt of all issued addenda in the bid.

Each bidder is responsible for determining whether all addenda have been received.

CONTRACTOR'S QUALIFICATION SUBMITTALS

The Owner and Industrial Hygiene Consultant may investigate, as necessary, to determine the qualifications of the bidder and the bidder's ability to perform the required abatement work. Bidder shall furnish to the Industrial Hygiene Consultant all information as requested. The Owner reserves the right to reject any bid if the evidence submitted or the investigation fails to satisfy the Owner that said bidder is properly qualified. Qualification submittals are due within five (5) days of notification by the Industrial Hygiene Consultant. This notification may occur before or after bid opening. Qualification submittals may include, but are not limited to, the following:

A. Bidders Certification and Training Records

1. Contractors submitting bids may employ for the purpose of abatement activities only personnel who are trained and certified by the authority having jurisdiction for that type of work. Records indicating compliance with this procedure are required.

2. Submit outline of in-house training course by qualified individual for work force. Bidders shall furnish written standard operating procedures and employee protection plans which include specific reference to OSHA medical monitoring and respirator training programs.

B. Experience Submittals

1. Contractors must demonstrate reliability and high quality in performance of general contracting activities. Name and location of at least three asbestos abatement projects of $25,000.00 or greater in the last two years. Projects referenced must be accompanied by name, address, and telephone number of purchaser of abatement services who can attest to the work performed by the contractor. Evidence of successful completion of the prior abatement projects should be demonstrated by contractors through submission of air monitoring data, if any, taken during and after completion of previous projects in accordance with OSHA Asbestos Regulations 29 CFR 1926.1101. One of the above projects must have included an on-site industrial hygienist. Submit records (daily log and air monitoring data) to the industrial hygienist.

C. Personnel Submittal (Competent Person)

1. This person must be trained and knowledgeable of applicable regulations. Experienced in safety and environmental protection as evidenced by participation and successful completion of an EPA certified course.

2. Experience with abatement work as demonstrated through participation in at least two prior $25,000.00 or greater removal projects and supervisor/foreman of at least one of the projects.

D. Bidders Assertions

a. The following information shall be submitted, specifically and individually addressed and notarized, signed by an officer of the company.

1. A record of any citations issued by federal, state or local regulatory agencies for violations relating to asbestos abatement activity. Include projects, dates, and resolutions.

2. A list of penalties incurred through non-compliance with asbestos abatement project specifications including liquidated damages, overruns in scheduled time limitations and resolutions.

3. Situations in which, an asbestos related contract has been terminated including projects, dates, and reasons for terminations.

4. A listing of any asbestos-related legal proceeding/claims in which the bidder (or employees scheduled to participate in this project) have participated or are currently involved. Include descriptions of role, issue and resolution to date.

5. Certification that their employees have had instruction or will be instructed on the dangers of asbestos exposure, respirator use, decontamination, relevant OSHA regulations and licensed by the State of Indiana before they begin work on the project.

E. Insurance Policies

A statement listing policy coverages, limitations, and type (actual policies may be required of the two lowest bidders).

DEBARRED CONTRACTORS

Debarred Contractors will be prohibited from any involvement, directly or indirectly, on this project. Contractor shall not employ firms or individuals which are debarred, suspended, or voluntarily excluded from performing EPA funded projects. A listing of debarred contractors is available from the EPA.

SUB-CONTRACTORS

The owner contemplates a single contract and dealings shall at all times be through the prime contractor. Sub-contractors are hired by and are the responsibility of the prime contractor. Non-compliance with any portion of the bid documents by a sub-contractor shall be corrected by the prime contractor and monetary costs or penalties resultant shall be the responsibility of the prime contractor.

The bidder shall, within seven (7) days of notification of selection for the award of a contract for the work, submit the following information to the Industrial Hygiene Consultant.

A. Listing of the work to be performed by the bidder's own forces.

B. A list of names of the sub-contractors, suppliers or other persons or entities proposed for the principal portions of the work as well as licensing requirements where necessary to indicate qualifications of tradesmen.

CONTRACTOR WARRANTIES

A. The contractor understands the currently known hazards and risks which are presented to human beings, property and the environment in the abatement, handling, transportation, storage and disposal of asbestos containing materials.

B. The contractor is engaged in the business of asbestos abatement and has developed the requisite expertise for the removal, transportation, handling and disposal of such.

C. The contractor will handle, load, stow, transport, store and dispose of asbestos containing materials in a safe and workmanlike manner and in full compliance with all valid or applicable statutes, ordinances, order, rules and regulations of the federal, state and local governments in whose jurisdictions such activities are performed under this agreement.

D. Any and all vehicles or lockable containers and personnel to be provided by the contractor in the performance of this agreement have obtained or will obtain all permits, licenses, certificates or approvals required to comply with valid and applicable statutes, ordinances, orders, rules and regulations of the federal, state and local government.

GENERAL NOTES AND SPECIAL CONDITIONS

1. The consultant/building owner reserves the right to require the contractor to remove from the work site any employee of the contractor who is deemed to be careless, incompetent, insubordinate or otherwise objectionable to the consultant/building owner.

2. Experience with abatement work, as evidenced through participation in asbestos abatement project for no less than 30 working days, shall be required of twenty percent (20%) of the contractor personnel.

3. Contractor shall restrict work to no more than ten (10) hours per day, Monday through Friday. Contractor must secure written permission from building owner's representative to work outside of these established parameters.

4. Dumpsters and/or trucks used for storage of waste materials shall be fully enclosed to include a rigid ceiling. Dumpsters and/or trucks must be lockable to ensure security of the contained waste.

5. Contractor shall field verify all existing conditions prior to submitting any bid or performing any work. No extras will be allowed for misunderstandings or misinterpretations of the work required.

6. The contractor shall be responsible for the cleanup and testing of any area contaminated due to contractor negligence at no additional cost to the owner. This includes any sample analysis costs associated with areas where the first round of sampling indicated airborne levels of asbestos in excess of those accepted by AHERA.

7. The contractor shall assure and be responsible to ensure that all workers and visitors shall be fully protected with respirators and protective clothing provided by the contractor prior to the first disturbance of asbestos-containing or contaminated materials until final clean up is completed and clearance testing has certified that the area is uncontaminated.

8. Any asbestos-containing materials of the nature shown or described, but not specifically called out, but which are reasonable implied and necessary for a complete and satisfactory removal job shall be included without additional cost to the owner.

9. All removal indicated is to be accomplished utilizing respiratory protection as indicated in the specifications and in accordance with air monitoring results.

10. All removal and disposal of asbestos is to be in accordance with government regulations. In instances where government regulations conflict with the consultant's recommendations, the more stringent of the two shall apply.

11. General work areas are designated. These areas shall be secured from public traffic. Warning signs shall be posted at any access.

12. Asbestos abatement shall be considered complete for the project schedule purposes when all work areas for the project, or portion, or phase of the project, have passed visual inspection and clearance air sampling has been completed. Tear down and demobilization shall be done the first work day following the receipt of contractor release criteria.

13. All decontamination units shall be constructed of opaque polyethylene sheeting and fitted with a plywood door which shall remain locked whenever the contractor is not present at the job site. Doors shall contain make up air inlets to allow air flow through the unit when the door is secured.

14. All equipment and supplies necessary to accomplish the work of this contract shall be supplied by the contractor.

END OF SECTION 00100

SECTION 01013 - SUMMARY OF WORK

1.1. PROJECT IDENTIFICATION

1.1.1. The Project name is the asbestos abatement of the asbestos containing materials located at the Jasper Power Plant, as shown on the Contract Documents, including the Specifications.

1.1.2. The Contract Documents indicate the work of the Contract and related requirements and conditions that have an impact on the project.

1.2. REMOVAL ACTIVITIES

Pre-cleaning of all movable and immovable fixtures and surfaces in the areas to undergo removal in accordance with regulations and these specifications.

Where feasible, removal procedures are to be performed either under a negative enclosure with at least four air exchanges per hour and a minimum of -0.02 column inches of water pressure differential relative to outside pressure or by utilizing glove bag methods.

Following removal of the below listed regulated materials from the buildings, these materials shall be disposed of as asbestos-contaminated waste in accordance with regulations and these specifications.

ASBESTOS INSPECTION SUMMARY FOR DEMOLITION
Jasper Power Plant
1163 East 15th Street
Jasper, Indiana 47546

HA No.	MATERIAL TYPE	LOCATION	ACM Type	Friable Class	Material Quantity**
Storage Building					
1	Gray Wall Coating	Main Area	M	II	32 SF
Maintenance Building					
37	1" White Rope Insulation	Stored on the Mezzanine	TSI	F	150 LF
Plant					
1	Gray Wall Coating	2nd, 3rd, and 4th Floor, 2nd Floor Restroom, 5th Floor Coal Room, and Exterior	M	II	38,470 SF
55	White Pipe Insulation	Basement	TSI	F	25 LF
68	Gray Insulation	Operator's Area	TSI	F	4 CF
93	Gray Wall Coating (over arched siding)	West Roof (4th Floor access)	TSI	F	1,300 SF
97	White Hard Pack Fittings	Condensate Return Tank	TSI	F	2 LF
98	White Hard Pack Fittings	Air Injector Bottom	TSI	F	7 LF
100	White Hard Pack Fittings	Electrical Feed Pump, 1" Water Line (northeast corner), Feed Pump Area	TSI	F	101 LF
101	Brown Hard Pack Fittings	Steam Feed Pump	TSI	F	9 LF
107	White Hard Pack Fittings	1" Water Line, Feed Water Master Line, Emergency Feed Water Line, Spray Water Valve Assembly, High Pressure Heater	TSI	F	18 LF

HA No.	MATERIAL TYPE	LOCATION	ACM Type	Friable Class	Material Quantity**
108	White Hard Pack Fittings	1" Heating Steam Line, City Water Fire Hose Connection, 1" Water Line (northwest corner of boiler)	TSI	F	16 LF

** Unable to determine quantities during the inspection due to inaccessible spaces in other areas throughout the building. Quantities based on accessible materials only.
TSI = Thermal System Insulation, M = Miscellaneous.
F = Friable, II - Non-Friable Category II.

The owner may elect to renovate rather than demolish the building. If the building is to be renovated, the additional materials listed below will be required to be abated. Please submit an alternate cost to remove the additional non-friable materials.

ADDITIONAL NON-FRIABLE MATERIALS FOR RENOVATION
Jasper Power Plant
1163 East 15th Street
Jasper, Indiana 47546

HA No.	MATERIAL TYPE	LOCATION	ACM Type	Friable Class	Material Quantity**
Storage Building					
10	Gray Compressed Gasket Material	Stored Materials in the Main Area	I	NF	25 SF
Maintenance Building					
21	Black Asphalt Roofing Material	Exterior	I	NF	1,000 SF
23	1/2" Gray Mechanical Packing	Stored Materials in the Garage	I	NF	140 LF
24	7/16" Gray Mechanical Packing	Stored Materials in the Garage	I	NF	100 LF
25	5/8" Gray Mechanical Packing	Stored Materials in the Garage	I	NF	75 LF
26	5/16" Gray Mechanical Packing	Stored Materials in the Garage	I	NF	50 LF
27	3/16" Gray Mechanical Packing	Stored Materials in the Garage	I	NF	70 LF
28	1/8" Gray Mechanical Packing	Stored Materials in the Garage	I	NF	60 LF
32	1" Yellow Gaskets	Stored Materials in the Garage	I	NF	250 LF
33	3" Brown Gaskets	Stored Materials in the Garage	I	NF	200 LF
34	1" White Gaskets	Stored Materials in the Garage	I	NF	200 LF
35	1" White Gasket Rings	Stored on the Mezzanine Area	I	NF	120 LF
36	1/2" White Gaskets	Stored on the Mezzanine Area	I	NF	200 LF
40	3/8" White Mechanical Packing	Stored on the Mezzanine Area	I	NF	50 LF
41	1/4" White Mechanical Packing	Stored on the Mezzanine Area	I	NF	25 LF
Cooling Tower					
48	Black Pipe Coating (aboveground)	Cooling Tower Exterior	II	NF	10 LF
49	Black Pipe Coating (aboveground)	Cooling Tower Exterior	II	NF	10 LF
Plant					
34	1" White Pipe Gaskets	Feed Pump Area	I	NF	4 LF
35	1" White Gasket Rings	Stored Materials in Office No.4	I	NF	40 LF
48	Black Pipe Coating	Basement	I	NF	110 LF
59	White Pipe Compound	First Floor	I	NF	1 SF
65	9"x9" Green Floor Tile	Restroom	I	NF	300 SF
69	1/8" Black Gasket Rings	Stored Materials in Office No.4	I	NF	25 LF
70	1" Black Gasket Rings	Stored Materials in Office No.4	I	NF	15 LF
91	Asphalt Roofing Material	Exterior	I	NF	8,450 SF
111	Gray Joint Caulk	DA Tank Control Valve Assembly	I	NF	3 LF

I is Category I non-friable / II is Category II non-friable.

It is the asbestos abatement contractor's responsibility to accurately quantify the asbestos materials for the cost of the removal. The asbestos abatement contractor who is awarded the job will be responsible to locate and remove all the asbestos containing materials within the designated work area. This includes the materials listed in the table above and any additional asbestos containing materials discovered during the project.

All reasonable efforts have been performed by the owner to identify the asbestos containing materials; however, the contractor assumes all additional costs with his bid. The contractor will be provided access to the space during the walk-thru. No demolition activities will be permitted prior to the start of the project.

The asbestos abatement contractor may need to perform demolition activities to access areas where asbestos containing materials are located. It is the responsibility of the contractor to include all demolition activities including air ducts, and associated equipment and any other materials that may need moved or demolished in the abatement cost.

1.3 PLAN OF ACTION: Submit a detailed plan of the procedures proposed for use in complying with the requirements of these specifications. Include in the plan 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, disposal plan including location of approved disposal site, and a detailed description of the methods to be employed for containment of the encapsulation area. The contractor shall not start work until this plan of action is approved by the Owner and/or the Owner's representative.

1.4 SITE INSPECTION

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

1.5 CONTRACTOR'S DUTIES

1.5.1 Except as specifically noted, the Contractor shall provide and pay for all labor, materials, tools, construction equipment and machinery, and other facilities and services necessary for proper execution and completion of work, including all legally required sales, consumer, use, payroll, privilege and other taxes.

1.5.2 The Contractor shall secure and pay for all Permits, Government Fees, Licenses and Waste Disposal Permits and Costs as necessary for proper execution and completion of the work and as applicable at the time of bids, and shall be responsible for giving all required notices.

1.5.3 The Contractor shall comply with all codes, ordinances, rules, regulations, orders and other legal requirements of public authorities (including EPA, NESHAPS and OSHA) which bear on work performance, including laws regarding job discrimination and payment of prevailing wage rates. Where conflicts occur between these specifications and/or the above-mentioned regulations, the more stringent shall govern.

1.5.4 If the Contractor observes that any of the Contract Documents are at variance with the above-mentioned regulations, the Contractor shall promptly notify the consultant in writing, and any necessary changes will be made by appropriate modification. It is the Contractor's responsibility to make certain that the Contract Documents are in accordance with all applicable laws, ordinances, statutes, building codes, rules and regulations. If the Contractor performs any work knowing it to be contrary to such laws, ordinances, statutes, building codes, rules and regulations, and without such notice to the Consultant, the Contractor shall assume full responsibility therefor and shall bear all cost attributable thereto.

1.5.5. The Contractor assumes all responsibility for the proper and safe execution of the work, and shall enforce strict discipline and good order among employee, and shall not employ on the project unfit persons or persons not skilled in their assigned task.

1.5.6. The Contractor shall use the best available technology, procedures and methods for preparation, execution, cleanup, disposal and safety.

1.6 POTENTIAL ASBESTOS HAZARD

1.6.1. The disturbance or dislocation of asbestos-containing materials may cause asbestos fibers to be released into the atmosphere, thereby creating a potential health hazard to workmen and building occupants. The Contractor shall apprise all workers, supervisory personnel, subcontractors and consultants who will be at the job site of the seriousness of the hazard and of proper work procedures which must be followed.

1.6.2. Where in the performance of the work, workers, supervisory personnel, subcontractors or consultants may encounter, disturb or otherwise function in the immediate vicinity of any identified asbestos-containing materials, take appropriate measures as necessary to protect all building occupants from the potential hazard of exposure to airborne asbestos. Such measures shall include the procedures and methods described herein, and compliance with all regulations of applicable federal, state and local agencies.

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

1.8 CONTRACTOR USE OF PREMISES

1.8.1. GENERAL: During the entire construction period the Contractor shall cooperate with the Owner or the Owner's representative to minimize conflicts and to facilitate Owner usage. Perform the work so as not to interfere with the Owner's operation. Confine operations at the site to the areas permitted under the Contract. Portions of the site beyond areas on which work is indicated are not to be disturbed. Conform to site rules and regulations affecting the work while engaged in project construction. Keep existing driveways and entrances serving the premises clear and available to the Owner and the Owner's employees at all times. Do not use these areas for parking or storage of materials. Do not unreasonably encumber the site with materials or equipment. Confine stockpiling and location of stored materials to the areas indicated by the Owner. The contractor will be responsible for providing at least one (1) portalet to the site. Additionally, it will be the responsibility of the contractor to ensure that this portalet is cleaned out as needed.

1.8.2. CONTRACTOR'S USE OF EXISTING BUILDING: Maintain the existing building in a safe condition throughout the construction period. Take all precautions necessary to protect the building and its occupants during the construction period. Keep public areas free from accumulation of waste, rubbish or construction debris. Smoking or open fires will not be permitted within the building enclosure or on the premises.

1.8.3. OWNER OCCUPANCY: The building is currently vacant and will remain vacant during this project.

END OF SECTION 01013

SECTION 01043 - PROJECT COORDINATION

1.1 DESCRIPTION OF WORK: This Section specifies administrative and supervisory requirements, procedures, conditions and responsibility necessary for coordination of the entire project including, but not necessarily limited to the administrative and supervisory personnel, progress meetings, pre-construction conference, daily logs, special reports, contingency plans, notifications to other entities at job site, scheduling of access to areas with the Owner. Refer to Section 01301 for addition requirements of the Contractor.

1.2 PROJECT SUPERINTENDENT: The Contractor shall provide a full-time Project Superintendent who is experienced in administration and supervision of asbestos abatement projects including work practices, protective measures for building and personnel, disposal procedures, etc. The Project Superintendent is to be the "Competent Person" as defined by OSHA 1926.1101, and shall be accredited as an Asbestos Abatement Project Supervisor in accordance with IAC 18-3. This person shall have had a minimum of ten years on-the-job training in asbestos abatement procedures.

1.3 DUTIES OF PROJECT SUPERINTENDENT

1.3.1 GENERAL: The duties of the Project Superintendent include, but are not necessarily limited to the following:

1.3.1.1 Coordinate the work of all subcontractors and material suppliers.

1.3.1.2 Supervise the activities of every phase of the asbestos removal work taking place on the project in conjunction with the air monitoring supervisor and the Consultant.

1.3.1.3 Establish lines of authority and communication at the job site. Maintain direct contact with workers within the contained work areas including use of electronic means.

1.3.1.4 Assist in obtaining building and special permits required for construction.

1.3.1.5 Be present on the job at all times when work is being performed, and shall be responsible for compliance with all applicable federal, state and local regulations, particularly those relating to asbestos-containing materials.

1.3.1.6 Coordinate the scheduling of the work with the Owner's Site Representative for access to work areas and the removal of stored items from the work areas.

1.3.1.7 Help schedule and assist at all project meetings.

1.3.1.8 Prepare and submit all progress schedules, and supervise work to monitor compliance with schedules.

1.3.1.9 Administer the processing of all product data and samples required by the Project Manual.

1.3.1.10 Maintain a project record documents file up to date.

1.3.1.11 Coordinate all required material for testing.

1.3.1.12 Enforce all safety requirements.

1.3.1.13 Construct, maintain and monitor all temporary facilities.

1.3.1.14 Recommend and assist in the preparation of requests to the Consultant for any changes in the Contract.

1.3.1.15 Assist in the preparation and be knowledgeable of each entry in the Application and Certificates for Payment.

1.3.1.16 Direct and execute a continuing cleaning program throughout construction, requiring each trade to dispose of their debris.

1.3.1.17 Conduct final inspections and assist in collection and preparation of closeout documents.

1.3.2 INTERPRETATION OF CONTRACT DOCUMENTS: The Project Superintendent shall consult with the Consultant to obtain interpretations, assist in the resolution of any questions, and shall transmit written interpretations to all concerned parties.

1.3.3 STOP WORK: Should a Stop Work Order be issued, the Project Superintendent shall, in accordance with the requirements, stop all work until notified to recommence work.

1.4 PROGRESS SCHEDULES

1.4.1 GENERAL: Provide a detailed construction progress schedule as outlined in this Article. Coordinate and work with the Consultant.

1.4.2 PROGRESS REVISIONS: Indicate progress of each activity to the date of the submission. Show changes occurring since previous submission of the schedule, including any major changes in the scope of the project, activities modified since previous submissions, revised projections of progress and completion, other identifiable changes. Provide a narrative report as needed to define any problem areas, anticipated delays, and the impact on the schedule, corrective action recommended, and its effect, the effect of changes on schedules of other prime contractors, if any. At least 48 hours advance notice must be given of any changes in the previously indicated work dates and/or shift times. This is to allow the Consultant time to schedule for the on-site technician.

1.4.3 SUBMISSIONS: Submit the initial schedules with the pre-work submittals (Ref. Section 01301). The Consultant will review the schedules and return reviewed copies with comments. If required, resubmit copies of the revised schedules after return of the reviewed copies. Submit revised progress schedules with each application for payment, in duplicates, subject to the review and approval of the Owner.

1.4.4 DISTRIBUTION: Distribute copies of all initial and revised schedules to the job site file, major subcontractors, the Consultant, the Owner, and other concerned parties. Instruct all recipients to report promptly, in writing, any problem anticipated by the projections shown in the schedules.

1.5 MEETINGS AND CONFERENCES

1.5.1 PRE-CONSTRUCTION CONFERENCE: Prior to the start of any work the Consultant will arrange a pre-construction conference at the project site. Those in attendance will be the Owner's Representative, the Project Superintendent, the Consultant's Project Representative, and any other entities concerned with the asbestos encapsulation work. The Consultant will provide at least one week advance notice to all participants prior to convening the pre-construction conference. The purpose of the meeting will be to discuss construction schedules, job conditions, review responsibilities and personnel assignments, to locate the containment and decontamination areas, and all temporary facilities, including power, light, water, etc. The Project Administrator shall record all discussions and agreements and furnish a typed copy of the meeting minutes to each participant within three days.

1.5.2 SPECIAL MEETINGS: For particular phases of the work, or for unforeseen or emergency conditions, special meetings may be called by the Consultant or the Contractor (subject to the approval of the Consultant). Personnel attending these meetings will be as required by the purpose of the meeting. The Project Administrator will record all discussions and agreements and furnish a typed copy of the meeting minutes to each participant within three days.

1.6 CONTRACTOR DOCUMENTATION ON SITE

1.6.1 Contractor shall maintain at the job site a copy of the Contractor's Hazard Communication Program, including copies of the Material Safety Data Sheets for all materials within the work area including asbestos.

1.6.2 Contractor shall maintain at the job site copies of all workers current medical examinations required by OSHA 1926.1101, along with the workers respirator fit testing records.

1.6.3 Per IAC 18-3, the Contractor shall ensure that the current Certificate of Accreditation and Photographic Identification Card belonging to each Project Supervisor and Worker is kept on the job site during all abatement activities. The Certificates of Accreditation and Photographic Identification Cards shall be kept outside the work area, and shall be available for inspection by the Owner or Owner's Representative, the Consultant or the Department of Environmental Management.

1.7 DAILY LOG: Maintain at the job site a daily job log and enclose copies of this log at final closeout of project (Ref. Section 01301) documenting the dates and times of meetings, including purpose, attenders and a brief description thereof; visitations to the job site; personnel, by name, entering and leaving the work area; special or unusual events, i.e. barrier breaching, equipment failures, accidents, etc.; air monitoring tests and test results; and documentation of the Contractor's completion of the following:

1.7.1 Inspection of work area preparation prior to start of any abatement activities and daily thereafter.

1.7.2 Removal of waste materials from work area.

1.7.3 Contractor's inspections prior to encapsulation, enclosure, replacement or any other operation that will conceal the condition of asbestos-containing materials or the substrate from which such materials have been removed.

1.7.4 Contractor's final inspection.

1.7.5 Decontamination of equipment (list items).

1.7.6 Removal of any containment barriers.

1.8 SPECIAL REPORTS: Submit special reports directly to the Owner within one day of any occurrence requiring a special report, with a copy to the Consultant and others affected by the occurrence. When an event of unusual and significant nature occurs at the site (examples: Failure of negative pressure system, rupture of temporary enclosures), prepare and submit a special report listing the chain of events, persons participating, response by Contractor's personnel, evaluation of results of effects, and similar pertinent information. When such events are known or predictable in advance, advise the Owner in advance at the earliest possible date. Prepare and submit reports of significant accidents, at the site and anywhere else where work is in progress for the project. Record and document data and actions complying with industry standards. For this purpose, a significant accident is defined to include events where personal injury is sustained, property loss of substance is sustained, or where the event posed a significant threat of loss or personal injury. When an unusual condition of the building is discovered during the work (examples: water leaks, termites, corrosion), prepare and submit a special report indicating the condition discovered. Releases of more than one pound of friable asbestos into the environment must be reported to the National Response Center, 1-800-424-8802.

1.9 CONTINGENCY PLAN: Prepare a contingency plan for emergencies including fire, accident, power failure, negative air system failure, supplied air failure, or any other event that may require modification or abridgement of decontamination or work area isolation procedures. Include in the plan specific procedures for decontamination of work area isolation. Nothing shall impede the safe exiting or providing of adequate medical attention in the event of an emergency. Post in the clean room of the Personal Decontamination Unit the telephone numbers and locations of emergency services including, but not necessarily limited to, fire, ambulance, doctor, hospital, police, Power Company, and Telephone Company.

1.10 NOTIFICATIONS

1.10.1 GENERAL: Notify other entities at the job site of the nature of the asbestos removal activities, locations of the asbestos-containing materials, requirements relative to asbestos set forth in these specifications and applicable regulations.

1.10.2 EMERGENCY SERVICES AGENCIES: Notify emergency services agencies including fire, ambulance, police or other agency that may service that abatement work site in case of emergency. Notification is to include methods of entering the work area, emergency entry and exit locations, modifications to fire alarm or sprinkler systems, and other information needed by agencies providing emergency services.

1.10.3 NOTIFICATION OF EMERGENCY: Any individual at the job site may notify emergency service agencies if necessary without effect on this Contract or the Contract Sum.

1.10.4 GOVERNMENT AGENCIES: Give proper notification to all federal, state and local government agencies requiring notification of asbestos abatement activities.

END OF SECTION 01043

SECTION 01092 - CODES AND REGULATIONS

1.1 SUMMARY: This section sets forth governmental regulations and industry standards that are included and incorporated herein by reference and made a part of these Specifications. This section also sets forth those notices and permits that are known to the Owner and that either must be applied for and received, or that must be given to governmental agencies before the start of the work. Requirements include adherence to work practices and procedures set forth in applicable codes, regulations and standards. Requirements include obtaining permits, licenses, inspections, releases and similar documentation, as well as payment, statements and similar requirements associated with codes, regulations, and standards.

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

1.3 CONTRACTOR RESPONSIBILITY: The Contractor shall assume full responsibility and liability for compliance with all applicable federal, state and local regulations pertaining to work practices, transport, disposal, and protection of workers, visitors to the site and persons occupying areas adjacent to the site. The Contractor shall hold the Owner and Consultant harmless for failure to comply on the part of himself, his employees or his subcontractors.

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

U.S. Department of Labor, Occupational Safety and Health Administration, (OSHA), including but not limited to:

a. Occupational Exposure to Asbestos, Tremolite, Anthophyllite, and Actinolite: Final Rules Title 29, Part 1910, Section 1001 and Part 1926, Section 1011 of the Code of Federal Regulations
b. Respiratory Protection: Title 29, Part 1910, Section 134 of the Code of Federal Regulations
c. Construction Industry: Title 29, Part 1926, of the Code of Federal Regulations
d. Access to Employee Exposure and Medical Records: Title 29, Part 1910, Section 2 of the Code of Federal Regulations
e. Hazard Communication: Title 29, Part 1910, Section 1200 of the Code of Federal Regulations
f. Specifications for Accident Prevention Signs and Tags: Title 29, Part 1910, Section 145 of the Code of Federal Regulations

U.S. Department of Transportation (DOT), including, but not limited to:

a. Hazardous Substance: Title 29, Part 171 and 172 of the Code of Federal Regulations

U.S. Environmental Protection Agency (EPA), including but not limited to:

a. Asbestos Abatement Projects: Worker Protection Rule, Title 40 Part 763, Subpart G of the Code of Federal Regulations

b. Asbestos Hazard Emergency Response Act (AHERA) Regulation: Asbestos in Schools Final Rule & Notice, Title 40, Part 763, Subpart E of the Code of Federal Regulations
c. National Emission Standard for Hazardous Air Pollutants (NESHAPS): National Emission Standard for Asbestos, Title 40, Part 61, Subpart A, and Subpart M (Revised Subpart B) of the Code of Federal Regulations

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

a. 326 IAC 14-2
b. 326 IAC 14-10
c. 326 IAC 18-1
d. 329 IAC 10-8
e. 329 IAC 13-20

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

1.6 NOTICES TO STATE AND LOCAL AGENCIES: Send written notification as required by state and local regulations prior to beginning any work on ACM. Send notification to the following agency:

Indiana Department of Environmental Management
Office of Air Quality
100 N. Senate Ave.
P.O. Box 6015
Indianapolis, IN 46206-6015
(317) 233-6880

1.7 PERMITS: All asbestos-containing waste is to be transported by an entity maintaining a current "Industrial Waste Hauler Permit" specifically for ACM, as required for transporting of waste ACM to a disposal site.

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

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

END OF SECTION 01092

SECTION 01301 - SUBMITTALS

1.1 SUMMARY: This section specifies administrative and procedural requirements for submittals required for performance of the Work.

1.2 SUBMITTAL PROCEDURES

1.2.1 COORDINATION: Coordinate preparation and processing of submittals with performance of abatement activities. Transmit each submittal sufficiently in advance of performance of related abatement activities to avoid delay. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals and related activities that require sequential activity. Coordinate transmission of different types of submittals for related elements of the work so processing will not be delayed by the need to review submittals concurrently for coordination. The Consultant reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

1.2.2 PROCESSING: Allow sufficient review time so that installation will not be delayed as a result of the time required to process submittals, including time for re-submittals. Modify time to suit project requirements. Allow sufficient time for initial review. Allow additional time if processing must be delayed to permit coordinating with subsequent submittals. The Consultant will promptly advise the Contractor when a submittal being processed must be delayed for coordination. If an intermediate submittal is necessary, process the same as the initial submittal. Allow sufficient time for re-processing each submittal. No extension of contract time will be authorized because of failure to transmit submittals to the Consultant sufficiently in advance of the work to permit processing.

1.2.3 SUBMITTAL PREPARATION: Place a permanent label or title block on each submittal for identification. Indicate the name of the entity that prepared each submittal on the label or title block. Provide a space approximately four inches by five inches on the label or beside the title block on shop drawings to record the Contractor's review and approval markings and the action taken. Include the following information on the label for processing and recording action taken:

1. Project name and number
2. Date
3. Name and address of Consultant, Contractor, subcontractor, supplier and manufacturer

1.2.4 SUBMITTAL TRANSMITTAL: Package each submittal appropriately for transmittal and handling. Submittals received from source other than the Contractor will be returned without action.

1.2.5 COPIES REQUIRED: The following number of copies shall be submitted:

1. Pre-contract Submittals - two sets
2. Pre-work Submittals - two sets
3. Close-out Submittals - two sets

1.3 SUBSTITUTIONS: Contractor's requests for changes in the products, materials, equipment and methods of construction required by the Contract Documents are considered requests for substitutions and are subject to approval of the United States General Services Administration (GSA).

1.4 PRECONTRACT SUBMITTALS

1.4.1 GENERAL: Within three (3) days after the date bids are opened, the Contractors submitting the two (2) lowest responsive bids shall be required to submit, prior to consideration for execution of the agreement, two (2) copies of all pre-contract submittals as described in this Article.

1.4.2 RESUME: Include the in a company resume the number of years engaged in asbestos removal; a list of full-time personnel to be engaged in the contract and their training and job experience; a complete list of removal contracts executed within the last twenty-four months including names, addresses, and phone numbers of the Owners, Consultants and Air Testing Firms; an outline of the worker training course and medical surveillance program conducted by the Contractor; the name of and evidence that the Project Superintendent has completed an EPA-approved contractor/supervisor certification course, or equivalent, and has a minimum of two years on the job experience; a basic procedures manual endorsed or authorized by the company describing work procedures, equipment, type of decontamination facilities, respirator program, special removal techniques, etc.; and proof that the Contractor and the Contractor's employees are certified and/or licensed in accordance with all required federal, state and local regulations.

1.4.3 CITATIONS AND VIOLATIONS: Submit a notarized statement describing any citations and violations issued by any regulatory agency or stop work orders issued by Owners or Consultants on previous asbestos abatement contracts. Briefly describe the circumstances, citing job and involved persons and agencies, and discuss the outcome of any violations. If there have been no citations or violations, submit a notarized statement so stating.

1.4.4 LITIGATION AND LIQUIDATED DAMAGES: $2,000 per day past the schedule.

1.4.5 INSURANCE COVERAGE: Submit copies of insurance coverage, including automobile liability, workers' compensation, comprehensive general liability, special endorsement, and other coverage as required.

1.4.6 SUBCONTRACTORS: Submit a list of all subcontractors to be used on the project. All subcontractors must be acceptable to the Owner and Consultant.

1.5 PRE-WORK SUBMITTALS

1.5.1 GENERAL: Within three (3) days following the award of Contract, the successful bidder shall submit to the Consultant two (2) copies of all pre-work submittals as required by this Article. Maintain one (1) reviewed copy at job site.

1.5.2 PROGRESS SCHEDULE: Provide proposed schedule.

1.5.3 NOTICES: Submit copies of required notices to all federal, state and local agencies together with proof of timely transmittal to agency requiring the notice.

1.5.4 PERMITS: Submit copies of current valid permits required by federal, state and local regulations, including arrangements for storage, transportation, and disposal of contaminated material. Disposal site must conform to EPA regulation 40 CFR 61.

1.5.5 LICENSES: Submit copies of all state, local and private licenses necessary to carry out the Work.

1.5.6 SHOP DRAWINGS: Show on Contract Drawings or other approved drawings of the containment areas (individually numbered), the pressure differential system including the locations and quantity of negative air pressure equipment, the location of all decontamination chambers, entrances, and emergency exits from the work areas. Show the location and construction of storage facilities and field office and security provisions in and around the premises.

1.5.7 WORKERS: Submit a list of all workers, including those of subcontractors, to be employed in the removal work. Present evidence that all workers have received proper training and are accredited as required by regulations; and the medical examinations required by OSHA 29 CFR 1926.1101. Distinguish between full-time personnel and pick-up labor. Submit an original, signed copy of the Certificate of Worker's Acknowledgement of Training found at the end of Section 01560 for each worker who is to be at the jobsite.

1.5.8 NOTICES TO SUPPLIERS: Submit copies of notices sent to suppliers of rental equipment and vehicles informing them of the nature of the use of their equipment.

1.5.9 CERTIFICATES OF INSURANCE: Submit certificates of insurance and policies issued for the Work.

1.6 CLOSEOUT SUBMITTALS

1.6.1 PREREQUISITES TO SUBSTANTIAL COMPLETION: The following must be completed before requesting the Consultant's inspection for certification of substantial completion for the Work. List known exceptions in the request.

1.6.1.1 Submit a statement showing an accounting of changes to the Contract Sum, including a description of any unresolved issues related to the Contract.

1.6.1.2 Submit a request for inspection. The request shall include a summary of items remaining to be completed based on the Contractor's inspection of the project.

1.6.2 PREREQUISITES TO FINAL ACCEPTANCE: Complete the following Record Documents before requesting the Consultant's certification of final acceptance and final payment as required by the General Conditions. Submit all Record Documents in a loose leaf binder with identifying tabs. List known exceptions, if any, in request.

1.6.2.1 Submit the final releases and supporting documentation not previously submitted and accepted. Include certificates of insurance for products and completed operations where required.

1.6.2.2 Submit a final statement, acceptable to the Owner, accounting for all change orders, liquidated damages, and other charges or credits against the Contract.

1.6.2.3 Submit a notarized copy of the Consultant's punch-list of itemized work to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance and has been endorsed and dated by the Consultant.

1.6.2.4 Submit consent of surety.

1.6.2.5 Submit a Release of Liens and Certification that all bills have been paid. A sworn statement and affidavit from the Contractor to the Owner stating that all bills, taxes, fees and similar obligations of the Contractor for this job have been paid and that the Owner is released from any and all claims and damages shall be required before final payment is made.

1.6.2.6 Submit all additional certificates, warranties, guarantees, bonds, or documents as called for in the individual sections of the Project Manual. The Contractor is responsible for examining the Project Manual for these requirements.

1.6.2.7 Submit certification that rental vehicles and equipment have received clearance inspection prior to return to Rental Company.

1.6.2.8 Submit copies of all waste disposal manifests.

1.6.2.9 Submit OSHA compliance air monitoring records conducted during the work.

1.6.2.10 Submit copies of the daily log.

END OF SECTION 01301

SECTION 01410 - AIR MONITORING AND WORK AREA CLEARANCE

1.1. DESCRIPTION OF WORK: This section describes applicable air monitoring carried out by the Owner to verify that the building beyond the work area and the outside environment remain uncontaminated. This section also sets forth airborne fiber levels both inside and outside the work area including post abatement airborne asbestos concentrations, and describes the action required by the Contractor if an action level is met or exceeded. Air monitoring required by OSHA is work of the Contractor and is not covered in this section. This section describes work that is not in the contract sum.

1.2. AIR MONITORING

1.2.1. WORK AREA ISOLATION: The purpose of the Owner's air monitoring will be to detect faults in the work area isolation such as contamination of the building outside of the work area with airborne asbestos fibers, failure of filtration or rupture in the negative-pressure system, and contamination of the exterior of the building with airborne asbestos fibers. Should any of the above occur, the Contractor shall immediately cease asbestos abatement activities until the fault is corrected. Work shall not recommence until authorized by the Consultant. The work shall be considered complete when the area is visually clean and airborne fiber levels have been reduced to the level specified in this section.

1.2.2. WORK AREA AIRBORNE FIBER COUNT: The Owner will monitor airborne fiber counts in the work area. The purpose of this air monitoring will be to detect airborne fiber counts that may significantly challenge the ability of the work area isolation procedures to protect the balance of the building or outside of the building from contamination by airborne fibers. The Owner will conduct air monitoring throughout the course of the project.

1.2.3. FIBERS: "Fibers" as referred to in this section shall be either all fibers, regardless of composition as counted in the NIOSH 7400 Method of PCM analysis, or asbestos fibers of any size as counted using the NIOSH 7402 Method of TEM analysis.

1.2.4. WORK AREA CLEARANCE: To determine if the elevated airborne fiber counts encountered during abatement operations have been reduced to an acceptable level, the Owner will sample and analyze air as outlined in this section.

1.3. BASELINE AIR SAMPLES

1.3.1. The Owner will secure the following air samples to establish a baseline before start of work.

Location Sampled	No. of Samples	Sample Analysis Method	Detection Limit (f/cc)	Volume (Liters)	Rate (LPM)
Work Area	1/5000 sf	PCM	0.01	1200	2-12

1.3.2. SAMPLING SENSITIVITY: The table in paragraph 1.9 below refers to the detection limit for PCM analysis as set forth in the analytical method used.

1.3.3. BASE LINE: An action level expressed in f/cc that is 25 percent greater than the largest of either the average of the ambient PCM samples collected or 0.01 f/cc. Samples may be collected for possible TEM analysis but will be held without analysis. These TEM samples will only be analyzed under the terms and conditions set forth in FIBERS COUNTED and EFFECT ON CONTRACT SUM below.

1.3.4. DAILY MONITORING AIR SAMPLES: From the start of work of Section 01526 through the work of Section 01711, the Owner may be taking the following samples on a daily basis:

Location Sampled	No. of Samples	Analysis Method	Detection Limit (f/cc)	Volume (Liters)	Rate (LPM)
Work Area	1/5000 sf	PCM	0.01	1200	2-12
Barrier	1	PCM	0.01	1200	2-12
Clean Room	1	PCM	0.01	1200	2-12
Load Out	1	PCM	0.01	1200	2-12
Ambient	1	PCM	0.01	1200	2-12
Exhaust Output	1	PCM	0.01	1200	2-12

Additional samples may be taken at the Owner's or Consultant's discretion. If airborne fiber counts exceed allowed limits, additional samples will be taken as necessary to monitor fiber levels.

1.4 CLEARANCE AIR SAMPLES USING PHASE CONTRAST MICROSCOPY (PCM)

1.4.1 After completion of all cleaning work in each homogeneous work area, samples will be taken and analyzed as follows:

Location Sampled	No. of Samples	Detection Limit (f/cc)	Volume (Liters)	Rate (LPM)
Work Area	1/5000 sf	0.01	1200	2-12

1.4.2 ANALYSIS: Fibers on each filter will be measured using NIOSH Method 7400, titled "Fibers," published in the NIOSH Manual of Analytical Methods, 3rd Edition, Second Supplement, August 1987.

1.4.3 RELEASE CRITERIA: Decontamination of the work site is complete when every work area sample is at or below the detection limit mentioned above. If any sample is above the detection limit, then the decontamination is incomplete and re-cleaning per Section 01711 is required.

1.5 SAMPLE CASSETTES: All samples will be collected on 25-mm cassettes with PCM filters of 0.8 micrometer mixed cellulose ester, and TEM filters of 0.45 micrometer mixed cellulose ester with a 5.0 backing filter.

1.6 SAMPLE VOLUMES: The number and volume of air samples taken by the Owner will be in accordance with the schedules given above. Sample volumes given may vary depending upon the analytical method used.

1.7 ANALYTICAL METHODS

1.7.1 GENERAL: The methods outlined in this article will be used by the Owner in analyzing filters used to collect air sample. Sampling rates may be varied from printed standards to allow for high volume sampling.

1.7.2 PHASE CONTRAST MICROSCOPY (PCM): Samples will be analyzed using NIOSH Method 7400.

1.7.3 TRANSMISSION ELECTRON MICROSCOPY (TEM): Samples will be analyzed using NIOSH Method 7402. This analysis will be performed at a laboratory located off-site.

1.8 FIBERS COUNTED

1.8.1 The following procedure will be used to resolve any disputes regarding fiber types when a project has been stopped due to excessive airborne fiber counts.

1.8.2 "Airborne Fibers" referred to above include all fibers, regardless of composition, as counted in the NIOSH 7400 Method using "A" Counting Rules.

1.8.3 If work has stopped due to high airborne fiber counts, air samples will be secured in the same area by the Owner for analysis by electron microscopy.

1.8.4 "Airborne Fibers" counted in samples analyzed by NIOSH Method 7402 (Transmission Electron Microscopy) shall be only asbestos fibers, but of any diameter and length. The TEM test shall include counting all fibers, regardless of composition.

1.10 LABORATORY TESTING

1.10.1 GENERAL: The services of a testing laboratory will be employed by the Owner to perform laboratory analyses of the air samples. A complete record, certified by the testing laboratory, of all air monitoring tests and results will be furnished to the Consultant and the Owner.

1.10.2 TRANSMISSION ELECTRON MICROSCOPY: Samples will be sent to the laboratory by overnight courier. Verbal results will normally be available during the fifth working day after receipt of samples by the laboratory. The Contractor may request a faster turn-around time for TEM results, but the Contractor shall bear all additional cost for such requested faster turn-around time.

1.11 ADDITIONAL TESTING: The Contractor may conduct his own air monitoring and laboratory testing. If he elects to do this, the cost of such air monitoring and laboratory testing shall be at no additional cost to the Owner.

1.12 PERSONAL MONITORING: The Contractor shall perform all air monitoring required to meet OSHA Requirements for the maintenance of Time-Weighted Average (TWA) fiber counts for the

types of respiratory protection provided. The Owner will not be performing air monitoring to meet these OSHA requirements.

1.13 RESPONSE TO HIGH AIRBORNE FIBER COUNTS (ACTIONS LEVELS)

1.13.1 INSIDE WORK AREA: Maintain an average airborne count in the work area of less than 0.025 f/cc for half-face, dual cartridge respirators with HEPA filters. Maintain an average airborne count in the work area of less than 0.125 f/cc for PAPR respirators with HEPA filters. If the fiber counts rise above these figures for any sample taken, revise work procedures to lower fiber counts.

1.13.2 OUTSIDE WORK AREA: If any air sample taken outside of the work area exceeds the base line established in Paragraph 1.3 of this section, immediately and automatically stop all work. The Consultant will determine the source of the high reading and so notify the Contractor in writing. If the high reading was a result of a failure of work area isolation measures, initiate the following actions. If the high reading was the result of other causes, initiate corrective action as determined by Consultant.

1.13.2.1 Immediately erect new critical barriers to isolate the affected area from the balance of the building. Erect critical barriers at the next existing structural isolation of the involved space (e.g. wall, ceiling, floor). Leave critical barriers in place until completion of the work and ensure that the operation of the negative-pressure system in the work area results in a flow of air from the balance of the building into the affected area.

1.13.2.2 Decontaminate the affected areas as outlined in Section 01711. Respiratory protection, as outlined in Section 01562, shall be worn in the affected area until the area is cleared for re-occupancy in accordance with the requirements of Section 01711.

1.13.2.3 If the exit from the clean room of the personnel decontamination unit enters the affected area, establish a temporary decontamination facility consisting of a Shower Room and Changing Room. After cleaning and decontamination of the affected area, remove the Shower Room and leave the Changing Room in place as an airlock.

1.13.3 EFFECT ON CONTRACT SUM: Complete corrective work with no change in the contract sum if high airborne fiber counts were caused by Contractor's activities. The Contract sum and project schedule will be adjusted for additional work caused by high airborne fiber counts beyond the Contractor's control.

1.14 CLEARANCE AIR SAMPLING

1.14.1 VISUAL INSPECTION: Clearance air sampling will not begin until the visual inspection described in Section 01711 is complete and has been certified by the Project Administrator.

1.14.2 AIR MONITORING: To determine if the elevated airborne fiber counts encountered during the abatement operations have been reduced to the specified level, the Owner will secure samples and analyze them according to the following procedures. All work will be cleared as per AHERA requirements using TEM sampling and analysis. Both PCM and

TEM samples will be secured. The PCM samples will be analyzed at the site, and the TEM samples will be transmitted to the laboratory. If the area meets the clearance criteria by PCM, the Owner may proceed with TEM analysis. TEM sample results will be available with a 24-hour turn-around time. Should the Contractor fail to meet the TEM clearance requirements, the Contractor shall reimburse the Owner for all additional costs to retest the area. The costs will be based on unit prices for technician time and laboratory charges plus 10% for administrative costs. Upon meeting the TEM clearance requirements, the work of Section 01711 can continue.

1.14.3 AGGRESSIVE SAMPLING: All air samples shall be taken using aggressive sampling techniques. Before sampling pumps are started, the exhaust from forced-air equipment (i.e., a leaf blower with at least a one-horsepower electric motor) shall be swept against all walls, ceiling, floors, ledges and other surfaces in the room. This procedure shall be continued for five minutes for each 10,000 cubic feet of room volume. Air samples shall then be collected in an area subject to normal air circulation, away from corners, obstructed locations and sites near windows, doors or vents. After all air sampling pumps have been shut off, forced-air equipment shall be shut off.

END OF SECTION 01410

SECTION 01560 - WORKER PROTECTION

1.1 DESCRIPTION OF WORK: This section describes the equipment and procedures required for protecting workers against asbestos contamination and other workplace hazards except for respiratory protection. Provide worker and authorized visitor protection as required by the most stringent OSHA and/or EPA standards applicable to the work. The procedures outlined below are minimums to be adhered to regardless of fiber count in the work area. Do not allow workers or authorized visitors to eat, drink, smoke, chew gum or tobacco or apply cosmetics in the work area. To eat, drink, smoke, chew gum or tobacco, or apply cosmetics, workers and authorized visitors shall follow the procedures described below and leave the work area.

1.2 WORKER TRAINING: All workers are to be trained, certified and accredited as required by federal, state and/or local code or regulation. In accordance with 29 CFR 1926, train all workers in the dangers inherent in handling asbestos and breathing asbestos dust and in proper work procedures and personal and area protective measures.

1.3 PROTECTIVE CLOTHING

1.3.1 COVERALLS: Provide disposable full-body coveralls with integral head and foot covers, and require that they be worn by all workers in the work area. Provide a sufficient number for all required changes, for all workers in the work area.

1.3.2 BOOT COVERS: Provide disposable boot covers with non-skid soles and, where required, OSHA-approved foot protection, for all workers. Boot covers shall not be worn out of the work area or off the sheet plastic drop layer for any reason. Boot covers may be decontaminated, bagged and carried from one work area to another.

1.3.3 EYE PROTECTION: Provide goggles or safety glasses as required by OSHA for all workers involved in scraping, spraying or any other activity that may potentially cause eye injury. Thoroughly clean, decontaminate and seal goggles in disposal-type containers before removing from the work area at the end of the work.

1.3.4 GLOVES: Provide work gloves to all workers and require that they be worn at all times in the work area. Do not remove gloves from the work area. Dispose of them as asbestos-contaminated waste at the end of the work.

1.4 ADDITIONAL PROTECTIVE EQUIPMENT: Respirators, disposable coveralls, head covers, and footwear covers shall be provided by the Contractor for the Owner, Consultant and any other authorized representatives who may inspect the job site. Provide two respirators of each type required and all necessary complete coveralls and, where applicable, the necessary respirator filter changes per day. All items mentioned above shall be in new and unused condition and shall be supplied at no cost to the Owner, Consultant or any other authorized representatives who may inspect the job site.

1.5 WORK AREA ENTRY PROCEDURES

1.5.1 PROTECTIVE EQUIPMENT: At the start of each work shift, put on new disposable coveralls over street clothes, and put on a clean respirator.

1.5.1.1 RESPIRATORS: Instruct and train each worker in proper respirator use and require that each worker always wear a respirator, properly fitted on the face, in the work area.

1.5.1.2 COVERALLS: All workers shall wear disposable, full-body coveralls with integral head and footwear covers in the work area.

1.6 CERTIFICATE OF WORKER'S ACKNOWLEDGEMENT: Following this section is a "Certificate of Worker's Acknowledgment of Training". After each worker has been included in the Contractor's Respiratory Protection Program, completed the training program and medical examination, secure a fully executed copy of this form. A completed form is required for every worker who will be performing abatement activities and/or wearing a respirator.

END OF SECTION 01560

CERTIFICATE OF WORKER'S ACKNOWLEDGMENT OF TRAINING

PROJECT NAME _____ DATE _____
PROJECT ADDRESS _____
CONTRACTOR'S NAME _____

WORKING WITH ASBESTOS CAN BE DANGEROUS. INHALING ASBESTOS FIBERS HAS BEEN LINKED WITH VARIOUS TYPES OF CANCER. IF YOU SMOKE AND INHALE ASBESTOS FIBERS THE CHANCE THAT YOU WILL DEVELOP LUNG CANCER IS GREATER THAN THAT OF THE NON-SMOKING PUBLIC.

Your employer's contract with the Owner for the above project requires that: You be supplied with the proper respirator and be trained in its use. You will be trained in safe work practices and in the use of the equipment found on the job. You will receive a medical examination. These things are to have been done at no cost to you. By signing this certification you are assuring the Owner that your employer has met these obligations to you.

RESPIRATORY PROTECTION: I have been trained in the proper use of respirators, and informed of the type respirator to be used on the above referenced project. I have a copy of the written respiratory protection manual issued by my employer. I have been equipped at no cost with the respirator to be used on the above project.

TRAINING COURSE: I have been trained in the dangers inherent in handling asbestos and breathing asbestos dust and in proper work procedures and personal and area protective measures. The topics covered in the course included the following:

- physical characteristics of asbestos
- health hazards associated with asbestos
- respiratory protection
- negative air systems
- work practices including hands-on or on-job-training
- personal decontamination procedures
- air monitoring, personnel and area

MEDICAL EXAMINATION: I have had a medical examination within the past twelve (12) months, which was paid for by employer. This examination included: health history, pulmonary function tests and may have included an evaluation of a chest x-ray.

Signature _____

Printed Name _____

Social Security Number _____

Witness _____

SECTION 01562 - RESPIRATORY PROTECTION

1.1 DESCRIPTION OF WORK: Instruct and train each worker involved in asbestos abatement or maintenance and repair of friable ACM 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 that may cause airborne asbestos fibers until the work area is completely decontaminated. Use respiratory protection appropriate for the fiber level encountered in the work place or as required from other toxic or oxygen-deficient situations encountered. The Contractor shall ensure use of the appropriate respiratory protection for the work being performed and recognizes that these requirements are only minimum acceptable standards.

1.2 AIR-PURIFYING RESPIRATORS: Provide, at a minimum, HEPA-type filters labeled with NIOSH and MSHA certification for "Radionuclides, Radon Daughters, Dust, Fumes and Mists, including Asbestos-Containing Dusts and Mists." These filters should be color-coded in accordance with ANSI 228.2 (1980). 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.

1.3 POWERED-AIR PURIFYING RESPIRATOR (PAPR)

1.3.1 FILTER CARTRIDGE: Provide, at a minimum, HEPA-type cartridges approved by current NIOSH/MSHA regulations and certified for use in atmospheres containing asbestos dust.

1.3.2 BATTERY PACKS: Provide, at a minimum, one extra battery pack for each respirator so that one can be charging while one is in use.

1.3.3 BELTS: Provide non-cloth belts capable of being decontaminated in shower.

1.4 GENERAL

1.4.1 RESPIRATORY PROTECTION PROGRAM: Comply with ANSI Z88.2 - 1980 "Practices for Respiratory Protection" and OSHA 29 CFR 1910 and 1926.

1.4.2 Require that respiratory protection be used at all times when there is any possibility of a disturbance of ACM, whether intentional or accidental.

1.4.3 Require that a respirator be worn at all times by anyone in a work area, regardless of activity, during a period that starts with any operation that could cause airborne fiber release and ends when the area has been cleared for re-occupancy in accordance with Section 01410.

1.4.4 Regardless of airborne fiber levels, require that the minimum level of respiratory protection used be full-face air-purifying respirators with high-efficiency filters.

1.5 FIT-TESTING: Provide initial fitting of respirator protection. Fit types of respirator to be actually worn by each individual. Allow an individual to use only those respirators for which he has been trained and fitted. Require that each time an air-purifying respirator is put on, it be checked for proper fit with a positive and negative pressure fit test in accordance with the manufacturer's instructions or ANSI Z88.2 - 1980.

1.6 AIR-PURIFYING RESPIRATORS

1.6.1 NEGATIVE-PRESSURE: Supply a sufficient quantity of respirator filters approved for asbestos, so that workers can change filters during the work day. Require that respirators be wet-rinsed, and filters discarded each time a worker or authorized visitor leaves the work area. Require that new filters be installed each time a worker or authorized visitor re-enters the work area. Store respirators and filters at the jobsite in the clean change room and protect them totally from exposure to asbestos prior to their use.

1.6.2 POWERED AIR-PURIFYING, FULL FACE MASK: Supply a sufficient quantity of high-efficient respirator filters approved for asbestos so that workers and authorized visitors can change filters at any time that flow through the facepiece decreases to the level at which the manufacturer recommends filter replacement. Require that, regardless of flow, filter cartridges be replaced after 8 hours of use. Require entire exterior housing or respirator, including blower unit, filter cartridges, hoses, battery pack, face mask, belt and cords, be washed each time a worker and authorized visitor leaves the work area. Caution should be used to avoid shorting battery pack during washing. HEPA elements in filter cartridges be protected from wetting during shower.

END OF SECTION 01562

SECTION 01563 - DECONTAMINATION UNITS

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

1.2 POLYETHYLENE SHEET

1.2.1 Provide a single polyethylene film in the largest sheet size possible to minimize seams, 6-mil thick, frosted or black.

1.2.2 For high temperature applications, provide a flame-resistant polyethylene film that conforms to the requirements set forth by the National Fire Protection Association Standard 701, Small-Scale Fire Test for Flame-Resistant Textiles and Films. Provide the largest size possible to minimize seams, 6-mil thick, frosted or black.

1.2.3 Where a plastic sheet is the only separation between the work area and the building exterior, provide a translucent, nylon-reinforced, laminated, flame-resistant, polyethylene film that conforms to the requirements set forth by the National Fire Protection Association Standard 701, Small-Scale Fire Test for Flame-Resistant Textiles and Films. Provide the largest size possible to minimize seams, 6-mil thick, frosted or black.

1.3 DUCT TAPE: Provide duct tape in 2-inch or 3-inch widths, with an adhesive that is formulated to aggressively stick to sheet polyethylene.

1.4 SPRAY ADHESIVE: Provide spray adhesive in aerosol cans that is specifically formulated to stick tenaciously to sheet polyethylene.

1.5 SHOWER PAN: Provide a one-piece waterproof shower pan with a depth of 6 inches

1.6 SHOWER WALLS: Provide walls fabricated from impervious, waterproof material. Structurally support the walls as necessary to stability.

1.7 SHOWER HEAD AND CONTROLS: Provide a factory-made shower head producing a spray of water that can be adjusted for spray size and intensity. Supply the shower with hot and cold water. Arrange so that the control of the water temperature, flow rate and shut-off is from inside the shower without outside aid.

1.8 FILTERS: Provide cascaded filter units on the drain lines from the showers or any other water source carrying asbestos-contaminated water from the work area. Provide units with disposable filter elements. Connect so that discharged water passes the primary filter and the output of the primary filter passes through additional filters. The final filter shall pass particles 0.3 microns and smaller.

1.9 HOSE BIBBS: Provide a heavy-duty bronze angle-type with wheel handle, vacuum breaker, and a 3/4-inch National Standard male hose outlet.

1.10 SHOWER STALL

1.10.1 For the wash-down station, provide a leak-tight shower enclosed with integrated drain pan fabricated from durable waterproof material. Structurally support as necessary for stability.

1.10.2 Equip the stall with a hose bibb as specified in this section.

1.10.3 Connect the shower drain to a reservoir; pump the water from the reservoir through filters to a sanitary sewer drain, or store and use for amended water.

1.11 SUMP PUMP: Provide a sump pump with an integral float switch. Provide a unit sized to pump two times the combined flow capacity of all showers or hoses supplying water to sump, through the filters specified herein when they are loaded to the extent that replacement is required. Provide a unit capable of pumping debris, sand, plaster or other materials washed off during decontamination procedures without causing damage to the mechanism of the pump. Adjust the float switch so that a minimum of 3 inches remains between the top of the liquid and the top of the sump pan.

1.12 GENERAL: Electrical requirements and requirements relative to the connection of decontamination facilities to the building system such as water, sewer and electrical must follow all federal, state, and local regulations.

1.13 CONSTRUCTION OF DECONTAMINATION UNITS

1.13.1 WALLS AND CEILING: Construct airtight walls and ceiling using polyethylene sheeting, at least 6 mils in thickness. Attach to existing building components or a temporary framework.

1.13.2 FLOORS: Use two layers minimum of 6-mil polyethylene sheeting to cover floors in all areas of the decontamination units. Provide an additional layer in the equipment room for every shift change expected. Roll two layers of plastic from equipment room into the work area after each shift change. Use only clear plastic to cover floors.

1.13.3 DOORS: Fabricate doors from overlapping sheets with openings a minimum of 3 feet wide. Configure so that the sheeting overlaps adjacent surfaces. Weight sheets at bottoms as required so that they quickly close after being released. Put arrows on sheets to indicate direction of overlap and/or travel. Provide a minimum of 3 feet between the entrance and exit of any room.

1.13.4 VISUAL BARRIER: Where the decontamination area is immediately adjacent to and within view of occupied areas, provide a visual barrier of black polyethylene sheeting at least 4 mils in thickness so that worker privacy is maintained and work procedures are not visible to building occupants. Where the area adjacent to the decontamination area is accessible to the public, construct a solid barrier on the public side of the sheeting to protect the sheeting. Construct the barrier with wood or metal studs covered with minimum 1/4-inch thick hardboard or 1/2-inch plywood. Where the solid barrier is provided, sheeting need not be black.

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

1.13.6 ELECTRICAL: Provide sub-panel at changing room to accommodate all removal equipment. Power sub-panel directly from a building electrical panel. Connect all electrical branch circuits in decontamination unit and particularly any pumps in shower room to a ground-fault circuit protection device.

1.14 PERSONNEL DECONTAMINATION UNIT

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

1.14.2 Do not allow parallel routes for entry or exit. Provide temporary lighting within decontamination units as necessary.

1.14.3 CLEAN ROOM: Provide a room that is physically and visually separated from the rest of the building for the purpose of changing into protective clothing. Construct using polyethylene sheeting, at least 6 mils in thickness, to provide an airtight seal between the changing room and the rest of the building. Locate so that access to the work area from the changing room is through the shower room. Separate the changing room from the building by two flaps of polyethylene sheeting. Require workers to remove all street clothes in this room, dress in clean disposable coveralls and don respiratory protection equipment. Do not allow asbestos-contaminated items to enter this room. Require workers to enter this room either from outside the structure dressed in street clothes, or naked from the showers. An existing room may be utilized as the changing room if it is suitably located and of a configuration whereby workmen may enter the changing room directly from the shower room and airlock. Protect all surfaces of the room with sheet plastic as outlined in Section 01526. Authorization for this must be obtained in writing from the Consultant prior to start of abatement. Submit a written request in accordance with Section 01632 detailing layout and protective measures proposed. Keep the floor of the changing room dry and clean at all times. Do not allow overflow water from the shower to wet the floor in the changing room. Provide a continuously adequate supply of clean bath towels. Provide posted information for all emergency telephone numbers and procedures, and provide one storage locker for each employee.

1.14.4 AIRLOCK: Provide an airlock between the Clean Room and Shower Room. This is a transitional area for workers. Separate this room from the Clean Room and Shower Room by sheet plastic-flapped doorways. Separate this room from the rest of the building with airtight walls fabricated of 6-mil polyethylene.

1.14.5 SHOWER ROOM: Provide a completely watertight operational shower to be used for transit by cleanly dressed workers heading for the work area from the Changing Room, or for showering by workers headed out of the work area after undressing in the Equipment Room. Construct the room by providing a shower pan and two shower walls in a configuration that will cause water running down the walls to drip into the pan. Separate this room from the Clean Room and Shower Room by sheet plastic-flapped doorways, and from the rest of the building with airtight walls fabricated of 6-mil polyethylene. Provide temporary extensions of existing hot and cold water and drainage, as necessary for a complete and operable shower. Provide a continuously adequate supply of soap, and maintain in a sanitary condition. Arrange so that water from showering does not splash into the Drying Room or airlock. Arrange water shut-off and drain pump operation controls so that a single individual can shower without assistance from either inside or

outside of the work area. Provide flexible hose shower head. Pump waste water to the drain or to storage for later disposal. If water is pumped to drain, provide filters in the line to the drain or waste-water storage. Change filters daily or more often if necessary. Locate filters inside shower unit so that water lost during filter changes is caught by shower pan. Final filter in cascade shall be a 0.3 micron in size. Provide Hose Bibb and other items as required by the contract documents.

1.14.6 AIRLOCK: Provide an airlock between the Shower Room and Equipment Room. This is a transitional area for workers. Separate this room from the Equipment Room and Shower Room by sheet plastic-flapped doorways. Separate this room from the rest of the building with airtight walls fabricated of 6-mil polyethylene.

1.14.7 EQUIPMENT ROOM (CONTAMINATED AREA): Require work equipment, footwear and additional contaminated work clothing to be left here. This is a change and transit area for workers. Separate this room from the work area by a 6-mil polyethylene sheet-flapped doorway. Separate this room from the rest of the building with airtight walls fabricated of 6-mil polyethylene.

1.14.8 WORK AREA: If the airborne asbestos level in the work area is expected to be high, as in dry removal, add an intermediate cleaning space between the Equipment Room and the work area. Wet-wipe clean all surfaces after each shift change. Provide one additional floor layer of 6-mil polyethylene per shift change and remove contaminated layer after each shift.

1.14.9 ENTERING WORK AREA: Worker enters the Changing Room and removes street clothing, puts on clean disposable overalls and respirator, and passes through the shower room into the Equipment Room. Any additional clothing and equipment stored in the Equipment Room needed by the worker are put on in the Equipment Room. Worker proceeds to work area.

1.14.10 EXITING WORK AREA: Before leaving the work area, require the worker to remove all gross contamination and debris from overalls and feet. This should be accomplished by using the buddy system. The worker then proceeds to the Equipment Room and removes all clothing except respiratory protection equipment. Extra work clothing may be stored in the contaminated end of the equipment room. Disposable coveralls are placed in a properly marked bag for disposal as contaminated waste. Decontamination procedures found in Section 01560, shall be followed by all individuals leaving the work area. After showering, the worker moves to the Clean Room and dresses in either new overalls for another entry into work area or street clothes if leaving.

1.15 EQUIPMENT DECONTAMINATION UNITS

1.15.1 Provide an Equipment Decontamination Unit consisting of a serial arrangement of Wash Room, Holding Room and Clean Room for removal of equipment and material from work area. Arrange the airlocks between rooms as required below.

1.15.2 WASH ROOM: Provide a wash room for the cleaning of bagged or containerized ACM passed from the work area. Construct the wash room of 2-inch-by-4-inch wood framing and polyethylene sheeting, at least 6 mils in thickness and located so that packaged materials, after being wiped clean, can be passed to the holding room. Separate this room from the Work Area and Holding Room by a 6-mil polyethylene sheet-flapped doorway. Separate this room from the rest of the building with airtight walls fabricated of

6-mil polyethylene. Provide a minimum of two layers of plastic at all times. Use only clear plastic to cover floors.

1.15.3 HOLDING ROOM: Provide a Holding Room as a drop location for bagged ACM passed from the Wash Room. Construct Holding Room of nominal 2-inch by wood framing and polyethylene sheeting, at least 6 mil in thickness and located so that bagged materials cannot be passed from the Wash Room through the Holding Room to the Clean Room. Separate this room from the adjacent rooms by flap doors fabricated from 6-mil sheet plastic.

1.15.4 CLEAN ROOM: Provide a Clean Room to isolate the Holding Room from the building exterior. Construct the Clean Room of 2-inch-by-4-inch wood framing and polyethylene sheeting, at least 6-mils in thickness, and located to provide access to the Holding Room from the building exterior. Separate this room from the exterior by a single flap of 6 mil polyethylene sheeting.

1.15.5 EQUIPMENT OR MATERIAL: Take all equipment or material from the work area through the Equipment Decontamination Unit according to the procedures outlined in this paragraph. When passing equipment or containers into the Wash Room, close all doorways of the Equipment Decontamination Unit, other than the doorway between the wash down station and the Wash Room. Keep all outside personnel clear of the Equipment Decontamination Unit. Once inside the wash room, wet-clean the bags and/or equipment. When cleaning is complete, pass items into the Holding Room. Close all doorways except the doorway between the Holding Room and the Clean Room. Workers from the building exterior enter the holding area and remove decontaminated equipment and/or containers for disposal. Require these workers to wear full protective clothing and to wear appropriate respiratory protection. At no time is a worker from an uncontaminated area to enter the enclosure when a removal worker is inside.

1.15.6 DECONTAMINATION SEQUENCE: Take all equipment or material from the work area through the Equipment Decontamination Unit according to the procedures outlined in this paragraph. When passing equipment or containers into the Wash Room, close all doorways of the Equipment Decontamination Unit, other than the doorway between the Wash Down Station and the Wash Room. Keep all outside personnel clear of the Equipment Decontamination Unit. Once inside the Wash Room, wet-clean the bag and/or equipment. When cleaning is complete, pass items into Holding Room. Close all doorways except the doorway between the Holding Room and the Clean Room. Workers from the building exterior enter the Holding Area and remove decontaminated equipment and/or containers for disposal. Require these workers to wear full protective clothing and appropriate respiratory protection. At no time is a worker from an uncontaminated area to enter the enclosure when a removal worker is inside.

1.16 CLEANING OF DECONTAMINATION UNITS: Clean debris and residue from inside the decontamination units on a daily basis. Wet-wipe or hose-down all surfaces after each shift change. Clean debris from shower pans on a daily basis.

1.17 SIGNS

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

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

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

END OF SECTION 01563

SECTION 01595 - SAFETY AND HEALTH

PART 1 – GENERAL

1.1 SUMMARY

References: In addition to publications referenced in the Construction Contract Clauses, the following publications designate and define hazardous materials and conditions, and establish procedures for handling these materials and conditions.

1. 29 CFR, Part 1910: Occupational Safety and Health Administration (OSHA) General Industry and Health Standards.
2. 29 CFR, Part 1926: OSHA Construction Industry Standards.
3. 40 CFR, Part 61: National Emission Standards for Hazardous Air Pollutants.
4. 40 CFR, Part 261: Environmental Protection Agency (EPA) Characteristics of Hazardous Waste.
5. 40 CFR, Part 761, EPA Polychlorinated Biphenyls (PCBs), Manufacturing, Processing, Distribution in Commerce and Use Prohibitions.
6. 40 CFR, Part 763: EPA Asbestos.
7. National Fire Protection Association (NFPA) 70 (National Electric Code)
8.

Hazardous Materials: Some hazardous and toxic materials and substances are included in 29 CFR Part 1910, subparts H and Z, and in 29 CFR Part 1926. Commonly encountered hazardous materials include but are not limited to asbestos, PCBs, explosives, solvents, reactives, and radioactive material.

1. Asbestos may be found in spray-on fireproofing, insulation, boiler lagging, pipe coverings, and other materials.
2. PCBs may be contained in transformers, capacitors, voltage regulators, oil switches, mechanical insulation, and other materials.

Acquisition of Publications: Referenced CFR publications may be purchased from the Superintendent of Documents, U.S. Government Printing Office, U.S. Government Bookstore Chicago, IL 60605, Milwaukee, WI 53203, Detroit, MI 48226, Cleveland, OH 44199, Columbus, OH 43215, and Washington, D.C. 20402 [1-866-512-1800 or www.access.gpo.gov/su_docs]. The National Electric Code is available from the NFPA, Quincy, MA 02269 [1-800-344-3555 or www.nfpacatalog.org].

1.2 SAFETY MEETING

A. Prior to commencing construction, representatives of the Contractor, including the principal on-site project representative and one or more safety representatives, shall meet with designated representatives of the Contracting Officer for the purpose of reviewing the Contract's safety and health requirements.

B. The Contractor's safety and health program and job-specific safety plan shall be reviewed, and implementation of safety and health provisions pertinent to the work shall be discussed. For this reason, a copy of the contractor’s safety program and plan shall be provided to the Contracting Officer at least 10 days prior to this meeting. Refer to paragraphs 1.4.A. and 1.4.B in this section for further information.

C. A copy of the Contractor’s Chemical Inventory List shall be submitted during this meeting; refer to paragraphs 1.4.E. for further information.

1.3 COMPLIANCE WITH REGULATIONS

A. The Work, including contact with or handling of hazardous materials, disturbance or dismantling of structures containing hazardous materials, and disposal of hazardous materials, shall comply with the applicable requirements of 29 CFR Parts 1910 and 1926, and 40 CFR Parts 61, 261, 761 and 763.

1. Work involving disturbance or dismantling of asbestos or asbestos containing materials, demolition of structures containing asbestos and removal of asbestos, shall comply with 40 CFR Part 61, Subparts A and M, and 40 CFR Part 763, as applicable.
2. Work shall additionally comply with applicable state and local safety and health regulations.
3. In case of a conflict between applicable regulations, the more stringent requirements shall apply.

Contractor Responsibility: The Contractor shall assume full responsibility and liability for compliance with all applicable codes, standards, and regulations pertaining to the health and safety of personnel during execution of the work, and shall hold the government harmless for any action on the Contractor's part, or that of the Contractor's employees or subcontractors, that results in illness, injury, or death.

1. The Contractor shall have written safety and health programs in compliance with 29 CFR Parts 1910 and 1926.
2. The Contractor shall provide for appropriate emergency first aid materials and equipment. In addition, the contractor must provide the following on site: a twenty pound ABC-rated fire extinguisher; biohazard barrier tape and safety cones to isolate bloodspills; and adequate absorbent material to collect any chemical spill that might occur. Finally, a list of emergency phone numbers and points of contact for fire, hospital, police, ambulance, and any other necessary contacts shall be posted at the worksite.

1.4 SUBMITTALS

A. Safety and Health Programs: The Contractor shall submit, for approval, copies of the project safety and health programs, as applicable to the work scope, or required as a result of the safety meeting, including but not necessarily limited to the following:

1. Scaffolding.
2. Fall Protection.
3. Personnel Protective Equipment.
4. Control of Hazardous Energy.
5. Electrical Safety Related Work Practices.
6. General Safety.
7. Asbestos.
8. Respirator Protection.
9. Confined Space.
10. Hazard Communication.

B. Contractor's Safety Plan: In addition to specific safety and health programs applicable to the project, Contractor shall submit firm's general safety plan listing emergency procedures and contact persons with home addresses and telephone numbers.

C. Permits: If hazardous materials are disposed of off-site, submit copies of shipping manifests and permits from applicable federal, state or local authorities and disposal facilities, and submit certificates that the material has been disposed of in accordance with regulations.

D. Accident Reporting: Any accident or occupational illness which will require reporting to the Contractor's insurance carrier(s) and/or to the Occupational Safety and Health Administration (OSHA) must be reported to the Regional Fire Protection and Safety Team no later than 48 hours following the incident. GSA Form 3620, "Report of Injury/Illness or Accident," shall be used for this requirement.

1. A copy of each accident report that the Contractor or Subcontractors submits to their insurance carriers should be submitted to the Contracting Officer Representative (COR) within seven calendar days after the date of the accident.

2. In the event the incident results in the hospitalization of more than three individuals or the death of any individual, the Contractor, shall verbally notify the Contracting Officer immediately verifying that applicable OSHA provisions have been followed. A written report shall be forwarded to the Construction Engineer no later than 48 hours following the incident.

E. Chemical Inventory List: The Contractor shall develop and submit a complete chemical inventory list of chemicals that will be used, handled, and/or stored during the project. A copy of the list must be provided to both the Contracting Officer's Representative and the GSA Property Manager's office at the Safety Meeting discussed in paragraph 1.2, above. If new chemicals are introduced over the course of the project, an updated list shall be provided to the COR and the GSA Property Manager. In addition, the Contractor and all subcontractors must assure that a Material Safety Date Sheet (MSDS) for each chemical identified above must be available on site in compliance with OSHA regulations.

F. Safety Plan: The Contractor shall develop and implement a Safety Plan. This plan shall cover all phases of operations of operations including PCB handling/transporting; confined space; trenching/excavating; hazardous chemical use; and electrical work.

1. Number, type, and experience of employees used in the work project.
2. Description of how applicable safety and health regulations and standards are to be met.
3. Type of protective equipment and work procedure to be used.
4. Emergency procedures for accidental spills or exposures.
5. Procedures for disposing or storing the toxic/hazardous materials used, handled, stored, or generated on site.
6. Identification of possible hazards, problems, and proposed control mechanisms.
7. Protection of tenants, visitors, and others not related to operation.
8. Interfacing and control of any subcontractors.
9. Identification of any required analyses, demonstrations, and validation requirements.
10. Designation letter identifying the Contractor's Safety and Occupational Health Officer. This individual in this position shall be a trained and experienced individual responsible for the development, implementation, and oversight/enforcement of the Contractor's Safety Plan on site. Any subcontractor's activities and operations will also be addressed.

G. Other Submittals: If agreed to in writing at the safety meeting, other submittals may be required.

PART 2 – PRODUCTS

2.1 PERSONAL PROTECTIVE EQUIPMENT

A. Special facilities, devices, equipment, and similar items used by the Contractor in execution of the Work shall comply with 29 CFR Part 1910, Subpart I and other applicable regulations.

2.2 HAZARDOUS MATERIALS

A. The Contractor shall bring to the attention of the Contracting Officer, or the Contracting Officer's authorized representative, any material encountered during execution of the work that the Contractor suspects is hazardous.

B. The Contracting Officer shall determine whether the Contractor shall perform tests to determine if the material is hazardous.

C. If the Contracting Officer directs the Contractor to perform tests and the material is found to be hazardous, or if the material is found to be hazardous without Contractor testing, a change to the Contract price may be provided, subject to the applicable provisions of the Contract.

2.3 UNFORESEEN HAZARDS

A. Should any unforeseen or site-specific safety-related factor, hazard, or condition become evident during the performance of work at this site, it shall be the Contractor's responsibility to bring such to the attention of the Contracting Officer, both verbally and in writing, as quickly as possible for resolution. In the interim, the Contractor shall take prudent action to establish and maintain safe working conditions and to safeguard tenants, employees, the public, and the environment.

PART 3 – EXECUTION

3.1 EMERGENCY SUSPENSION OF WORK

A. When the Contractor is notified by the Contracting Officer, or the Contracting Officer's authorized representative, of non-compliance with the safety or health provisions of the Contract, the Contractor shall immediately, unless otherwise instructed, correct the unsafe or unhealthy condition.

1. If the Contractor fails to comply promptly, all or part of the Work will be stopped by notice from the Contracting Officer or the Contracting Officer's authorized representative.
2. When, in the opinion of and by notice given by the Contracting Officer or the Contracting Officer's authorized representative, satisfactory corrective action has been taken by the Contractor, work shall resume.
3. The Contractor shall not be allowed any extension of time or compensation for damages in connection with a work stoppage for an unsafe or unhealthy condition.

3.2 PROTECTION OF PERSONNEL

A. The Contract shall take all necessary precautions to prevent injury to the public, occupants, or damage to property of others. The public and occupants includes all persons not employed by the Contractor or a subcontractor.

B. Where practical, the work area shall be fenced, barricaded, or otherwise blocked off from the public or occupants to prevent unauthorized entry into the work area.

1. Provide traffic barricades and traffic control signage where construction activities occur in vehicular areas.
2. Corridors, aisles, stairways, doors, and exits shall not be obstructed or used in a manner to encroach upon routes of ingress or egress utilized by the public or occupants, or to present an unsafe or unhealthy condition to the public or occupants.

3. Store, position, and use equipment, tools, materials, scraps, and trash in a manner that does not present a hazard to the public or occupants by accidental shiftings, ignition, or other hazardous activity.
4. Store and transport refuse and debris in a manner to prevent unsafe and unhealthy conditions for the public and occupants. Cover refuse containers, and remove refuse on a frequent regular basis acceptable to the Contracting Officer. Use tarpaulins or other means to prevent loose transported materials from dropping from trucks.

3.3 ENVIRONMENTAL PROTECTION

A. Dispose of solid, liquid and gaseous contaminants in accordance with local codes, laws, ordinances, and regulations.
B. Comply with applicable federal, state and local noise control laws, ordinances and regulations, including but not limited to 29 CFR 1910.95 and 29 CFR 1926.52.

END OF SECTION 01595

SECTION 01601 - MATERIALS AND EQUIPMENT

1.1 SUMMARY: This section specifies administrative and procedural requirements governing the Contractor's selection of products for use in the project.

1.2 DEFINITIONS

1.2.1 Definitions used in this article are not intended to change the meaning of other terms used in the Contract Documents, such as "specialties," "system," "structure," "finishes," "accessories" and similar terms. Such terms are self-explanatory and have well-recognized meanings in the construction industry.

1.2.2 "Products" are items purchased for use in performing the work or for incorporation in the work, whether purchased for the project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system" and terms of similar intent.

1.2.3 "Named Products" are items identified by manufacturer's product name, including make or model designation, indicated in the manufacturer's published product literature, that is current as of the date of the Contract Documents.

1.2.4 "Materials" are products that are substantially shaped, cut, worked, mixed, finished, refined or otherwise fabricated, processed or installed to form a part of the work.

1.2.5 "Equipment" are products that may be either operational or fixed.

1.2.5.1 "Operational Equipment" are products with operating parts, whether motorized or manually operated, that require temporary or permanent service connections, such as wiring or piping.

1.2.5.2 "Fixed Equipment" are products necessary for accomplishing the work that are used as temporary facilities during the work and removed afterward.

1.3 QUALITY ASSURANCE: COMPATIBILITY OF OPTIONS: When the Contractor is given the option of selection between two or more products for use on the project, the product selected shall be compatible with products previously selected, even if previously selected products were also options.

1.4 PRODUCT DELIVERY, STORAGE AND HANDLING

1.4.1 Deliver, store and handle products in accordance with the manufacturer's recommendations, using means and methods that will prevent damage, deterioration and loss, including theft.

1.4.2 Schedule delivery to minimize long-term storage at the site and overcrowding of construction spaces.

1.4.3 Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged or sensitive to deterioration, theft and other losses.

1.4.4 Deliver products to the site in the manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting and installing.

1.4.5 Inspect products upon delivery to ensure compliance with the Contract Documents, and to ensure that products are undamaged and properly protected.

1.4.6 Store products at the site in a manner that will facilitate inspection and measurement of quantity or counting of units.

1.4.7 Store products subject to damage by the elements above-ground, under cover in a weathertight enclosure, with ventilation adequate to prevent condensation. Maintain temperature and humidity within ranges required by manufacturer's instructions.

1.5 PRODUCT SELECTION

1.5.1 Provide products that comply with the Contract Documents, that are undamaged and, unless otherwise indicated, unused at the time of installation. Provide products complete with all accessories, trim, finish, safety guards and other devices and details needed for a complete installation and for the intended use and effect. Where available, provide standard products of types that have been produced and used successfully in similar situations on other projects.

1.5.2 PRODUCT SELECTION PROCEDURES: Product selection is governed by the Contract Documents and governing regulations, not by previous project experience. Procedures governing product selection include the following:

1.5.2.1 When the Specification lists products or manufacturers that are available and may be incorporated in the work, but does not restrict the Contractor to use only these products, the Contractor may propose any available product that complies with Contract requirements. Comply with Contract Document provisions concerning "substitutions" to obtain approval for use of an unnamed product.

1.5.2.2 Where Specifications describe a product or assembly, listing exact characteristics required, with or without use of a brand or trade name, provide a product or assembly that provides the characteristics and otherwise complies with the Contract requirements.

1.5.2.3 Where Specifications require compliance with performance requirements, provide products that comply with these requirements, and are recommended by the manufacturer for the application indicated. General overall performance of a product is implied where the product specified is for a specific application.

1.5.2.4 Manufacturer's recommendations may be contained in published product literature, or by the manufacturer's certification of performance.

1.5.3 Where the Specifications only require compliance with an imposed code, standard or regulation, select a product that complies with the standards, codes or regulations specified.

1.6 WETTING MATERIAL: For wetting prior to disturbance of ACM, use water to which a surfactant has been added (amended water). Use a mixture of surfactant and water that results in wetting of the ACM and retardation of fiber release during disturbance of the ACM. As an alternative, a removal encapsulant may be used. Provide a penetrating type of encapsulant designated specifically for removal of ACM. Use a material that results in wetting of the ACM and retardation of fiber release during disturbance of the ACM.

1.7 POLYETHYLENE SHEET: Provide a single polyethylene film in the largest sheet size possible to minimize seams, 4 or 6 mils thick as indicated. For high temperature applications, provide flame-resistant polyethylene film that conforms to requirements set forth by the National Fire Protection Association Standard 701, Small-Scale Fire Test for Flame-Resistant Textiles and Film. Provide the largest size possible to minimize seams, 4 or 6 miles thick as indicated.

1.8 DUCT TAPE: Provide duct tape in 2-inch or 3-inch widths as indicated, with an adhesive that is formulated to aggressively stick to sheet polyethylene.

1.9 SPRAY ADHESIVE: Provide spray adhesive in aerosol cans that is specifically formulated to stick tenaciously to sheet polyethylene.

1.10 DISPOSAL BAGS: Provide 6-mil thick leak-tight polyethylene bags labeled as specified in Section 01091.

1.11 INSTALLATION OF PRODUCTS: Comply with manufacturer's instructions and recommendations for installation of products in the application indicated. Anchor each product securely in place, accurately located and aligned with other work. Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of substantial completion.

END OF SECTION 01601

SECTION 01701 - PROJECT CLOSEOUT

PART 1 – GENERAL

1.1 SUMMARY: This section specifies administrative and procedural requirements for project closeout, including but not limited to inspection procedures, project record document submittal, submittal of warranties, and final cleaning. Closeout requirements for specific abatement activities are included in the appropriate sections in Divisions One through Fifteen.

1.2 SUBSTANTIAL COMPLETION

1.2.1 PRELIMINARY PROCEDURES: Before requesting inspection for certification of substantial completion, complete the following. List exceptions in the request.

1.2.1.1 In the Application for Payment that coincides with, or first follows, the date that substantial completion is claimed, show 100% completion for the portion of the work claimed as substantially complete. Include supporting documents for completion as indicated in these Contract Documents and a statement showing an accounting of changes to the Contract Sum.

1.2.1.2 If 100% completion cannot be shown, include a list of incomplete items, the value of incomplete abatement, and reasons the work is not complete.

1.2.1.3 Advise Owner of pending insurance change over requirements.

1.2.1.4 Submit specific warranties, workmanship bonds, maintenance agreements, final certifications and similar documents.

1.2.1.5 Obtain and submit releases enabling the Owner unrestricted use of the work area and access to services and utilities. Include occupancy permits, operating certificates and similar releases.

1.2.1.6 Make final changeover of permanent locks and transmit keys to the Owner. Advise Owner of changeover in security provisions.

1.2.1.7 Complete start-up testing of systems. Discontinue or changeover and remove temporary facilities from the site, along with abatement tools and similar elements.

1.2.2 INSPECTION PROCEDURES: Upon receipt of a request for inspection, the Consultant will either proceed with the inspection or advise the Contractor of unfilled requirements.

1.2.2.1 The Consultant will sign the Certificate of Visual Inspection following inspection, or advise the Contractor of abatement that must be completed or corrected before the certificate will be issued.

1.2.2.2 The Consultant will repeat the inspection when requested and assured that the work has been substantially completed.

1.2.2.3 Results of the completed inspection will form the basis of requirements for final acceptance.

1.2.2.4 The Contractor is responsible for the removal of any and all designated ACM within the work area, whether found during the inspection or not, and shall be held accountable for any fines or violations being assessed due to any remaining above-mentioned ACM.

1.3 FINAL ACCEPTANCE

1.3.1 PRELIMINARY PROCEDURES: Before requesting final inspection by the Consultant and Owner for Certification of Final Acceptance and Final Payment, complete the following. List exceptions in the request.

1.3.1.1 Submit the final request with release and supporting documentation not previously submitted and accepted. Include Certificates of Insurance for products and completed operations where required.

1.3.1.2 Submit an updated final statement, accounting for final additional changes to the Contract Sum.

1.3.1.3 Submit a certified copy of the Consultant's final inspection list of items to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance, and the list has been endorsed and dated by the Consultant.

1.3.1.4 Submit final meter readings for utilities, and similar data as of the date of substantial completion, or when the Owner took possession of and responsibility for corresponding elements of the work.

1.3.1.5 Submit consent of surety to final payment.

1.3.1.6 Submit a final liquidated damages settlement statement.

1.3.1.7 Submit evidence of final, continuing insurance coverage complying with insurance requirements.

1.3.1.8 Submit record drawings, final project photographs, damage or settlement survey, and similar final record information.

1.4 RECORD DOCUMENT SUBMITTALS

1.4.1 GENERAL: Do not use record documents for abatement purposes. Protect them from deterioration and loss in a secure, fire-resistant location. Provide access to record documents for the Consultant's reference during normal working hours.

1.4.2 RECORD DRAWINGS: Maintain a clean, undamaged set of Contract Drawings and shop drawings. Mark the set to show the actual abatement where the abatement varies substantially from the work as originally shown. Mark whichever drawing is most capable of showing conditions fully and accurately. Where shop drawings are used, record a cross-reference at the corresponding location on the Contract Drawings. Give

particular attention to concealed asbestos that would be difficult to remove at a later date.

1.4.2.1 Mark new information that is important to the Owner but was not shown on Contract Drawings or shop drawings and note related Change Order numbers where applicable.

1.4.2.2 Organize record drawing sheet into manageable sets, bind with durable paper cover sheets and print suitable titles, dates and other identification on the cover of each set.

1.4.3 RECORD SPECIFICATIONS: Maintain one complete copy of the Project Manual, including addenda, and one copy of other written abatement documents such as Change Orders and modifications issued in printed form during abatement. Mark these documents to show substantial variations in actual work performed in comparison with the text of the Specifications and modifications. Give particular attention to substitutions, selection of options and similar information on elements that are concealed or cannot otherwise be readily discerned later by direct observation. Note related record drawing information and product data. Upon completion of the work, submit record Specifications to the Consultant for the Owner's records.

1.4.4 RECORD PRODUCT DATA: Maintain one copy of each product data submittal. Mark these documents to show significant variations in the actual work performed in comparison with information submitted. Include variations in products delivered to the site, and from the manufacturer's installation instructions and recommendations. Give particular attention to concealed products and portions of the work that cannot otherwise be readily discerned later by direct observation. Note related Change Orders and mark up of record drawings and Specifications. Upon completion of mark up, submit a complete set of record product data to the Consultant for the Owner's records.

1.4.5 MISCELLANEOUS RECORD SUBMITTALS: Refer to other Specification sections for requirements of miscellaneous recordkeeping and submittals in connection with actual performance of the work. Immediately prior to the date or dates of substantial completion, complete miscellaneous records and place in good order, properly identified and bound or filed, ready for continued use and reference. Submit to the Consultant for the Owner's records.

PART 2 – PRODUCTS

2.1 NOT APPLICABLE

PART 3 – EXECUTION

3.1 FINAL CLEANING

3.1.1 GENERAL: General cleaning during abatement is required by the General Conditions.

3.1.2 CLEANING: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to the condition expected in a normal, commercial building cleaning and maintenance program. Comply with the manufacturer's instruction for operations. Complete cleaning operations before requesting the inspection for Certification of Substantial Completion. Remove labels that are not permanent labels. Clean transparent materials affected by the work, including mirrors and window/door glass, to a polished condition. Remove glazing compound and other substances that are noticeable vision-obscuring materials. Replace chipped or broken glass and other transparent materials damaged during abatement. Clean exposed exterior and interior hard-surfaced finishes affected by the work, to a dirt-free condition, free of dust, stains, films and similar foreign substances. Restore reflective surfaces to their original reflective condition. Leave concrete floors vacuum-clean. HEPA-vacuum or steam-clean carpeted surfaces. Except as otherwise indicated, avoid disturbance of natural weathering of exterior surfaces. Wipe surfaces of mechanical and electrical equipment. Remove excess lubrication and other substances. Clean plumbing fixtures to a sanitary condition. Clean light fixtures and lamps. Clean the site, including landscape development areas, of rubbish, litter and foreign substances generated by abatement work. Sweep paved areas broom-clean and remove stains, spills and other foreign deposit. Rake grounds that are neither paved nor planted to a smooth, even-textured surface. Replace all replaceable HVAC filters using materials approved by the Owner. Clean non-replaceable filters after a minimum of two days of operation of HVAC equipment.

3.1.3 REMOVAL OF PROTECTION: Remove temporary protection and facilities installed for protection of the work during abatement.

3.1.4 COMPLIANCE: Comply with regulations of authorities having jurisdiction and safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on the Owner's property. Do not discharge volatile, harmful or dangerous materials into drainage systems. Remove waste materials from the site and dispose of in a lawful manner.

3.1.5 Where extra materials of value remaining after completion of associated work have become the Owner's property, arrange for disposition of these materials as directed.

END OF SECTION 01701

SECTION 01711 - PRE-CLEARANCE DECONTAMINATION

1.1 DESCRIPTION OF REQUIREMENTS: The decontamination procedure shall be a three-step procedure incorporating cleaning, encapsulation, and testing to prevent contamination of the building when the work area isolation barriers are removed.

1.2 GENERAL: The work specified in this section includes the decontamination of air in the work area that has been, or may have been contaminated by the elevated airborne asbestos fiber levels generated during the asbestos abatement activities, or that may previously have had elevated fiber levels due to friable ACM in the space. The work includes the cleaning, decontamination and removal of temporary facilities installed prior to the asbestos abatement work.

1.3 START OF WORK

1.3.1 PREVIOUS WORK: During completion of the asbestos abatement work specified in other sections, any additional protective barriers of polyethylene sheeting will have been removed and disposed of along with any gross debris generated by the asbestos abatement work.

1.3.2 START OF WORK: Work shall begin with the cleaning of the secondary barrier. At the start of the work, the decontamination unit and all primary and critical barriers must be in place, and the negative pressure system in operation.

1.4 FINAL CLEANING

1.4.1 Perform the first cleaning operations of all surfaces of the work area, including items of remaining sheeting, tools, scaffolding and/or staging, using wet-cleaning and mopping methods and/or a HEPA-filtered vacuum.

1.4.2 Do not perform dry-dusting or dry-sweeping. Use each surface of a cleaning cloth one time only and then dispose of as contaminated waste.

1.4.3 Continue the cleaning until there is no visible debris from removed materials or residue on plastic sheeting or other surfaces.

1.5 VISUAL INSPECTION

1.5.1 Perform a complete inspection of the entire work area including all surfaces, ceiling, walls, floor decontamination unit, all plastic sheeting, seals over ventilation openings, doorways, windows, and other openings. Look for debris from any sources, residue on surfaces, dust or other matter. During inspection, sweep the entire work area, including walls, ceiling, ledges, floors and other surfaces in work area with exhaust from forced-air equipment (leaf blower with approximately 1 horsepower electric motor or equivalent). If any debris, residue, dust or other matter is found, repeat cleaning and continue decontamination procedures.

1.5.2 When the area is visually clean, and if, after sweeping all surfaces with the leaf blower, no debris, residue, dust or other material is found, notify the Consultant that the work area is ready for visual inspection and provide ladders, scaffolding and lifts as required

to provide access to all surfaces in the area to be subject to visual inspection. Access is to allow touching of all surfaces.

1.5.3 The Consultant shall perform the visual inspection and complete the certification at the end of this section. Visual inspection is not complete until confirmed in writing on the certification by the Project Administrator. After inspection results are given, the Contractor shall begin re-cleaning or proceed to the next step.

1.6 POST-REMOVAL ENCAPSULATION AND FINAL CLEARANCE

1.6.1 Following passing of the visual inspection, perform post-removal encapsulation of substrates. Maintain the negative-air system in operation during the encapsulation work.

1.6.2 An approved encapsulant shall be applied, using low pressure or airless spraying equipment, to all areas of the project where asbestos-containing materials have been removed.

1.6.3 The Owner's laboratory shall perform the final air sampling of the work area as per Section 01410. After notification by the Owner's laboratory of the test results, the Contractor shall begin either re-cleaning or material replacement and containment tear-down. Re-cleaning shall be required if the test results indicate too high concentrations of fibers.

1.7 REMOVAL OF WORK AREA ISOLATION: After all requirements of this section and Section 01410 have been met, remove the work area isolation in the sequence outlined in this paragraph. Shut down and remove the pressure differential system. Seal HEPA-filtered fan units, HEPA vacuums and similar equipment with 6-mil polyethylene sheet and duct tape to form a tight seal at intake end before being moved from the work area. Remove personnel and material decontamination units. Remove the critical barriers separating the work area from the rest of the building. Remove any small quantities of residual material found with wet-wiping, HEPA vacuums and local area protection. If significant quantities, as determined by the Consultant, are found, then the entire area affected shall be decontaminated. Remove all equipment, materials and debris from the work site. Dispose of all remaining asbestos-containing waste material as specified in Section 02084.

1.9 SUBSTANTIAL COMPLETION OF ABATEMENT WORK: Asbestos abatement work is substantially complete upon meeting the requirements of this section, Sections 01410 and 02084, and punch list detailing repairs to be made and incomplete items.

1.10.1 CERTIFICATE OF VISUAL INSPECTION: Following this section is a "Certificate of Visual Inspection", which is to be completed by the Contractor and certified by the Project Administrator. Submit completed Certificate with Application for Final Payment. Final payment will not be made until this Certification is executed and final testing has been passed.

CERTIFICATION OF VISUAL INSPECTION

Project Name: Asbestos Removal
Jasper Power Plant
Jasper, Indiana

Specific Area:

CONTRACTOR SUPERINTENDENT CERTIFICATION

In accordance with Section 01711, the Contractor hereby certifies that he has visually inspected the work area (all surfaces, including pipes, beams, ledges, walls, ceiling and floor, the decontamination unit, sheet plastic, etc.) and has found no dust, debris or residue.

By: (Signature) _____

(Print Name) _____

(Print Title) _____

Date: _____

The Owner and/or Owner's representative hereby certifies that he has accompanied the Contractor on his visual inspection and verifies that this inspection has been thorough, and that, to the best of his knowledge and belief, the Contractor certification above is a true and honest one.

By: (Signature) _____

(Print Name) _____

(Print Title) _____

Date: _____

END OF SECTION 01711

SECTION 02081 - REMOVAL OF ASBESTOS-CONTAINING MATERIALS

1.1 SUBMITTALS: Submit to the Consultant the Materials Safety Data Sheet, or equivalent, in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200) for each surfactant and encapsulating material proposed for use on the work. Include a separate attachment for each sheet indicating the specific worker protective equipment proposed for use with the material indicated.

1.2 COORDINATION: Before starting work outlined in this section, comply with the requirements specified in Sections 01560, 01562, 01563, and 01595.

1.3 WETTING MATERIAL: For wetting prior to disturbance of ACM, use water to which a surfactant has been added (amended water). Use a mixture of surfactant and water that results in wetting of the ACM and retardation of fiber release during disturbance of the ACM. As an alternative, a removal encapsulant may be used. Provide a penetrating type of encapsulant designated specifically for removal of ACM. Use a material that results in wetting of the ACM and retardation of fiber release during disturbance of the ACM.

1.4 POLYETHYLENE SHEET: Provide a single polyethylene film in the largest sheet size possible to minimize seams, 4 or 6 mils thick as indicated. For high temperature applications, provide flame-resistant polyethylene film that conforms to requirements set forth by the National Fire Protection Association Standard 701, Small-Scale Fire Test for Flame-Resistant Textiles and Film. Provide the largest size possible to minimize seams, 4 or 6 miles thick as indicated.

1.5 DUCT TAPE: Provide duct tape in 2-inch or 3-inch widths as indicated, with an adhesive that is formulated to aggressively stick to sheet polyethylene.

1.6 SPRAY ADHESIVE: Provide spray adhesive in aerosol cans that is specifically formulated to stick tenaciously to sheet polyethylene.

1.7 DISPOSAL BAGS: Provide 6-mil thick leak-tight polyethylene bags labeled as specified in Section 01092.

1.8 FIBERBOARD DRUMS: Provide heavy-duty leak-tight fiberboard drums with tight-sealing, locking metal tops. The drums shall be labeled as specified in Section 01092.

1.9 PAPERBOARD BOXES: Provide heavy-duty corrugated paperboard boxes coated with plastic or wax to retard deterioration from moisture. Provide in sizes that will easily fit in disposal bags.

1.10 FELT: Standard felt approximately 1/16 of an inch thick and 3 feet to 6 feet in width.

1.11 ADDITIONAL PROTECTIVE BARRIER

1.11.1 Over a secondary barrier install a drop-cloth of clear 6-mil sheet plastic in all areas where asbestos removal work is to be carried out. Completely cover the floor with sheet plastic. Where the work will take place within 10 feet of a wall, extend the additional protective barrier up the wall to the ceiling. Support sheet plastic on the wall with duct tape so that debris is unable to get behind it. Provide cross strips of duct tape at the wall support as necessary to support the sheet plastic and prevent its falling during removal operations.

1.11.2 Install the additional protective barrier at the beginning of each work shift. Install only sufficient plastic for work of that shift.

1.11.3 Remove additional protective barrier at the beginning of each work shift or as the work in an area is completed. Fold the plastic toward the center of the sheet and pack it in disposal bags. Keep the ACM on the sheet continuously wet until it is bagged.

1.11.4 Install walkways of black 6-mil plastic between the active removal areas and decontamination units to protect the secondary layer from tracked ACM. Install walkways at the beginning of, and removal at the end of, each work shift.

1.12 WORKER PROTECTION: Before beginning work with any material for which a Material Safety Data Sheet has been submitted, provide workers with the required protective equipment. Require that the appropriate protective equipment be used at all times.

1.13 WET REMOVAL

1.13.1 Thoroughly wet the ACM to be removed prior to stripping and/or tooling, to reduce fiber dispersal into the air. Saturate the ACM sufficiently to wet other substrate without causing excess dripping. Allow time for wetting agent to penetrate the ACM thoroughly. Perforate outer covering of any installation that has been painted and/or jacketed in order to allow penetration of wetting agent, or where necessary, carefully strip away the outer covering while simultaneously spraying wetting agent on the material, to minimize dispersal of asbestos fibers into the air.

1.13.2 Spray the ACM repeatedly with wetting agent during the work process to maintain a continuously wet condition. Mist the work area continuously with amended water whenever necessary to reduce airborne fiber levels.

1.13.3 Remove saturated ACM in small sections from all areas. Do not allow the ACM to dry out. As it is removed, simultaneously pack ACM, while still wet, into disposal bags. Twist neck of bags, bend over (goose neck) and seal with a minimum of three wraps of duct tape. Clean the outside of the bags and move them to the washdown station adjacent to the ACM decontamination unit.

1.13.4 Evacuate air from disposal bags with HEPA-filtered vacuum cleaner before sealing.

1.14 FIREPROOFING OR ARCHITECTURAL FINISH ON SCRATCH COAT

1.14.1 Spray asbestos-containing fireproofing or architectural acoustic finish with a fine mist of amended water. Allow time for amended water to saturate ACM to the substrate. Do not over-saturate enough to cause excess dripping.

1.14.2 Scrape ACM from the substrate. Remove ACM in manageable quantities and control the descent to floor below. If the distance is greater than 20 feet, use a drop chute to contain the ACM during descent. If using amended water, spray-mist the surface continuously during work progress.

1.14.3 Remove residue remaining on scratch coat after scraping by using a stiff, nylon-bristled hand brush. Do not use high-pressure washer. If a removal encapsulant is used, remove residue completely before encapsulant dries. If the substrate dries

before the residue is completely removed, re-wet with substrate with amended water or removal encapsulant.

1.15 FIREPROOFING OR ARCHITECTURAL FINISH ON WIRE LATH

1.15.1 Spray asbestos-containing fireproofing or architectural acoustic finish with a fine mist of amended water. Allow time for amended water to completely saturate the ACM. Do not over-saturate enough to cause excess dripping.

1.15.2 If the surface of the ACM has been painted or otherwise coated, cut small holes as required and apply amended water from above.

1.15.3 Cut the wire lath into approximately 2'x6' sections and cut hanger wires. Roll up the wire lath with the ACM, and hand-place it in a disposal bag. Do not drop the wire lath on the floor.

1.15.4 After removal of lath and ACM, remove any overspray on decking and structure above by using a stiff, nylon-bristled brush. Do not use high-pressure washer. Use one of the following methods for containing waste.

1.15.5 Deposit the ACM in corrugated paperboard box. When the box is full, duct tape it closed and place it in a disposal bag.

1.15.6 Wrap the ACM in felt and place it in a fiberboard drum lined with two disposal bags. Ensure that all edges of the wire lath that could cut the plastic are covered with felt.

1.15.7 Hold the nozzle from an operating HEPA-filtered vacuum cleaner in the immediate vicinity of, and above, the work while cutting the wire lath or otherwise disturbing the ACM. Use a two-worker crew for cutting, with one worker cutting and one worker holding the HEPA vacuum nozzle.

1.16 PIPE INSULATION

1.16.1 Spray with a mist of amended water. Allow amended water to saturate the ACM to the substrate.

1.16.2 Cut bands holding pre-formed pipe insulation, slit jackets at the seam, remove and hand-place in a disposal bag. Remove job molded fitting insulation in chunks and hand-place in a disposal bag. Do not drop the ACM to the floor. Remove any residue on the pipe or pipe fitting with a stiff, nylon-bristled hand brush.

1.16.3 In locations where pipe fitting insulation is removed from pipe straight-runs insulated with fibrous glass or other non-ACM, remove the fiberglass material 6 inches from the point where it touches the asbestos-containing insulation.

1.17 LOCALIZED CONTROL OF FIBER RELEASE

1.17.1 PIPE INSULATION: HEPA-vacuum the surface of the pipe insulation. Cut bands holding pre-formed pipe insulation, slit jackets at seams while holding the HEPA vacuum under the cut, remove and hand-place in a disposal bag. If the ACM is extremely hot (over 130^{o}F), allow it to cool before hand-placing into the disposal bag. Remove job-molded fitting insulation in chunks, using the nozzle of the HEPA vacuum to collect debris generated, and hand-place into a disposal bag. Do not drop the ACM

to the floor. Remove any residue on the pipe or fitting with a wire brush. Brush toward the nozzle of the HEPA vacuum. In locations where pipe-fitting insulation is removed from pipes with straight-runs insulated with fibrous glass or other non-ACM, remove the fiberglass insulation 6 inches from the point where it touches the asbestos-containing insulation. Use a two-man crew for work of this type, with one worker removing material and the other worker holding the nozzle of the HEPA vacuum in the location of the ACM disturbance.

1.17.2 MATERIAL SPRAYED ON WIRE LATH: Hold the nozzle from an operating HEPA-filtered vacuum cleaner in the immediate vicinity of and below the work while cutting the wire lath or otherwise disturbing the ACM. Use a two-worker crew for cutting, with one worker cutting and one worker holding the HEPA vacuum nozzle.

1.18 WET SOILS

1.18.1 Remove the top 2 inches of soil that is damp or wet and place it in disposal bags.

1.18.2 Start removal at the point of work farthest from the entrance to the soil floor area and proceed toward the entrance. Do not permit traffic into the fresh soil surface. Arrange the pressure differential system so that airflow is at the starting point of the work toward the entrance.

1.18.3 After the entire first layer of soil is removed completely, change coveralls and, at the entrance to the soil removal area, don clean boot covers. Remove the second 2 inches of soil in the same manner as the first.

1.18.4 Carry out the decontamination procedures set forth in Section 01711 at this time.

1.19 DRY SOILS

1.19.1 Use the same procedure for dry soils as specified above for wet soils, except saturate the soil with amended water as specified in other Division 2 sections of these Specifications.

1.19.2 Keep the surface of the soil continuously wet throughout the removal and decontamination.

1.20 CEMENT ASBESTOS PANELS (TRANSITE)

1.20.1 The cement asbestos panels shall be thoroughly wetted with amended water or removal encapsulant prior to removal and maintained in a wet condition by misting with amended water or removal encapsulant applied with a low pressure spraying system.

1.20.2 The cement asbestos panels shall be removed only by prying the material from its attachment. The panels shall not be dropped, thrown, or otherwise handled in such a manner that would cause undue breaking to occur.

1.20.3 As the panels are removed, the material shall be placed in 6-mil polyethylene disposal bags or wrapped in 6-mil polyethylene sheeting and sealed with duct tape and/or adhesive. Tears, punctures, breaks, etc., of the polyethylene containers shall be immediately repaired.

1.21 LOCAL EXHAUST VENTILATION AND COLLECTION SYSTEM

1.21.1 Provide local exhaust ventilation and collection systems as described below for each area where amosite is being removed or otherwise disturbed.

1.21.2 Provide HEPA-filtered fan units in the vicinity of the work.

1.21.3 Locate the duct intake so airflow is horizontally and slightly downward into the intake. Replace the primary filter on the negative air machine at an interval of no greater than 30 minutes. Allow no more than one scraping or wire brushing activity for each HEPA-filtered fan unit.

1.21.4 Attach a job-built 4-feet-by-4-feet, flared end piece horizontally at a point 4 feet below the work, so that airflow is downward into the intake.

1.22 AIRBORNE FIBER COUNTS: Use work procedures that result in an eight-hour time-weighted average (TWA) airborne fiber count of less than that indicated in Section 01410. If airborne fiber counts exceed this level, immediately mist the area with amended water to lower fiber counts and revise work procedures to maintain airborne fiber levels within the required limit.

END OF SECTION 02081

SECTION 02082 - SMALL-SCALE REMOVAL OF ASBESTOS-CONTAINING MATERIALS

1.1 DESCRIPTION OF WORK: Use procedures outlined in this section only where historic airborne fiber data demonstrates that airborne fiber counts in the work area can be continuously maintained at less than 0.01 f/cc.

1.2 WORKER PROTECTION: Before beginning work with any material for which a Material Safety Data Sheet has been submitted, provide workers with the required protective equipment. Require that appropriate protective equipment be used at all times.

1.3 NEGATIVE PRESSURE GLOVE-BAG

1.3.1 Remove ACM inside a glove-bag. Maintain the glove-bag under negative pressure during the removal by the use of a HEPA vacuum. Thoroughly wet the material to be worked on with amended water and allow time for the water to penetrate. Wet adequately enough for the water to penetrate and soak the material through to the substrate.

1.3.2 Using a scrub brush or scouring pads, rags and water, scrub and wipe-down the exposed pipe. Seal exposed ends of remaining pipe insulation. Remove water wand from water sleeve.

1.3.3 Collapse the bag with a HEPA vacuum. Twist the top of the bag, seal with a least three wraps of duct tape, bend over (goose-neck) and seal again with at least three wraps of duct tape.

1.3.4 Clean all surfaces in the work area using disposable cloths wetted with water, with surfactant or removal encapsulant added. When these surfaces have dried, clean with a HEPA-filtered vacuum. Material adhered to a surface with removal encapsulant may require the application of additional removal encapsulant to facilitate cleaning.

1.4 MINI-ENCLOSURES

1.4.1 A mini-enclosure consists of a small work room with an attached, separate change room. Worker decontamination requires a remote personnel decontamination unit.

1.4.2 Before beginning work of this section, isolate the area in accordance all federal, state, and local regulations.

1.4.3 Construct the work room in the same manner as a primary barrier fabricated from 6-mil sheet plastic. Arrange so that the primary barrier also acts as a critical barrier. Line the walls and floor of the work room with a continuous secondary barrier.

1.4.4 Provide a change room, with space as required for storage, attached to each work room. Fabricate the change room from 6-mil sheet plastic in the same manner as a primary barrier. Locate immediately adjacent to the work area, and so that the only access to the work area is through the change room.

1.4.5 Provide an air-lock door as entry to the change room and entry from the change room to the work room. Fabricate each door from overlapping contacting layers of sheet plastic. Fasten each layer on the top and one side. Each flap is to be 3 inches longer than the door opening. Reinforce the free side and bottom of each sheet with duct tape. Form arrows with duct tape pointing to free side on both the inside and outside of each flap.

1.4.6 At the entry to the change room, post a caution sign as required by 29 CFR 1926.

1.4.7 Complete the requirements of Sections 01560, 01562 and 01563. A HEPA-filtered vacuum cleaner with vacuum in space outside mini-enclosure may be used for compliance with all federal, state, and local regulations. Provide a minimum of 8 air changes per hour in the work room.

1.4.8 PROCEDURES FOR ENTERING THE WORK ROOM: Require that any time a worker enters the work room, the worker shall remove all street clothes and don clean coveralls and respirator within the change room. A swim suit or second disposal suit may be worn beneath outer coveralls. When entering the work room, make sure that the entry is completely closed.

1.4.9 PROCEDURES FOR EXITING THE WORK ROOM: Maintain a bucket of clean potable water in the change room. Do not amend with a wetting agent. Workers exiting the work area shall proceed to the change room, making sure that the entry to the work area is completely closed. While leaving the respirator in place, remove contaminated suit and place in the disposal container provided. Wash hands, face and the surface of the respirator with water and wet paper towel. Don a clean disposable suit, leaving the respirator in place. Exit the change room, making sure that the entry to the change room is completely closed. Proceed to the next mini-enclosure or to a remote shower. At the end of the work day, decontaminate fully in accordance with procedures outlined in Section 01560.

1.4.10 MATERIAL DECONTAMINATION: Equipment and bagged debris are to be removed from the mini-enclosure in separate operations. One worker in the work room shall clean equipment and bagged debris, then shall hand each piece of equipment or bag of debris one at a time to a worker in the change room. The worker in the change room shall wet-clean each piece of equipment or bag and store them in the change room. Equipment shall be sealed completely in 6-mil sheet plastic in the change room. The worker in the change room then places each item into a new disposal bag held open in the exit doorway by a worker located outside the change room. The worker outside the change room shall place each bag in a sealed cart for transport to the load-out area. No bags are to be stored outside the mini-enclosure. All bags are to be transported through in clean, sealed containers. At the completion of work, decontaminate the work room and change room as set forth in Section 01711.

1.5 WORK PROCEDURES

1.5.1 REMOVAL OF SMALL AREAS OF FIREPROOFING OR ARCHITECTURAL FINISHES: Thoroughly wet the affected area and 6 inches beyond with a penetrating encapsulant and allow to soak in. Begin work when material is thoroughly saturated. Using the wand of a HEPA vacuum as a tool, remove material using a cookie-cutter motion, so that all material is sucked up by the HEPA vacuum.

1.5.2 INSTALLATION OF WELDED BRACKETS IN FIREPROOFING: Thoroughly saturate the affected area of fireproofing with penetrating encapsulant and allow to soak in. Begin work when the material is thoroughly saturated. Using a tool, push fireproofing back as required to supply clearance for welding. After welding, fill area around welding with new non-ACM fireproofing.

1.5.3 REMOVAL OF THERMAL DUCT TAPE: Thoroughly wet the affected area and 6 inches beyond with a penetrating encapsulant and allow to soak in. Begin work when material is thoroughly saturated. Wrap and seal the sections of duct with the thermal duct tape in a minimum of two layers of 6-mil polyethylene sheeting. Cut the wrapped sections of duct to remove them and place the sections in disposal bags.

END OF SECTION 02082

SECTION 02084 - DISPOSAL OF ASBESTOS-CONTAMINATED MATERIAL

1.1 DESCRIPTION OF WORK: This section describes the disposal of ACM. Disposal includes packaging of asbestos-containing waste materials.

1.2 SUBMITTALS: Submit the following to the Consultant for review. Do not start work until these submittals are returned with the Consultant's action stamp indicating that the submittal is returned for unrestricted use.

1.2.1 A copy of the state or local license for the waste hauler.

1.2.2 The name and address of the landfill where the asbestos-containing waste materials are to be buried. Include the contact person's name and telephone number.

1.2.3 A chain-of-custody form and the form of waste manifest proposed.

1.3 GENERAL

1.3.1 All waste is to be hauled by a waste hauler with all required licenses from all state and local authorities having jurisdiction.

1.3.2 Load all asbestos-containing waste material into disposal bags. All ACM are to be contained in two 6-mil disposal bags.

1.3.3 Protect the interior of the truck or dumpster with critical barriers. Carefully load containerized waste in fully enclosed dumpsters, trucks or other appropriate vehicles for transport. Exercise care before and during transport, to ensure that no unauthorized persons have access to the ACM.

1.3.4 Do not store containerized ACM outside the work area. Take containers from the work area directly to a sealed truck or dumpster. Do not transport disposal-bagged ACM on open trucks. Label drums with the same warning labels as used on the bags. Uncontaminated drums may be reused. Treat drums that have been contaminated as asbestos-containing waste and dispose of them in accordance with this Specification.

1.3.5 At the disposal site, sealed plastic bags shall be carefully unloaded from the truck. If any bags are broken or damaged, return them to the work site for re-bagging. All bags, including broken ones, will be transferred. Clean the entire truck and contents.

1.3.6 Retain receipts from the landfill operator for the disposed-of ACM. At the completion of hauling and disposal of each load, submit a copy of the waste manifest, chain-of-custody form and landfill receipt to the Consultant.

END OF SECTION 02084