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Environmental & Sustainability Division



ASBESTOS ABATEMENT PROCEDURES

Revised: July 2015

IMPORTANT NOTE:

All contractors submitting bids to the City of Mesa (City) for work in which asbestos is required to be abated and noted so in any contract documents, and any abatement contractor performing asbestos abatement activities at City facilities or properties shall have working knowledge of the information contained within this Asbestos Abatement Procedures manual.

This document can be found at the following location:
I:\PROCEDURES\Asbestos\Abatement SOP\2015 Abatement Procedure\2015-07 Asbestos Abatement Procedure.docx

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ACRONYMS AND ABBREVIATIONS

ACM – Asbestos Containing Material

CFR – Code of Federal Regulations

City – City of Mesa

ESD – Environmental & Sustainability Division

f/cc - Fiber per Cubic Centimeter

HVAC – Heating Ventilation & Air Conditioning

MCAQD - Maricopa County Air Quality Department

OSHA – Occupational Safety & Health Administration

PCM - Phase Contrast Microscopy

PEL - Permissible Exposure Level

RACM - Regulated Asbestos Containing Material

s/mm² – Structures per Square Millimeter

TEM - Transmission Electron Microscopy

TSI - Thermal System Insulation

USDOT – United States Department of Transportation

USEPA – United States Environmental Protection Agency

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EXECUTIVE SUMMARY

This Asbestos Abatement Procedures manual (Manual) has been prepared by the Environmental & Sustainability Division (ESD) in response to federal and state regulations detailing the management of such materials at City of Mesa (City) facilities. This Manual is intended to supplement applicable Federal, State and local regulations, and in some cases may be more stringent than such regulations. If compliance with a provision of this Manual would result in the ability to not comply with any requirement established under Federal, State or local regulations, then the regulatory requirement shall take precedence.

GOALS OF THIS MANUAL

The goals of this Manual are to:

1. Minimize the generation of asbestos fibers inside City facilities and exposure to City employees, contract workers, and facility visitors during asbestos abatement activities;
2. Minimize the generation of asbestos fibers to ambient air for asbestos abatement activities occurring in outdoor areas; and,
3. To ensure asbestos waste is managed properly.

GENERAL REQUIREMENTS

In general, under this Manual, the City requires all abatement of asbestos containing materials (ACM) at City facilities or properties to be performed using an Arizona Registrar of Contractor licensed firm, certified workers, and in compliance with the abatement work procedures as described in [Section 2.0](#) of this Manual. Contractors shall be made aware of the definitions provided in [Section 1.3](#) of this Manual, because in some cases, these definitions may differ from those provided in the referenced regulations.

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1.0 INTRODUCTION

This Asbestos Abatement Procedures manual (Manual) has been prepared by the Environmental & Sustainability Division (ESD) in response to federal and state regulations detailing the management of such materials at City of Mesa (City) facilities. This Manual is intended to supplement applicable Federal, State and local regulations, and in some cases may be more stringent than such regulations. If compliance with a provision of this Manual would result in the ability to not comply with any requirement established under Federal, State or local regulations, then the regulatory requirement shall take precedence.

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The goals of this Manual are to:

1. Minimize the generation of asbestos fibers inside City facilities and exposure to City employees, contract workers, and facility visitors during asbestos abatement activities;
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3. To ensure asbestos waste is managed properly.

1.2 REGULATORY SUMMARY

The Occupational Safety and Health Administration (OSHA), United States Environmental Protection Agency (USEPA), and Maricopa County Air Quality Department (MCAQD) have developed regulations regarding asbestos abatement activities. The United States Department of Transportation (USDOT) regulated the disposal of materials that are determined to be hazardous.

1.2.1 OSHA

OSHA established regulations under Title 29, Part 1926 of the Code of Federal Regulations (CFR) targeting construction activities where an employee may be exposed to asbestos as cited below.

Title 29: Labor
PART 1926—SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION
 Subpart Z—Toxic and Hazardous Substances

1926.1101 Asbestos.

- (a) Scope and application. This section regulates asbestos exposure in all work as defined in 29 CFR 1910.12(b), including but not limited to the following:
- (1) Demolition or salvage of structures where asbestos is present;
 - (2) Removal or encapsulation of materials containing asbestos;
 - (3) Construction, alteration, repair, maintenance, or renovation of structures, substrates, or portions thereof, that contain asbestos;
 - (4) Installation of products containing asbestos;
 - (5) Asbestos spill/emergency cleanup; and
 - (6) Transportation, disposal, storage, containment of and housekeeping activities involving asbestos or products containing asbestos, on the site or location at which construction activities are performed.

OSHA also established regulations under Title 29, Part 1910 of the CFR to address occupational exposure to asbestos fibers for employees of general industry, specifically exempting construction industry.

Title 29: Labor
PART 1910.1001 - OCCUPATIONAL SAFETY AND HEALTH STANDARDS (CONTINUED)
 Subpart Z—Toxic and Hazardous Substances

1910.1001 Asbestos.

- (a) Scope and application.
- (1) This section applies to all occupational exposures to asbestos in all industries covered by the Occupational Safety and Health Act, except as provided in paragraph (a)(2) and (3) of this section.
 - (2) This section does not apply to construction work as defined in 29 CFR 1910.12(b). (Exposure to asbestos in construction work is covered by 29 CFR 1926.1101).
 - (3) This section does not apply to ship repairing, shipbuilding and shipbreaking employments and related employments as defined in 29 CFR 1915.4. (Exposure to asbestos in these employments is covered by 29 CFR 1915.1001).

In these standards, OSHA requires that employers assure that no employee is exposed to asbestos at concentrations in excess of 0.1 fiber per cubic centimeter (f/cc) of air as an eight (8)-hour time-weighted average (TWA) or in excess of 1.0 f/cc of air as averaged over a sampling period of thirty (30) minutes. As such, this Manual has been developed to assure that no employee, including City employees occupying facilities where construction activities are taking place, is exposed to asbestos at concentrations above the OSHA standards during construction activities.

1.2.2 USEPA

The USEPA established the National Emission Standard for Hazardous Air Pollutants for asbestos under Title 40, Part 61 which establishes requirements for demolitions or renovation activities at any facility where threshold amounts of regulated asbestos containing material (RACM) will be removed (i.e. 260 linear feet on pipes, 160 square feet on other facility components, or 35 cubic feet off facility components where the length or area could not be measured previously).

In general with regard to asbestos abatement activities, this regulation requires:

1. Notification of abatement activities at least 10 working days before asbestos stripping or removal work or any other activity that would disturb **any amount** of asbestos containing material (ACM) begins;
2. Remove all RACM from a facility being demolished or renovated with threshold amounts of RACM before any activity begins that would break up, dislodge, or similarly disturb the material or preclude access to the material for subsequent removal;
3. Dispose of threshold volumes of RACM at a landfill that is permitted to receive such waste or to an EPA-approved site that converts asbestos waste to non-asbestos material; and,
4. Maintain a waste shipment record (WSR) for each load of asbestos waste

1.2.3 USDOT

The USDOT has established requirements for the transportation of asbestos as being a hazardous substance.

Title 49: Transportation
PART 172—HAZARDOUS MATERIALS TABLE, SPECIAL PROVISIONS, HAZARDOUS MATERIALS COMMUNICATIONS, EMERGENCY RESPONSE INFORMATION, TRAINING REQUIREMENTS, AND SECURITY PLANS

Subpart A—General

172.1 Purpose and scope.

This part lists and classifies those materials which the Department has designated as hazardous materials for purposes of transportation and prescribes the requirements for shipping papers, package marking, labeling, and transport vehicle placarding applicable to the shipment and transportation of those hazardous materials.

Subpart B—Table of Hazardous Materials and Special Provisions

Appendix A to § 172.101—List of Hazardous Substances and Reportable Quantities

1. This appendix lists materials and their corresponding reportable quantities (RQ's) that are listed or designated as "hazardous substances" under section 101(14) of the Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. 9601(14) (CERCLA; 42 U.S.C. 9601 et seq).
4. Column 1 of TABLE 1, entitled "Hazardous substance", contains the names of those elements and compounds that are hazardous substances. Following the listing of elements and compounds is a listing of waste streams. These waste streams appear on the list in numerical sequence and are referenced by the appropriate "D", "F", or "K" numbers. Column 2 of TABLE 1, entitled "Reportable quantity (RQ)", contains the reportable quantity (RQ), in pounds and kilograms, for each hazardous substance listed in Column 1 of TABLE 1.

TABLE 1 TO APPENDIX A—HAZARDOUS SUBSTANCES OTHER THAN RADIONUCLIDES

	Reportable quantity (RQ) pounds (kilograms)
Hazardous substance	
Asbestos	1 (0.454)

1.3 DEFINITIONS

The following definitions shall be the meaning of these terms anywhere they are used in this Manual unless otherwise noted.

Abatement means the removal of any quantities of ACM from a City facility and includes Class I, Class II, Class III, and Class V asbestos work as defined in 29 CFR 1926.1101.

Abatement Contractor means a company, partnership, corporation, sole proprietorship, association, or other business entity that possesses a valid Arizona license for asbestos removal as issued by the Arizona Registrar of Contractors and employs asbestos accredited personnel (abatement workers, contractor/supervisors, etc.) at staffing levels to be able to perform abatement activities in accordance with this Manual and all Federal, State, and local regulations.

Abatement worker means an individual who has attended initial asbestos worker training, received accreditation, and that has maintained such accreditation from a training facility approved by the USEPA pursuant to 40 CFR 763, subpart E, appendix C.

Asbestos containing material means any material containing more than one percent asbestos.

Asbestos inspector means an individual who has attended initial asbestos inspector training, received accreditation, and that has maintained such accreditation from a training facility approved by the USEPA pursuant to 40 CFR 763, subpart E, appendix C.

Category I ACM means asbestos-containing packings, gaskets, resilient floor covering, and asphalt roofing products containing more than 1 percent asbestos as determined using the method specified in appendix E, subpart E, 40 CFR 763, section 1, Polarized Light Microscopy.

Category II ACM means any material, excluding Category I nonfriable ACM, containing more than 1 percent asbestos as determined using the methods specified in appendix E, subpart E, 40 CFR 763, section 1, Polarized Light Microscopy that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.

Competent person means one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them; and specifically, one who is capable of identifying existing asbestos hazards in the workplace and selecting the appropriate control strategy for asbestos exposure and who is an accredited contractor/supervisor.

Contractor/supervisor means an individual who has attended initial asbestos contractor/supervisor training, received accreditation, and that has maintained such accreditation from a training facility approved by the USEPA pursuant to 40 CFR 763, subpart E, appendix C.

Critical barrier means one or more layers of plastic sealed over all openings into a work area or any other similarly placed physical barrier sufficient to prevent airborne asbestos in a work area from migrating to an adjacent area.

Demolition means the wrecking or taking out of any load-supporting structural member and any related razing, removing, or stripping of asbestos products, together with any related handling operations or the intentional burning of any facility.

Enclosure means the use of rigid, durable construction materials that are mechanically fastened to the substrate in order to act as a barrier between asbestos abatement activities and the environment.

Facility means any institutional, commercial, public, industrial, or residential structure, installation, building, or real property that is owned and operated by the City of Mesa.

General Contractor means a company, partnership, corporation, sole proprietorship, association, or other business entity that performs construction related services to the City and is solely responsible for the completion of the project in accordance with approved plans, established schedules, and established project costs (for some projects, especially operational projects, the general contractor may also be the abatement contractor).

High-efficiency particulate air (HEPA) filter means a filter capable of trapping and retaining at least 99.97 percent of all mono-dispersed particles of 0.3 micrometers in diameter.

Occupied facility a facility that is occupied by any personnel other than properly trained and accredited personnel during abatement activities, or one that is unoccupied but will be re-occupied for a period of a regular work shift by any personnel other than properly trained and accredited personnel after abatement activities have been completed.

Oversight Consultant means a company, partnership, corporation, sole proprietorship, association, or other business entity which is contracted directly by the City that employs asbestos accredited personnel (inspectors, contractor/supervisors, management planners, and project designers) at staffing levels to be able to perform abatement oversight activities for purposes of ensuring that abatement activities are performed in compliance with City requirements (including this Manual and contract

specifications), project and abatement plans approved by the City, and in accordance with all Federal, State, and local regulations.

Permissible exposure level (PEL) means employee exposure, without regard to use of respirators, to an airborne concentration of asbestos fibers of 0.1 f/cc³ of air as an eight (8)-hour time-weighted average or 1.0 f/cc³ of air as averaged over a sampling period of thirty (30) minutes.

Project designer means an individual who has attended initial asbestos project designer training, received accreditation, and that has maintained such accreditation from a training facility approved by the USEPA pursuant to 40 CFR 763, subpart E, appendix C.

Regulated Area means an area established to demarcate areas where abatement activities are being conducted and any adjoining area where debris and waste from abatement activities would accumulate; and a work area within which airborne concentrations of asbestos fibers exceeds, or there is a reasonable possibility they may exceed, normal background levels.

Regulated asbestos-containing material (RACM) means a friable asbestos material, category I ACM that has become friable, category I ACM that will be or has been subjected to sanding, grinding, cutting, or abrading, or category II ACM that has a high probability of becoming or has become crumbled, pulverized, or reduced to powder by the forces expected to act on the material in the course of demolition or renovation activities.

Renovation means altering a facility or one or more facility components in any way, including the stripping or removal of ACM from a facility component.

Structural member means any load-supporting member of a facility, such as beams and load supporting walls; or any supporting member (i.e. ceilings and supporting walls) that are not load-supporting.

Surfacing material means material that is sprayed, troweled-on or otherwise applied to surfaces (such as acoustical plaster on ceilings; fireproofing materials on structural

members; other materials on surfaces for acoustical, fireproofing, and other purposes; surfacing on drywall systems and/or drywall compound; stucco; and any friable surfacing materials identified as RACM by an asbestos inspector).

Thermal system insulation (TSI) means ACM applied to pipes, fittings, boilers, breeching, tanks, ducts or other structural components to prevent heat loss or gain.

1.4 CONTRACTOR RESPONSIBILITIES

This section defines responsibilities of the General Contractor, Abatement Contractor, and Oversight Consultant as they pertain to abatement projects at City facilities and properties.

1.4.1 General Contractor

Where the General Contractor is not the Abatement Contractor and has subcontracted the services of the Abatement Contractor, the General Contractor will be responsible for ensuring that the Abatement Contractor does not cause undue increases in project costs or delays in the project schedule. The Abatement Contractor must provide sufficient staff and equipment to complete abatement activities within the approved project schedule and within project costs. Where the Abatement Contractor causes an extension of the schedule as a result of providing insufficient staffing or equipment to complete the work within the approved schedule, the General Contractor, and not the Abatement Contractor, may be charged for some or all of the additional associated costs for the Oversight Consultant.

1.4.2 Abatement Contractor

The Abatement Contractor is solely responsible for compliance with OSHA regulations for its personnel and ensuring any personnel entering established regulated areas are appropriately trained and accredited under a USEPA accredited training program. The Abatement Contractor will work with the General Contractor, where applicable, to ensure that abatement activities do not cause undue increases in project costs or delays in the project schedule by providing sufficient staff and equipment to complete abatement activities within the approved project schedule.

The Abatement Contractor shall fully cooperate with the Oversight Consultant during the course of abatement activities. Where issues of non-compliance are identified, the

Abatement Contractor shall work with the Oversight Consultant to resolve such issues in an efficient and timely manner. The Abatement Contractor shall provide the Oversight Consultant a 24-hour verbal notification when an inspection or any clearance activity is required. In the event that the Abatement Contractor does not pass any inspection, the Abatement Contractor may be charged for the expense of the Oversight Consultant for that inspection.

As required in [Section 4.1](#), a detailed schedule of abatement activities must be approved by the City before any abatement activities may be initiated. This schedule will be used by the City to determine the scope of the Oversight Consultant's services and to determine the cost for these services. Changes to the schedule must be made at least 24 hours prior to the performance of the impacted activity. Written notification of schedule changes is required to both the City and the Oversight Consultant. If the Abatement Contractor deviates from the approved schedule without proper prior notification, or the Abatement Contractor causes an extension of the schedule as a result of providing insufficient staffing or equipment to complete the work within the approved schedule, the Abatement Contractor may be charged for some or all of the additional associated costs for the Oversight Consultant.

The Abatement Contractor shall be fully responsible for any regulatory citations or penalties that may be imposed onto it. Should any legal issues arise as a result of non-compliance on the part of the Abatement Contractor, all costs incurred by the City in response to such issues shall be paid in full by the Abatement Contractor. This includes legal fees, engineer/consultant fees, and any penalties or fines that may be imposed onto the City.

1.4.3 Oversight Consultant

The Oversight Consultant is solely responsible for compliance with OSHA regulations for its personnel and ensuring that any of their personnel entering established regulated areas are appropriately under a USEPA accredited training program. The Oversight Consultant is to ensure that abatement activities are conducted in accordance with contract specifications, approved plans, and applicable regulations. The Oversight Consultant shall provide regular updates on the progress of the abatement activities to the City and shall notify the City when a regulatory agency inspects the project for compliance with LBP regulations.

The Oversight Consultant shall have authority to stop work immediately if the work is not being conducted in accordance with contract specifications, approved plans or regulatory requirements; where lead dust is generated and not being adequately controlled; or where an unsafe condition exists. The Oversight Consultant shall immediately notify the City where work has been stopped at the discretion of the Oversight Consultant.

The Oversight Consultant shall be fully responsible for any regulatory citations or penalties that may be imposed onto it. Should any legal issues arise as a result of non-compliance on the part of the Oversight Consultant, all costs incurred by the City in response to such issues shall be paid in full by the Oversight Consultant. This includes legal fees, engineer/consultant fees, and any penalties or fines that may be imposed onto the City.

2.0 ABATEMENT WORK PROCEDURES

This section details City requirements for abatement activities at City facilities. Abatement activities shall be performed in accordance with established project specifications, approved plans, and all applicable Federal, State, and local regulations. Nothing in this section of this Manual overrides the Abatement Contractor established standard operating procedures where those procedures are stricter than the regulations or the City requirements.

2.1 CONTRACTOR REQUIREMENTS

All abatement activities shall be conducted by an Abatement Contractor meeting the definition as provided in [Section 1.3](#) using accredited abatement workers and overseen by at least one accredited contractor/supervisor. The contractor/supervisor shall also meet the requirements of a Competent Person for safety purposes as defined in [Section 1.3](#).

The Oversight Consultant shall have onsite a person trained as a contractor/supervisor to ensure that all abatement activities are conducted according to the requirements of all other Federal, State and local requirements and this Manual. The Oversight Consultant shall also have onsite a person trained as an asbestos inspector in the event that additional materials are identified during abatement activities and that have not been previously sampled to determine whether or not they are ACM. The Oversight Consultant shall also employ, or have access to, a project designer for the purposes of reviewing the Abatement Contractor's pre-job submittal packages as required in [Section 4.1](#). The Oversight Consultant may or may not be requested by the City to be present during all abatement activities.

The Abatement Contractor shall maintain a minimum amount of \$3 million per occurrence/\$5 million aggregate Commercial General Liability insurance, including Contractual Liability. For General Liability insurance, the City of Mesa, their agents, officials, volunteers, officers, elected officials or employees shall be named as additional insured, as evidenced by providing an additional insured endorsement. The Abatement Contractor shall maintain Environmental Pollution Liability insurance with the same limits as required for the Commercial General Liability.

2.2 REGULATED AREAS

Abatement, storage, transportation, and disposal work shall be performed without damaging or contaminating areas adjacent to the regulated area. Where areas of the facility outside of the regulated area are damaged or contaminated from abatement activities, the Abatement Contractor shall restore such areas to the original condition (unless otherwise specified in the contract plans and specifications) at no additional cost to the City of Mesa.

For all abatement projects, the Abatement Contractor shall establish a regulated area which must, at a minimum, include the following:

1. Demarcated in a manner that minimizes the number of persons within the area and protects persons outside the area from exposure to asbestos fibers. Where critical barriers or negative pressure enclosures are used, they may demarcate the regulated area.
2. Access to regulated areas shall be limited to abatement workers and contractor/supervisors.
3. All persons entering a regulated area are required to wear respirators capable of filtering asbestos fibers at lower concentrations than the PEL.
4. Persons shall not eat, drink, smoke, chew tobacco or gum, or apply cosmetics in the regulated area.

The Oversight Consultant shall approve the establishment of the regulated area prior to the initiation of any abatement activities. The regulated area shall be decontaminated at the completion of the abatement activities and prior to its deconstruction.

2.2.1 Exterior Projects

Exterior regulated areas shall be demarcated with physical boundaries established by roping, taping, or fencing off the area at least ten (10) feet from, and around, the area where abatement activities are being performed, unless it is impracticable. The regulated area shall be provided with a protective covering of at least two (2) layers of polyethylene sheeting constructed with a minimum thickness of 6 mils (i.e. 6 one thousandths of an inch; 0.006 inches) over any bare soil, landscaping, or pavement to prevent ACM from impacting the surrounding ground cover.

Where abatement activities are conducted near a facility's heating ventilation and air conditioning (HVAC) system intake air sources, the HVAC system will be shut down where possible. HVAC ventilation openings in the regulated area shall be provided with at least two (2) layers of 6 mil polyethylene sheeting.

If the release of asbestos fibers (i.e. asbestos-containing dust) is generated during abatement activities and cannot be controlled due to site conditions (i.e. windy conditions, visual dust emissions outside the regulated area, or as otherwise determined by the Oversight Consultant or Abatement Contractor contractor/supervisor), additional engineering controls will be required and may include the installation of a negative pressure enclosure. Negative pressure enclosures are required for all projects involving the abatement of surfacing or TSI as provided in [Section 2.2.3](#) unless the facility components containing ACM can be removed intact or dismantled as provided in [Section 2.4](#). The Abatement Contractor may use dry decontamination procedures or may install a three-stage wet decontamination system for exterior projects.

2.2.2 Interior Projects

Interior regulated areas shall be demarcated with the use of curtains, portable partitions, or negative pressure enclosures in order to ensure that asbestos-containing dust or the presence of asbestos waste outside the regulated area will not exceed pre-abatement background levels. Equipment and materials that are not to be abated and that can be removed from the proposed regulated area shall be relocated by the City prior to initiation of abatement activities.

HVAC ventilation openings in the regulated area shall be provided with at least two (2) layers of 6 mil polyethylene sheeting. Critical barriers must be installed over all other openings within the regulated area that will not be removed as part of the abatement activities such as doorways; windows; floor, wall, and ceiling penetrations; and drop-down ceiling systems by providing a protective covering of at least a single layer 6 mil polyethylene sheeting. The facility's HVAC system(s), or the system supplying air to those parts of the facility where regulated area(s) will be established, will be shut down or otherwise isolated during abatement activities, where possible. Unless otherwise required by the project specifications and approved plans, HVAC components shall be restored to their original condition after completion of abatement activities.

The regulated area shall be provided with protective covering of at least a single layer of 6 mil polyethylene sheeting over floors (where abatement activities do not include these surfaces). All polyethylene sheeting shall be firmly attached to the structure and joints shall be overlapped and sealed with spray adhesive and/or duct tape. The Abatement Contractor shall install a three-stage wet decontamination system for interior projects.

Negative pressure enclosures will be required where abatement activities take place within an occupied facility unless the facility components containing ACM can be removed intact or dismantled as provided in [Section 2.4](#). The purpose of the negative pressure enclosure is to ensure that when abatement activities occur in an occupied facility, that there is a reduced chance that asbestos fibers will have impacted other parts of the facility, City personnel, or facility visitors.

Negative pressure enclosures for interior projects shall be constructed of two layers of polyethylene sheeting covering over all openings used for access, decontamination, and equipment and waste load out areas. The minimum allowable ventilation rate is one air change every 15 minutes with a pressure differential of 0.02 inches within the enclosure relative to outside the enclosure and the air moving equipment shall be equipped with HEPA filters.

Abatement activities that take place within an occupied facility will be scheduled during a time when the facility is unoccupied and closed to the public to the extent practicable, and would most likely occur outside of normal business hours and/or over weekends.

2.2.3 Abatement of Surfacing & Thermal System Insulation

Regulated areas for the abatement of surfacing and TSI are required to be demarcated by the use of negative pressure enclosures as described below unless the Abatement Contractor demonstrates that construction such an enclosure is infeasible. Equipment and materials that are not to be abated and that can be removed from the proposed regulated area shall be relocated by the City prior to initiation of abatement activities.

HVAC ventilation openings and all other critical areas (i.e. doorways; windows; and floor, wall, and ceiling penetrations; and drop-down ceiling systems) in the regulated area shall be provided with at least two (2) layers of 6 mil polyethylene sheeting. The facility's HVAC system(s), or the system supplying air to those parts of the facility where

regulated area(s) have been established, will be shut down or otherwise isolated, where possible. Unless otherwise required by the project specifications and approved plans, HVAC components shall be restored to their original condition after completion of abatement activities.

The negative pressure enclosure shall include, but not be limited to the following.

1. Floors shall be covered with two layers of 6 mil polyethylene sheeting extending at least 12 inches up the sides of the walls and sealed to the walls (were the floors and/or walls are not being abated) with a third "drop" layer.
2. Walls shall be covered with at least two layers of polyethylene sheeting or the equivalent with the outer layer (next to the building) being 6 mil and the interior layer being at least 4 mil in thickness.
3. The wall and floor polyethylene sheeting seams shall overlap and be sealed at the top and bottom in such a manner as to allow sequential removal of each layer of sheeting after removal of all asbestos containing material is complete.
4. All other surfaces within the regulated area not being abated shall be covered with 6 mil polyethylene sheeting.
5. All polyethylene sheeting shall be firmly attached to the structure and joints shall be sealed with spray adhesive or duct tape.
6. Minimum allowable ventilation rate is one air change every 15 minutes with a pressure differential of 0.02 inches within the enclosure relative to outside the enclosure.
7. Air moving equipment equipped with HEPA filters.
8. Three-stage wet decontamination shall be provided.

The negative pressure enclosure shall be smoke tested before use and prior to the beginning of each work shift by the Oversight Consultant. To prevent potential damage to existing flooring the Abatement Contractor may, at their discretion, place plywood, canvas, cardboard, or other material under the plastic sheeting.

2.3 PROTECTIVE PERSONAL PROTECTION

All persons entering the regulated area must wear appropriate respiratory protection to reduce the exposure to Abatement Contractor and Oversight Consultant personnel and

disposable protective clothing to reduce the chance that asbestos fiber are released outside of the regulated area.

2.4 METHODS OF ABATEMENT

Where practicable, all abatement will use methods that will maintain the ACM in a substantially intact state to the extent practicable.

Facility components containing ACM may be:

- Removed Intact - as long as the ACM has been stabilized using a leak proof overwrap or tactifying agent; remains intact and in good condition; and, there are no visual dust emissions during its preparation or removal.
- Dismantled – as long as the ACM remains intact and in good condition; the ACM is not present at junctures where the component is disassembled; the ACM on or within the component has been stabilized using a leak proof overwrap or a tactifying agent to the extent practicable; ACM waste is contained to the regulated area; and, there are no visual dust emissions during its preparation or removal (dismantling also includes cut and wrap of TSI in conjunction with glovebag removal, see [Section 2.4.3](#)).
- Abated - removing the ACM from the each facility component or removing each facility component that has been determined to be ACM as provided below and in the subsequent subsections.

Prior to proceeding with taking intact removal or dismantling abatement measures, the Abatement Contractor must provide details on the procedures to conduct intact removal or dismantling activities in their pre-job submittal and the Oversight Consultant must approve of the methodology. In addition, during intact removal or dismantling activities, the Oversight Consultant may stop work at any time if the method does not adequately control the generation of asbestos dust and/or asbestos waste is not contained in the regulated area.

Abatement activities shall not incorporate any of the following approaches:

1. High-speed abrasive disc saws that are not equipped with point of cut ventilator or enclosures with HEPA filtered exhaust air.

2. Compressed air used to remove asbestos, or materials containing asbestos, unless the compressed air is used in conjunction with an enclosed ventilation system designed to capture the dust cloud created by the compressed air.
3. Dry sweeping, shoveling or other dry clean-up of dust and debris containing asbestos.
4. Employee rotation as a means of reducing employee exposure to asbestos.

All abatement activities shall include the following methods:

1. Vacuum cleaners equipped with HEPA filters to collect all debris and dust containing asbestos;
2. Wet methods, or wetting agents, to control employee exposures during asbestos handling, mixing, removal, cutting, application, and cleanup, except where employers demonstrate that the use of wet methods is infeasible due to for example, the creation of electrical hazards, equipment malfunction, and, in roofing, except as provided as provided [Section 2.4.3](#) in the case of roofing materials; and,
3. Prompt clean-up and disposal of wastes and debris contaminated with asbestos in leak-tight containers except in applicable portions of [Section 2.4.3](#) in the case of roofing operations.

Additional requirements for the methods of abatement are provided in the subsections below. Again, where the regulatory requirement associated with abatement of each of these materials is more stringent than what is provided below, the regulatory requirement takes precedence.

2.4.1 Surfacing and Thermal System Insulation

The abatement of surfacing or TSI must be in accordance with 29 CFR 1926(g)(1)(2),(4), and (5)(i) and as provided in [Section 2.2.3](#) whichever is stricter. TSI removed by glovebag techniques need not comply with 29 CFR g(4) and (5)(i) or [Section 2.2.3](#) when performed in compliance with 29 CFR (g)(5)(ii) or (iii) and as provided below. TSI may also be removed using dismantling approach as provided in [Section 2.4](#) by removing TSI using glovebag techniques and stabilizing the sections of TSI between pipe area where the TSI is not present, and cutting the pipes at the cleared locations.

2.4.1.1 Glovebag Systems

Glove bag systems may be used to remove ACM from straight runs of piping, elbows, and other connections provided the following requirements are met:

1. Glovebags shall be made of 6 mil thick polyethylene and shall be seamless at the bottom.
2. Glovebags used on elbows and other connections must be designed for that purpose and used without modifications.
3. Each glovebag shall be installed so that it completely covers the circumference of pipe or other structure where the work is to be done.
4. Glovebags shall be smoke-tested for leaks and any leaks sealed prior to use.
5. Glovebags may be used only once and may not be moved.
6. Glovebags shall not be used on surfaces whose temperature exceeds 150 °F.
7. Prior to disposal, glovebags shall be collapsed by removing air within them using a HEPA vacuum.
8. Before beginning the operation, loose and friable material adjacent to the glovebag operation shall be wrapped and sealed in two layers of six mil plastic or otherwise rendered intact.
9. Where system uses attached waste bag, such bag shall be connected to collection bag using hose or other material which shall withstand pressure of ACM waste and water without losing its integrity.
10. Sliding valve or other device shall separate waste bag from hose to ensure no exposure when waste bag is disconnected.
11. At least two persons shall perform Class I glovebag removal operations.

2.4.1.2 Negative Pressure Glove Bag Systems

Negative pressure glove bag systems may be used to remove ACM from piping provided the following requirements are met:

1. Negative pressure glovebags shall be made of 6 mil thick polyethylene and shall be seamless at the bottom.
2. Negative pressure glovebags used on elbows and other connections must be designed for that purpose and used without modifications.
3. Negative pressure glovebags shall attach HEPA vacuum systems or other devices to bag to prevent collapse during removal.

4. Negative pressure glovebags shall not be used on surfaces whose temperature exceeds 150 °F.
5. The HEPA vacuum cleaner or other device used to prevent collapse of bag during removal shall run continually during the operation until it is completed at which time the bag shall be collapsed prior to removal of the bag from the pipe.
6. Where a separate waste bag is used along with a collection bag and discarded after one use, the collection bag may be reused if rinsed clean with amended water before reuse.

2.4.2 Vinyl and Asphalt Flooring Materials

The removal of vinyl and asphalt flooring materials shall be in accordance with 29 CFR 1926(g)(8)(i) or as provided below:

1. Flooring or its backing shall not be sanded.
2. Vacuums equipped with HEPA filter, disposable dust bag, and metal floor tool (no brush) shall be used to clean floors.
3. Resilient sheeting shall be removed by cutting with wetting of the snip point and wetting during delamination. Rip-up of resilient sheet floor material is prohibited.
4. All scraping of residual adhesive and/or backing shall be performed using wet methods.
5. Dry sweeping is prohibited.
6. Mechanical chipping is prohibited unless performed in a negative pressure enclosure.
7. Tiles shall be removed intact, unless the Abatement Contractor demonstrates that intact removal is not possible.
8. When tiles are heated and can be removed intact, wetting may be omitted.

2.4.3 Roofing Materials

The methods for abatement of roofing materials shall be in accordance with 29 CFR 1926(g)(8)(ii) or as provided below:

1. Removal in an intact state to the extent feasible.
2. Wet methods to remove roofing materials that are not intact, or that will be rendered not intact during removal, unless such wet methods are not feasible or will create safety hazards.

3. Continuous misting during use of cutting machines, unless a competent person determines that misting substantially decreases worker safety.
4. When removing built-up roofs with asbestos-containing roofing felts and an aggregate or smooth surface using a power roof cutter, all dust resulting from the cutting operation shall be collected by a HEPA dust collector, or shall be HEPA vacuumed by vacuuming along the cut line.
5. ACM roofing waste from shall not be dropped or thrown to the ground. Unless the material is carried or passed to the ground by hand, it shall be lowered to the ground via covered, dust-tight chute, crane or hoist:
 - ACM that is not intact shall be lowered to the ground as soon as is practicable, but in any event no later than the end of the work shift. While the material remains on the roof it shall either be kept wet, placed in an impermeable waste bag, or wrapped in plastic sheeting.
 - Intact ACM shall be lowered to the ground as soon as is practicable, but in any event no later than the end of the work shift.
6. Upon being lowered, unwrapped material shall be transferred to a closed receptacle in such manner so as to preclude the dispersion of dust.

2.4.4 Shingles, Siding, and Transite Panels

The methods for abatement of siding, shingles, and transite panels shall be in accordance with 29 CFR 1926(g)(8)(iii) or as provided below:

1. Cutting, abrading or breaking siding, shingles, or transite panels, shall be prohibited unless the Abatement Contractor can demonstrate that methods less likely to result in asbestos fiber release cannot be used.
2. Each panel or shingle shall be sprayed with amended water prior to removal.
3. Unwrapped or unbagged panels or shingles shall be immediately lowered to the ground via covered dust-tight chute, crane or hoist, or placed in an impervious waste bag or wrapped in plastic sheeting and lowered to the ground no later than the end of the work shift.
4. Nails shall be cut with flat, sharp instruments.

2.4.5 Gaskets

The methods for abatement of gaskets shall be in accordance with 29 CFR 1926(g)(8)(iv) or as provided below:

1. If a gasket is visibly deteriorated and unlikely to be removed intact, removal shall be undertaken using a glovebag techniques as described in paragraph [Section 2.4.7](#).
2. The gasket shall be immediately placed in a disposal container.
3. Any scraping to remove residue must be performed wet.

2.4.6 All Other Materials

The methods for abatement of materials not specifically listed in the above sections shall be abated in accordance with 29 CFR 1926(g)(8)(vi) or as provided below:

1. The material shall be thoroughly wetted with amended water prior to and during its removal.
2. The material shall be removed in an intact state unless the Abatement Contractor demonstrates that intact removal is not possible.
3. Cutting, abrading or breaking the material shall be prohibited unless the Abatement Contractor can demonstrate that methods less likely to result in asbestos fiber release are not feasible.
4. Asbestos-containing material removed, shall be immediately bagged or wrapped, or kept wetted until transferred to a closed receptacle, no later than the end of the work shift.

2.5 SITE SAFETY

The General Contractor, Abatement Contractor and Oversight Consultant personnel shall attend a pre-construction safety meeting prior to initiating abatement activities. The Abatement Contractor's USEPA contractor/supervisor shall be designated a Competent Person and is responsible for coordination, safety, security and execution of the work. The Competent Person shall be able to identify existing and predictable asbestos hazards and shall have the authority to take corrective measures to eliminate them.

Caution, construction and/or restricted area tape shall be used to define the boundaries of work, material storage, or waste storage areas that are outside of regulated areas. Warning signs shall be provided at facility entrances and approaches to regulated areas. Signs shall be located at a distance from the regulated areas that will allow all

personnel to read the sign and take the necessary steps to avoid the area or to take protective actions required before entering the regulated area.

At a minimum, sign language at approaches to regulated areas must state the following in English and Spanish:

- DANGER
- ASBESTOS
- MAY CAUSE CANCER
- CAUSES DAMAGE TO LUNGS
- DO NOT EAT, DRINK OR SMOKE IN THIS AREA
- AUTHORIZED PERSONNEL ONLY
- WEAR RESPIRATORY PROTECTION AND PROTECTIVE CLOTHING IN THIS AREA

A list of emergency telephone numbers shall be posted at the facility near the entrance to the regulated area. The list shall include numbers of the local hospital, emergency squad, police and fire departments (i.e. 911); General Contractor; Abatement Contractor; Abatement Contractor's contractor/supervisor (24-hour number); the Oversight Consultant (24-hour number); and City contact (24-hour number).

2.6 TEMPORARY UTILITIES

Temporary equipment used to provide power, light, air, and water shall be installed properly and safely. The Abatement Contractor shall maintain the security and maintenance of the utility system in the regulated area. In the event of a failure of any utility system, the City will not be responsible for any loss of time or other expense incurred by the Abatement Contractor.

The Abatement Contractor shall provide:

1. Backflow protection on all water connections. Fittings shall be removed after completion of work with no damage or alteration to existing water piping and equipment.
2. Heavy-duty abrasion-resistant hoses to provide water to the regulated and decontamination areas.

3. Electrical service to work areas. Electrical service shall comply with NEMA, NECA, and UL standards. Warning signs shall be posted at power outlets which are other than 110-120 volt power. Only grounded extension cords shall be used. Incandescent lamps and light fixtures shall be of adequate wattage to provide good illumination in LBP control areas.

2.7 STORAGE OF MATERIALS

Materials shall be stored in a place and manner that protects them from damage and contamination. Plastic materials shall be protected from the cold and from UV light damage. No flammable or hazardous materials shall be stored inside any building. Regularly inspect materials to identify damaged or deteriorating items. Damaged or deteriorated items shall not be used and shall be removed from the site as soon as they are discovered. Any materials that become contaminated with asbestos-containing dust or ACM waste shall be decontaminated or disposed of consistent with [Section 3.0](#). Stored materials shall not present a hazard or an inconvenience to workers, visitors, and/or other occupants and employees of the facility.

2.8 GOOD HOUSEKEEPING

The Abatement Contractor shall make sure that good housekeeping procedures are being followed in regulated areas and material storage and waste disposal areas. Surfaces in the regulated area shall be maintained free of accumulations of bulk ACM waste. The spread of dust and debris shall be restricted; waste shall not be distributed over the work area. Dry sweeping or compressed air shall not be used for cleanup. At the end of each shift, the area shall be cleaned of visible ACM waste. Abatement work shall cease during the cleanup. Daily verbal clearance must be obtained from the Oversight Consultant before the Contractor may leave for the day.

2.9 DECONTAMINATION & INSPECTION REQUIREMENTS

Once the Abatement Contractor believes that all of the ACM has been abated from the substrate, the Abatement Contractor shall contact the Oversight Consultant to verify no further abatement activities are required prior to initiating final decontamination operations. After passing the preliminary visual inspection, the Abatement Contractor shall begin final decontamination activities which will include decontaminating the entire regulated area using HEPA vacuums with new HEPA filters installed and wet wiping with new or cleaned wiping materials; and cleaning and removing all materials,

equipment, and tools used in the abatement activities including materials used to establish a negative pressure enclosure where applicable.

This paragraph applies only to regulated areas with negative pressure enclosures used for abatement of surfacing and TSI. For negative pressure enclosures that are constructed for the abatement of surfacing or TSI, after all visible material has been completely removed and cleaned up, including wet wiping of the inner layer of polyethylene sheeting, that layer shall be carefully removed, leaving the outer layer completely intact and sealed to the facility's walls or other structures used to support the enclosure. The Oversight Consultant shall oversee the removal of the inner polyethylene sheeting to ensure proper steps are taken to reduce contamination of the outer layer. The outer layer of polyethylene shall then be wet wiped and HEPA vacuumed as determined by the Oversight Consultant.

Once the negative pressure enclosure has undergone final decontamination procedures, the regulated area will be locked down using an encapsulant. After the encapsulant has had an opportunity to setup, post-abatement clearance sampling will be performed where required. The negative pressure enclosure and associated warning signs shall remain operational until post-abatement sample results have been received and the results are below clearance levels (see [Section 2.10.3](#)).

2.10 AIR MONITORING

Air monitoring may be performed at the City's discretion to determine if asbestos contamination exists prior to abatement, during abatement, or after abatement and before a negative pressure enclosure is deactivated. The monitoring methodology shall be provided by the Oversight Consultant and must be approved by the City prior to the commencement of abatement activities.

Air monitoring samples will be analyzed using Phase Contrast Microscopy (PCM) or Transmission Electron Microscopy (TEM) analytical methods. For PCM analysis, a sample is determined to be "clean" where the fiber count is below 0.01 f/cc. For TEM analysis, a sample is determined to be "clean" where the number of structures per square millimeter (f/mm²) is below 70.

2.10.1 Pre-Abatement Baseline Sampling

At the discretion of the City, or at the request of the Abatement Contractor, the Oversight Consultant may collect air samples for interior projects in the vicinity of where abatement activities are expected to take place in order to determine baseline asbestos concentrations (usually in the case where ACM has been disturbed prior to abatement). After abatement has been completed, the Oversight Consultant may collect post abatement sampling from the same locations using the same sampling procedures to determine if the abatement activities caused any additional impact to the property. If post-abatement concentrations exceed pre-abatement levels, the Abatement Contractor will be required to conduct additional decontamination operations at no additional cost to the City to contaminated areas of the facility.

2.10.2 In-Process Sampling

At the discretion of the City, the Oversight Consultant may conduct air monitoring in areas adjacent to the regulated area during bulk ACM removal activities to verify the Abatement Contractor did not cause a release of asbestos from the regulated area to other parts of the facility as part of the abatement activities. The Oversight Consultant may stop abatement activities if air monitoring results are above laboratory detection levels and additional engineering controls will be required. If in-process sample concentrations exceed established asbestos clearance level concentrations, the Abatement Contractor will be required to conduct decontamination operations in additional areas of the facility at no additional cost to the City and the Abatement Contractor may be charged for the expense of the Oversight Consultant and associated laboratory costs for clearance sampling in those additional areas.

2.10.3 Post-Abatement Clearance Sampling

Regulated areas incorporating negative pressure enclosures will require air sampling prior to fully decommissioning the regulated area (i.e. removing critical barriers and warning signs and deactivating the negative pressure system). If clearance sample concentrations exceed established asbestos clearance level concentrations, the Abatement Contractor will be required to conduct decontamination operations of the regulated areas at no additional cost to the City and the Abatement Contractor may be charged for the expense of the Oversight Consultant and associated laboratory costs for additional clearance sampling. Once the written analytical results have been received

by the Oversight Consultant and the City representative, the regulated area may be fully decommissioned.

3.0 WASTE MANAGEMENT & DISPOSAL

Asbestos waste, scrap, debris, bags, containers, equipment, and contaminated clothing consigned for disposal shall be collected and disposed of in sealed, labeled, impermeable bags or other closed, labeled, impermeable containers except in roofing operations, where the procedures specified in [Section 2.4.3](#).

3.1 WASTE LOAD OUT REQUIREMENTS

All asbestos material and contaminated waste shall be placed into a 6 mil, clear, polyethylene waste bags, or equivalent containers, be adequately wetted as to show perspiration on the interior of the bag surface, and sealed to a leak-tight state. The outer surface of the bags will be cleaned of debris and fibers before being removed from the regulated area and will be immediately loaded into the waste hauling transport. Where negative pressure enclosures are required and where practicable, the regulated area will include the area between where waste bags are decontaminated and the transport that will be hauling the waste so that any spills can be cleaned up without additional impact to other parts of the facility.

The transport shall be totally enclosed or in the case of a burrito wrap, open only at the ends of the transport. Bags shall not be hand carried to the truck or trailer if it is not adjacent to the bag out area and hand carts or equivalent devices must be used in that case. The transport shall be sealed and secured during periods it is not being used.

3.2 LABELING OF WASTE

Labels of bags or containers containing ACM waste and ACM contaminated waste shall be labeled with the following information:

- DANGER
- CONTAINS ASBESTOS FIBERS
- MAY CAUSE CANCER
- CAUSES DAMAGE TO LUNGS
- DO NOT BREATHE DUST
- AVOID CREATING DUST

The labels shall be printed in letters of sufficient size and contrast so as to be readily visible and legible.

3.3 WASTE DISPOSAL

All bags or containers containing ACM waste and ACM contaminated wastes shall be disposed of at a waste disposal site operated in accordance with 40 CFR 61.154, or at an USEPA-approved site that converts asbestos-containing waste material into non-asbestos (asbestos-free) material pursuant to 40 CFR 61.155. The Abatement Contractor must identify the waste disposal facility as part of their pre-job submittal package. The Oversight Consultant shall review the pre-job submittals, but the Oversight Consultant must contact the City representative for approval of the waste disposal facility.

3.4 DISPOSAL DOCUMENTATION

Completed and approved waste disposal documentation shall be provided by the Abatement Contractor to the City and the Oversight Consultant. Payment for disposal of asbestos waste will not be made until a signed copy of the waste shipment records form from the approved landfill or reclamation facility certifying the amount of waste delivered is returned and a copy has been received by the City.

4.0 SUBMITTALS

The City requires the Abatement Contractor to provide pre-job submittals and post-job submittals for all abatement projects.

4.1 PRE-JOB SUBMITTALS

The Abatement Contractor shall submit to the Oversight Consultant all of the information detailed in the subsections detailed below. The Oversight Consultant will review the submittal package for completeness and content and will either approve the package or require revisions. Where an item described below is Not Applicable (NA) to the project, the Abatement Contractor should indicate it is not applicable in the submittal and provide reasons why that item is not applicable. Failure to do so may result in the submittal package not being approved and revisions requested. If the submittal requires revision, the Abatement Contractor will not be entitled to additional payment for those revisions and will be solely responsible for any project delays that result.

The submittals must be organized in a three ring binder with the following tabbed sections. The City has developed a review of content form for the Oversight Consultant to use in determining if the Abatement Contractor has included all necessary items provide below. The Abatement Contractor is strongly encouraged to use that form in preparing their submittal.

4.1.1 Licenses, Permits, & Statements

In Tab 1, supply the following licenses, certifications, and statements as it pertains to the Abatement Contractor as provided below.

1. Arizona Registrar of Contractor License for asbestos abatement or equivalent.
2. Provide a copy of the certificate of liability insurance form demonstrating general liability and environmental pollution liability coverage (see [Section 2.1](#)).
3. Provide a certification signed by an officer of the company stating that the Abatement Contractor has prior experience on abatement projects similar in nature and extent and is capable of performing the abatement in a satisfactory manner.
4. Provide a certification signed by an officer of the company stating that the Contractor's full-time onsite contactor/supervisor:

- Meets the Competent Person requirements as defined in 29 CFR 1926.1101(b).
 - Has attended initial asbestos contractor/supervisor training, received accreditation, and has maintained such accreditation from a training facility approved by the USEPA pursuant to 40 CFR 763, subpart E, appendix C.
 - Has been trained in the requirements for shipping hazardous materials including preparing shipping papers, package marking, labeling, and transport vehicle placarding applicable to the shipment and transportation of those hazardous materials pursuant to 49 CFR 172.
 - Has experience in administration and supervision of asbestos abatement projects, including work practices, protective measures for building and personnel, disposal procedures, etc.
 - Has had a minimum of 2 years on-the-job experience.
5. Provide a copy of the NESHAP submitted to the regulating agency (usually MCAQD, some sites may be in Pinal County; Oversight Consultant to review for completeness and accuracy) and any supporting communications between the Abatement Contractor and the regulating agency regarding this project.

4.1.2 Personnel & Schedule

In Tab 2, supply the following with respect to the Abatement Contractor's personnel conducting abatement activities and the project schedule as provided below.

1. Provide a list of emergency telephone numbers including numbers of the local hospital, emergency squad, police and fire departments (i.e. 911); General Contractor; Abatement Contractor; Abatement Contractor's contractor/supervisor (24-hour number); the Oversight Consultant (24-hour number); and City contact (24-hour number). List shall be posted at the facility near the entrance to the regulated area.
2. Submit a list of all personnel who will be conducting abatement activities and include a copy of each employee's most recent (within one year) asbestos worker or contractor/supervisor certificate of completion from a training facility approved by the USEPA pursuant to 40 CFR 763, subpart E, appendix C.
3. Provide a detailed abatement schedule that specifies the number of full-time staff that will be provided for the project daily; project mobilization; pre-abatement site preparation; abatement; preliminary and final decontamination and clearance;

and post-abatement activities (i.e. containment removal, site restoration, demobilization).

4.1.3 Abatement Work Procedures

In Tab 3, supply information on the work procedures, including engineering controls, that will be used during abatement activities as provided below.

1. Provide a map illustrating the following:
 - Location of all ACM to be removed as part of this project.
 - Regulated area(s).
 - Decontamination areas.
 - Areas requiring critical barriers.
 - Location and number of air filtration devices.
 - Area(s) where air from filtration devices will be exhausted to the outside ambient air.
 - Area(s) where make-up air will be supplied.
 - Location of utilities to be used as part of the abatement activities (power supply, water supply, drains, etc.).
 - Eating, smoking, and washroom areas to be provided to workers.
2. Describe the construction of the regulated area(s) and decontamination area(s) and provide the dimensions of these areas.
3. Provide negative air calculations and the amount of air filtration equipment determined to be needed.
4. Describe the abatement methods to be used for each type of ACM, engineering controls to be used to minimize the creation of asbestos-containing dust emissions, and provide a negative exposure assessment for the proposed abatement methods used each type of ACM per 29 CFR 1926.1101(f)(iii).
5. Provide a list of equipment and materials to be used in performing abatement activities including, but not limited to, the following:
 - Respirators and cartridges.
 - Protective clothing.
 - Signs and labels.
 - Air filtration and pressure monitoring devices.*
 - HEPA vacuums or other HEPA systems*

- Encapsulates (provide MSDSs).
- Chemicals and associated MSDSs.
- Sprayers and misters.*
- Water filtration systems.*
- Mechanical tools equipped with associated engineering control devices (electric tools must be GFI protected and double insulated).
- Hand tools (scrapers, utility knives, etc.).
- Containment and waste containment (e.g. polyethylene sheeting or bags, 55-gallon drums, etc.).*
- Waste transport (trucks, roll-off bins, etc.).
- Elevating equipment (e.g. scaffolding, lifts, ladders, etc.; ladders shall be constructed of wood or fiberglass).

NOTE (*) include brand names, models, capacities, performance characteristics, and other pertinent information

6. Provide a list of all subcontractors.

4.1.4 Material & Waste Management

In Tab 4, supply information on the material and waste management procedures that will be used during abatement activities as provided below.

1. Description of housekeeping procedures including:
 - Storage of materials used for abatement to prevent damage or contamination.
 - Daily cleanup procedures for areas within the regulated area(s).
 - Cleanup procedures for areas outside the regulated area(s).
2. Provide the name, address, phone number and permit numbers of all waste disposal facilities that will receive asbestos waste and asbestos-contaminated waste from the abatement process. NOTE: asbestos reclamation facilities that convert ACM waste to non-asbestos material must demonstrate their USEPA-approved status.
3. Description of housekeeping procedures including:
 - Storage of materials used for abatement to prevent damage or contamination.
 - Daily cleanup procedures for areas within the regulated area(s).
 - Cleanup procedures for areas outside the regulated area(s).
4. Spill prevention and response procedures.

4.1.5 OSHA Required Documentation

In Tab 5, provide a signed certification that the Abatement Contractor has developed and implemented the following:

1. A respiratory protection program for asbestos in accordance with 29 CFR 1926.1101(h)(2).
2. A medical surveillance program for asbestos in accordance with 29 CFR 1926.1101(m)(1)(i)(A).
3. A hazard communication program for asbestos in accordance with 29 CFR 1926.1101(k)(ii).

4.2 POST-JOB SUBMITTALS

After abatement is complete and final waste disposal documentation has been received by the Abatement Contractor, the Abatement Contractor shall supply a post-job submittal to the Oversight Consultant which will include the following information:

1. One copy of the completed (signed and dated) waste shipment records.
2. Copies of any analytical results for personnel monitoring.
3. A list of any additional personnel conducting abatement activities (i.e. personnel not included in the pre-job submittal) and a copy of their most recent (within one year) asbestos worker or contactor/supervisor certificate of completion from a training facility approved by the USEPA pursuant to 40 CFR 763, subpart E, appendix C.
4. Sign-in forms for each day providing names of all personnel that enter regulated areas.
5. Copies of daily logs.

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5.0 REFERENCES

- U.S. Government Printing Office [GPO, 2013(a)]: Electronic Code of Federal Regulations (e-CFR) Title 29: Labor; Part 1910—Occupational Safety And Health Standards (Continued); Subpart Z—Toxic and Hazardous Substances; § 1910.1025 Lead; <http://www.ecfr.gov/cgi-bin/text-idx?type=simple;c=ecfr;cc=ecfr;sid=8f309c0416def29d5edb0784a787118d;region=DIV1;q1=lead;rgn=div8;view=text;idno=29;node=29%3A6.1.1.1.1.1.1.21>
- U.S. Government Printing Office [GPO, 2013(b)]: Electronic Code of Federal Regulations (e-CFR) Title 29, Labor; Part 1926 - Safety and Health Regulations for Construction; Subpart Z—Toxic and Hazardous Substances; § 1926.1101 Asbestos; <http://www.ecfr.gov/cgi-bin/text-idx?c=ecfr&sid=7f09b7e436e4cf88d039f0001be52263&rgn=div8&view=text&node=29:8.1.1.1.1.26.25.2&idno=29>
- U.S. Government Printing Office [GPO, 2013(d)]: Title 40--Protection of Environment; Chapter I--Environmental Protection Agency; Part 61—National Emission Standards for Hazardous Air Pollutants; Subpart M - National Emission Standard for Asbestos; <http://www.ecfr.gov/cgi-bin/text-idx?c=ecfr&SID=2354c10ccd94437716866866f6123c2a&rgn=div6&view=text&node=40:9.0.1.1.1.13&idno=40>
- U.S. Government Printing Office [GPO, 2013(e)]: Electronic Code of Federal Regulations (e-CFR) Title 49: Transportation; Part 172—Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, Training Requirements, and Security Plans; <http://www.ecfr.gov/cgi-bin/text-idx?c=ecfr&SID=17de98315ba7dd64d1af8bc94d380747&rgn=div5&view=text&node=49:2.1.1.3.8&idno=49>

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