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**U.S. EPA
40 CFR 61 Subpart M
National Emission Standard for Hazardous Air Pollutants**

**The Asbestos NESHAP
(Demolition & Renovation)**

This copy of the federal Asbestos NESHAP has deleted references to 61.142 Asbestos Mills, .144 Manufacturing, .146 Spraying, .147 Fabricating, .148 Insulating Materials, .149 Waste Disposal for Asbestos Mills, .151 Inactive Waste Sites, .152 Air Cleaning, .153 Reporting, .154 Active Waste Disposal Sites, .155 Operations that convert ACWM into non-asbestos material, .156 Cross reference to other asbestos regulations and Appendix A Roof removal operations.

This copy has retained only references to 61.141 Definitions, 61.143 Roadways, 61.145 Demolition and Renovation and 61.150 Waste disposal.

Authority: 42 U.S.C. 7401, 7412, 7414, 7416, 7601.
Source: 49 FR 13661, Apr. 5, 1984, unless otherwise noted.

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Sec. 61.141 Definitions.

All terms that are used in this subpart and are not defined below are given the same meaning as in the Act and in subpart A of this part.

Saturated

Adequately wet means sufficiently mix or penetrate with liquid to prevent the release of particulates. If visible emissions are observed coming from asbestos-containing material, then that material has not been adequately wetted. However, the absence of visible emissions is not sufficient evidence of being adequately wet.

Asbestos means the asbestiform varieties of serpentinite (chrysotile), riebeckite (crocidolite), cummingtonite-grunerite, anthophyllite, and actinolite-tremolite.

Asbestos-containing waste materials means mill tailings or any waste that contains commercial asbestos and is generated by a source subject to the provisions of this subpart. This term includes filters from control devices, friable asbestos waste material, and bags or other similar packaging contaminated with commercial asbestos. As applied to demolition and renovation operations, this term also includes regulated asbestos-containing material waste and materials contaminated with asbestos including disposable equipment and clothing.

Asbestos waste from control devices means any waste material that contains asbestos and is collected by a pollution control device.

In Good Condition

Category I nonfriable asbestos-containing material (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 part 763, section 1, Polarized Light Microscopy.

In Good Condition

Category II nonfriable 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 part 763, section 1, Polarized Light Microscopy that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.

Commercial asbestos means any material containing asbestos that is extracted from ore and has value because of its asbestos content.

Cutting means to penetrate with a sharp-edged instrument and includes sawing, but does not include shearing, slicing, or punching.

Includes moving

Demolition means the wrecking or taking out of any load-supporting structural member of a facility together with any related handling operations or the intentional burning of any facility.

Emergency renovation operation means a renovation operation that was not planned but results from a sudden, unexpected event that, if not immediately attended to, presents a safety or public health hazard, is necessary to protect equipment from damage, or is necessary to avoid imposing an unreasonable financial burden. This term includes operations necessitated by nonroutine failures of equipment.

Most important

Facility means any institutional, commercial, public, industrial, or residential structure, installation, or building (including any structure, installation, or building containing condominiums or individual dwelling units operated as a residential cooperative, but excluding residential buildings having four or fewer dwelling units); any ship; and any active or inactive waste disposal site. For purposes of this definition, any building, structure, or installation that contains a loft used as a dwelling is not considered a residential structure, installation, or building. Any structure, installation or building that was previously subject to this subpart is not excluded, regardless of its current use or function.

Facility component means any part of a facility including equipment.

Point count

Friable asbestos material means any material containing more than 1 percent asbestos as determined using the method specified in appendix E, subpart E, 40 CFR part 763, section 1, Polarized Light Microscopy, that, when dry, can be crumbled, pulverized, or reduced to powder by hand pressure. If the asbestos content is less than 10 percent as determined by a method other than point counting by polarized light microscopy (PLM), verify the asbestos content by point counting using PLM.

Fugitive source means any source of emissions not controlled by an air pollution control device.

Glove bag means a sealed compartment with attached inner gloves used for the handling of asbestos-containing materials. Properly installed and used, glove bags provide a small work area

enclosure typically used for small-scale asbestos stripping operations. Information on glove-bag installation, equipment and supplies, and work practices is contained in the Occupational Safety and Health Administration's (OSHA's) final rule on occupational exposure to asbestos (29 CFR 1926.1101).

Grinding means to reduce to powder or small fragments and includes mechanical chipping or drilling.

In poor condition means the binding of the material is losing its integrity as indicated by peeling, cracking, or crumbling of the material.

Installation means any building or structure or any group of buildings or structures at a single demolition or renovation site that are under the control of the same owner or operator (or owner or operator under common control).

Leak-tight means that solids or liquids cannot escape or spill out. It also means dust-tight.

Nonfriable asbestos-containing material means any material containing more than 1 percent asbestos as determined using the method specified in appendix E, subpart E, 40 CFR part 763, section 1, Polarized Light Microscopy, that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.

Nonscheduled renovation operation means a renovation operation necessitated by the routine failure of equipment, which is expected to occur within a given period based on past operating experience, but for which an exact date cannot be predicted.

Outside air means the air outside buildings and structures, including, but not limited to, the air under a bridge or in an open air ferry dock.

Owner or operator of a demolition or renovation activity means any person who owns, leases, operates, controls, or supervises the facility being demolished or renovated or any person who owns, leases, operates, controls, or supervises the demolition or renovation operation, or both.

Particulate asbestos material means finely divided particles of asbestos or material containing asbestos.

Planned renovation operations means a renovation operation, or a number of such operations, in which some RACM will be removed or stripped within a given period of time and that can be predicted. Individual nonscheduled operations are included if a number of such operations can be predicted to occur during a given period of time based on operating experience.

Regulated asbestos-containing material (RACM) means (a) Friable asbestos material, (b) Category I nonfriable ACM that has become friable, (c) Category I nonfriable ACM that will be or has been subjected to sanding, grinding, cutting, or abrading, or (d) Category II nonfriable 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 operations regulated by this subpart.

Remove means to take out RACM or facility components that contain or are covered with RACM from any facility.

Renovation means altering a facility or one or more facility components in any way, including the stripping or removal of RACM from a facility component. Operations in which load-supporting structural members are wrecked or taken out are demolitions.

Resilient floor covering means asbestos-containing floor tile, including asphalt and vinyl floor tile, and sheet vinyl floor covering containing more than 1 percent asbestos as determined using polarized light microscopy according to the method specified in appendix E, subpart E, 40 CFR part 763, section 1, Polarized Light Microscopy.

Strip means to take off RACM from any part of a facility or facility components.

Structural member means any load-supporting member of a facility, such as beams and load supporting walls; or any nonload-supporting member, such as ceilings and nonload-supporting walls.

Visible emissions means any emissions, which are visually detectable without the aid of instruments, coming from RACM or asbestos-containing waste material, or from any asbestos milling, manufacturing, or fabricating operation. This does not include condensed, uncombined water vapor.

Waste generator means any owner or operator of a source covered by this subpart whose act or process produces asbestos-containing waste material.

RACM

Air tight
Water tight

Annual
notification

Includes
EPA
rulings

Not all
regulated

Uncontrolled
debris

Waste shipment record means the shipping document, required to be originated and signed by the waste generator, used to track and substantiate the disposition of asbestos-containing waste material.

Working day means Monday through Friday and includes holidays that fall on any of the days Monday through Friday.

[49 FR 13661, Apr. 5, 1984; 49 FR 25453, June 21, 1984, as amended by 55 FR 48414, Nov. 20, 1990; 56 FR 1669, Jan. 16, 1991; 60 FR 31920, June 19, 1995]

[TAI Handout NESHAP: All references to other than demolition, renovation and waste disposal of RACM or ACWM have been deleted 9/15/08]

Sec. 61.143 Standard for roadways.

No person may construct or maintain a roadway with asbestos tailings or asbestos-containing waste material on that roadway, unless, for asbestos tailings.

(a) It is a temporary roadway on an area of asbestos ore deposits (asbestos mine): or

(b) It is a temporary roadway at an active asbestos mill site and is encapsulated with a resinous or bituminous binder. The encapsulated road surface must be maintained at a minimum frequency of once per year to prevent dust emissions; or

(c) It is encapsulated in asphalt concrete meeting the specifications contained in section 401 of Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects, FP-85, 1985, or their equivalent.

[55 FR 48419, Nov. 20, 1990; 56 FR 1669, Jan. 16, 1991]

Sec. 61.145 Standard for demolition and renovation.

(a) Applicability. To determine which requirements of paragraphs (a), (b), and (c) of this section apply to the owner or operator of a demolition or renovation activity and prior to the commencement of the demolition or renovation, thoroughly inspect the affected facility or part of the facility where the demolition or renovation operation will occur for the presence of asbestos, including Category I and Category II nonfriable ACM. The requirements of paragraphs (b) and (c) of this section apply to each owner or operator of a demolition or renovation activity, including the removal of RACM as follows:

(1) In a facility being demolished, all the requirements of paragraphs (b) and (c) of this section apply, except as provided in paragraph (a)(3) of this section, if the combined amount of RACM is

(i) At least 80 linear meters (260 linear feet) on pipes or at least 15 square meters (160 square feet) on other facility components, or

(ii) At least 1 cubic meter (35 cubic feet) off facility components where the length or area could not be measured previously.

(2) In a facility being demolished, only the notification requirements of paragraphs (b)(1), (2), (3)(i) and (iv), and (4)(i) through (vii) and (4)(ix) and (xvi) of this section apply, if the combined amount of RACM is

(i) Less than 80 linear meters (260 linear feet) on pipes and less than 15 square meters (160 square feet) on other facility components, and

(ii) Less than one cubic meter (35 cubic feet) off facility components where the length or area could not be measured previously or there is no asbestos.

10 working
days =
2 weeks

Thorough
Inspection

Demo
above
threshold

Demo
below
threshold

(3) If the facility is being demolished under an order of a State or local government agency, issued because the facility is structurally unsound and in danger of imminent collapse, only the requirements of paragraphs (b)(1), (b)(2), (b)(3)(iii), (b)(4) (except (b)(4)(viii)), (b)(5), and (c)(4) through (c)(9) of this section apply.

(4) In a facility being renovated, including any individual nonscheduled renovation operation, all the requirements of paragraphs (b) and (c) of this section apply if the combined amount of RACM to be stripped, removed, dislodged, cut, drilled, or similarly disturbed is

- (i) At least 80 linear meters (260 linear feet) on pipes or at least 15 square meters (160 square feet) on other facility components, or
- (ii) At least 1 cubic meter (35 cubic feet) off facility components where the length or area could not be measured previously.

(iii) To determine whether paragraph (a)(4) of this section applies to planned renovation operations involving individual nonscheduled operations, predict the combined additive amount of RACM to be removed or stripped during a calendar year of January 1 through December 31.

(iv) To determine whether paragraph (a)(4) of this section applies to emergency renovation operations, estimate the combined amount of RACM to be removed or stripped as a result of the sudden, unexpected event that necessitated the renovation.

(5) Owners or operators of demolition and renovation operations are exempt from the requirements of Secs. 61.05(a), 61.07, and 61.09.

(b) Notification requirements. Each owner or operator of a demolition or renovation activity to which this section applies shall:

(1) Provide the Administrator with written notice of intention to demolish or renovate. Delivery of the notice by U.S. Postal Service, commercial delivery service, or hand delivery is acceptable.

(2) Update notice, as necessary, including when the amount of asbestos affected changes by at least 20 percent.

(3) Postmark or deliver the notice as follows:

(i) At least 10 working days before asbestos stripping or removal work or any other activity begins (such as site preparation that would break up, dislodge or similarly disturb asbestos material), if the operation is described in paragraphs (a) (1) and (4) (except (a)(4)(iii) and (a)(4)(iv)) of this section. If the operation is as described in paragraph (a)(2) of this section, notifications required 10 working days before demolition begins.

(ii) At least 10 working days before the end of the calendar year preceding the year for which notice is being given for renovations described in paragraph (a)(4)(iii) of this section.

(iii) As early as possible before, but not later than, the following working day if the operation is a demolition ordered according to paragraph (a)(3) of this section or, if the operation is a renovation described in paragraph (a)(4)(iv) of this section.

(iv) For asbestos stripping or removal work in a demolition or renovation operation, described in paragraphs (a) (1) and (4) (except (a)(4)(iii) and (a)(4)(iv)) of this section, and for a demolition described in paragraph (a)(2) of this section, that will begin on a date other than the one contained in the original notice, notice of the new start date must be provided to the Administrator as follows:

(A) When the asbestos stripping or removal operation or demolition operation covered by this paragraph will begin after the date contained in the notice,

(1) Notify the Administrator of the new start date by telephone as soon as possible before the original start date, and

(2) Provide the Administrator with a written notice of the new start date as soon as possible before, and no later than, the original start date. Delivery of the updated notice by the U.S. Postal Service, commercial delivery service, or hand delivery is acceptable.

(B) When the asbestos stripping or removal operation or demolition operation covered by this paragraph will begin on a date earlier than the original start date,

(1) Provide the Administrator with a written notice of the new start date at least 10 working days before asbestos stripping or removal work begins.

Ordered demo

Renovation with RACM

Notify

10 day notice

Annual notice

Ordered demo

Change to start date

Change to a later date

Change to an earlier date

(2) For demolitions covered by paragraph (a)(2) of this section, provide the Administrator written notice of a new start date at least 10 working days before commencement of demolition. Delivery of updated notice by U.S. Postal Service, commercial delivery service, or hand delivery is acceptable.

(C) In no event shall an operation covered by this paragraph begin on a date other than the date contained in the written notice of the new start date.

(4) Include the following in the notice:

(i) An indication of whether the notice is the original or a revised notification.

(ii) Name, address, and telephone number of both the facility owner and operator and the asbestos removal contractor owner or operator.

(iii) Type of operation: demolition or renovation.

(iv) Description of the facility or affected part of the facility including the size (square meters [square feet] and number of floors), age, and present and prior use of the facility.

(v) Procedure, including analytical methods, employed to detect the presence of RACM and Category I and Category II nonfriable ACM.

(vi) Estimate of the approximate amount of RACM to be removed from the facility in terms of length of pipe in linear meters (linear feet), surface area in square meters (square feet) on other facility components, or volume in cubic meters (cubic feet) if off the facility components. Also, estimate the approximate amount of Category I and Category II nonfriable ACM in the affected part of the facility that will not be removed before demolition.

(vii) Location and street address (including building number or name and floor or room number, if appropriate), city, county, and state, of the facility being demolished or renovated.

(viii) Scheduled starting and completion dates of asbestos removal work (or any other activity, such as site preparation that would break up, dislodge, or similarly disturb asbestos material) in a demolition or renovation; planned renovation operations involving individual nonscheduled operations shall only include the beginning and ending dates of the report period as described in paragraph (a)(4)(iii) of this section.

(ix) Scheduled starting and completion dates of demolition or renovation.

(x) Description of planned demolition or renovation work to be performed and method(s) to be employed, including demolition or renovation techniques to be used and description of affected facility components.

(xi) Description of work practices and engineering controls to be used to comply with the requirements of this subpart, including asbestos removal and waste-handling emission control procedures.

(xii) Name and location of the waste disposal site where the asbestos-containing waste material will be deposited.

(xiii) A certification that at least one person trained as required by paragraph (c)(8) of this section will supervise the stripping and removal described by this notification. This requirement shall become effective 1 year after promulgation of this regulation.

(xiv) For facilities described in paragraph (a)(3) of this section, the name, title, and authority of the State or local government representative who has ordered the demolition, the date that the order was issued, and the date on which the demolition was ordered to begin. A copy of the order shall be attached to the notification.

(xv) For emergency renovations described in paragraph (a)(4)(iv) of this section, the date and hour that the emergency occurred, a description of the sudden, unexpected event, and an explanation of how the event caused an unsafe condition, or would cause equipment damage or an unreasonable financial burden.

(xvi) Description of procedures to be followed in the event that unexpected RACM is found or Category II nonfriable ACM becomes crumbled, pulverized, or reduced to powder.

(xvii) Name, address, and telephone number of the waste transporter.

(5) The information required in paragraph (b)(4) of this section must be reported using a form similar to that shown in Figure 3.

Must start on
start date

Notification
information



Must use the
form

(c) Procedures for asbestos emission control. Each owner or operator of a demolition or renovation activity to whom this paragraph applies, according to paragraph (a) of this section, shall comply with the following procedures:

Remove
RACM before
disturbance

Cat. I
exemption

Cat. II
exemption

(1) Remove all RACM from a facility being demolished or renovated before any activity begins that would break up, dislodge, or similarly disturb the material or preclude access to the material for subsequent removal. RACM need not be removed before demolition if:

- (i) It is Category I nonfriable ACM that is not in poor condition and is not friable.
- (ii) It is on a facility component that is encased in concrete or other similarly hard material and is adequately wet whenever exposed during demolition; or
- (iii) It was not accessible for testing and was, therefore, not discovered until after demolition began and, as a result of the demolition, the material cannot be safely removed. If not removed for safety reasons, the exposed RACM and any asbestos-contaminated debris must be treated as asbestos-containing waste material and adequately wet at all times until disposed of.

(iv) They are Category II nonfriable ACM and the probability is low that the materials will become crumbled, pulverized, or reduced to powder during demolition.

(2) When a facility component that contains, is covered with, or is coated with RACM is being taken out of the facility as a unit or in sections:

- (i) Adequately wet all RACM exposed during cutting or disjoining operations; and
- (ii) Carefully lower each unit or section to the floor and to ground level, not dropping, throwing, sliding, or otherwise damaging or disturbing the RACM.

(3) When RACM is stripped from a facility component while it remains in place in the facility, adequately wet the RACM during the stripping operation.

(i) In renovation operations, wetting is not required if:

(A) The owner or operator has obtained prior written approval from the Administrator based on a written application that wetting to comply with this paragraph would unavoidably damage equipment or present a safety hazard; and

(B) The owner or operator uses one of the following emission control methods:

(1) A local exhaust ventilation and collection system designed and operated to capture the particulate asbestos material produced by the stripping and removal of the asbestos materials. The system must exhibit no visible emissions to the outside air or be designed and operated in accordance with the requirements in Sec. 61.152.

(2) A glove-bag system designed and operated to contain the particulate asbestos material produced by the stripping of the asbestos materials.

(3) Leak-tight wrapping to contain all RACM prior to dismantlement.

(ii) In renovation operations where wetting would result in equipment damage or a safety hazard, and the methods allowed in paragraph (c)(3)(i) of this section cannot be used, another method may be used after obtaining written approval from the Administrator based upon a determination that it is equivalent to wetting in controlling emissions or to the methods allowed in paragraph (c)(3)(i) of this section.

(iii) A copy of the Administrator's written approval shall be kept at the worksite and made available for inspection.

(4) After a facility component covered with, coated with, or containing RACM has been taken out of the facility as a unit or in sections pursuant to paragraph (c)(2) of this section, it shall be stripped or contained in leak-tight wrapping, except as described in paragraph (c)(5) of this section. If stripped, either:

(i) Adequately wet the RACM during stripping; or

(ii) Use a local exhaust ventilation and collection system designed and operated to capture the particulate asbestos material produced by the stripping. The system must exhibit no visible emissions to the outside air or be designed and operated in accordance with the requirements in Sec. 61.152.

(5) For large facility components such as reactor vessels, large tanks, and steam generators, but not beams (which must be handled in accordance with paragraphs (c)(2), (3), and (4) of this section), the RACM is not required to be stripped if the following requirements are met:

(i) The component is removed, transported, stored, disposed of, or reused without disturbing or damaging the RACM.

(ii) The component is encased in a leak-tight wrapping.

(iii) The leak-tight wrapping is labeled according to Sec. 61.149(d)(1)(i), (ii), and (iii) during all loading and unloading operations and during storage.

(6) For all RACM, including material that has been removed or stripped:

(i) Adequately wet the material and ensure that it remains wet until collected and contained or treated in preparation for disposal in accordance with Sec. 61.150; and

(ii) Carefully lower the material to the ground and floor, not dropping, throwing, sliding, or otherwise damaging or disturbing the material.

(iii) Transport the material to the ground via leak-tight chutes or containers if it has been removed or stripped more than 50 feet above ground level and was not removed as units or in sections.

(iv) RACM contained in leak-tight wrapping that has been removed in accordance with paragraphs (c)(4) and (c)(3)(i)(B)(3) of this section need not be wetted.

(7) When the temperature at the point of wetting is below 0 deg.C (32 deg.F):

(i) The owner or operator need not comply with paragraph (c)(2)(i) and the wetting provisions of paragraph (c)(3) of this section.

(ii) The owner or operator shall remove facility components containing, coated with, or covered with RACM as units or in sections to the maximum extent possible.

(iii) During periods when wetting operations are suspended due to freezing temperatures, the owner or operator must record the temperature in the area containing the facility components at the beginning, middle, and end of each workday and keep daily temperature records available for inspection by the Administrator during normal business hours at the demolition or renovation site. The owner or operator shall retain the temperature records for at least 2 years.

(8) Effective 1 year after promulgation of this regulation, no RACM shall be stripped, removed, or otherwise handled or disturbed at a facility regulated by this section unless at least one on-site representative, such as a foreman or management-level person or other authorized representative, trained in the provisions of this regulation and the means of complying with them, is present. Every 2 years, the trained on-site individual shall receive refresher training in the provisions of this regulation. The required training shall include as a minimum: applicability; notifications; material identification; control procedures for removals including, at least, wetting, local exhaust ventilation, negative pressure enclosures, glove-bag procedures, and High Efficiency Particulate Air (HEPA) filters; waste disposal work practices; reporting and recordkeeping; and asbestos hazards and worker protection. Evidence that the required training has been completed shall be posted and made available for inspection by the Administrator at the demolition or renovation site.

(9) For facilities described in paragraph (a)(3) of this section, adequately wet the portion of the facility that contains RACM during the wrecking operation.

(10) If a facility is demolished by intentional burning, all RACM including Category I and Category II nonfriable ACM must be removed in accordance with the NESHAP before burning.

[55 FR 48419, Nov. 20, 1990; 56 FR 1669, Jan. 16, 1991]

Sec. 61.150 Standard for waste disposal for manufacturing, fabricating, demolition, renovation, and spraying operations.

Each owner or operator of any source covered under the provisions of Secs. 61.144, 61.145, 61.146, and 61.147 shall comply with the following provisions:

(a) Discharge no visible emissions to the outside air during the collection, processing (including incineration), packaging, or transporting of any asbestos-containing waste material generated by the source, or use one of the emission control and waste treatment methods specified in paragraphs (a) (1) through (4) of this section.

(1) Adequately wet asbestos-containing waste material as follows:

(i) Mix control device asbestos waste to form a slurry; adequately wet other asbestos-containing waste material; and

(ii) Discharge no visible emissions to the outside air from collection, mixing, wetting, and handling operations, or use the methods specified by Sec. 61.152 to clean emissions containing particulate asbestos material before they escape to, or are vented to, the outside air; and

(iii) After wetting, seal all asbestos-containing waste material in leak-tight containers while wet; or, for materials that will not fit into containers without additional breaking, put materials into leak-tight wrapping; and

No visible emissions

Wet

Leak tight container

(iv) Label the containers or wrapped materials specified in paragraph (a)(1)(iii) of this section using warning labels specified by Occupational Safety and Health Standards of the Department of Labor, Occupational Safety and Health Administration (OSHA) under 29 CFR 1910.1001(j)(4) or 1926.1101(k)(8). The labels shall be printed in letters of sufficient size and contrast so as to be readily visible and legible.

OSHA label

(v) For asbestos-containing waste material to be transported off the facility site, label containers or wrapped materials with the name of the waste generator and the location at which the waste was generated.

NESHAP label

(2) Process asbestos-containing waste material into nonfriable forms as follows:

(i) Form all asbestos-containing waste material into nonfriable pellets or other shapes;

(ii) Discharge no visible emissions to the outside air from collection and processing operations, including incineration, or use the method specified by Sec. 61.152 to clean emissions containing particulate asbestos material before they escape to, or are vented to, the outside air.

(3) For facilities demolished where the RACM is not removed prior to demolition according to Secs. 61.145(c)(1) (i), (ii), (iii), and (iv) or for facilities demolished according to Sec. 61.145(c)(9), adequately wet asbestos-containing waste material at all times after demolition and keep wet during handling and loading for transport to a disposal site.

Asbestos-containing waste materials covered by this paragraph do not have to be sealed in leak-tight containers or wrapping but may be transported and disposed of in bulk.

(4) Use an alternative emission control and waste treatment method that has received prior approval by the Administrator according to the procedure described in Sec. 61.149(c)(2).

(5) As applied to demolition and renovation, the requirements of paragraph (a) of this section do not apply to Category I nonfriable ACM waste and Category II nonfriable ACM waste that did not become crumbled, pulverized, or reduced to powder.

Cat. I & II exemption

(b) All asbestos-containing waste material shall be deposited as soon as is practical by the waste generator at:

NESHAP landfill

(1) A waste disposal site operated in accordance with the provisions of Sec. 61.154, or

(2) An EPA-approved site that converts RACM and asbestos-containing waste material into nonasbestos (asbestos-free) material according to the provisions of Sec. 61.155.

(3) The requirements of paragraph (b) of this section do not apply to Category I nonfriable ACM that is not RACM.

Cat. I & II exemption

(c) Mark vehicles used to transport asbestos-containing waste material during the loading and unloading of waste so that the signs are visible. The markings must conform to the requirements of Secs. 61.149(d)(1) (i), (ii), and (iii).

(d) For all asbestos-containing waste material transported off the facility site:

(1) Maintain waste shipment records, using a form similar to that shown in Figure 4, and include the following information:

WSR

(i) The name, address, and telephone number of the waste generator.

(ii) The name and address of the local, State, or EPA Regional office responsible for administering the asbestos NESHAP program.

(iii) The approximate quantity in cubic meters (cubic yards).

(iv) The name and telephone number of the disposal site operator.

(v) The name and physical site location of the disposal site.

(vi) The date transported.

(vii) The name, address, and telephone number of the transporter(s).

(viii) A certification that the contents of this consignment are fully and accurately described by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and government regulations.

(2) Provide a copy of the waste shipment record, described in paragraph (d)(1) of this section, to the disposal site owners or operators at the same time as the asbestos-containing waste material is delivered to the disposal site.

(3) For waste shipments where a copy of the waste shipment record, signed by the owner or operator of the designated disposal site, is not received by the waste generator within 35 days of the date the waste was accepted by the initial transporter, contact the transporter and/or the owner or operator of the designated disposal site to determine the status of the waste shipment.

(4) Report in writing to the local, State, or EPA Regional office responsible for administering the asbestos NESHAP program for the waste generator if a copy of the waste shipment record, signed by the owner or operator of the designated waste disposal site, is not received by the waste generator within 45 days of the date the waste was accepted by the initial transporter. Include in the report the following information:

(i) A copy of the waste shipment record for which a confirmation of delivery was not received, and

(ii) A cover letter signed by the waste generator explaining the efforts taken to locate the asbestos waste shipment and the results of those efforts.

(5) Retain a copy of all waste shipment records, including a copy of the waste shipment record signed by the owner or operator of the designated waste disposal site, for at least 2 years.

(e) Furnish upon request, and make available for inspection by the Administrator, all records required under this section.

[55 FR 48429, Nov. 20, 1990; 56 FR 1669, Jan. 16, 1991]

[TAI Handout NESHAP: All references to other than demolition, renovation and waste disposal of RACM or ACWM have been deleted 9/15/08]



State and Local Regulations

The federal asbestos regulations are applicable in every state in the union. It would behoove every Contractor/Supervisor to learn the federal asbestos regulations, as they usually apply. However, many states have promulgated their own asbestos regulations that are in addition to the federal regulations, and may be more stringent in some cases.

The most common additions that states make to the federal regulations have to do with fees, and items that fees may be attached to, such as licensing, permits and notifications. Another common area of state specific requirement is training and state certifications. 11 states have their own EPA approved Model accreditation Plan, and some of those will accept only their own certificates of training as a qualification to be licensed in that state. However, the majority of states in the US will accept EPA accredited certificates. Where federal EPA does not require exams for annual refresher training and certification, many states do, requiring their own state agency to proctor an annual exam which involves fees.

Complicating the regulatory requirements even further, EPA has delegated authority to many air quality districts across the US to enforce the federal NESHAP in their local jurisdiction. For example, California has about 20 delegated jurisdictions in that state alone. Arizona has 5 different NESHAP jurisdictions. Many of these NESHAP agencies extend their applicability to cover demolition or renovation in private homes, as well as public, commercial and industrial facilities.

Federal OSHA has also delegated authority to “state program” states. About half of the states in the US have state OSHA programs, with the state program administrating OSHA compliance for asbestos under the construction standard, the general industry standard and the shipyard standard. The other half of the states are regulated directly by federal OSHA. The state programs always have more applicability authority than does federal OSHA.

The many and different asbestos regulations present pros and cons for participants (the regulated, the regulating, the public and employees) but the regulations that you must be aware of and comply with are a fact of life.

No training provider, consultant or contractor can possibly keep up with and instruct in all the different state and local regulations for national companies that work across the entire country state by state and also in many different local jurisdictions. Therefore Contractor/Supervisors and the companies they work for must contact these local agencies before they plan work in different parts of the country. The Asbestos Institute has determined to teach the federal asbestos regulations (as they always apply) and encourage the contractors and

consultants to add the local requirements for each area of the country that they may work in.

However, there are 5 different jurisdictions that accredit our training, requiring The Asbestos Institute to discuss the various state specific rules and to give you access to their regulations. The 5 jurisdictions are: Federal EPA, The State of California, the State of Florida, the State of Utah and the State of Texas.

CALIFORNIA

California regulates asbestos activities through their state OSHA agency, Cal OSHA, and their state EPA agency, California Air Resources Board (CARB).

The Cal OSHA construction standard for asbestos is very similar to the federal standard, so if you understand the federal regulations, you will understand the Cal OSHA standard. The principal difference is that Cal OSHA added 2 paragraphs, (q) and (r). Paragraph (q) has to do with licensing of consultants and paragraph (r) has to do with contractor registration. The Cal OSHA regulations can be found at:

<https://www.dir.ca.gov/title8/1529.html>

Consultants

Consultants must be licensed at one of two levels in the state of California, either a Certified Asbestos Consultant (CAC) or a Certified Site Surveillance Technician (CSST). A CSST must work for a CAC. The CAC must be certified as a Contractor/Supervisor, Building Inspector, Management Planner and Project Designer. With these 4 AHERA certificates, he may sit for a 4-hour exam which requires a passing score of at least 70%. CAC's are required for most asbestos work in California. The CAC may employ CSST's to do asbestos inspections and abatement project oversight. The CSST license requires certification as Contractor/Supervisor and Building Inspector, and passing an exam similar to the CAC.

Contractors

Asbestos contractors must be registered with Cal OSHA to disturb 100 square feet or more of Asbestos Containing Construction Material (ACCM). ACCM is a manufactured construction material which contains more than one tenth of one percent (>0.1%) asbestos. The only purpose of ACCM is to qualify contractor registration and training with Cal OSHA.

NESHAP

Federal EPA has delegated NESHAP enforcement to the state of California through California Air Resources Board (CARB). There is essentially no difference between CARB and EPA in the application of NESHAP. However, in

California, all asbestos Containing Waste Material (ACWM) is treated as hazardous waste and therefore must be manifested as hazardous waste and disposed of in a hazardous waste landfill.

California Certification

Cal OSHA only accepts California training certificates of training. If you are EPA or state certified outside of California, you only need to take a new refresher course for each discipline from a California accredited training provider in order to obtain the proper credentials for licensing.

FLORIDA

Florida is perhaps the most restrictive of the 5 jurisdictions as far as certification required to work in that state. If you are certified as an EPA AHERA Contractor/Supervisor by EPA or another state, you must retake the entire 5-day training with a Florida accredited trainer in order to be licensed to do work in that state. The same rule applies to all the certified disciplines. The other 3 states listed here will accept federal EPA certification with some added requirements (fees, exams, etc.).

The Florida NESHAP regulations are found at:

<https://www.flrules.org/gateway/ChapterHome.asp?Chapter=62-257> and at:
<https://floridadep.gov/air/permitting-compliance/content/asbestos>

The Florida NESHAP is essentially the same as federal except for fees and notifications.

The Florida licensing and training program for asbestos is at:

<https://www.flsenate.gov/Laws/Statutes/2018/Chapter469/All> and at:
<https://www.flrules.org/gateway/RuleNo.asp?title=ASBESTOS%20CONSULTANTS&ID=61E1-1.002>

The Florida requirements for certification as a consultant are to hold a current credential as architect, PE, RG, CIH or CSP. In addition, AHERA certificates of Building Inspector, Management Planner, Project Designer and a 3-day course in Respiratory Protection are required for licensing as a consultant.

For licensing as a contractor, the Contractor/Supervisor and Respiratory Protection certificates are required, plus a few other qualifications.

Florida does not have an OSHA state program. Worker protection rules are federal OSHA.

UTAH

Utah just came out with a new state rule on inspections for NESHAP inspections (12/21). Apparently, it is their intent to require the AHERA sampling rules at 763.86 be applied to all non-friable suspect material as well as friable material. This includes the 3-5-7 rule as well as random sampling.

Utah accepts out of state certifications from EPA and all state programs.

The Utah regulations are at: <https://rules.utah.gov/publicat/code/r307/r307-801.htm>

If you are familiar with the federal asbestos regulations, you will find Utah's asbestos rules much easier to follow than the other 3 states. However, you should check with the state, as they have just recently begun to deviate from the federal application of AHERA, NESHAP, OSHA and probably the MAP.

TEXAS

The Texas regulations adopt and enforce the 4 major federal asbestos regulations (AHERA, NESHAP, MAP and OSHA) but present the greatest challenge of the 4 states to the certified Contractor/Supervisor, as there are many state specific requirements that are in addition to and very different from the federal rules that you are familiar with. To be fair, their additions to the federal regulations are, for the most part, practical. They do accept your EPA certification of training if you are from outside the state, with the requirement that you take a 3-hour Texas regulation course from a Texas accredited trainer.

The Texas asbestos regulations are found at [https://texreg.sos.state.tx.us/public/readtac\\$ext.ViewTAC?tac_view=5&ti=25&pt=1&ch=295&sch=C&rl=Y](https://texreg.sos.state.tx.us/public/readtac$ext.ViewTAC?tac_view=5&ti=25&pt=1&ch=295&sch=C&rl=Y)

And also at:

<https://www.dshs.texas.gov/asbestos/laws-rules.aspx>

Like the other states, Texas requires licensing based on prerequisite training (including O&M). However, Texas requires state licensing for employers as well as the certified or trained individuals, including consultant companies, contractors and building owners conducting O&M work inhouse. Most licenses require fees and passing a state exam.

The Texas Asbestos Health Protection Rules (TAHPR) apply to work in "public" buildings, not to "commercial" buildings. Public buildings include schools and buildings where the public has access. Commercial buildings include industrial, federal government owned and NESHAP facility buildings which exclude public access. Federal regulations, where applicable, apply to asbestos work in commercial buildings.

The Texas rules are more detailed than the federal regulations, therefore addressing many details that end up as questions in the federal rules. Questions

such as details of work area prep, mil thickness of poly, waste containers, bulk sampling minimum numbers, analytical procedures, final clearance applicability, independent air monitoring, conflicts of interest, specifications required and more are addressed directly in the Texas regulations, thereby avoiding confusion during a project.

As mentioned before, there are debates on the issue of more regulation or less regulation, but detailed regulations such as these do remove the potential liability to a consultant who desires to specify controls beyond the minimal controls required in the federal regulations.

GENERAL

Aside from regulations, the contractor, consultant and owner must keep in mind the issue of potential tort liability. 30+ years ago, the regulations were what drove the asbestos control industry. Today, this has been overshadowed by potential liability brought by plaintiff attorneys on behalf of clients worried about perceived exposure to asbestos because of an asbestos project. To have a valid tort claim, the plaintiff attorney must be able to prove “negligence” on the part of the defendant. If the defendant has received a valid citation for violation of the regulations, this is considered “negligence per se”, and proof of negligence is made. It is important today, more than in the past, to take the regulatory requirements seriously. If the supervisor does not respect the regulations, the worker will not.

Current Maricopa County NESHAP 2/23/2022

MARICOPA COUNTY AIR POLLUTION CONTROL REGULATIONS REGULATION III – CONTROL OF AIR CONTAMINANTS

RULE 370 FEDERAL HAZARDOUS AIR POLLUTANT PROGRAM

SECTION 100 – GENERAL

101 PURPOSE: To establish emission standards for federally listed hazardous air pollutants.

102 APPLICABILITY: The provisions of this rule apply to the owner or operator of any stationary source for which a standard is prescribed under this rule, and for which federal delegation of the implementation and enforcement of the standards to the Maricopa County Air Quality Department (MCAQD) has been accomplished. Any such stationary source must also comply with other Maricopa County Air Pollution Control Regulations.

103 FEDERAL DELEGATION AUTHORITY: The MCAQD shall enforce the National Emission Standards for Hazardous Air Pollutants (NESHAPs) (40 CFR 61 and 40 CFR 63) listed in Section 300 of this rule which have been delegated to the County by the United States Environmental Protection Agency (EPA) for such enforcement. The MCAQD in addition, may enforce such other NESHAPs as delegated for such enforcement by the EPA to the County.



104 EXEMPTIONS: Section 301.9 shall not apply to demolition or renovation activity involving any single owner-occupied residential parcel which contains 4 or fewer detached dwelling units.

SECTION 200 – DEFINITIONS: For the purpose of this rule, the following definitions shall apply, in addition to those definitions found in Rule 100 (General Provisions and Definitions) of these rules. In the event of any inconsistency between any of the Maricopa County air pollution control rules, the definitions in this rule take precedence.

201 ADMINISTRATOR: As used in Parts 61 and 63, Title 40, Code of Federal Regulations, shall mean the Control Officer, except that the Control Officer shall not be empowered to approve alternate or equivalent test methods, alternative standards/work practices, or exercise any other nondelegable authorities, except as specifically provided in each subpart.

202 AHERA CONTRACTOR/SUPERVISOR: A currently certified Asbestos Hazard Emergency Response Act (AHERA) Contractor/Supervisor, who has completed the contractor/supervisor training described in Appendix C to 40 CFR 763, Subpart E.

203 AHERA BUILDING INSPECTOR: A currently certified Asbestos Hazard Emergency Response Act (AHERA) Building Inspector, who has completed the building inspector training described in Appendix C to 40 CFR 763, Subpart E.

204 AHERA WORKER: A currently certified Asbestos Hazard Emergency Response Act (AHERA) Worker, who has completed the worker training described in Appendix C to 40 CFR 763, Subpart E.

205 AMENDED WATER: Water to which surfactant (wetting agent) has been added to increase the ability of the liquid to penetrate asbestos-containing material (ACM).



206 DWELLING UNIT: A building or structure, or a part of a building or structure, that is used for a home or residence by one or more persons who maintain a household, including a mobile home regardless of ownership of the land.

207 GOVERNMENT-ISSUED PHOTO IDENTIFICATION CARD: Includes, but is not limited to, a valid driver's license, a valid non-operating identification license, a valid tribal enrollment card or tribal identification card, or other valid government issued photo identification that includes the name and photograph of the card holder.

SECTION 300 – STANDARDS

301 EMISSION STANDARDS FOR FEDERALLY LISTED HAZARDOUS AIR POLLUTANTS: The federally listed hazardous air pollutants as listed in TABLE 370-1. FEDERAL LIST OF HAZARDOUS AIR POLLUTANTS of this rule and the following federal regulations located in the U.S. Code of Federal Regulations, Part 61 of Title 40, Subchapter C (CFR) as codified on July 1, 2020, are herein incorporated by reference with the listed exclusions, in Maricopa County's Air Pollution Control Regulations. This incorporation by reference includes no future editions or amendments. Each owner or operator subject to the requirements of the following subparts shall comply with the requirements of those subparts and the additional requirements set forth herein. Incorporation by reference does not include nondelegable functions of the EPA Administrator.

301.1 Subpart A—General Provisions; exclude any sections dealing with equivalency determinations that are nontransferable through Section 112(e)(3) of the Act.

301.2 Subpart C—National Emission Standard for Beryllium.

301.3 Subpart D—National Emission Standard for Beryllium Rocket Motor Firing.


301.4 Subpart E—National Emission Standard for Mercury.

301.5 Subpart F—National Emission Standard for Vinyl Chloride.

301.6 Subpart G—(Reserved)

301.7 Subpart J—National Emission Standard for Equipment Leaks (Fugitive Emission Sources) of Benzene.

301.8 Subpart L—National Emission Standard for Benzene Emissions from Coke By-Product Recovery Plants.

 **301.9 Subpart M**—National Emission Standard for Asbestos. In addition, each owner or operator of a demolition or renovation activity involving a facility as defined in 40 CFR 61, Subpart M shall:

a. Prior to the commencement of demolition or renovation activity listed in 40 CFR 61.145(a)(1)-(4), thoroughly inspect the facility, or the part of the facility where demolition activity or renovation activity will occur, for the presence of asbestos, including Category I and Category II nonfriable asbestos-containing material (ACM) and regulated asbestos-containing material (RACM). For the purpose of this rule, thoroughly inspect means that all ACM has been identified and quantified, and all RACM has been accurately categorized. The requirement to inspect for the presence of asbestos shall not apply if the owner or operator assumes that the materials present are RACM and complies with all requirements that are applicable to the removal, handling, and disposal of RACM. In addition:



(1) The thorough inspection for the presence of asbestos must be conducted by an AHERA building inspector.



(2) The inspection for the presence of asbestos must be documented in a written report that meets all of the following requirements:

(a) Clearly identifies all materials that were sampled and provides a legible copy of the laboratory chain of custody indicating who collected the samples;

(b) Includes analytical results from a laboratory accredited by the National Voluntary Laboratory Accreditation Program (NVLAP) showing that samples analyzed for the presence of asbestos were analyzed using one of the following test methods:


(i) Interim Method of the Determination of Asbestos in Bulk Samples (as specified in Appendix E to Subpart E of 40 CFR Part 763);


(ii) Method for the Determination of Asbestos in Bulk Building Materials (EPA/600/R-93/116); or

(iii) Determination of Asbestos Content of Serpentine Aggregate (California Air Resources Board Test Method 435).

(c) Clearly describes and identifies the location, condition, and quantity of all ACM; and

(d) Categorizes all ACM as Category I nonfriable ACM, Category II nonfriable ACM, or RACM, in accordance with the definitions in 40 CFR 61, Subpart M.




 **(3)** If more than 5 years has elapsed between the date when the facility was inspected for the presence of asbestos and the date when the demolition or renovation activity will commence, the owner or operator shall have each non-friable ACM re-inspected by an AHERA building inspector to determine if the ACM is still non-friable. This re-inspection shall occur prior to the commencement of demolition or renovation activity. The re-inspection must be documented in a written report that meets the requirements in Section 301.9(a)(2) of this rule.

 **(4)** If new materials are installed in the facility between the date when the facility was inspected for the presence of asbestos and the date when the demolition or renovation activity will commence, the owner and operator shall have each new material inspected for the presence of asbestos by an AHERA building inspector prior to the commencement of demolition or renovation activity. The inspection of new materials must be documented in a written report that meets the requirements in Section 301.9(a)(2) of this rule.

(5) Each owner and operator shall maintain a complete copy of the written report required by Sections 301.9(a)(2), 301.9(a)(3), and 301.9(a)(4) of this rule for two years from the completion of the demolition or renovation activity. A complete copy of each written report shall be on-site and available for inspection during all demolition and renovation activities.

b. Prior to the commencement of any demolition or renovation activity listed in 40 CFR 61.145(a)(1)-(4), provide the Control Officer with notification of intention to demolish or renovate in the manner described in 40 CFR 61.145(b). In addition:

(1) The written notification must include the date on which the facility was inspected for the presence of asbestos;

-  **(2)** At the time when the written notification is provided to the Control Officer, a copy of the applicable written report(s) required by Sections 301.9(a)(2), 301.9(a)(3), and 301.9(a)(4) of this rule shall be in the possession of the owner or operator. The owner or operator shall make the written report available without delay upon request of the Control Officer;
-  **(3)** All notifications, excluding notifications for renovation operations described in 40 CFR 61.145(a)(4)(iii), shall expire one year from:
 - (a)** The original postmark date;
 - (b)** The commercial delivery date;
 - (c)** The date of hand delivery to the Control Officer; or
 - (d)** The date of electronic submittal with a verified CROMMER signature.
-  **(4)** For a demolition activity or renovation activity that continues beyond the expiration date, the owner or operator of the demolition or renovation activity shall submit a new notification to the Control Officer in accordance with 40 CFR 61.145(b) prior to the expiration of the original notice.
- (5)** Notifications for renovation operations described in 40 CFR 61.145(a)(4)(iii) shall be submitted at least 10 working days before the end of the calendar year preceding the year for which notice is being given and shall expire on December 31 of the calendar year for which notice is given.
- (6)** Pay all applicable fees prescribed by Rule 280 of these rules.
- c.** Comply with the following requirements for any demolition or renovation activity listed in 40 CFR 61.145(a)(1) and 40 CFR 61.145(a)(4):
 - (1)** Any person that strips, removes, or otherwise handles or disturbs any RACM shall be an AHERA worker or an AHERA contractor/supervisor.
 - (2)** At least one AHERA contractor/supervisor shall be on-site at all times when RACM is stripped, removed, or otherwise handled or disturbed.
 - (3)** A legible copy of the current training certificate for each AHERA worker and each AHERA contractor/supervisor shall be available for inspection at all times.
 - (4)** Clearly visible and legible photo identification for each AHERA worker and each AHERA contractor/supervisor shall

be on-site and available for inspection, upon the request of the Control Officer, at all times when RACM is stripped, removed, or otherwise handled or disturbed. The photo identification shall be from the trainer who provided training in accordance with Appendix C to 40 CFR 763, Subpart E, or a current government-issued photo identification card.

- (5)** All RACM, including Category I nonfriable ACM and Category II nonfriable ACM that have become friable, shall be contained in transparent, leak-tight wrapping and shall remain adequately wet to prevent emissions during removal, transport, storage, and proper landfill disposal in accordance with local, county, state, and federal regulations.
- (6)** Inspection viewing devices are required at all times when RACM is stripped, removed, or otherwise handled or disturbed. Viewing devices shall allow the Control Officer to view the area where RACM is stripped, removed, or otherwise handled or disturbed without entering the contained area where the activity is occurring, either through ports or by video monitoring. Viewing devices are not required if walls or other barriers do not prevent the Control Officer from viewing the area where RACM is stripped, removed, or otherwise handled or disturbed. Viewing devices are not required if the Control Officer has provided written approval of a written request for an exemption because the installation or use of a viewing device is infeasible for a specific area where RACM will be stripped, removed, or otherwise handled or disturbed.
- (7)** All exposed RACM subject to demolition or renovation operations and all RACM being removed from a facility or a facility component shall be kept adequately wet by using amended water to control the release of asbestos fibers, except as provided below:

 - (a)** The use of amended water is not required when the owner or operator has obtained prior written approval from the Administrator based on a written application that wetting would unavoidably damage equipment or present a safety hazard, however the owner or operator shall comply with 40 CFR 61.145(c)(3)(i)(B) or 40 CFR 61.145(c)(3)(ii) and (iii); and
 - (b)** The use of amended water is not required when the temperature at the point of wetting is below 32 °F (0 °C), however the owner or operator shall comply with 40 CFR 61.145(c)(7)(ii) and (iii).

- (8)** All asbestos-containing waste material (ACWM) shall be contained in transparent, leak-tight wrapping and shall remain adequately wet to prevent emissions during removal, transport, storage, and proper landfill disposal following local, county, state, and federal regulations. Affix a visible and legible label to each individual wrapping with the name of the waste generator and the name and location of the facility that generated the ACWM.

OSHA 29 CFR 1926.1101

Asbestos



(a) Scope and application.

(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:

- (a)(1) Demolition or salvage of structures where asbestos is present;
- (a)(2) Removal or encapsulation of materials containing asbestos;
- (a)(3) Construction, alteration, repair, maintenance, or renovation of structures, substrates, or portions thereof, that contain asbestos;
- (a)(4) Installation of products containing asbestos;
- (a)(5) Asbestos spill/emergency cleanup; and
- (a)(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.
- (a)(7) Coverage under this standard shall be based on the nature of the work operation involving asbestos exposure.
- (a)(8) This section does not apply to asbestos-containing asphalt roof coatings, cements and mastics.

(b) Definitions.

"Aggressive method" means removal or disturbance of building material by sanding, abrading, grinding or other method that breaks, crumbles, or disintegrates intact ACM.

"Amended water" means water to which surfactant (wetting agent) has been added to increase the ability of the liquid to penetrate ACM.

"Asbestos" includes chrysotile, amosite, crocidolite, tremolite asbestos, anthophyllite asbestos, actinolite asbestos, and any of these minerals that has been chemically treated and/or altered. For purposes of this standard, "asbestos" includes PACM, as defined below.

"Asbestos-containing material (ACM)", means any material containing more than one percent asbestos.

"Assistant Secretary" means the Assistant Secretary of Labor for Occupational Safety and Health, U.S. Department of Labor, or designee.

"Authorized person" means any person authorized by the employer and required by work duties to be present in regulated areas.

"Building/facility owner" is the legal entity, including a lessee, which exercises control over management and record keeping functions relating to a building and/or facility in which activities covered by this standard take place.

"Certified Industrial Hygienist (CIH)" means one certified in the practice of industrial hygiene by the American Board of Industrial Hygiene.

"Class I asbestos work" means activities involving the removal of TSI and surfacing ACM and PACM.

"Class II asbestos work" means activities involving the removal of ACM which is not thermal system insulation or surfacing material. This includes, but is not limited to, the removal of

asbestos-containing wallboard, floor tile and sheeting, roofing and siding shingles, and construction mastics.

"Class III asbestos work" means repair and maintenance operations, where "ACM", including TSI and surfacing ACM and PACM, is likely to be disturbed.

"Class IV asbestos work" means maintenance and custodial activities during which employees contact but do not disturb ACM or PACM and activities to clean up dust, waste and debris resulting from Class I, II, and III activities.

"Clean room" means an uncontaminated room having facilities for the storage of employees' street clothing and uncontaminated materials and equipment.

"Closely resemble" means that the major workplace conditions which have contributed to the levels of historic asbestos exposure, are no more protective than conditions of the current workplace.

"Competent person" means, in addition to the definition in 29 CFR 1926.32 (f), one who is capable of identifying existing asbestos hazards in the workplace and selecting the appropriate control strategy for asbestos exposure, who has the authority to take prompt corrective measures to eliminate them, as specified in 29 CFR 1926.32(f): in addition, for Class I and Class II work who is specially trained in a training course which meets the criteria of EPA's Model Accreditation Plan (40 CFR 763) for supervisor, or its equivalent and, for Class III and Class IV work, who is trained in a manner consistent with EPA requirements for training of local education agency maintenance and custodial staff as set forth at 40 CFR 763.92 (a)(2).

"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.

"Decontamination area" means an enclosed area adjacent and connected to the regulated area and consisting of an equipment room, shower area, and clean room, which is used for the decontamination of workers, materials, and equipment that are contaminated with asbestos.

"Demolition" means the wrecking or taking out of any load-supporting structural member and any related razing, removing, or stripping of asbestos products.

"Director" means the Director, National Institute for Occupational Safety and Health, U.S. Department of Health and Human Services, or designee.

"Disturbance" means activities that disrupt the matrix of ACM or PACM, crumble or pulverize ACM or PACM, or generate visible debris from ACM or PACM. Disturbance includes cutting away small amounts of ACM and PACM, no greater than the amount which can be contained in one standard sized glove bag or waste bag in order to access a building component. In no event shall the amount of ACM or PACM so disturbed exceed that which can be contained in one glove bag or waste bag which shall not exceed 60 inches in length and width.

"Employee exposure" means that exposure to airborne asbestos that would occur if the employee were not using respiratory protective equipment.

"Equipment room (change room)" means a contaminated room located within the decontamination area that is supplied with impermeable bags or containers for the disposal of contaminated protective clothing and equipment.

"Fiber" means a particulate form of asbestos, 5 micrometers or longer, with a length-to-diameter ratio of at least 3 to 1.

"Glovebag" means not more than a 60 x 60 inch impervious plastic bag-like enclosure affixed around an asbestos-containing material, with glove-like appendages through which material and tools may be handled.

"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.

"Homogeneous area" means an area of surfacing material or thermal system insulation that is uniform in color and texture.

"Industrial hygienist" means a professional qualified by education, training, and experience to anticipate, recognize, evaluate and develop controls for occupational health hazards.

"Intact" means that the ACM has not crumbled, been pulverized, or otherwise deteriorated so that the asbestos is no longer likely to be bound with its matrix.

"Modification for purposes of paragraph (g)(6)(ii)," means a changed or altered procedure, material or component of a control system, which replaces a procedure, material or component of

a required system. Omitting a procedure or component, or reducing or diminishing the stringency or strength of a material or component of the control system is not a "modification" for purposes of paragraph (g)(6) of this section.

"Negative Initial Exposure Assessment" means a demonstration by the employer, which complies with the criteria in paragraph (f)(2)(iii) of this section, that employee exposure during an operation is expected to be consistently below the PELs.

"PACM" means "presumed asbestos containing material".

"Presumed Asbestos Containing Material" means thermal system insulation and surfacing material found in buildings constructed no later than 1980. The designation of a material as "PACM" may be rebutted pursuant to paragraph (k)(5) of this section.

"Project Designer" means a person who has successfully completed the training requirements for an abatement project designer established by 40 U.S.C. Sec. 763.90(g).

"Regulated area" means: an area established by the employer to demarcate areas where Class I, II, and III asbestos work is conducted, and any adjoining area where debris and waste from such asbestos work accumulate; and a work area within which airborne concentrations of asbestos, exceed or there is a reasonable possibility they may exceed the permissible exposure limit. Requirements for regulated areas are set out in paragraph (e) of this section.

"Removal" means all operations where ACM and/or PACM is taken out or stripped from structures or substrates, and includes demolition operations.

"Renovation" means the modifying of any existing structure, or portion thereof.

"Repair" means overhauling, rebuilding, reconstructing, or reconditioning of structures or substrates, including encapsulation or other repair of ACM or PACM attached to structures or substrates.

"Surfacing material" means material that is sprayed, troweled-on or otherwise applied to surfaces (such as acoustical plaster on ceilings and fireproofing materials on structural members, or other materials on surfaces for acoustical, fireproofing, and other purposes).

"Surfacing ACM" means surfacing material which contains more than 1% asbestos.

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

"Thermal system insulation ACM" is thermal system insulation which contains more than 1% asbestos.

(c) Permissible exposure limits (PEL's)

(c)(1) Time-weighted average limit (TWA). The employer shall ensure that no employee is exposed to an airborne concentration of asbestos in excess of 0.1 fiber per cubic centimeter of air as an eight (8) hour time-weighted average (TWA), as determined by the method prescribed in Appendix A to this section, or by an equivalent method.

(c)(2) Excursion limit. The employer shall ensure that no employee is exposed to an airborne concentration of asbestos in excess of 1.0 fiber per cubic centimeter of air (1 f/cc) as averaged over a sampling period of thirty (30) minutes, as determined by the method prescribed in Appendix A to this section, or by an equivalent method.

(d) Multi-employer worksites.

(d)(1) On multi-employer worksites, an employer performing work requiring the establishment of a regulated area shall inform other employers on the site of the nature of the employer's work with asbestos and/or PACM, of the existence of and requirements pertaining to regulated areas, and the measures taken to ensure that employees of such other employers are not exposed to asbestos.

(d)(2) Asbestos hazards at a multi-employer work site shall be abated by the contractor who created or controls the source of asbestos contamination. For example, if there is a significant breach of an enclosure containing Class I work, the employer responsible for erecting the enclosure shall repair the breach immediately

(d)(3) In addition, all employers of employees exposed to asbestos hazards shall comply with applicable protective provisions to protect their employees. For example, if employees working immediately adjacent to a Class I asbestos job are exposed to asbestos due to the inadequate containment of such job, their employer shall either remove the employees from the area until the enclosure breach is repaired; or perform an initial exposure assessment pursuant to (f) of this section.

(d)(4) All employers of employees working adjacent to regulated areas established by another employer on a multi-employer work-site, shall take steps on a daily basis to ascertain the integrity of the enclosure and/or the effectiveness of the control method relied on by the primary asbestos contractor to assure that asbestos fibers do not migrate to such adjacent areas.

(d)(5) All general contractors on a construction project which includes work covered by this standard shall be deemed to exercise general supervisory authority over the work covered by this standard, even though the general contractor is not qualified to serve as the asbestos "competent person" as defined by paragraph (b) of this section. As supervisor of the entire project, the general contractor shall ascertain whether the asbestos contractor is in compliance with this standard, and shall require such contractor to come into compliance with this standard when necessary.

(e) Regulated areas.

(e)(1) All Class I, II and III asbestos work shall be conducted within regulated areas. All other operations covered by this standard shall be conducted within a regulated area where airborne concentrations of asbestos exceed, or there is a reasonable possibility they may exceed a PEL. Regulated areas shall comply with the requirements of paragraphs (2), (3),(4) and (5) of this section.

(e)(2) Demarcation. The regulated area shall be demarcated in any manner that minimizes the number of persons within the area and protects persons outside the area from exposure to airborne asbestos. Where critical barriers or negative pressure enclosures are used, they may demarcate the regulated area. Signs shall be provided and displayed pursuant to the requirements of paragraph (k)(7) of this section. A-34

(e)(3) Access. Access to regulated areas shall be limited to authorized persons and to persons authorized by the Act or regulations issued pursuant thereto.

(e)(4) Respirators. All persons entering a regulated area where employees are required pursuant to paragraph (h)(1) of this section to wear respirators shall be supplied with a respirator selected in accordance with paragraph (h)(3) of this section.

(e)(5) Prohibited activities. The employer shall ensure that employees do not eat, drink, smoke, chew tobacco or gum, or apply cosmetics in the regulated area.

(e)(6) Competent Persons. The employer shall ensure that all asbestos work performed within regulated areas is supervised by a competent person, as defined in paragraph (b) of this section. The duties of the competent person are set out in paragraph (o) of this section.

(f) Exposure assessments and monitoring.

(f)(1) General monitoring criteria.

(f)(1)(i) Each employer who has a workplace or work operation where exposure monitoring is required under this section shall perform monitoring to determine accurately the airborne concentrations of asbestos to which employees may be exposed.

(f)(1)(ii) Determinations of employee exposure shall be made from breathing zone air samples that are representative of the 8-hour TWA and 30-minute short-term exposures of each employee.

(f)(1)(iii) Representative 8-hour TWA employee exposure shall be determined on the basis of one or more samples representing full-shift exposure for employees in each work area. Representative 30-minute short-term employee exposures shall be determined on the basis of one or more samples representing 30 minute exposures associated with operations that are most likely to produce exposures above the excursion limit for employees in each work area.

(f)(2) Initial Exposure Assessment.

(f)(2)(i) Each employer who has a workplace or work operation covered by this standard shall ensure that a "competent person" conducts an exposure assessment immediately before or at the initiation of the operation to ascertain expected exposures during that operation or workplace. The assessment must be completed in time to comply with requirements which are triggered by exposure data or the lack of a "negative exposure assessment," and to provide information necessary to assure that all control systems planned are appropriate for that operation and will work properly.

(f)(2)(ii) Basis of Initial Exposure Assessment: Unless a negative exposure assessment has been made pursuant to paragraph (f)(2)(iii) of this section, the initial exposure assessment shall, if feasible, be based on monitoring conducted pursuant to paragraph (f)(1)(iii) of this section. The

assessment shall take into consideration both the monitoring results and all observations, information or calculations which indicate employee exposure to asbestos, including any previous monitoring conducted in the workplace, or of the operations of the employer which indicate the levels of airborne asbestos likely to be encountered on the job. For Class I asbestos work, until the employer conducts exposure monitoring and documents that employees on that job will not be exposed in excess of the PELs, or otherwise makes a negative exposure assessment pursuant to paragraph (f)(2)(iii) of this section, the employer shall presume that employees are exposed in excess of the TWA and excursion limit.

(f)(2)(iii) Negative Exposure Assessment: For any one specific asbestos job which will be performed by employees who have been trained in compliance with the standard, the employer may demonstrate that employee exposures will be below the PELs by data which conform to the following criteria;

(f)(2)(iii)(A) Objective data demonstrating that the product or material containing asbestos minerals or the activity involving such product or material cannot release airborne fibers in concentrations exceeding the TWA and excursion limit under those work conditions having the greatest potential for releasing asbestos; or

(f)(2)(iii)(B) Where the employer has monitored prior asbestos jobs for the PEL and the excursion limit within 12 months of the current or projected job, the monitoring and analysis were performed in compliance with the asbestos standard in effect; and the data were obtained during work operations conducted under workplace conditions "closely resembling" the processes, type of material, control methods, work practices, and environmental conditions used and prevailing in the employer's current operations, the operations were conducted by employees whose training and experience are no more extensive than that of employees performing the current job, and these data show that under the conditions prevailing and which will prevail in the current workplace there is a high degree of certainty that employee exposures will not exceed the TWA and excursion limit; or

(f)(2)(iii)(C) The results of initial exposure monitoring of the current job made from breathing zone air samples that are representative of the 8-hour TWA and 30-minute short-term exposures of each employee covering operations which are most likely during the performance of the entire asbestos job to result in exposures over the PELs.

(f)(3) Periodic monitoring.;

(f)(3)(i) Class I and II operations. The employer shall conduct daily monitoring that is representative of the exposure of each employee who is assigned to work within a regulated area who is performing Class I or II work, unless the employer pursuant to (f)(2)(iii) of this section, has made a negative exposure assessment for the entire operation.

(f)(3)(ii) All operations under the standard other than Class I and II operations. The employer shall conduct periodic monitoring of all work where exposures are expected to exceed a PEL, at intervals sufficient to document the validity of the exposure prediction.

(f)(3)(iii) Exception: When all employees required to be monitored daily are equipped with supplied-air respirators operated in the pressure demand mode, or other positive pressure mode respirator, the employer may dispense with the daily monitoring required by this paragraph. However, employees performing Class I work using a control method which is not listed in paragraph (g)(4)(i), (ii), or (iii) of this section or using a modification of a listed control method, shall continue to be monitored daily even if they are equipped with supplied-air respirators.

(f)(4) Termination of monitoring.

(f)(4)(i) If the periodic monitoring required by paragraph (f)(3) of this section reveals that employee exposures, as indicated by statistically reliable measurements, are below the permissible exposure limit and excursion limit the employer may discontinue monitoring for those employees whose exposures are represented by such monitoring.

(f)(4)(ii) Additional monitoring. Notwithstanding the provisions of paragraph (f)(2) and (3), and (f)(4) of this section, the employer shall institute the exposure monitoring required under paragraph (f)(3) of this section whenever there has been a change in process, control equipment, personnel or work practices that may result in new or additional exposures above the permissible exposure limit and/or excursion limit or when the employer has any reason to suspect that a change may result in new or additional exposures above the permissible exposure limit and/or

excursion limit. Such additional monitoring is required regardless of whether a "negative exposure assessment" was previously produced for a specific job.

(f)(5) Employee notification of monitoring results.

(f)(5)(i) The employer shall notify affected employees of the monitoring results that represent that employee's exposure as soon as possible following receipt of monitoring results.

(f)(5)(ii) The employer shall notify affected employees of the results of monitoring representing the employee's exposure in writing either individually or by posting at a centrally located place that is accessible to affected employees.

(f)(6) Observation of monitoring.

(f)(6)(i) The employer shall provide affected employees and their designated representatives an opportunity to observe any monitoring of employee exposure to asbestos conducted in accordance with this section.

(f)(6)(ii) When observation of the monitoring of employee exposure to asbestos requires entry into an area where the use of protective clothing or equipment is required, the observer shall be provided with and be required to use such clothing and equipment and shall comply with all other applicable safety and health procedures.

(g) Methods of compliance.

(g)(1) Engineering controls and work practices for all operations covered by this section. The employer shall use the following engineering controls and work practices in all operations covered by this section, regardless of the levels of exposure:

(g)(1)(i) Vacuum cleaners equipped with HEPA filters to collect all debris and dust containing ACM and PACM, except as provided in paragraph (g)(8)(ii) of this section in the case of roofing material.

(g)(1)(ii) 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 provide in paragraph (g)(8)(ii) of this section; and

(g)(1)(iii) Prompt clean-up and disposal of wastes and debris contaminated with asbestos in leak-tight containers except in roofing operations, where the procedures specified in paragraph (g)(8)(ii) of this section apply.

(g)(2) In addition to the requirements of paragraph (g)(1) of this section, the employer shall use the following control methods to achieve compliance with the TWA permissible exposure limit and excursion limit prescribed by paragraph (c) of this section;

(g)(2)(i) Local exhaust ventilation equipped with HEPA filter dust collection systems;

(g)(2)(ii) Enclosure or isolation of processes producing asbestos dust;

(g)(2)(iii) Ventilation of the regulated area to move contaminated air away from the breathing zone of employees and toward a filtration or collection device equipped with a HEPA filter;

(g)(2)(iv) Use of other work practices and engineering controls that the Assistant Secretary can show to be feasible.

(g)(2)(v) Wherever the feasible engineering and work practice controls described above are not sufficient to reduce employee exposure to or below the permissible exposure limit and/or excursion limit prescribed in paragraph (c) of this section, the employer shall use them to reduce employee exposure to the lowest levels attainable by these controls and shall supplement them by the use of respiratory protection that complies with the requirements of paragraph (h) of this section.

(g)(3) Prohibitions. The following work practices and engineering controls shall not be used for work related to asbestos or for work which disturbs ACM or PACM, regardless of measured levels of asbestos exposure or the results of initial exposure assessments:

(g)(3)(i) High-speed abrasive disc saws that are not equipped with point of cut ventilator or enclosures with HEPA filtered exhaust air.

(g)(3)(ii) 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.

(g)(3)(iii) Dry sweeping, shoveling or other dry clean-up of dust and debris containing ACM and PACM.

(g)(3)(iv) Employee rotation as a means of reducing employee exposure to asbestos.

(g)(4) Class I Requirements. In addition to the provisions of paragraphs (g)(1) and (2) of this section, the following engineering controls and work practices and procedures shall be used.

(g)(4)(i) All Class I work, including the installation and operation of the control system shall be supervised by a competent person as defined in paragraph (b) of this section;

(g)(4)(ii) For all Class I jobs involving the removal of more than 25 linear or 10 square feet of thermal system insulation or surfacing material; for all other Class I jobs, where the employer cannot produce a negative exposure assessment pursuant to paragraph (f)(2)(iii) of this section, or where employees are working in areas adjacent to the regulated area, while the Class I work is being performed, the employer shall use one of the following methods to ensure that airborne asbestos does not migrate from the regulated area:

(g)(4)(ii)(A) Critical barriers shall be placed over all the openings to the regulated area, except where activities are performed outdoors; or

(g)(4)(ii)(B) The employer shall use another barrier or isolation method which prevents the migration of airborne asbestos from the regulated area, as verified by perimeter area surveillance during each work shift at each boundary of the regulated area, showing no visible asbestos dust; and perimeter area monitoring showing that clearance levels contained in 40 CFR Part 763, Subpart E, of the EPA Asbestos in Schools Rule are met, or that perimeter area levels, measured by Phase Contrast Microscopy (PCM) are no more than background levels representing the same area before the asbestos work began. The results of such monitoring shall be made known to the employer no later than 24 hours from the end of the work shift represented by such monitoring. Exception: For work completed outdoors where employees are not working in areas adjacent to the regulated areas, this paragraph (g)(4)(ii) is satisfied when the specific control methods in paragraph (g)(5) of this section are used.

(g)(4)(iii) For all Class I jobs, HVAC systems shall be isolated in the regulated area by sealing with a double layer of 6 mil plastic or the equivalent;

(g)(4)(iv) For all Class I jobs, impermeable dropcloths shall be placed on surfaces beneath all removal activity;

(g)(4)(v) For all Class I jobs, all objects within the regulated area shall be covered with impermeable dropcloths or plastic sheeting which is secured by duct tape or an equivalent.

(g)(4)(vi) For all Class I jobs where the employer cannot produce a negative exposure assessment, or where exposure monitoring shows that a PEL is exceeded, the employer shall ventilate the regulated area to move contaminated air away from the breathing zone of employees toward a HEPA filtration or collection device.

(g)(5) Specific control methods for Class I work. In addition, Class I asbestos work shall be performed using one or more of the following control methods pursuant to the limitations stated below:

(g)(5)(i) Negative Pressure Enclosure (NPE) systems: NPE systems may be used where the configuration of the work area does not make the erection of the enclosure infeasible, with the following specifications and work practices.

(g)(5)(i)(A) Specifications:

(g)(5)(i)(A)(1) The negative pressure enclosure (NPE) may be of any configuration,

(g)(5)(i)(A)(2) At least 4 air changes per hour shall be maintained in the NPE,

(g)(5)(i)(A)(3) A minimum of -0.02 column inches of water pressure differential, relative to outside pressure, shall be maintained within the NPE as evidenced by manometric measurements,

(g)(5)(i)(A)(4) The NPE shall be kept under negative pressure throughout the period of its use, and

(g)(5)(i)(A)(5) Air movement shall be directed away from employees performing asbestos work within the enclosure, and toward a HEPA filtration or a collection device.

(g)(5)(i)(B) Work Practices:

(g)(5)(i)(B)(1) Before beginning work within the enclosure and at the beginning of each shift, the NPE shall be inspected for breaches and smoke-tested for leaks, and any leaks sealed.

(g)(5)(i)(B)(2) Electrical circuits in the enclosure shall be deactivated, unless equipped with ground-fault circuit interrupters.

(g)(5)(ii) Glove bag systems may be used to remove PACM and/or ACM from straight runs of piping and elbows and other connections with the following specifications and work practices:

(g)(5)(ii)(A) Specifications:

(g)(5)(ii)(A)(1) Glovebags shall be made of 6 mil thick plastic and shall be seamless at the bottom.

(g)(5)(ii)(A)(2) Glovebags used on elbows and other connections must be designed for that purpose and used without modifications.

(g)(5)(ii)(B) Work Practices:

(g)(5)(ii)(B)(1) Each glovebag shall be installed so that it completely covers the circumference of pipe or other structure where the work is to be done.

(g)(5)(ii)(B)(2) Glovebags shall be smoke-tested for leaks and any leaks sealed prior to use.

(g)(5)(ii)(B)(3) Glovebags may be used only once and may not be moved.

(g)(5)(ii)(B)(4) Glovebags shall not be used on surfaces whose temperature exceeds 150 deg.

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(g)(5)(ii)(B)(5) Prior to disposal, glovebags shall be collapsed by removing air within them using a HEPA vacuum.

(g)(5)(ii)(B)(6) Before beginning the operation, loose and friable material adjacent to the glovebag/box operation shall be wrapped and sealed in two layers of six mil plastic or otherwise rendered intact,

(g)(5)(ii)(B)(7) 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:

(g)(5)(ii)(B)(8) Sliding valve or other device shall separate waste bag from hose to ensure no exposure when waste bag is disconnected:

(g)(5)(ii)(B)(9) At least two persons shall perform Class I glovebag removal operations.

(g)(5)(iii) Negative Pressure Glove Bag Systems. Negative pressure glove bag systems may be used to remove ACM or PACM from piping.

(g)(5)(iii)(A) Specifications: In addition to specifications for glove bag systems above, negative pressure glove bag systems shall attach HEPA vacuum systems or other devices to bag to prevent collapse during removal.

(g)(5)(iii)(B) Work Practices:

(g)(5)(iii)(B)(1) The employer shall comply with the work practices for glove bag systems in paragraph (g)(5)(ii)(B)(4) of this section.

(g)(5)(iii)(B)(2) 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.

(g)(5)(iii)(B)(3) 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.

(g)(5)(iv) Negative Pressure Glove Box Systems: Negative pressure glove boxes may be used to remove ACM or PACM from pipe runs with the following specifications and work practices.

(g)(5)(iv)(A) Specifications:

(g)(5)(iv)(A)(1) Glove boxes shall be constructed with rigid sides and made from metal or other material which can withstand the weight of the ACM and PACM and water used during removal:

(g)(5)(iv)(A)(2) A negative pressure generator shall be used to create negative pressure in the system:

(g)(5)(iv)(A)(3) An air filtration unit shall be attached to the box:

(g)(5)(iv)(A)(4) The box shall be fitted with gloved apertures:

(g)(5)(iv)(A)(5) An aperture at the base of the box shall serve as a bagging outlet for waste ACM and water:

(g)(5)(iv)(A)(6) A back-up generator shall be present on site:

(g)(5)(iv)(A)(7) Waste bags shall consist of 6 mil thick plastic double-bagged before they are filled or plastic thicker than 6 mil.

(g)(5)(iv)(B) Work practices:

(g)(5)(iv)(B)(1) At least two persons shall perform the removal:

(g)(5)(iv)(B)(2) The box shall be smoke-tested for leaks and any leaks sealed prior to each use:

(g)(5)(iv)(B)(3) Loose or damaged ACM adjacent to the box shall be wrapped and sealed in two layers of 6 mil plastic prior to the job, or otherwise made intact prior to the job.

(g)(5)(iv)(B)(4) A HEPA filtration system shall be used to maintain pressure barrier in box.

(g)(5)(v) Water Spray Process System. A water spray process system may be used for removal of ACM and PACM from cold line piping if, employees carrying out such process have completed a 40-hour separate training course in its use, in addition to training required for employees performing Class I work. The system shall meet the following specifications and shall be performed by employees using the following work practices.

(g)(5)(v)(A) Specifications:

(g)(5)(v)(A)(1) Piping shall be surrounded on 3 sides by rigid framing,

(g)(5)(v)(A)(2) A 360 degree water spray, delivered through nozzles supplied by a high pressure separate water line, shall be formed around the piping.

(g)(5)(v)(A)(3) The spray shall collide to form a fine aerosol which provides a liquid barrier between workers and the ACM and PACM.

(g)(5)(v)(B) Work Practices:

(g)(5)(v)(B)(1) The system shall be run for at least 10 minutes before removal begins.

(g)(5)(v)(B)(2) All removal shall take place within the water barrier.

(g)(5)(v)(B)(3) The system shall be operated by at least three persons, one of whom shall not perform removal, but shall check equipment, and ensure proper operation of the system.

(g)(5)(v)(B)(4) After removal, the ACM and PACM shall be bagged while still inside the water barrier.

(g)(5)(vi) A small walk-in enclosure which accommodates no more than two persons (mini-enclosure) may be used if the disturbance or removal can be completely contained by the enclosure with the following specifications and work practices.

(g)(5)(vi)(A) Specifications:

(g)(5)(vi)(A)(1) The fabricated or job-made enclosure shall be constructed of 6 mil plastic or equivalent:

(g)(5)(vi)(A)(2) The enclosure shall be placed under negative pressure by means of a HEPA filtered vacuum or similar ventilation unit:

(g)(5)(vi)(B) Work practices:

(g)(5)(vi)(B)(1) Before use, the mini-enclosure shall be inspected for leaks and smoke-tested to detect breaches, and breaches sealed.

(g)(5)(vi)(B)(2) Before reuse, the interior shall be completely washed with amended water and HEPA-vacuumed.

(g)(5)(vi)(B)(3) During use, air movement shall be directed away from the employee's breathing zone within the mini-enclosure.

(g)(6) Alternative control methods for Class I work. Class I work may be performed using a control method which is not referenced in paragraph (g)(5) of this section, or which modifies a control method referenced in paragraph (g)(5) of this section, if the following provisions are complied with:

(g)(6)(i) The control method shall enclose, contain or isolate the processes or source of airborne asbestos dust, or otherwise capture or redirect such dust before it enters the breathing zone of employees.

(g)(6)(ii) A certified industrial hygienist (CIH) or licensed professional engineer (PE) who is also qualified as a project designer as defined in paragraph (b) of this section, shall evaluate the work area, the projected work practices and the engineering controls and shall certify in writing that the planned control method is adequate to reduce direct and indirect employee exposure to below the PELs under worst-case conditions of use, and that the planned control method will prevent asbestos contamination outside the regulated area, as measured by clearance sampling which meets the requirements of EPA's Asbestos in Schools rule issued under AHERA, or perimeter monitoring which meets the criteria in paragraph (g)(4)(ii)(B) of this section.

(g)(6)(ii)(A) Where the TSI or surfacing material to be removed is 25 linear or 10 square feet or less, the evaluation required in paragraph (g)(6) of this section may be performed by a "competent person", and may omit consideration of perimeter or clearance monitoring otherwise required.

(g)(6)(ii)(B) The evaluation of employee exposure required in paragraph (g)(6) of this section, shall include and be based on sampling and analytical data representing employee exposure during the use of such method under worst-case conditions and by employees whose training and experience are equivalent to employees who are to perform the current job.

(g)(6)(iii) Before work which involves the removal of more than 25 linear or 10 square feet of thermal system insulation or surfacing material is begun using an alternative method which has been the subject of a paragraph (g)(6) of this section required evaluation and certification, the employer shall send a copy of such evaluation and certification to the national office of OSHA, Office of Technical Support, Room N3653, 200 Constitution Avenue, NW, Washington, DC 20210. The submission shall not constitute approval by OSHA.

(g)(7) Work Practices and Engineering Controls for Class II work.

(g)(7)(i) All Class II work shall be supervised by a competent person as defined in paragraph (b) of this section.

(g)(7)(ii) For all indoor Class II jobs, where the employer has not produced a negative exposure assessment pursuant to paragraph (f)(2)(iii) of this section, or where during the job, changed conditions indicate there may be exposure above the PEL or where the employer does not remove the ACM in a substantially intact state, the employer shall use one of the following methods to ensure that airborne asbestos does not migrate from the regulated area;

(g)(7)(ii)(A) Critical barriers shall be placed over all openings to the regulated area; or,

(g)(7)(ii)(B) The employer shall use another barrier or isolation method which prevents the migration of airborne asbestos from the regulated area, as verified by perimeter area monitoring or clearance monitoring which meets the criteria set out in paragraph (g)(4)(ii)(B) of this section.

(g)(7)(ii)(C) Impermeable dropcloths shall be placed on surfaces beneath all removal activity;

(g)(7)(iii) [Reserved]

(g)(7)(iv) All Class II asbestos work shall be performed using the work practices and requirements set out above in paragraph (g)(1)(i) through (g)(1)(iii) of this section.

(g)(8) Additional Controls for Class II work. Class II asbestos work shall also be performed by complying with the work practices and controls designated for each type of asbestos work to be performed, set out in this paragraph. Where more than one control method may be used for a type of asbestos work, the employer may choose one or a combination of designated control methods. Class II work also may be performed using a method allowed for Class I work, except that glove bags and glove boxes are allowed if they fully enclose the Class II material to be removed.

(g)(8)(i) For removing vinyl and asphalt flooring materials which contain ACM or for which in buildings constructed no later than 1980, the employer has not verified the absence of ACM pursuant to paragraph (g)(8)(i)(I) of this section. The employer shall ensure that employees comply with the following work practices and that employees are trained in these practices pursuant to paragraph (k)(9) of this section:

(g)(8)(i)(A) Flooring or its backing shall not be sanded.

(g)(8)(i)(B) Vacuums equipped with HEPA filter, disposable dust bag, and metal floor tool (no brush) shall be used to clean floors.

(g)(8)(i)(C) 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.

(g)(8)(i)(D) All scraping of residual adhesive and/or backing shall be performed using wet methods.

(g)(8)(i)(E) Dry sweeping is prohibited.

(g)(8)(i)(F) Mechanical chipping is prohibited unless performed in a negative pressure enclosure which meets the requirements of paragraph (g)(5)(i) of this section.

(g)(8)(i)(G) Tiles shall be removed intact, unless the employer demonstrates that intact removal is not possible.

(g)(8)(i)(H) When tiles are heated and can be removed intact, wetting may be omitted.

(g)(8)(i)(I) Resilient flooring material including associated mastic and backing shall be assumed to be asbestos-containing unless an industrial hygienist determines that it is asbestos-free using recognized analytical techniques.

(g)(8)(ii) For removing roofing material which contains ACM the employer shall ensure that the following work practices are followed:

(g)(8)(ii)(A) Roofing material shall be removed in an intact state to the extent feasible.

(g)(8)(ii)(B) Wet methods shall be used 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.

(g)(8)(ii)(C) Cutting machines shall be continuously misted during use, unless a competent person determines that misting substantially decreases worker safety.

(g)(8)(ii)(D) When removing built-up roofs with asbestos-containing roofing felts and an aggregate 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. When removing built-up roofs with asbestos-containing roofing felts and a smooth surface using a power roof cutter, the dust resulting from the cutting operation shall be collected either by a HEPA dust collector or HEPA vacuuming along the cut line, or by gently sweeping and then carefully and completely wiping up the still-wet dust and debris left along the cut line.

(g)(8)(ii)(E) Asbestos-containing material that has been removed from a roof 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:

(g)(8)(ii)(E)(1) Any 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.

(g)(8)(ii)(E)(2) 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.

(g)(8)(ii)(F) Upon being lowered, unwrapped material shall be transferred to a closed receptacle in such manner so as to preclude the dispersion of dust.

(g)(8)(ii)(G) Roof level heating and ventilation air intake sources shall be isolated or the ventilation system shall be shut down.

(g)(8)(ii)(H) Notwithstanding any other provision of this section, removal or repair of sections of intact roofing less than 25 square feet in area does not require use of wet methods or HEPA vacuuming as long as manual methods which do not render the material non-intact are used to remove the material and no visible dust is created by the removal method used. In determining whether a job involves less than 25 square feet, the employer shall include all removal and repair work performed on the same roof on the same day.

(g)(8)(iii) When removing cementitious asbestos-containing siding and shingles or transite panels containing ACM on building exteriors (other than roofs, where paragraph (g)(8)(ii) of this section applies) the employer shall ensure that the following work practices are followed:

(g)(8)(iii)(A) Cutting, abrading or breaking siding, shingles, or transite panels, shall be prohibited unless the employer can demonstrate that methods less likely to result in asbestos fiber release cannot be used.

(g)(8)(iii)(B) Each panel or shingle shall be sprayed with amended water prior to removal.

(g)(8)(iii)(C) 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.

(g)(8)(iii)(D) Nails shall be cut with flat, sharp instruments.

(g)(8)(iv) When removing gaskets containing ACM, the employer shall ensure that the following work practices are followed:

(g)(8)(iv)(A) If a gasket is visibly deteriorated and unlikely to be removed intact, removal shall be undertaken within a glovebag as described in paragraph (g)(5)(ii) of this section.

(g)(8)(iv)(B) [Reserved]

(g)(8)(iv)(C) The gasket shall be immediately placed in a disposal container.

(g)(8)(iv)(D) Any scraping to remove residue must be performed wet.

(g)(8)(v) When performing any other Class II removal of asbestos containing material for which specific controls have not been listed in paragraph (g)(8)(iv)(A) through (D) of this section, the employer shall ensure that the following work practices are complied with.

(g)(8)(v)(A) The material shall be thoroughly wetted with amended water prior to and during its removal.

(g)(8)(v)(B) The material shall be removed in an intact state unless the employer demonstrates that intact removal is not possible.

(g)(8)(v)(C) Cutting, abrading or breaking the material shall be prohibited unless the employer can demonstrate that methods less likely to result in asbestos fiber release are not feasible.

(g)(8)(v)(D) 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.

(g)(8)(vi) Alternative Work Practices and Controls. Instead of the work practices and controls listed in paragraph (g)(8)(i) through (v) of this section, the employer may use different or modified engineering and work practice controls if the following provisions are complied with.

(g)(8)(vi)(A) The employer shall demonstrate by data representing employee exposure during the use of such method under conditions which closely resemble the conditions under which the method is to be used, that employee exposure will not exceed the PELs under any anticipated circumstances.

(g)(8)(vi)(B) A competent person shall evaluate the work area, the projected work practices and the engineering controls, and shall certify in writing, that the different or modified controls are adequate to reduce direct and indirect employee exposure to below the PELs under all expected conditions of use and that the method meets the requirements of this standard. The evaluation shall include and be based on data representing employee exposure during the use of such method under conditions which closely resemble the conditions under which the method is to be used for the current job, and by employees whose training and experience are equivalent to employees who are to perform the current job.

(g)(9) Work Practices and Engineering Controls for Class III asbestos work. Class III asbestos work shall be conducted using engineering and work practice controls which minimize the exposure to employees performing the asbestos work and to bystander employees.

(g)(9)(i) The work shall be performed using wet methods.

(g)(9)(ii) To the extent feasible, the work shall be performed using local exhaust ventilation.

(g)(9)(iii) Where the disturbance involves drilling, cutting, abrading, sanding, chipping, breaking, or sawing of thermal system insulation or surfacing material, the employer shall use impermeable dropcloths, and shall isolate the operation using mini-enclosures or glove bag systems pursuant to paragraph (g)(5) of this section or another isolation method.

(g)(9)(iv) Where the employer does not produce a "negative exposure assessment" for a job, or where monitoring results show the PEL has been exceeded, the employer shall contain the area using impermeable dropcloths and plastic barriers or their equivalent, or shall isolate the operation using a control system listed in and in compliance with paragraph (g)(5) of this section.

(g)(9)(v) Employees performing Class III jobs, which involve the disturbance of thermal system insulation or surfacing material, or where the employer does not produce a "negative exposure assessment" or where monitoring results show a PEL has been exceeded, shall wear respirators which are selected, used and fitted pursuant to provisions of paragraph (h) of this section.

(g)(10) Class IV asbestos work. Class IV asbestos jobs shall be conducted by employees trained pursuant to the asbestos awareness training program set out in paragraph (k)(9) of this section. In addition, all Class IV jobs shall be conducted in conformity with the requirements set out in paragraph (g)(1) of this section, mandating wet methods, HEPA vacuums, and prompt clean up of debris containing ACM or PACM.

(g)(10)(i) Employees cleaning up debris and waste in a regulated area where respirators are required shall wear respirators which are selected, used and fitted pursuant to provisions of paragraph (h) of this section.

(g)(10)(ii) Employers of employees who clean up waste and debris in, and employers in control of, areas where friable thermal system insulation or surfacing material is accessible, shall assume that such waste and debris contain asbestos.

(g)(11) Alternative methods of compliance for installation, removal, repair, and maintenance of certain roofing and pipeline coating materials. Notwithstanding any other provision of this section, an employer who complies with all provisions of this paragraph (g)(11) when installing, removing, repairing, or maintaining intact pipeline asphaltic wrap, or roof flashings which contain asbestos fibers encapsulated or coated by bituminous or resinous compounds shall be deemed to be in compliance with this section. If an employer does not comply with all provisions of this paragraph

(g)(11) or if during the course of the job the material does not remain intact, the provisions of paragraph (g)(8) of this section apply instead of this paragraph (g)(11).

(g)(11)(i) Before work begins and as needed during the job, a competent person who is capable of identifying asbestos hazards in the workplace and selecting the appropriate control strategy for asbestos exposure, and who has the authority to take prompt corrective measures to eliminate such hazards, shall conduct an inspection of the worksite and determine that the roofing material is intact and will likely remain intact.

(g)(11)(ii) All employees performing work covered by this paragraph (g)(11) shall be trained in a training program that meets the requirements of paragraph (k)(9)(viii) of this section.

(g)(11)(iii) The material shall not be sanded, abraded, or ground. Manual methods which do not render the material non-intact shall be used.

(g)(11)(iv) Material that has been removed from a roof 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. All such material shall be removed from the roof as soon as is practicable, but in any event no later than the end of the work shift.

(g)(11)(v) Where roofing products which have been labeled as containing asbestos pursuant to paragraph (k)(8) of this section are installed on non-residential roofs during operations covered by this paragraph (g)(11), the employer shall notify the building owner of the presence and location of such materials no later than the end of the job.

(g)(11)(vi) All removal or disturbance of pipeline asphaltic wrap shall be performed using wet methods.

(h) Respiratory protection.

(h)(1) General. For employees who use respirators required by this section, the employer must provide each employee an appropriate respirator that complies with the requirements of this paragraph. Respirators must be used during:

(h)(1)(i) Class I asbestos work.

(h)(1)(ii) Class II asbestos work when ACM is not removed in a substantially intact state.

(h)(1)(iii) Class II and III asbestos work that is not performed using wet methods, except for removal of ACM from sloped roofs when a negative-exposure assessment has been conducted and ACM is removed in an intact state.

(h)(1)(iv) Class II and III asbestos work for which a negative-exposure assessment has not been conducted.

(h)(1)(v) Class III asbestos work when TSI or surfacing ACM or PACM is being disturbed.

(h)(1)(vi) Class IV asbestos work performed within regulated areas where employees who are performing other work are required to use respirators.

(h)(1)(vii) Work operations covered by this section for which employees are exposed above the TWA or excursion limit.

(h)(1)(viii) Emergencies.

(h)(2) Respirator program.

(h)(2)(i) The employer must implement a respiratory protection program in accordance with 29 CFR 1910.134(b) through (d) (except (d)(1)(iii)), and (f) through (m), which covers each employee required by this section to use a respirator.

(h)(2)(ii) No employee shall be assigned to asbestos work that requires respirator use if, based on their most recent medical examination, the examining physician determines that the employee will be unable to function normally while using a respirator, or that the safety or health of the employee or other employees will be impaired by the employee's respirator use. Such employees must be assigned to another job or given the opportunity to transfer to a different position that they can perform. If such a transfer position is available, it must be with the same employer, in the same geographical area, and with the same seniority, status, rate of pay, and other job benefits the employee had just prior to such transfer.

(h)(3) Respirator selection.

(h)(3)(i) Employers must:

(h)(3)(i)(A) Select, and provide to employees, the appropriate respirators specified in paragraph (d)(3)(i)(A) of 29 CFR 1910.134; however, employers must not select or use filtering facepiece respirators for use against asbestos fibers.

(h)(3)(i)(B) Provide HEPA filters for powered and non-powered air-purifying respirators.

(h)(3)(ii) Employers must provide an employee with a tight fitting, powered air-purifying respirator (PAPR) instead of a negative pressure respirator selected according to paragraph (h)(3)(i)(A) of this standard when the employee chooses to use a PAPR and it provides adequate protection to the employee.

(h)(3)(iii) Employers must provide employees with an air-purifying half mask respirator, other than a filtering facepiece respirator, whenever the employees perform:

(h)(3)(iii)(A) Class II or Class III asbestos work for which no negative exposure assessment is available.

(h)(3)(iii)(B) Class III asbestos work involving the disturbance of TSI or Surfacing ACM or PACM.

(h)(3)(iv) Employers must provide employees with:

(h)(3)(iv)(A) A tight-fitting powered air-purifying respirator or a full, supplied-air respirator operated in the pressure-demand mode and equipped with either HEPA egress cartridges or an auxiliary positive pressure, self-contained breathing apparatus (SCBA) whenever the employees are in a regulated area performing Class I asbestos work for which a negative exposure assessment is not available and the exposure assessment indicates that the exposure level will be at or below 1 f/cc as an 8-hour time-weighted average (TWA).

(h)(3)(iv)(B) A full facepiece supplied-air respirator operated in the pressure-demand mode and equipped with an auxiliary positive-pressure SCBA whenever the employees are in a regulated area performing Class I asbestos work for which a negative exposure assessment is not available and the exposure assessment indicates that the exposure level will be above 1 f/cc as an 8-hour TWA.

(i) Protective clothing.

(i)(1) General. The employer shall provide and require the use of protective clothing, such as coveralls or similar whole-body clothing, head coverings, gloves, and foot coverings for any employee exposed to airborne concentrations of asbestos that exceed the TWA and/or excursion limit prescribed in paragraph (c) of this section, or for which a required negative exposure assessment is not produced, or for any employee performing Class I operations which involve the removal of over 25 linear or 10 square feet of TSI or surfacing ACM and PACM.

(i)(2) Laundering.

(i)(2)(i) The employer shall ensure that laundering of contaminated clothing is done so as to prevent the release of airborne asbestos in excess of the TWA or excursion limit prescribed in paragraph (c) of this section.

(i)(2)(ii) Any employer who gives contaminated clothing to another person for laundering shall inform such person of the requirement in paragraph (i)(2)(i) of this section to effectively prevent the release of airborne asbestos in excess of the TWA and excursion limit prescribed in paragraph (c) of this section.

(i)(3) Contaminated clothing. Contaminated clothing shall be transported in sealed impermeable bags, or other closed, impermeable containers, and be labeled in accordance with paragraph (k) of this section.

(i)(4) Inspection of protective clothing.

(i)(4)(i) The competent person shall examine worksuits worn by employees at least once per workshift for rips or tears that may occur during performance of work.

(i)(4)(ii) When rips or tears are detected while an employee is working, rips and tears shall be immediately mended, or the worksuit shall be immediately replaced.

(j) Hygiene facilities and practices for employees.

(j)(1) Requirements for employees performing Class I asbestos jobs involving over 25 linear or 10 square feet of TSI or surfacing ACM and PACM.

(j)(1)(i) Decontamination areas: the employer shall establish a decontamination area that is adjacent and connected to the regulated area for the decontamination of such employees. The decontamination area shall consist of an equipment room, shower area, and clean room in series. The employer shall ensure that employees enter and exit the regulated area through the decontamination area.

(j)(1)(i)(A) Equipment room. The equipment room shall be supplied with impermeable, labeled bags and containers for the containment and disposal of contaminated protective equipment.

(j)(1)(i)(B) Shower area. Shower facilities shall be provided which comply with 29 CFR 1910.141(d)(3), unless the employer can demonstrate that they are not feasible. The showers shall be adjacent both to the equipment room and the clean room, unless the employer can demonstrate that this location is not feasible. Where the employer can demonstrate that it is not feasible to locate the shower between the equipment room and the clean room, or where the work is performed outdoors, the employers shall ensure that employees:

(j)(1)(i)(B)(1) Remove asbestos contamination from their worksuits in the equipment room using a HEPA vacuum before proceeding to a shower that is not adjacent to the work area; or

(j)(1)(i)(B)(2) Remove their contaminated worksuits in the equipment room, then don clean worksuits, and proceed to a shower that is not adjacent to the work area.

(j)(1)(i)(C) Clean change room. The clean room shall be equipped with a locker or appropriate storage container for each employee's use. When the employer can demonstrate that it is not feasible to provide a clean change area adjacent to the work area or where the work is performed outdoors, the employer may permit employees engaged in Class I asbestos jobs to clean their protective clothing with a portable HEPA-equipped vacuum before such employees leave the regulated area. Following showering, such employees however must then change into street clothing in clean change areas provided by the employer which otherwise meet the requirements of this section.

(j)(1)(ii) Decontamination area entry procedures. The employer shall ensure that employees:

(j)(1)(ii)(A) Enter the decontamination area through the clean room;

(j)(1)(ii)(B) Remove and deposit street clothing within a locker provided for their use; and

(j)(1)(ii)(C) Put on protective clothing and respiratory protection before leaving the clean room.

(j)(1)(ii)(D) Before entering the regulated area, the employer shall ensure that employees pass through the equipment room.

(j)(1)(iii) Decontamination area exit procedures. The employer shall ensure that:

(j)(1)(iii)(A) Before leaving the regulated area, employees shall remove all gross contamination and debris from their protective clothing.

(j)(1)(iii)(B) Employees shall remove their protective clothing in the equipment room and deposit the clothing in labeled impermeable bags or containers.

(j)(1)(iii)(C) Employees shall not remove their respirators in the equipment room.

(j)(1)(iii)(D) Employees shall shower prior to entering the clean room.

(j)(1)(iii)(E) After showering, employees shall enter the clean room before changing into street clothes.

(j)(1)(iv) Lunch Areas. Whenever food or beverages are consumed at the worksite where employees are performing Class I asbestos work, the employer shall provide lunch areas in which the airborne concentrations of asbestos are below the permissible exposure limit and/or excursion limit.

(j)(2) Requirements for Class I work involving less than 25 linear or 10 square feet of TSI or surfacing ACM and PACM, and for Class II and Class III asbestos work operations where exposures exceed a PEL or where there is no negative exposure assessment produced before the operation.

(j)(2)(i) The employer shall establish an equipment room or area that is adjacent to the regulated area for the decontamination of employees and their equipment which is contaminated with asbestos which shall consist of an area covered by a impermeable drop cloth on the floor or horizontal working surface.

(j)(2)(ii) The area must be of sufficient size as to accommodate cleaning of equipment and removing personal protective equipment without spreading contamination beyond the area (as determined by visible accumulations).

(j)(2)(iii) Work clothing must be cleaned with a HEPA vacuum before it is removed.

(j)(2)(iv) All equipment and surfaces of containers filled with ACM must be cleaned prior to removing them from the equipment room or area.

(j)(2)(v) The employer shall ensure that employees enter and exit the regulated area through the equipment room or area.

(j)(3) Requirements for Class IV work. Employers shall ensure that employees performing Class IV work within a regulated area comply with the hygiene practice required of employees performing work which has a higher classification within that regulated area. Otherwise employers

of employees cleaning up debris and material which is TSI or surfacing ACM or identified as PACM shall provide decontamination facilities for such employees which are required by paragraph (j)(2) of this section.

(j)(4) Smoking in work areas. The employer shall ensure that employees do not smoke in work areas where they are occupationally exposed to asbestos because of activities in that work area.

(k) Communication of hazards.

(k)(1) This section applies to the communication of information concerning asbestos hazards in construction activities to facilitate compliance with this standard. Most asbestos-related construction activities involve previously installed building materials. Building owners often are the only and/or best sources of information concerning them. Therefore, they, along with employers of potentially exposed employees, are assigned specific information conveying and retention duties under this section. Installed Asbestos Containing Building Material. Employers and building owners shall identify TSI and sprayed or troweled on surfacing materials in buildings as asbestos-containing, unless they determine in compliance with paragraph (k)(5) of this section that the material is not asbestos-containing. Asphalt and vinyl flooring material installed no later than 1980 must also be considered as asbestos containing unless the employer, pursuant to paragraph (g)(8)(i)(I) of this section determines that it is not asbestos-containing. If the employer/building owner has actual knowledge, or should have known through the exercise of due diligence, that other materials are asbestos-containing, they too must be treated as such. When communicating information to employees pursuant to this standard, owners and employers shall identify "PACM" as ACM. Additional requirements relating to communication of asbestos work on multi-employer worksites are set out in paragraph (d) of this section.

(k)(2) Duties of building and facility owners.

(k)(2)(i) Before work subject to this standard is begun, building and facility owners shall determine the presence, location, and quantity of ACM and/or PACM at the work site pursuant to paragraph (k)(1) of this section.

(k)(2)(ii) Building and/or facility owners shall notify the following persons of the presence, location and quantity of ACM or PACM, at the work sites in their buildings and facilities. Notification either shall be in writing, or shall consist of a personal communication between the owner and the person to whom notification must be given or their authorized representatives:

(k)(2)(ii)(A) Prospective employers applying or bidding for work whose employees reasonably can be expected to work in or adjacent to areas containing such material;

(k)(2)(ii)(B) Employees of the owner who will work in or adjacent to areas containing such material:

(k)(2)(ii)(C) On multi-employer worksites, all employers of employees who will be performing work within or adjacent to areas containing such materials;

(k)(2)(ii)(D) Tenants who will occupy areas containing such material.

(k)(3) Duties of employers whose employees perform work subject to this standard in or adjacent to areas containing ACM and PACM. Building/facility owners whose employees perform such work shall comply with these provisions to the extent applicable.

(k)(3)(i) Before work in areas containing ACM and PACM is begun; employers shall identify the presence, location, and quantity of ACM, and/or PACM therein pursuant to paragraph (k)(1) of this section.

(k)(3)(ii) Before work under this standard is performed employers of employees who will perform such work shall inform the following persons of the location and quantity of ACM and/or PACM present in the area and the precautions to be taken to insure that airborne asbestos is confined to the area.

(k)(3)(ii)(A) Owners of the building/facility;

(k)(3)(ii)(B) Employees who will perform such work and employers of employees who work and/or will be working in adjacent areas.

(k)(3)(iii) Within 10 days of the completion of such work, the employer whose employees have performed work subject to this standard, shall inform the building/facility owner and employers of employees who will be working in the area of the current location and quantity of PACM and/or ACM remaining in the area and final monitoring results, if any.

(k)(4) In addition to the above requirements, all employers who discover ACM and/or PACM on a worksite shall convey information concerning the presence, location and quantity of such newly

discovered ACM and/or PACM to the owner and to other employers of employees working at the work site, within 24 hours of the discovery.

(k)(5) Criteria to rebut the designation of installed material as PACM.

(k)(5)(i) At any time, an employer and/or building owner may demonstrate, for purposes of this standard, that PACM does not contain asbestos. Building owners and/or employers are not required to communicate information about the presence of building material for which such a demonstration pursuant to the requirements of paragraph (k)(5)(ii) of this section has been made. However, in all such cases, the information, data and analysis supporting the determination that PACM does not contain asbestos, shall be retained pursuant to paragraph (n) of this section.

(k)(5)(ii) An employer or owner may demonstrate that PACM does not contain more than 1 percent asbestos by the following:

(k)(5)(ii)(A) Having a completed inspection conducted pursuant to the requirements of AHERA (40 CFR Part 763, Subpart E) which demonstrates that the material is not ACM; or

(k)(5)(ii)(B) Performing tests of the material containing PACM which demonstrate that no ACM is present in the material. Such tests shall include analysis of bulk samples collected in the manner described in 40 CFR 763.86. The tests, evaluation and sample collection shall be conducted by an accredited inspector or by a CIH. Analysis of samples shall be performed by persons or laboratories with proficiency demonstrated by current successful participation in a nationally recognized testing program such as the National Voluntary Laboratory Accreditation Program (NVLAP) or the National Institute for Standards and Technology (NIST) or the Round Robin for bulk samples administered by the American Industrial Hygiene Association (AIHA) or an equivalent nationally-recognized round robin testing program.

(k)(5)(iii) The employer and/or building owner may demonstrate that flooring material including associated mastic and backing does not contain asbestos, by a determination of an industrial hygienist based upon recognized analytical techniques showing that the material is not ACM.

(k)(6) At the entrance to mechanical rooms/areas in which employees reasonably can be expected to enter and which contain ACM and/or PACM, the building owner shall post signs which identify the material which is present, its location, and appropriate work practices which, if followed, will ensure that ACM and/or PACM will not be disturbed. The employer shall ensure, to the extent feasible, that employees who come in contact with these signs can comprehend them. Means to ensure employee comprehension may include the use of foreign languages, pictographs, graphics, and awareness training.

(k)(7) Signs.

(k)(7)(i) Warning signs that demarcate the regulated area shall be provided and displayed at each location where a regulated area is required to be established by paragraph (e) of this section. Signs shall be posted at such a distance from such a location that an employee may read the signs and take necessary protective steps before entering the area marked by the signs.

(k)(7)(ii)(A) The warning signs required by paragraph (k)(7) of this section shall bear the following information.

DANGER
ASBESTOS
MAY CAUSE CANCER
CAUSES DAMAGE TO LUNGS
AUTHORIZED PERSONNEL ONLY

(k)(7)(ii)(B) In addition, where the use of respirators and protective clothing is required in the regulated area under this section, the warning signs shall include the following:

WEAR RESPIRATORY PROTECTION AND PROTECTIVE CLOTHING IN THIS AREA

(k)(7)(iii) The employer shall ensure that employees working in and contiguous to regulated areas comprehend the warning signs required to be posted by paragraph (k)(7)(i) of this section. Means to ensure employee comprehension may include the use of foreign languages, pictographs and graphics.

(k)(8) Labels.

(k)(8)(i) Labels shall be affixed to all products containing asbestos and to all containers containing such products, including waste containers. Where feasible, installed asbestos products shall contain a visible label.

(k)(8)(ii)

Labels shall be printed in large, bold letters on a contrasting background.

(k)(8)(iii)

Labels shall be used in accordance with the requirements of 29 CFR 1910.1200(f) of OSHA's Hazard Communication standard, and shall contain the following information:

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

(k)(8)(iv) [Reserved]

(k)(8)(v) Labels shall contain a warning statement against breathing asbestos fibers.

(k)(8)(vi) The provisions for labels required by paragraphs (k)(8)(i) through (k)(8)(iii) of this section do not apply where:

(k)(8)(vi)(A) Asbestos fibers have been modified by a bonding agent, coating, binder, or other material, provided that the manufacturer can demonstrate that, during any reasonably foreseeable use, handling, storage, disposal, processing, or transportation, no airborne concentrations of asbestos fibers in excess of the permissible exposure limit and/or excursion limit will be released, or

(k)(8)(vi)(B) Asbestos is present in a product in concentrations less than 1.0 percent.

(k)(8)(vii) When a building owner or employer identifies previously installed PACM and/or ACM, labels or signs shall be affixed or posted so that employees will be notified of what materials contain PACM and/or ACM. The employer shall attach such labels in areas where they will clearly be noticed by employees who are likely to be exposed, such as at the entrance to mechanical room/areas. Signs required by paragraph (k)(6) of this section may be posted in lieu of labels so long as they contain information required for labeling. The employer shall ensure, to the extent feasible, that employees who come in contact with these signs or labels can comprehend them. Means to ensure employee comprehension may include the use of foreign languages, pictographs, graphics, and awareness training.

(k)(9) Employee Information and Training.

(k)(9)(i) The employer shall train each employee who is likely to be exposed in excess of a PEL, and each employee who performs Class I through IV asbestos operations, in accordance with the requirements of this section. Such training shall be conducted at no cost to the employee. The employer shall institute a training program and ensure employee participation in the program.

(k)(9)(ii) Training shall be provided prior to or at the time of initial assignment and at least annually thereafter.

(k)(9)(iii) Training for Class I operations and for Class II operations that require the use of critical barriers (or equivalent isolation methods) and/or negative pressure enclosures under this section shall be the equivalent in curriculum, training method and length to the EPA Model Accreditation Plan (MAP) asbestos abatement workers training (40 CFR Part 763, subpart E, appendix C).

(k)(9)(iv) Training for other Class II work.

(k)(9)(iv)(A) For work with asbestos containing roofing materials, flooring materials, siding materials, ceiling tiles, or transite panels, training shall include at a minimum all the elements included in paragraph (k)(9)(viii) of this section and in addition, the specific work practices and engineering controls set forth in paragraph (g) of this section which specifically relate to that category. Such course shall include "hands-on" training and shall take at least 8 hours.

(k)(9)(iv)(B) An employee who works with more than one of the categories of material specified in paragraph (k)(9)(iv)(A) of this section shall receive training in the work practices applicable to

each category of material that the employee removes and each removal method that the employee uses.

(k)(9)(iv)(C) For Class II operations not involving the categories of material specified in paragraph (k)(9)(iv)(A) of this section, training shall be provided which shall include at a minimum all the elements included in paragraph (k)(9)(viii) of this section and in addition, the specific work practices and engineering controls set forth in paragraph (g) of this section which specifically relate to the category of material being removed, and shall include "hands-on" training in the work practices applicable to each category of material that the employee removes and each removal method that the employee uses.

(k)(9)(v) Training for Class III employees shall be consistent with EPA requirements for training of local education agency maintenance and custodial staff as set forth at 40 CFR 763.92(a)(2). Such a course shall also include "hands-on" training and shall take at least 16 hours. Exception: For Class III operations for which the competent person determines that the EPA curriculum does not adequately cover the training needed to perform that activity, training shall include as a minimum all the elements included in paragraph (k)(9)(viii) of this section and in addition, the specific work practices and engineering controls set forth in paragraph (g) of this section which specifically relate to that activity, and shall include "hands-on" training in the work practices applicable to each category of material that the employee disturbs.

(k)(9)(vi) Training for employees performing Class IV operations shall be consistent with EPA requirements for training of local education agency maintenance and custodial staff as set forth at 40 CFR 763.92(a)(1). Such a course shall include available information concerning the locations of thermal system insulation and surfacing ACM/PACM, and asbestos-containing flooring material, or flooring material where the absence of asbestos has not yet been certified; and instruction in recognition of damage, deterioration, and delamination of asbestos containing building materials. Such course shall take at least 2 hours.

(k)(9)(vii) Training for employees who are likely to be exposed in excess of the PEL and who are not otherwise required to be trained under paragraph (k)(9)(iii) through (vi) of this section, shall meet the requirements of paragraph (k)(9)(viii) of this section.

(k)(9)(viii) The training program shall be conducted in a manner that the employee is able to understand. In addition to the content required by provisions in paragraphs (k)(9)(iii) through (vi) of this section, the employer shall ensure that each such employee is informed of the following:

(k)(9)(viii)(A) Methods of recognizing asbestos, including the requirement in paragraph (k)(1) of this section to presume that certain building materials contain asbestos;

(k)(9)(viii)(B) The health effects associated with asbestos exposure;

(k)(9)(viii)(C) The relationship between smoking and asbestos in producing lung cancer;

(k)(9)(viii)(D) The nature of operations that could result in exposure to asbestos, the importance of necessary protective controls to minimize exposure including, as applicable, engineering controls, work practices, respirators, housekeeping procedures, hygiene facilities, protective clothing, decontamination procedures, emergency procedures, and waste disposal procedures, and any necessary instruction in the use of these controls and procedures; where Class III and IV work will be or is performed, the contents of EPA 20T-2003, "Managing Asbestos In-Place" July 1990 or its equivalent in content;

(k)(9)(viii)(E) The purpose, proper use, fitting instructions, and limitations of respirators as required by 29 CFR 1910.134;

(k)(9)(viii)(F) The appropriate work practices for performing the asbestos job;

(k)(9)(viii)(G) Medical surveillance program requirements;

(k)(9)(viii)(H) The content of this standard including appendices;

(k)(9)(viii)(I) The names, addresses and phone numbers of public health organizations which provide information, materials and/or conduct programs concerning smoking cessation. The employer may distribute the list of such organizations contained in Appendix J to this section, to comply with this requirement; and

(k)(9)(viii)(J) The requirements for posting signs and affixing labels and the meaning of the required legends for such signs and labels.

(k)(10) Access to training materials.

(k)(10)(i) The employer shall make readily available to affected employees without cost, written materials relating to the employee training program, including a copy of this regulation.

(k)(10)(ii) The employer shall provide to the Assistant Secretary and the Director, upon request, all information and training materials relating to the employee information and training program.

(k)(10)(iii) The employer shall inform all employees concerning the availability of self-help smoking cessation program material. Upon employee request, the employer shall distribute such material, consisting of NIH Publication No, 89-1647, or equivalent self-help material, which is approved or published by a public health organization listed in Appendix J to this section.

(l) Housekeeping.

(l)(1) Vacuuming. Where vacuuming methods are selected, HEPA filtered vacuuming equipment must be used. The equipment shall be used and emptied in a manner that minimizes the reentry of asbestos into the workplace.

(l)(2) Waste 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 paragraph (g)(8)(ii) of this section apply.

(l)(3) Care of asbestos-containing flooring material.

(l)(3)(i) All vinyl and asphalt flooring material shall be maintained in accordance with this paragraph unless the building/facility owner demonstrates, pursuant to paragraph (g)(8)(i)(I) of this section that the flooring does not contain asbestos.

(l)(3)(ii) Sanding of flooring material is prohibited.

(l)(3)(iii) Stripping of finishes shall be conducted using low abrasion pads at speeds lower than 300 rpm and wet methods.

(l)(3)(iv) Burnishing or dry buffing may be performed only on flooring which has sufficient finish so that the pad cannot contact the flooring material.

(l)(4) Waste and debris and accompanying dust in an area containing accessible thermal system insulation or surfacing ACM/PACM or visibly deteriorated ACM:

(l)(4)(i) shall not be dusted or swept dry, or vacuumed without using a HEPA filter;

(l)(4)(ii) shall be promptly cleaned up and disposed of in leak tight containers.

(m) Medical surveillance..

(m)(1) General..

(m)(1)(i) Employees covered.

(m)(1)(i)(A) The employer shall institute a medical surveillance program for all employees who for a combined total of 30 or more days per year are engaged in Class I, II and III work or are exposed at or above a permissible exposure limit. For purposes of this paragraph, any day in which a worker engages in Class II or Class III operations or a combination thereof on intact material for one hour or less (taking into account the entire time spent on the removal operation, including cleanup) and, while doing so, adheres fully to the work practices specified in this standard, shall not be counted.

(m)(1)(i)(B) For employees otherwise required by this standard to wear a negative pressure respirator, employers shall ensure employees are physically able to perform the work and use the equipment. This determination shall be made under the supervision of a physician.

(m)(1)(ii) Examination.

(m)(1)(ii)(A) The employer shall ensure that all medical examinations and procedures are performed by or under the supervision of a licensed physician, and are provided at no cost to the employee and at a reasonable time and place.

(m)(1)(ii)(B) Persons other than such licensed physicians who administer the pulmonary function testing required by this section shall complete a training course in spirometry sponsored by an appropriate academic or professional institution.

(m)(2) Medical examinations and consultations..

(m)(2)(i) Frequency. The employer shall make available medical examinations and consultations to each employee covered under paragraph (m)(1)(i) of this section on the following schedules:

(m)(2)(i)(A) Prior to assignment of the employee to an area where negative-pressure respirators are worn;

(m)(2)(i)(B) When the employee is assigned to an area where exposure to asbestos may be at or above the permissible exposure limit for 30 or more days per year, or engage in Class I, II, or

Ill work for a combined total of 30 or more days per year, a medical examination must be given within 10 working days following the thirtieth day of exposure;

(m)(2)(i)(C) And at least annually thereafter.

(m)(2)(i)(D) If the examining physician determines that any of the examinations should be provided more frequently than specified, the employer shall provide such examinations to affected employees at the frequencies specified by the physician.

(m)(2)(i)(E) Exception: No medical examination is required of any employee if adequate records show that the employee has been examined in accordance with this paragraph within the past 1-year period.

(m)(2)(ii) Content. Medical examinations made available pursuant to paragraphs (m)(2)(i)(A) through (m)(2)(i)(C) of this section shall include:

(m)(2)(ii)(A) A medical and work history with special emphasis directed to the pulmonary, cardiovascular, and gastrointestinal systems.

(m)(2)(ii)(B) On initial examination, the standardized questionnaire contained in Part 1 of Appendix D to this section, and, on annual examination, the abbreviated standardized questionnaire contained in Part 2 of Appendix D to this section.

(m)(2)(ii)(C) A physical examination directed to the pulmonary and gastrointestinal systems, including a chest roentgenogram to be administered at the discretion of the physician, and pulmonary function tests of forced vital capacity (FVC) and forced expiratory volume at one second (FEV₁). Interpretation and classification of chest shall be conducted in accordance with Appendix E to this section.

(m)(2)(ii)(D) Any other examinations or tests deemed necessary by the examining physician.

(m)(3) Information provided to the physician. The employer shall provide the following information to the examining physician:

(m)(3)(i) A copy of this standard and Appendices D, E, and I to this section;

(m)(3)(ii) A description of the affected employee's duties as they relate to the employee's exposure;

(m)(3)(iii) The employee's representative exposure level or anticipated exposure level;

(m)(3)(iv) A description of any personal protective and respiratory equipment used or to be used; and

(m)(3)(v) Information from previous medical examinations of the affected employee that is not otherwise available to the examining physician.

(m)(4) Physician's written opinion.

(m)(4)(i) The employer shall obtain a written opinion from the examining physician. This written opinion shall contain the results of the medical examination and shall include:

(m)(4)(i)(A) The physician's opinion as to whether the employee has any detected medical conditions that would place the employee at an increased risk of material health impairment from exposure to asbestos;

(m)(4)(i)(B) Any recommended limitations on the employee or on the use of personal protective equipment such as respirators; and

(m)(4)(i)(C) A statement that the employee has been informed by the physician of the results of the medical examination and of any medical conditions that may result from asbestos exposure.

(m)(4)(i)(D) A statement that the employee has been informed by the physician of the increased risk of lung cancer attributable to the combined effect of smoking and asbestos exposure.

(m)(4)(ii) The employer shall instruct the physician not to reveal in the written opinion given to the employer specific findings or diagnoses unrelated to occupational exposure to asbestos.

(m)(4)(iii) The employer shall provide a copy of the physician's written opinion to the affected employee within 30 days from its receipt.

(n) Recordkeeping.

(n)(1) Objective data relied on pursuant to paragraph (f) to this section.

(n)(1)(i) Where the employer has relied on objective data that demonstrates that products made from or containing asbestos or the activity involving such products or material are not capable of releasing fibers of asbestos in concentrations at or above the permissible exposure limit and/or excursion limit under the expected conditions of processing, use, or handling to satisfy the requirements of paragraph (f), the employer shall establish and maintain an accurate record of objective data reasonably relied upon in support of the exemption.

- (n)(1)(ii) The record shall include at least the following information:
- (n)(1)(ii)(A) The product qualifying for exemption;
 - (n)(1)(ii)(B) The source of the objective data;
 - (n)(1)(ii)(C) The testing protocol, results of testing, and/or analysis of the material for the release of asbestos;
 - (n)(1)(ii)(D) A description of the operation exempted and how the data support the exemption; and
 - (n)(1)(ii)(E) Other data relevant to the operations, materials, processing, or employee exposures covered by the exemption.
- (n)(1)(iii) The employer shall maintain this record for the duration of the employer's reliance upon such objective data.
- (n)(2) Exposure measurements.
- (n)(2)(i) The employer shall keep an accurate record of all measurements taken to monitor employee exposure to asbestos as prescribed in paragraph (f) of this section.
- NOTE: The employer may utilize the services of competent organizations such as industry trade associations and employee associations to maintain the records required by this section.
- (n)(2)(ii) This record shall include at least the following information:
- (n)(2)(ii)(A) The date of measurement;
 - (n)(2)(ii)(B) The operation involving exposure to asbestos that is being monitored;
 - (n)(2)(ii)(C) Sampling and analytical methods used and evidence of their accuracy;
 - (n)(2)(ii)(D) Number, duration, and results of samples taken;
 - (n)(2)(ii)(E) Type of protective devices worn, if any; and
 - (n)(2)(ii)(F) Name, social security number, and exposure of the employees whose exposures are represented.
- (n)(2)(iii) The employer shall maintain this record for at least thirty (30) years, in accordance with 29 CFR 1910.20.
- (n)(3) Medical surveillance.
- (n)(3)(i) The employer shall establish and maintain an accurate record for each employee subject to medical surveillance by paragraph (m) of this section, in accordance with 29 CFR 1910.20.
- (n)(3)(ii) The record shall include at least the following information:
- (n)(3)(ii)(A) The name and social security number of the employee;
 - (n)(3)(ii)(B) A copy of the employee's medical examination results, including the medical history, questionnaire responses, results of any tests, and physician's recommendations.
 - (n)(3)(ii)(C) Physician's written opinions;
 - (n)(3)(ii)(D) Any employee medical complaints related to exposure to asbestos; and
 - (n)(3)(ii)(E) A copy of the information provided to the physician as required by paragraph (m) of this section.
- (n)(3)(iii) The employer shall ensure that this record is maintained for the duration of employment plus thirty (30) years, in accordance with 29 CFR 1910.20.
- (n)(4) Training records. The employer shall maintain all employee training records for one (1) year beyond the last date of employment by that employer.
- (n)(5) Data to Rebut PACM. Where the building owner and employer have relied on data to demonstrate that PACM is not asbestos-containing, such data shall be maintained for as long as they are relied upon to rebut the presumption.
- (n)(6) Records of Required Notifications. Where the building owner has communicated and received information concerning the identification, location and quantity of ACM and PACM, written records of such notifications and their content shall be maintained by the building owner for the duration of ownership and shall be transferred to successive owners of such buildings/facilities.
- (n)(7) Availability.
- (n)(7)(i) The employer, upon written request, shall make all records required to be maintained by this section available to the Assistant Secretary and the Director for examination and copying.
- (n)(7)(ii) The employer, upon request, shall make any exposure records required by paragraphs (f) and (n) of this section available for examination and copying to affected employees, former

employees, designated representatives, and the Assistant Secretary, in accordance with 29 CFR 1910.20(a) through (e) and (g) through (i).

(n)(7)(iii) The employer, upon request, shall make employee medical records required by paragraphs (m) and (n) of this section available for examination and copying to the subject employee, anyone having the specific written consent of the subject employee, and the Assistant Secretary, in accordance with 29 CFR 1910.20.

(n)(8) Transfer of records.

(n)(8)(i) The employer shall comply with the requirements concerning transfer of records set forth in 29 CFR 1910.20(h).

(n)(8)(ii) Whenever the employer ceases to do business and there is no successor employer to receive and retain the records for the prescribed period, the employer shall notify the Director at least 90 days prior to disposal and, upon request, transmit them to the Director.

(o) Competent person.

(o)(1) General. On all construction worksites covered by this standard, the employer shall designate a competent person, having the qualifications and authorities for ensuring worker safety and health required by Subpart C, General Safety and Health Provisions for Construction (29 CFR 1926.20 through 1926.32).

(o)(2) Required Inspections by the Competent Person. Section 1926.20(b)(2) which requires health and safety prevention programs to provide for frequent and regular inspections of the job sites, materials, and equipment to be made by competent persons, is incorporated.

(o)(3) Additional Inspections. In addition, the competent person shall make frequent and regular inspections of the job sites, in order to perform the duties set out below in paragraph (o)(3)(i) and (ii) of this section. For Class I jobs, on-site inspections shall be made at least once during each work shift, and at any time at employee request. For Class II, III, and IV jobs, on-site inspections shall be made at intervals sufficient to assess whether conditions have changed, and at any reasonable time at employee request.

(o)(3)(i) On all worksites where employees are engaged in Class I or II asbestos work, the competent person designated in accordance with paragraph (e)(6) of this section shall perform or supervise the following duties, as applicable:

(o)(3)(i)(A) Set up the regulated area, enclosure, or other containment;

(o)(3)(i)(B) Ensure (by on-site inspection) the integrity of the enclosure or containment;

(o)(3)(i)(C) Set up procedures to control entry to and exit from the enclosure and/or area;

(o)(3)(i)(D) Supervise all employee exposure monitoring required by this section and ensure that it is conducted as required by paragraph (f) of this section;

(o)(3)(i)(E) Ensure that employees working within the enclosure and/or using glove bags wear respirators and protective clothing as required by paragraphs (h) and (i) of this section;

(o)(3)(i)(F) Ensure through on-site supervision, that employees set up, use and remove engineering controls, use work practices and personal protective equipment in compliance with all requirements;

(o)(3)(i)(G) Ensure that employees use the hygiene facilities and observe the decontamination procedures specified in paragraph (j) of this section;

(o)(3)(i)(H) Ensure that through on-site inspection, engineering controls are functioning properly and employees are using proper work practices; and,

(o)(3)(i)(I) Ensure that notification requirement in paragraph (k) of this section are met.

(o)(3)(ii) [Reserved]

(o)(4) Training for the competent person.

(o)(4)(i) For Class I and II asbestos work the competent person shall be trained in all aspects of asbestos removal and handling, including: abatement, installation, removal and handling; the contents of this standard; the identification of asbestos; removal procedures, where appropriate; and other practices for reducing the hazard. Such training shall be obtained in a comprehensive course for supervisors that meets the criteria of EPA's Model Accredited Plan (40 CFR part 763, subpart E, Appendix C), such as a course conducted by an EPA-approved or state-approved training provider, certified by EPA or a state, or a course equivalent in stringency, content, and length.

(o)(4)(ii) For Class III and IV asbestos work, the competent person shall be trained in aspects of asbestos handling appropriate for the nature of the work, to include procedures for setting up

glove bags and mini-enclosures, practices for reducing asbestos exposures, use of wet methods, the contents of this standard, and the identification of asbestos. Such training shall include successful completion of a course that is consistent with EPA requirements for training of local education agency maintenance and custodial staff as set forth at 40 CFR 763.92(a)(2), or its equivalent in stringency, content, and length. Competent persons for Class III and IV work, may also be trained pursuant to the requirements of paragraph (o)(4)(i) of this section.

(p) Appendices.

(p)(1) Appendices A, C, D, and E to this section are incorporated as part of this section and the contents of these appendices are mandatory.

(p)(2) Appendices B, F, H, I, J, and K to this section are informational and are not intended to create any additional obligations not otherwise imposed or to detract from any existing obligations.

(q) Dates.

(q)(1) This standard shall become effective October 11, 1994.

(q)(2) The provisions of 29 CFR 1926.58 remain in effect until the start-up dates of the equivalent provisions of this standard.

(q)(3) Start-up dates. All obligations of this standard commence on the effective date except as follows:

(q)(3)(i) Methods of compliance. The engineering and work practice controls required by paragraph (g) of this section shall be implemented by October 1, 1995.

(q)(3)(ii) Respiratory protection. Respiratory protection required by paragraph (h) of this section shall be provided by October 1, 1995.

(q)(3)(iii) Hygiene facilities and practices for employees. Hygiene facilities and practices required by paragraph (j) of this section shall be provided by October 1, 1995.

(q)(3)(iv) Communication of hazards. Identification, notification, labeling and sign posting, and training required by paragraph (k) of this section shall be provided by October 1, 1995.

(q)(3)(v) Housekeeping. Housekeeping practices and controls required by paragraph (1) of this section shall be provided by October 1, 1995.

(q)(3)(vi) Medical surveillance required by paragraph (m) of this section shall be provided by October 1, 1995.

(q)(3)(vii) The designation and training of competent persons required by paragraph (o) of this section shall be completed by October 1, 1995.

(Rev. 3/26/18)

COMMON MISUNDERSTANDINGS IN THE OSHA ASBESTOS STANDARD

1. The application of Class I and Class II Work based on the definition of “Surfacing”.
2. The application of (g)(2)
3. The meaning and application of “intact/non-intact”
4. The application of (g)(6) and (g)(8)(vi) – Alternative Controls.

Class I, Class II and “Surfacing”

There is much confusion over the definition of “surfacing” (therefore the definition of “Class I Work”). Most of this stems from the earlier EPA AHERA use of the term as a classification of building materials during an inspection. However, OSHA has issued a number of interpretive rulings clarifying their use of the term as a material in which the asbestos is “loosely bound”, and represents “high hazard” to employees, much like the EPA use of the term “friable”. Therefore, what we would call “friable surfacing”, from an EPA perspective, is what OSHA would call surfacing for the definition of Class I Work. All other materials such as plaster, stucco, wall or ceiling texture or joint compounds are not surfacing, therefore their removal is Class II Work, not Class I Work.

The application of sub-paragraph (g)(2)

The proper understanding and application of sub-paragraph (g)(2) under “Methods of Compliance” is the required response when an employee is exposed to asbestos above the PELs or where there is no Negative Exposure Assessment (therefore exposure must be assumed). The employer in this case “..shall use the following control methods to achieve compliance with the (PELs)..”. To interpret this sub-paragraph as a universal mandate would be to apply its requirements on all 4 classes of work, since PEL compliance in all 4 classes of work is always required. This is not OSHA’s intent in their “tiered” worker protection concept. Therefore, local exhaust ventilation, enclosure, and engineered air movement are not always required, depending on the class of work or chosen control method.

“Intact” and “non-intact”

Much like EPA in their use of the term friable, the word “broken” has no application in the definition or use of “intact” under the OSHA standard. “Intact” means that the fibers of asbestos in a material are bound in the matrix, therefore cannot float away or become airborne. Non-intact means that the material has “...been pulverized...so that the asbestos is no longer likely to be bound with its matrix”. “Intact” has application mainly in the context of Class II Removal. Most class II materials are intact or “substantially intact”, even during removal. If the employer has a valid Negative Exposure Assessment, then critical barriers, isolation or dropcloths are not necessarily required. Of course, regulatory requirements are minimal, not necessarily the best way to do a job.

Alternative Control Methods

Sub-paragraphs (g)(6) and (g)(8)(vi) were written into the standard for the practical purpose of allowing new methods of control, as they are developed, to be incorporated into the standard without having to change the standard in the future, and to give a way to require worker protection when normal methods of compliance cannot work (i.e. NESHAP ordered demolition of a building with class I or class II materials in place). When an employer uses alternative methods instead of the specifications and work practices in (g)(5) or (g)(8), he is using the concept of negative exposure assessment instead of regulatory specifications. In both cases, worker protection is paramount. OSHA themselves have gone back and forth in interpretive documents on when alternative methods should be implemented, but several issues should be considered here. One is the intent of the writing of the regulation as explained in the preamble, and the other is the results of personal air monitoring conducted during the work. The goal of either regulatory specifications or alternative controls is that there be no exposure to the workers.

The best OSHA letter to explain what "Surfacing" is. Also contains information on O&M disturbance in buildings.

April 21, 1998

Ms. Sally J. Lagomarisino
Supervisor Environmental Health and Safety
Clayton Environmental Consultants
1252 Quarry Lane
P.O. Box 9019
Pleasanton, CA 94566

Dear Ms. Lagomarisino:

This is in response to your letter of August 29, 1997, to Stephen Mallinger, former Acting Director, Office of Health Compliance Assistance, Occupational Safety and Health Administration (OSHA), requesting clarification of the applicability of the asbestos standard to certain work activities. We apologize for the delay in our response to you.

You ask if pounding a nail or installing a molly anchor into wall materials, such as, joint compound, finishing/texture material, wall plaster, or paint, that contain more than 1% asbestos, to hang a picture, bulletin board, or clock, etc. is considered to be work that is covered by tile construction asbestos standard (29 CFR 1926.1101). You also ask if installing a molly anchor or other fasteners into wall materials as described above or into floor materials such as asbestos-containing resilient floor tile or sheeting in order to seismically brace a file cabinet, bookcase, etc., is construction work that is covered by the construction asbestos standard. Such work must be evaluated case by case to determine whether it is covered by the construction asbestos standard. If the task is difficult or complex enough to require that construction workers, maintenance persons, or repair persons perform the work, then the work is Class III work covered by the construction asbestos standard. If the task is easy or simple enough to not require that construction workers, maintenance persons, or repair persons perform the work, then the work is covered by the general industry asbestos standard, 29 CFR 1910. 1001, instead of the construction asbestos standard.

You seek clarification of what training must be provided employees performing that work described above that is Class III work covered by the construction asbestos standard. If the employees are employed at carrying out an operation and maintenance program for the building or facility, they require training equivalent to the Environmental Protection Agency's (EPA's) Operation and Maintenance (O&M) training as outlined in 40 CFR 763.92. On the other hand, if Class III work described in the preceding paragraph is the only Class III work conducted by the employees, the employer may rely on the competent person it uses for asbestos projects to determine whether the O&M-type course is appropriate for these employees. If the competent person determines that much of the curriculum in the O&M-type course is not relevant, the competent person may certify that the training contained in 29 CFR 1926[.1101](k)(9)(viii) is more applicable and may opt to designate this training for the employees provided relevant engineering and work practice controls, other controls, and "hands-on" training will be adequately covered. Both initial training and annual refresher training must be provided. There is no specified minimum time that must be devoted to refresher training. The duration of the initial training will depend on the complexity and hazard of the operation, but it is likely that at least 4 hours will be required to cover the topics, methods, and hands-on portion.

As to your inquiry about medical surveillance for employees performing that work you describe above that is Class III work, an employee must be offered medical surveillance if there are more than 30 days per year the employee spends any amount of time performing the activities. Those days on which an employee spends less than an hour performing the work are not excluded from the count because the work produces asbestos-containing aerosols or shavings. The days on which an employee spends less than an hour on Class III (or Class II) work are excluded only if the asbestos-containing material stays intact while being disturbed (or removed).

You are correct that regardless of exposure levels, regulated areas must be established wherever Class III asbestos work is conducted. According to 29 CFR 1926.1101(e)(1), all Class III asbestos work must be conducted within a regulated area. Moreover, the regulated area is required even should a negative exposure assessment be produced. The regulated area shall be demarcated in any manner that minimizes the number of persons within the area and protects persons outside the area from exposure to airborne asbestos. Signs shall be provided and displayed pursuant to the requirements of 29 CFR 1926.1101(k)(7).

You are correct that until the employer produces negative exposure assessments for Class III asbestos work, the employees performing the work must be provided and must use respirators and protective clothing. If Class III asbestos work is not performed using wet methods, or if the Class III asbestos work is performed on asbestos-containing surfacing material, then respirators shall be used even after negative exposure assessments have been produced.

The protective clothing required for Class III asbestos work if a negative exposure assessment has not been produced is coveralls or similar whole-body clothing, and head coverings, gloves, and foot coverings. In those instances where negative exposure assessments have been produced for Class III asbestos work, no protective clothing is required.

You end your inquiry into the requirements that pertain when pounding a nail or installing a molly anchor into a wall by asking whether the use of coveralls and a respirator, establishment of a regulated area, and posting of an asbestos warning sign are required just to hang a picture on a plaster wall or on a sheetrock wall coated with finishing material, even after a negative exposure assessment has been produced. As you will note from the answers we provide later in this letter to your questions about surfacing material, the project you ask about may not involve surfacing material. Also, as we stated earlier in this letter, if the task is easy or simple enough to not require that construction workers, maintenance persons, or repair persons perform the work, then the work is covered by the general industry asbestos standard, 29 CFR 1910.1001, instead of the construction asbestos standard.

If the work is covered by the general industry asbestos standard, then if a negative exposure assessment has been produced, no respiratory protection or protective clothing is required, and neither the establishment of a regulated area nor the posting of an asbestos warning sign is required.

You ask for the definition of "routine facility maintenance." OSHA has not defined the term with regard to its relationship to the Asbestos Construction Standard because the term has no special application to the standard.

You ask that OSHA provide examples of materials it considers surfacing materials besides acoustical plaster and fireproofing coatings for structural members. Decorative plaster with a honeycombed structure and loosely bound fibers is an example of another material that OSHA considers surfacing material.

You list a number of materials and ask if they are surfacing materials as defined by OSHA. We repeat each of the materials you list and comment on them.

- Wall/ceiling plaster (cementitious-type) that has been troweled onto wire lath, button board, or other substrate -- Unless the plaster is acoustical plaster as indicated by a honeycombed structure, or the plaster is decorative plaster with an appearance similar to acoustical plaster, it is not surfacing material.
- Stucco -- This is not surfacing material.
- Paint that has been sprayed on or otherwise applied to wall/ceiling or other building surfaces -- This is not surfacing material.
- **Finishing material** that has been troweled onto or spray-applied to wall/ceiling sheetrock, concrete, or other surfaces (e.g., "**joint compound**" that has been applied to a sheetrock wall/ceiling surface to provide a textured finish and covers the entire surface [not just the joints], or a skimcoat application of a light cement finish coat that has been used to provide a smooth finish on sheetrock or concrete -- "Joint compound" used to provide a **textured finish** for the entire wall or ceiling is usually not surfacing material since usually any fibers it may contain are firmly bound. However, if the textured finish is not readily distinguishable visually from acoustical plaster, it is surfacing material within the meaning of the use of the term in the standard. Cement **skimcoats** applied to sheetrock or concrete to provide a smooth finish are not surfacing materials.
- Floor leveling compound -- This is not surfacing material.
- Mastic that has been troweled onto a concrete floor surface to adhere resilient tile -- This is not surfacing material.

We appreciate the opportunity to clarify these matters for you. If you have further questions please contact [the Office of Health Compliance Assistance at (202) 693-2190].

Sincerely,

John B. Miles, Jr

Director

Directorate of Compliance Programs

Joint compound is not surfacing material under OSHA. It is a Class II material.

May 14, 1998

Mr. Mark V. Wiggins
OSHA Standards Officer
South Carolina Department of LLR-OSHA
3600 Forest Drive
P.O. Box 11329
Columbia, South Carolina 29211-1329

Dear Mr. Wiggins:

This is in response to your letter of October 23, to Ms. Dinwiddie, with the Columbia, South Carolina, Area Office of the Occupational Safety and Health Administration (OSHA), concerning asbestos-containing joint compound.

You refer to the definition of "surfacing material" at 29 CFR 1926.1101(b) in the OSHA construction asbestos standard which reads:

"Surfacing material" means material that is sprayed, troweled-on or otherwise applied to surfaces (such as acoustical plaster on ceilings and fireproofing materials on structural members, or other materials on surfaces for acoustical, fireproofing, and other purposes).

Because the definition seems open-ended as to the purpose for applying material to a surface, it appears to you that since joint compound is applied in a manner similar to troweling it fits the definition of surfacing material. You note that the OSHA National Office has stated that joint compound is not "surfacing material", however. You request clarification of how OSHA reaches this conclusion. Moreover, you note that OSHA states in the letter dated April 28, 1997, to Mr. Gary Thibodeaux with National Service Cleaning Corporation, Orange, Texas, that joint compound is finishing material and not surfacing material. You ask what is meant by "finishing material."

OSHA reaches the conclusion that joint compound is not "surfacing material" by considering the definition of "Class II asbestos work" and analyzing the preamble to the 1994 revision of the asbestos standards.

The definition reads:

"Class II asbestos work" means activities involving the removal of ACM which is not thermal system insulation or surfacing material. This includes, but is not limited to, the removal of asbestos-containing wallboard, floor tile and sheeting, roofing and siding shingles, and construction mastics.

Note that removal of asbestos-containing wallboard is an activity involving the removal of asbestos-containing material (ACM) which is not surfacing material. In actuality, the wallboard itself seldom contains asbestos. The asbestos is usually in joint compound, spackling compound,

and tape used to produce a smooth wall surface. Therefore, joint compound is by definition not surfacing material.

The preamble relates that surfacing material is material that presents "high risk." This means it is material that is easily caused to release airborne asbestos because the fibers are loosely bound. OSHA believes that the fibers in joint compound are too tightly bound for the compound to belong in the "high risk" category.

As to your question concerning "finishing material," OSHA has not defined the term with regard to its relationship to the asbestos standards because it has no special application in the standards. The term was used in the letter to which you referred to mean material that is used to fill the cracks between adjacent wallboard panels to produce a smooth wall surface.

We appreciate the opportunity to clarify this matter for you. If you have further questions, please contact the Office of Health Compliance Assistance at (202) 219-8036.

Sincerely,

John B. Miles, Jr.
Director
Directorate of Compliance Programs

**The importance of air
monitoring compliance
data under OSHA.**

**Inaccurate Asbestos Exposure Records Lead to Nearly \$51,000 in
OSHA Fines for North Adams, Mass., Employer**

SPRINGFIELD, Mass. -- A North Adams, Mass., asbestos removal contractor's failure to maintain accurate records of its workers' exposure to asbestos has resulted in a total of \$50,900 in fines from the U.S. Labor Department's Occupational Safety and Health Administration.

GEM Environmental Services has been cited for alleged willful and serious violations of the Occupational Safety and Health Act following an OSHA inspection begun Jan. 3, 2003, in response to an employee complaint.

OSHA's inspection identified eight instances where the company intentionally failed to accurately record or keep measurements of employees' asbestos exposure during an asbestos removal job at Berkshire Medical Center in Pittsfield in the summer of 2002, explained Ronald E. Morin, OSHA's Western Mass. area director. He noted that inhalation of asbestos fibers by workers can lead to serious lung diseases over time.

"That's why proper exposure monitoring is so critical for workers. It's the tool by which employers can promptly spot overexposures and take swift, effective steps to reduce them," he said. "Otherwise, inaccurate monitoring leads to inadequate safeguards and increased risk to employees' health and well-being."

As a result, OSHA has cited GEM Environmental for an alleged willful violation, the most severe category of OSHA citation, and proposed a fine of \$44,000. A willful violation is defined by OSHA as one committed with an intentional disregard of, or plain indifference to, the requirements of the Occupational Safety and Health Act and regulations.

An additional \$6,900 in fines was proposed for six hazards classified as serious. They involve failure to monitor employees' asbestos exposure while cleaning equipment at GEM's headquarters; failure to calibrate air sampling pumps; missing or incomplete records of respirator use, pump calibration and duration times; and a defective power cord. OSHA defines a serious violation as one in which there is a substantial probability that death or serious physical harm could result, and the employer knew, or should have known, of the hazard.

GEM Environmental has 15 business days from receipt of its citations and proposed penalties to either elect to comply with them, to request and participate in an informal conference with the OSHA area director, or to contest them before the independent Occupational Safety and Health Review Commission. The OSHA area office in Springfield conducted the inspection. The telephone number is (413) 785-0123.

The Occupational Safety and Health Administration is dedicated to saving lives, preventing injuries and illnesses, and protecting America's workers. Safety and health add value to business, the workplace and life. For more information, visit <http://osha.gov/index.html>.

**The application and use of
"Historical" data in a NEA.**

December 4, 1995

Kenneth H. Mueller, Esq.
Greentree Consulting Incorporated
163 Stockton Street
Highstown, New Jersey 08520

Dear Mr. Mueller:

This is to confirm your phone conversation on October 20, with Doug Ray of my staff, that your interpretation (letter of June 12th) of 1926.1101(f)(2)(iii)(B) of the asbestos standard is correct. More specifically, per your conversation with Doug Ray, a negative exposure assessment has been established when the workplace conditions "closely resemble" the process, type of material, control methods, work practices, environmental conditions, and employee training of an asbestos job monitored within the past 12 months. Documentation should address the above 6 areas for a negative exposure assessment, and should be available at each new worksite.

We apologize for the delay in responding to your letter of June 12, and any inconvenience it may have caused.

Sincerely,

Ruth McCully, Director
Office of Health Compliance

June 12, 1995

Mr. John Miles
Director of Compliance Programs
OSHA
200 Constitution Avenue, N.W.
Washington, DC 20210

RE: Request for written OSHA Interpretation on Use of Asbestos Air Monitoring Data from a Prior Job to Establish a "Negative Exposure Assessment" for a Projected Job: 29 CFR 1926.1101(f)(2)(iii)(B)

Dear Mr. Miles:

In researching the OSHA Asbestos Exposure Assessment and Monitoring Regulation 29 CFR 1926.1101(f)(2)(iii)(B), the need has arisen for a written interpretation from OSHA on the use of asbestos air monitoring data from a prior job to establish a "Negative Exposure Assessment" for a

projected job in a different geographic region (i.e. state). For purposes of clearly explaining this issue, the following illustration is presented.

Illustration

Company "XYZ" performs drilling into asbestos containing floor tiles at their "XYZ" - NJ facility. At the start of the job, "XYZ" performs initial eight (8) hour air monitoring and the results establish a "Negative Exposure Assessment" at their "XYZ" - NJ facility. Nine (9) months later, "XYZ" needs to perform drilling into asbestos containing floor tiles at their "XYZ" - Texas facility. The drilling work to occur at the "XYZ" - Texas facility "closely resembles" the work conditions (i.e. process, type of material) and environmental conditions of the prior job which occurred at their "XYZ" - NJ facility. Also, the workers scheduled to perform the work at the "XYZ" - Texas facility have similar asbestos training to those workers who performed the work at the "XYZ" - NJ facility.

Issue 1

Assuming the above fact pattern, per Asbestos Exposure Assessment and Monitoring Regulation 29 CFR 1926.1101(f)(2)(iii)(B), can the "XYZ" - NJ facility eight (8) hour asbestos air monitoring data (which establishes a "Negative Exposure Assessment" at the "XYZ" - NJ facility) be used to establish a "Negative Exposure Assessment" for the "XYZ" - Texas facility, and thus eliminate the need to conduct asbestos air monitoring at the "XYZ" - Texas facility?

Issue 2

If the answer to the above stated Issue 1 is "yes", what documentation must be maintained at the "XYZ" - Texas facility prior to the start of the asbestos related work? (i.e. copies of eight (8) hour asbestos air monitoring from the "XYZ" - NJ facility, etc.).

A formal interpretation on the above two (2) issues is respectfully requested from your office. The response can be faxed to my attention at fax #(609) 490-9544 (or if necessary by your office) mailed to my attention at:

Greentree Consulting, Inc.
163 Stockton Street
Hightstown, NJ 08520
Attn: Kenneth H. Mueller, Esq.

Your cooperation is appreciated regarding the above issues. Should you have any questions, please contact me directly at (609) 490-0400.

Very truly yours,

Kenneth H. Mueller, Esq.

**OSHA requires Alternative
Controls for demolition
with ACM in place.**

U.S. Department of Labor
Occupational Safety and Health Administration
August 26, 2002

Brian F. Karlovich, IHIT
Baker Environmental, Inc.
Airport Office Park, Building 5
420 Rouser Road
Coraopolis, PA 15108

Dear Mr. Karlovich:

Thank you for your May 9, 2001 letter to the Occupational Safety and Health Administration's (OSHA's) [Directorate of Enforcement Programs]. We apologize for the delay in our response. This letter constitutes OSHA's interpretation only of the requirements discussed and may not be applicable to any question not delineated within your original correspondence. You have questions about the OSHA requirements to be followed when a building with asbestos-containing material (ACM) is demolished with this material left in place. Your questions and our replies are provided below.

Scenario: EPA regulations permit demolition of buildings without prior removal if less than threshold quantities of friable ACMs are present. EPA also permits demolition without prior removal when any quantity of nonfriable ACM is present as long as the material is not likely to become friable.

Question 1: What OSHA Asbestos Standard requirements apply to a situation where ACM is present in a building and complete demolition is planned without prior removal of the ACM?

Reply: Demolition of a building with ACM left in place falls under the definition of removal of installed ACM. The removal of installed ACM is either Class I or Class II asbestos work, and all applicable requirements of the standard apply. Whether such demolition is Class I asbestos work or Class II asbestos work is determined by the type of ACM left in place. If any asbestos-containing thermal system insulation or surfacing material is left installed in the building, then the work being performed is Class I asbestos work. If the ACM left installed in the building does not include any thermal system insulation or surfacing material, then the work being performed is Class II asbestos work. See 29 CFR 1926.1101(b) (definitions).

In a building demolition situation, neither the control methods referenced at 29 CFR 1926.1101(g)(5) (Class I work) nor all of the work practices and controls described in 29 CFR 1926.1101(g)(8)(i)-(v) (Class II work) can be used. Therefore, if the work performed is Class I asbestos work, you must abide by 29 CFR 1926.1101(g)(6) which sets forth requirements for instituting alternative control methods for Class I asbestos work. If the work performed is Class II asbestos work, you must abide by 29 CFR 1926.1101(g)(8)(vi) which sets forth procedures for using different or modified engineering and work practice controls. We have specifically mentioned the applicability of 29 CFR 1926.1101(g)(6) or (g)(8)(vi). Of course, the standard's general requirements covering subjects such as permissible exposure limits, multi-employer worksites, regulated areas, exposure assessments and monitoring, etc. also apply.

Question 2: Do the worker training, wet methods, bagging, and labeling requirements apply?

Reply: Yes. Also, you should take special note of the following provisions.

The standard indicates worker training requirements throughout its text. However, its main focus on training requirements for ordinary workers is at 29 CFR 1926.1101(k)(9); its main focus on training requirements for competent persons is at 29 CFR 1926.1101(o)(4).

Its general training requirements and its training requirements for performing Class I or Class II asbestos work apply to a building demolition situation. In addition, if you use a separate crew of workers for doing final cleanup at the demolition site, the standard's training requirements for performing Class IV asbestos work apply for those workers. It is apparent that building demolition does not involve the performance of any Class III asbestos work, therefore the standard's training requirements for workers who perform Class III work do not apply.

In accordance with 29 CFR 1926.1101(g)(1)(ii), you must use wet methods or wetting agents except where you can demonstrate that the use of wet methods is infeasible. Also, please be aware that the asbestos-containing waste produced by the demolition operation must be kept wet at all times until it has been loaded for transport away from the demolition site.

When you demolish a building without first removing the ACM you produce asbestos waste. In accordance with 29 CFR 1926.1101(l)(2), asbestos waste must be placed in sealed, labeled, impermeable bags or other closed, labeled, impermeable containers. We assume that you will have a vast amount of rubble intermixed with asbestos waste when you demolish a building with the ACM left in place. If that is the case, in order to pick up asbestos waste and place it in a container, you will no doubt have to pick up at the same time a much greater amount of other rubble. In that situation, where such a large total amount of material must be picked up in order to pick up the asbestos waste, please be advised that you could comply with 29 CFR 1926.1101(l)(2) by using trucks with water-tight, dust-tight cargo haulers as your containers.

The asbestos waste produced by your described demolition contains 1% or greater asbestos because it comes from ACM. (ACM is defined in 29 CFR 1910.1101(b) as material containing greater than 1% asbestos.) Thus, in accordance with 29 CFR 1926.1101(k)(8)(i), you must label those containers in which you put the asbestos waste. Labeling must be in accordance with the stipulations of 29 CFR 1926.1101(k)(8)(iii).

Question 3: Do the alternative work practices and control requirements apply?

Reply: Yes. See the last two paragraphs of our response to your first question.

Thank you for your interest in occupational safety and health. We hope you find this information helpful. OSHA requirements are set by statutes, standards, regulations. Our interpretation letters explain these requirements and how they apply to particular circumstances, but they cannot create additional employer obligations. This letter constitutes OSHA's interpretations of the requirements discussed. Also, from time to time we update our guidance in response to new information. To keep apprised of such developments, you can consult OSHA's website at <http://www.osha.gov>. If you have any further questions, please feel free to contact the [Office of Health Enforcement] at 202-693-2190.

Sincerely,

Richard E. Fairfax, Director

**OSHA requirements for
Demolition projects with
trace amounts of asbestos
in materials (non-ACM)**

August 13, 1999

Walter Chun, M.S., CSP, CHSP, CECM
OSHCON, INC.
P.O. Box 25850
Honolulu, Hawaii 96825-0850

Dear Mr. Chun:

This is in response to your October 9, 1998 request for clarification of the Occupational Safety and Health Administration's (OSHA's) Construction Industry Asbestos Standard, 29 CFR 1926.1101. We apologize for the delay in our reply.

You note that according to 29 CFR 1926.1101(a)(1), the Construction Industry Asbestos Standard regulates demolition or salvage of structures where asbestos is present and that 29 CFR 1926.1101(b) defines asbestos-containing material (ACM) as any material containing >1% asbestos. You ask that we clarify the applicability of the standard to a demolition operation involving material containing <1% asbestos.

If the demolition operation would involve material containing >1% asbestos it would be Class I or II asbestos work, since Class I or Class II asbestos work is removal of ACM, and according to 29 CFR 1926.1101(b), "removal" includes demolition operations. Since the demolition operation involves material containing <1% asbestos, the work is not a designated class of asbestos work, as you correctly note in your letter. Therefore, only 29 CFR 1926.1101(g)(1)(ii) and (iii), as well as those recordkeeping requirements under 29 CFR 1926.1101(n) that are associated with the negative exposure assessment, apply so long as neither asbestos permissible exposure limit (PEL) is exceeded or might be exceeded. 29 CFR 1926.1101(g)(1)(ii) requires:

"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 provide in paragraph (g)(8)(ii) of this section;"

and 29 CFR 1926.1101(g)(1)(iii) requires:

"Prompt clean-up and disposal of wastes and debris contaminated with asbestos in leak-tight containers except in roofing operations, where the procedures specified in paragraph (g)(8)(ii) of this section apply."

On the other hand, if at least one of the asbestos PELs is exceeded or might be exceeded, then all the requirements that are not strictly reserved as work practice requirements for Class I, II, III, or IV asbestos work apply or might apply. An exception would be if there were not frequent enough exposures above the asbestos PELs to activate a specific requirement. For example, an employer is not required to make a medical surveillance program available to an employee who is not engaged in Class I, II, or III work or exposed at or above a permissible exposure limit for a combined total of 30 or more days per year.

An example of the many requirements that apply when either one of the asbestos PELs is exceeded is 29 CFR 1926.1101(j)(4) which states, "The employer shall ensure that employees do not smoke in work areas where they are occupationally exposed to asbestos because of activities in that work area." This requirement applies wherever the employer must establish an asbestos-associated regulated area. Such a regulated area must be established where Class I, II, or III asbestos work is done or where at least one of the asbestos PELs is exceeded.

You ask if a demolition project involving only materials containing <1% asbestos requires an initial negative exposure assessment. In order to avoid the need to comply with the elements of the standard that are applicable when either asbestos PEL is exceeded, the contractor conducting the demolition project must produce an initial negative exposure assessment for his/her employees.

There are three potential approaches provided under 29 CFR 1926.1101(f)(2) for producing a negative exposure assessment. These are the use of objective data, previous air monitoring results, or current air monitoring results. If the contractor cannot produce a negative exposure assessment with objective data or previous air monitoring results, then the contractor must conduct asbestos exposure monitoring. Until the contractor is able to produce a negative exposure assessment for his/her employees, the contractor must comply with the elements of the standard that are applicable when either asbestos PEL is exceeded.

As to your inquiry into the protective equipment and training that must be provided to employees who are working while the contractor seeks to produce a negative exposure assessment, the contractor must provide those employees with the protective clothing described in 29 CFR 1926.1101(i). At a minimum, half-mask air-purifying respirators, other than disposable respirators, equipped with high efficiency filters are required. And, the contractor must provide those employees training that meets the mandates of 29 CFR 1926.1101(k)(9)(viii).

You also ask about the procedures for determining the asbestos content of material. Specifically, you ask if OSHA recognizes the point counting method for determining the asbestos content. Yes, OSHA considers the point counting method to be acceptable, but OSHA does not require that it be used. Polarized light microscopy (PLM) is the root method used for identification of asbestos. Point counting is one of the techniques used to quantify the amount of asbestos present in a sample on which PLM has already been performed.

The last issues you raise concern 29 CFR 1926.1101(k), Communication of hazards. You ask whether the building/facility owner must provide information regarding the presence of building or facility materials that contain <1% asbestos. The owner is not required to provide this information. The owner is required to provide information only about the presence of materials containing greater than or equal to 1% asbestos. Nonetheless, a contractor receiving notification from a building owner that all materials in the building are non-ACM may not conclude from this communication that the materials present no potential asbestos exposure hazard for the contractor's employees. If the materials were tested for asbestos in accordance with the testing requirements in 29 CFR 1926.1101, then the contractor is not required to observe the standard's requirements for Class I, II, III, or IV asbestos work when tasks involving the materials are performed. However, if the materials contain some amount of asbestos that is less than or equal to 1%, the contractor must observe the asbestos PELs and 29 CFR 1926.1101(g)(1)(ii) and (iii). Therefore, the contractor has an implied obligation to determine if the materials contain some asbestos. The contractor must exercise due diligence to identify the presence of asbestos in materials.

An investigation of whether any of the materials are prone to contain some amount of asbestos which is less than or equal to 1% would be one example of action the employer must take in order to meet the test of exercising due diligence. If the contractor determines that the materials contain some asbestos, then the contractor must determine if compliance with 29 CFR 1926.1101(g)(1)(ii) and (iii) is sufficient for preventing exposures above the asbestos PELs. Engineering and work practice controls must be used whenever asbestos exposures above either PEL would occur without their use. If feasible engineering and work practice controls are not adequate to prevent exposures above an asbestos PEL, respiratory protection must be used to supplement the controls.

You note that 29 CFR 1926.1101(k) sets out the responsibilities of employers for providing employees information on the presence of asbestos. You ask if employees performing demolition work involving materials containing <1% asbestos are covered by these employer responsibilities. The employer responsibilities to which you refer are presented at 29 CFR 1926.1101(k)(3). The requirements at 29 CFR 1926.1101(k)(3) are not applicable to employees doing demolition work involving material containing <1% asbestos because the scope of the requirements is limited to ACM and PACM. However, if the employee asbestos exposure levels exceed one or both of the PELs, the employees will be informed of the presence of asbestos because the employer must establish a regulated area and implement procedures that comply with 29 CFR 1926.1101(e).

You asked if there are other standards that can be used to protect employees from an asbestos health hazard presented by material containing <1% asbestos. The shipyard employment standard for asbestos, 29 CFR 1915.1001; the General Industry standard for asbestos, 29 CFR 1910.1001; and 29 CFR 1926.1101 are the only OSHA standards for regulating the asbestos health hazard presented by material containing <1% asbestos. The Hazard Communication Standard, 29 CFR 1910.1200, does not apply to material containing <1% asbestos.

Thank you for your interest in occupational safety and health. We hope you find this information helpful. Please be aware that OSHA's enforcement guidance is subject to periodic review and clarification, amplification, or correction. Such guidance could also be affected by subsequent rulemaking. In the future, should you wish to verify that the guidance provided herein remains current, you may consult OSHA's website at <http://www.osha.gov>. If you have any further questions, please feel free to contact OSHA's Office of Health Compliance Assistance at (202) 693-2190.

Sincerely,

Richard E. Fairfax, Director
Directorate of Compliance Programs

February 1, 2005
Mr. Skip Bolding
Templeton
521 West
San Angelo, TX

**OSHA requirements for
work on a construction site
(abatement) with trace
amounts of asbestos (non-
ACM)**

Safety Director
Construction
Beauregard
76903
Dear Mr. Bolding:

Thank you for your January 21

letter to the Occupational Safety and Health Administration (OSHA). You have questions regarding OSHA's construction industry asbestos standard, 29 CFR 1926.1101. This letter constitutes OSHA's interpretation only of the requirements discussed and may not be applicable to any question not delineated within your original correspondence. Your paraphrased questions and our replies are below.

Question 1: What is the interpretation for the definition of "Regulated Area(s)" that appears at 29 CFR 1926.1101(e) in the construction asbestos standard?

Reply: In cases involving Class I, II, and III asbestos work, the regulated area includes, as a minimum, the area in which the workers move about in the process of performing the work. If the airborne concentrations of asbestos beyond the area in which workers move about exceed or there is a reasonable possibility the concentrations may exceed an asbestos permissible exposure limit (PEL), then the regulated area also includes this additional area. For operations other than Class I, II, and III asbestos work, the regulated area is simply the area where airborne concentrations of asbestos exceed or there is a reasonable possibility the concentrations may exceed either of the asbestos PELs.

Question 2: If the asbestos content for every one of the materials involved in a demolition project is <1%, does a regulated area have to be established for the project?

Reply: Since the asbestos content for every one of the materials involved in the demolition project is <1%, the project does not involve the performance of either Class I or Class II asbestos work. Therefore, the employer's requirement for establishing an asbestos regulated area for the project is determined by the airborne concentrations of asbestos that are generated. As indicated by 29 CFR 1926.1101(e)(1), the employer must establish an asbestos regulated area if the employer has a situation where airborne concentrations of asbestos exceed or there is a reasonable possibility they may exceed either of the asbestos PELs. If the employer does not have that situation, then the employer is not required to establish an asbestos regulated area.

Question 3: What work practices under 29 CFR 1926.1101, if any, must be followed to remove sheetrock when lab results show <1% asbestos?

Reply: The employer needs more information than the fact that the sheetrock contains <1% asbestos in order to establish what work practices he/she must follow. The employer also needs to know the concentration of asbestos in the joint compound, spackling compound, tape, and so forth that was used to complete the installation of the sheetrock. If any of these items contain >1% asbestos, then removal of the sheetrock is Class II asbestos work and the employer must follow the work practices set forth at 29 CFR 1926.1101(g)(7) in the standard for performing Class II asbestos work. In addition, the employer must observe the relevant general work practice and engineering control requirements and prohibitions contained elsewhere in the standard under 29 CFR 1926.1101(g).

If some of the items associated with the installed sheetrock contain some asbestos but none of them contain >1% asbestos, then removal of the sheetrock is considered unclassified asbestos work. This means that only certain ones of the standard's work practice and engineering control obligations, and prohibitions pertain. Some of the general ones do not pertain because they apply to installed building materials containing >1% asbestos (ACM). How many of the eligible general work practice and engineering control obligations, and prohibitions are applicable depends on whether the employee levels of exposure to airborne asbestos exceed either of the asbestos PELs. In further explanation:

(1) If the employees' asbestos exposures exceed neither asbestos PEL, then only two of standard's general work practice control procedures and three of the standard's general prohibitions pertain to the sheetrock removal operation; none of the standard's engineering control methods pertain to the sheetrock removal operation. Those general work practice procedures and general prohibitions the employer must observe under such a condition are those presented at: 29 CFR 1926.1101(g)(1)(ii), which requires: wet methods, or wetting agents, to control employee exposures during asbestos handling, ... removal, cutting, ... and cleanup, except where employers demonstrate that the use of wet methods is infeasible due to for example, the creation of electrical hazards ... [and] equipment malfunction...;

29 CFR 1926.1101(g)(1)(iii), which requires: prompt clean-up and disposal of wastes and debris contaminated with asbestos in leak-tight containers...;

29 CFR 1926.1101(g)(3)(i), which prohibits: high-speed abrasive disc saws that are not equipped with point of cut ventilator or enclosures with HEPA filtered exhaust air;

29 CFR 1926.1101(g)(3)(ii), which prohibits: 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; and

29 CFR 1926.1101(g)(3)(iv), which prohibits: employee rotation as a means of reducing employee exposure to asbestos.

(2) If the employees' asbestos exposures exceed either asbestos PEL, then all of the standard's relevant general work practice control procedures, engineering control methods, and prohibitions that are not directed specifically at ACM pertain to the sheetrock removal operation.

Thank you for your interest in occupational safety and health. We hope you find this information helpful. OSHA requirements are set by statute, standards, and regulations. Our interpretation letters explain these requirements and how they apply to particular circumstances, but they cannot create additional employer obligations. This letter constitutes OSHA's interpretation of the requirements discussed. Note that our enforcement guidance may be affected by changes to OSHA rules. Also, from time to time we update our guidance in response to new information. To keep apprised of such developments, you can consult OSHA's website at <http://www.osha.gov>. If you have any further questions, please feel free to contact the Office of Health Enforcement at 202-693-2190.

Sincerely,

Richard E. Fairfax, Director
Directorate of Enforcement Programs

**Reasons for OSHA
regulating <1% asbestos
(non-ACM)**

November 24, 2003
Kurt Varga, Ph.D.
The InService Training Network
6813 Flags Center Drive
Columbus, OH 43229

Dear Dr. Varga:

Thank you for your April 18, 2002 letter to the Occupational Safety and Health Administration (OSHA). Your letter was forwarded to the Directorate of Enforcement Programs for a response. You are writing on behalf of the Ohio School Facilities Commission, which deals with the construction of schools in Ohio. As a preliminary matter, it should be noted that the Commission, as an agency of a state, and the public schools, as entities of political subdivisions of a state, are not subject to the Occupational Safety and Health Act of 1970. See 29 U.S.C. Sec. 652(b)(5). However, in light of your concerns about the costs imposed on school building contractors of complying with the asbestos standard, we are answering your questions. You have questions concerning the OSHA requirements covering the renovation of school buildings that have hard plaster containing some asbestos, but the amount is not more than 1%. This letter constitutes OSHA's interpretation only of the requirements discussed and may not be applicable to any question not delineated within your original correspondence. We apologize for the long delay of this response; our replies to your paraphrased questions are provided below.

Question 1: Are the OSHA letters dated April 17, 1997; August 7, 1998; and August 13, 1999 correct? They all say that items that do not contain >1% asbestos are covered to at least some extent by the Construction Asbestos Standard.

Reply: Yes, those letters are correct although some requirements of the Construction Asbestos Standard, 29 CFR 1926.1101 were not addressed. 29 CFR 1926.1101 would apply even if neither asbestos permissible exposure limit (PEL) is exceeded¹. The standard contains numerous work practice requirements and prohibitions which apply, regardless of the exposure levels. However, only two of the requirements and three of the prohibitions must be observed in the case of work activities involving installed construction materials that do not contain >1% asbestos. Those work practice requirements and prohibitions that must be observed regardless of the exposure levels and of the percentage of asbestos in the installed construction materials are:

29 CFR 1926.1101(g)(1)(ii), which requires: 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 in paragraph (g)(8)(ii)² of this section;

29 CFR 1926.1101(g)(1)(iii), which requires: prompt clean-up and disposal of wastes and debris contaminated with asbestos in leak-tight containers except in roofing operations, where the procedures specified in paragraph (g)(8)(ii)³ of this section apply;

29 CFR 1926.1101(g)(3)(i), which prohibits: high-speed abrasive disc saws that are not equipped with point-of-cut ventilator or enclosures with HEPA filtered exhaust air;

29 CFR 1926.1101(g)(3)(ii), which prohibits: 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; and

29 CFR 1926.1101(g)(3)(iv), which prohibits: employee rotation as a means of reducing employee exposure to asbestos.

There are also some other provisions that apply to work activities involving installed construction materials even where the material does not contain >1% asbestos. However, if neither asbestos PEL is exceeded, only the following few provisions apply:

29 CFR 1926.1101(f)(2)(i), the provision for establishing that neither asbestos PEL is exceeded: Each employer who has a workplace or work operation covered by this standard shall ensure that a "competent person" conducts an exposure assessment immediately before or at the initiation of the operation to ascertain expected exposures during that operation or workplace. The assessment must be completed in time to comply with requirements which are triggered by exposure data or the lack of a "negative exposure assessment," and to provide information necessary to assure that all control systems planned are appropriate for that operation and will work properly;

29 CFR 1926.1101(f)(6)(i), a provision covering the observation of monitoring: The employer shall provide affected employees and their designated representatives an opportunity to observe any monitoring of employee exposure to asbestos conducted in accordance with this section;

29 CFR 1926.1101(f)(5)(i), a provision covering employee notification of monitoring results: The employer shall notify affected employees of the monitoring results that represent that employee's exposure as soon as possible following receipt of monitoring results; 29 CFR 1926.1101(f)(5)(ii), another provision covering employee notification of monitoring results: The employer shall notify affected employees of the results of monitoring representing the employee's exposure in writing either individually or by posting at a centrally located place that is accessible to affected employees;

29 CFR 1926.1101(n)(2)(i)-(iii), a set of provisions covering recordkeeping for measurements of exposures to airborne asbestos. There are numerous additional provisions of the standard that apply to work activities involving installed construction materials even where the material does not contain >1% asbestos if at least one of the asbestos PELs is exceeded.

Question 2: Did OSHA intend to regulate material that is found to contain asbestos at <1% when it promulgated the Construction Asbestos Standard that it issued in 1994?

Reply: Yes. Instead of making all of the engineering controls and work practices applicable to all materials containing asbestos, OSHA made most of them applicable only to installed building materials that contain >1% asbestos and assigned the term "asbestos-containing material" (ACM) to those materials. However, to prevent needless worker exposures to asbestos, OSHA made a few common-sense work practices and prohibitions applicable if any asbestos is present in materials.

Thus, the current standard contains engineering controls and work practices that apply regardless of the exposure levels to certain work activities involving only installed building materials that meet the definition of ACM. It also contains a few work practices and prohibitions for work involving material that contains any amount of asbestos regardless of the exposure levels. And the standard has exposure-based requirements, consisting of a 0.1 fiber/cc 8-hour TWA PEL and a 1 fiber/cc 30-minute excursion limit, and other requirements that apply whenever worker exposures exceed either or both of the limits, regardless of the amount of asbestos contained in the materials involved.

Question 3: If OSHA had intended to regulate material with <1% asbestos, why aren't we required to communicate information about material with <1% asbestos?

Reply: Most of the requirements for communication of information occur under 29 CFR 1910.1101(k), Communication of Hazards. Any of the requirements which apply only to building or facility owners are inapplicable because the buildings are entities of political subdivisions of the State of Ohio and not subject to the OSHA Act. On the other hand, any of the provisions that apply to employers are applicable to private contractors doing the asbestos work. The information that sections (k)(7), (9), and (10) require to be communicated applies to materials not having >1% asbestos which are the source of employee asbestos exposures exceeding one or both of the asbestos PELs as well as to materials containing >1% asbestos. Also, 29 CFR 1926.1101(k)(8), which specifies labeling requirements, applies to materials that contain 1% or more asbestos. On the other hand, it is correct that the information which (k)(1)4-(k)(6) require to be communicated pertains only to materials containing >1% asbestos. However, it should be noted that under (k), surfacing material, thermal system insulation and asphalt and vinyl flooring material found in buildings constructed no later than 1980 or installed no later than 1980 must be considered to contain >1% asbestos, unless the employer demonstrates otherwise in accordance with (k)(5).

Question 4: Under 29 CFR 1926.1101(k)(8) are employers required only to communicate information about ACM?

Reply: 29 CFR 1926.1101(k)(8) requires employers to communicate information about ACM and also material that contains 1% asbestos. (ACM, again, is material that contains >1% asbestos.)

Question 5: Should the phrase "products containing asbestos" as used in paragraph (k)(8)(i) be read "ACM" and not as including materials with <1% asbestos, because otherwise there is a contradiction in (k)(8)?

Reply: No. There is no contradiction. Paragraph (k)(8)(i) deals broadly with products containing asbestos. Paragraph (k)(8)(vi)(B) provides for an exclusion from labeling for products with <1% concentrations of asbestos.

Question 6: Why, if material containing <1% asbestos is to be considered hazardous (employers are to wet it, put it in containers, and perform air monitoring), are employers not required to warn workers about its presence when they know it is present at a work site or in a building?

Reply: You must inform employees about the presence of material containing <1% asbestos when you know it is present. When employees perform work activities involving such material, you are required per 29 CFR 1926.1101(f)(2)(i) to assess their exposures to asbestos. In connection with this requirement you must, per 29 CFR 1926.1101(f)(6)(i), provide affected employees an opportunity to observe any monitoring of asbestos exposure. After the monitoring, you must, per 29 CFR 1926.1101(f)(5)(i) and (ii), inform employees of the monitoring results representing their asbestos exposures. In accordance with 29 CFR 1926.1101(e) and (k)(7), if asbestos exposures exceed or are likely to exceed one or both of the PELs, then you must provide warning by posting the area where these overexposures are occurring as a regulated area.

Although employers do not have to label containers of waste and debris containing <1% asbestos, promptly placing the waste and debris in leak-tight containers is a work practice that reduces the exposures of the employees producing the waste and debris. That is especially so because this work practice is to be used in conjunction with wet methods or wetting agents. By promptly cleaning up the waste and debris and placing it in containers, it is kept from drying out and possibly releasing airborne asbestos into the work environment. Leak-tight containers prevent the asbestos from seeping out and reintroducing an asbestos exposure hazard.

Question 7: If OSHA had intended to regulate material containing <1% asbestos, why do not employers have to use HEPA-filters when using vacuum cleaners to clean up material containing <1% asbestos?

Reply: An employer does not have to use vacuum cleaners to clean up material containing <1% asbestos. However, if an employer uses vacuum cleaners to clean up the material, then per 29 CFR 1926.1101(l)(1), it must use HEPA-filtered vacuuming equipment.

Question 8: If OSHA had intended to regulate material containing <1% asbestos, why does it not discuss the distinction between ACM and material containing <1% asbestos in the preamble to the regulation?

Reply: OSHA was already regulating materials that contained <1% asbestos. In promulgating the 1994 standard, OSHA was determining which materials to regulate further by additional work practice and engineering control requirements.

Question 9: If OSHA had intended to regulate material containing <1% asbestos, why did it not examine the compliance costs for working with this material?

Reply: As we stated above, OSHA was already regulating materials with <1% asbestos. In promulgating the 1994 standard, OSHA was determining the cost of complying with additional work practice and engineering control requirements.

Question 10: If OSHA had intended to regulate material containing <1% asbestos, why did it not mention this in its CPLs dealing with asbestos in construction?

Reply: That was simply an oversight by the preparers of the Asbestos Compliance Directive. It will be corrected when the directive is next updated.

Thank you for your interest in occupational safety and health. We hope you find this information helpful. OSHA requirements are set by statute, standards, and regulations. Our interpretation letters explain these requirements and how they apply to particular circumstances, but they cannot create additional employer obligations. This letter constitutes OSHA's interpretation of the requirements discussed. Note that our enforcement guidance may be affected by changes to OSHA rules. Also, from time to time we update our guidance in response to new information. To keep apprised of such developments, you can consult OSHA's website at <http://www.osha.gov>. If you have any further questions, please feel free to contact the Office of Health Enforcement at (202) 693-2190.

Sincerely,

Richard E. Fairfax, Director
Directorate of Enforcement Programs

**No mil thickness minimum
for waste bags from EPA or
OSHA.**

November 17, 1994

Mr. Shashank Patel
Transamerican Plastics
5601 East Santa Ana Street
Ontario, California 91761-8699

Dear Mr. Patel:

Thank you for your letter of July 13, concerning the Occupational Safety and Health Administration's (OSHA) requirements for asbestos removal bags. You have assumed that OSHA requires that six mil thick bags be used for asbestos removal, and you question why OSHA has more stringent requirement than Environmental Protection Agency (EPA).

The Construction Industry Occupational Exposure to Asbestos Standard, Code of Federal Regulation (CFR) 1926.58, does not require that plastic bags be six mil thick as you have stated. The standard reads in part that the bags will be sealed, labeled, and impermeable. It does not specify a particular thickness.

As you may be aware, OSHA published a new revised Asbestos standard on August 10, 1994. The new Construction standard, CFR 1926.1101(g)(1)(iii) requires "leak-tight" containers for the disposal of waste and debris contaminated with asbestos, which is consistent with the National Emission Standard for Hazardous Pollutants (NESHAP) requirements. There is not a mil thickness specified in this standard for disposal bags.

We hope this response addresses your concerns. If you have any further questions, please feel free to contact the Office of Health Compliance at (202) 291-8036.

Sincerely,

Ruth E. McCully, Director
Office of Health Compliance Assistance

Department of Labor,
OSHA, Room No. N3467,
Attn: Ruth McCully,
200 Constitution Avenue,
North West D.C. 20210

Dear Ms. McCully,

I am writing to clarify a requirement under the attached Code of Federal Regulations; Labor 29, Part 1926.58 relating to the millage requirement on asbestos removal bags. Per the code, the requirement is six mil thick plastic bags.

However, the attached correspondence with U.S. Environmental Protection Agency states that under their requirements there is no minimum millage as long as the bags remain leak tight. The attached letter from Dow U.S.A. also states that bags manufactured from prime virgin polyethylene have a superior tensile strength at a lower millage than those manufactured from reprocessed resin.

In light of the above can you please clarify why the requirements under the Code of Federal Regulations; Labor 29, Part 1926.58 are more stringent than those of the U.S. Environmental Protection Agency. Assuming that the millage requirements can not be changed, then the next question is whether a double-bagged combination of three mil bags adding up to six mil satisfies the requirements under the code.

I look forward to hearing from you. In the mean time, if you have any questions, please call me at (909) 988 8555. Thank you in advance for your cooperation.

Very truly yours,

Shashank Patel

Mr. Michael Sember
National Plastek, Inc.
7050 Dutton Industrial Park Drive
Dutton, MI 49316

Dear Mr. Sember:

This is in response to your letter dated December 14, 1993 requesting a response from the Stationary Source Compliance Division on the subject of asbestos disposal bags. In particular, you want to know if the Series 65 asbestos bag meets the requirements of 40 CFR Part 61 Subpart M, the asbestos National Emission Standard for Hazardous Air Pollutants (NESHAP).

Regulated asbestos-containing material (RACM) collected for disposal in accordance with section 61.150(a)(1)(iii) must be contained in leak-tight containers or wrapping. The asbestos NESHAP does not specify the type of material, or the minimum thickness of the container or wrapping. If the Series 65 asbestos bag, or any other container or wrapping is leak-tight, and handled in such a manner as to remain leak-tight until properly disposed of in accordance with the asbestos NESHAP, then that container will meet the leak-tight requirements of the asbestos NESHAP.

Sincerely,

Thomas W. Ripp
Stationary Source Compliance Division
Office of Air Quality Planning and Standards

**Demolition of CMU block
walls with vermiculite fill
left in place under
NESHAP.**

U.S. EPA

Date: 05/02/2008
Title: Vermiculite in Facility Demolished for Safety Reasons
Recipient: Vaughn, Lawrence Author: Czerniak, George T.

Abstract:

Q: Does EPA approve a variance from 40 CFR part 61, subpart M, the asbestos NESHAP, to allow vermiculite material to be left in place during demolition at the former Coachman Motel in Bloomington, Illinois?

A: No. EPA does not approve a variance to the asbestos NESHAP under any circumstance. However, the asbestos NESHAP identifies situations where regulated asbestos-containing material (RACM) need not be removed prior to demolition, including a situation where the RACM was not accessible for testing and not discovered until after demolition, and as a result of the demolition, cannot be safely removed. The loose vermiculite material in between the walls at this motel appears to fall into this situation because, to remove it, the walls would need to be taken down, causing the ceiling to collapse. All exposed RACM and all contaminated debris must be treated as asbestos-containing waste material in this situation.

Letter:

Mr. Lawrence Vaughn
Manager
Industrial Hygiene Services
MATEC Engineering & Consulting
8901 North Industrial Road
Peoria, Illinois 61615-1509

Dear Mr. Vaughn:

Thank you for your letter dated April 14, 2008, to the U.S. Environmental Protection Agency requesting a "variance" to the asbestos National Emission Standard for Hazardous Air Pollutants ("NESHAP"), 40 CFR Part 61, Subpart M. Specifically, 40 CFR Sec. 61.145(c)(1) requires that the owner or operator of a facility remove all Regulated Asbestos-Containing Material ("RACM") from a facility being demolished or renovated before any activity begins that would break up, dislodge, or similarly disturb the material or preclude access to the material for subsequent removal.

MACTEC Engineering & Consulting, Inc. ("MACTEC") is involved in a demolition activity at a hotel in Bloomington, Illinois (the "facility"). During a phone conference on May 1, 2008 with Ms. Linda H. Rosen, of my staff, and Mr. Everett Bishop of the Office of Enforcement and Compliance Assurance ("OECA"), you explained that upon opening up one of the concrete masonry walls at the facility, MACTEC discovered loose asbestos-containing vermiculite material in between the walls. According to MACTEC, the vermiculite cannot be safely removed prior to the walls being demolished because the walls are load-supporting.

The asbestos NESHAP does not allow a variance to be granted under any circumstance. According to 40 CFR Sec. 61.145(c)(1), RACM need not be removed before demolition if: (i) It is Category I nonfriable ACM that is not in poor condition and is not friable; (ii) It is on a facility component that is encased in concrete or other similarly hard material and is adequately wet whenever exposed during demolition; (iii) It was not accessible for testing and was, therefore, not discovered until after demolition began and, as a result of the demolition, the material cannot be safely removed. If not removed for safety reasons, the exposed RACM and any asbestos-contaminated debris must be treated as asbestos-containing waste material and adequately wet at all times until disposed of; or (iv) They are Category II nonfriable ACM and the probability is low that the materials will become crumbled, pulverized, or reduced to powder during demolition.

EPA has determined that the exceptions in 40 CFR Sec. 61.145(c)(1)(i), (ii), and (iv) noted above, do not apply to this demolition. The asbestos-containing vermiculite is not Category 1 or Category II ACM. Rather, it is a friable ACM. The exception in 40 CFR Sec. 61.145(c)(1)(ii) does not apply because the material is not on a facility component which is encased in concrete. It is loose between the walls.

The exception noted in 40 CFR Sec. 61.145(c)(1)(iii) applies in this specific instance because the asbestos-containing material ("ACM") cannot be safely removed. In order to remove the material, the walls would need to be taken down and because they are load-supporting, the ceiling would collapse.

Therefore, in accordance with 40 CFR Sec. 61.145(c)(1)(iii), MACTEC can leave the vermiculite ACM material in place between the walls during demolition. However, all exposed RACM and all asbestos-contaminated debris must be treated as asbestos-containing waste material and kept adequately wet at all times until disposed of in accordance with 40 CFR Secs. 61.145(c) and 61.150.

If you have any questions regarding this letter, feel free to contact Linda H. Rosen, of my staff, at (312) 886-6810.

Sincerely yours,

George T. Czerniak, Chief
Air Enforcement and Compliance Assurance Branch

cc: Ray Pilapil, Manager

Bureau of Air -
Compliance and
Enforcement Section
Illinois Environmental
Protection Agency

**2nd NESHAP ruling on
demolition of CMU block
walls filled with
vermiculite.**

Category: Asbestos

EPA Office: Region 5

Date: 08/06/2008

Title: Demolition Procedures Involving Asbestos-containing Vermiculite

Recipient: Faust, Jeffrey M.

Abstract:

Q: Does EPA approve Environmental Consultants' request under 40 CFR part 61, subpart M, to leave vermiculite asbestos-containing material (ACM), which is loose between the load-supporting concrete block walls of a vacant commercial building in O'Fallon, Illinois, in place during the building's demolition?

A: Yes. EPA has determined that Environmental Consultants can leave ACM in place during demolition because it is a friable ACM, and the exception in 40 CFR 61.145(c)(1)(iii) applies since it cannot be safely removed prior to demolition without causing the ceiling to collapse. All exposed regulated ACM and all asbestos-contaminated debris must be treated as asbestos-containing waste material and kept adequately wet at all times until properly disposed of.

Letter:

Mr. Jeffrey M. Faust Principal Environmental Consultants, LLC #6 Meadow Heights Professional Park Drive Collinsville, Illinois 62234

Re: Request for Alternative Demolition Procedures Vacant Commercial Structure, O'Fallon, Illinois

Dear Mr. Faust:

Thank you for your letter dated July 30, 2008, to the U.S. Environmental Protection Agency requesting an alternative demolition procedure to the asbestos National Emission Standard for Hazardous Air Pollutants ("NESHAP"), 40 CFR Part 61, Subpart M.

Specifically, 40 CFR Sec. 61.145(c)(1) requires that the owner or operator of a facility remove all Regulated Asbestos-Containing Material ("RACM") from a facility being demolished or renovated before

any activity begins that would break up, dislodge, or similarly disturb the material or preclude access to the material for subsequent removal. "RACM" is defined in 40 CFR Sec. 61.141 as: "(a) Friable asbestos material, (b) Category I nonfriable ACM that has become friable, (c) Category I nonfriable material that will be or has been subjected to sanding, grinding, cutting or abrading, or (d) Category II nonfriable 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 operations regulated by this subpart."

Environmental Consultants, LLC ("Environmental Consultants") is involved in a demolition activity at a vacant commercial building located at 1701 West US Highway 50, O'Fallon, Illinois (the "facility"). During a recent phone conversation with Ms. Linda H. Rosen, of my staff, and in the July 30, 2008 letter, you explain that there is friable asbestos-containing vermiculite material within the concrete block walls of the facility. According to Environmental Consultants, this RACM cannot be safely removed prior to the walls being demolished because the walls are load-supporting. Your July 30, 2008 letter explains that in addition to the asbestos-containing vermiculite material, there is also asbestos in the facility's roofing system and window caulk/glazing. According to you, the asbestos-containing roofing material is Category I nonfriable ACM and the asbestos-containing window caulk/glazing is Category II nonfriable ACM. Your letter requests that the asbestos-containing vermiculite material be left in place during demolition.

The asbestos NESHAP does not allow a variance to be granted under any circumstance. According to 40 CFR Sec. 61.145(c)(1), RACM need not be removed before demolition if: (i) It is Category I nonfriable ACM that is not in poor condition and is not friable; (ii) It is on a facility component that is encased in concrete or other similarly hard material and is adequately wet whenever exposed during demolition; (iii) It was not accessible for testing and was, therefore, not discovered until after demolition began and, as a result of the demolition, the material cannot be safely removed. If not removed for safety reasons, the exposed RACM and any asbestos-contaminated debris must be treated as asbestos-containing waste material and adequately wet at all times until disposed of; or (iv) They are Category II nonfriable ACM and the probability is low that the materials will become crumbled, pulverized, or reduced to powder during demolition.

EPA has determined that the exceptions in 40 CFR Sec. 61.145(c)(1)(i), (ii), and (iv) noted above, do not apply to this demolition. The asbestos-containing vermiculite is not Category I or Category II ACM. Rather, it is a friable ACM. The exception in 40 CFR Sec. 61.145(c)(1)(ii) does not apply because the material is not on a facility component which is encased in concrete. It is loose between the walls.

The exception noted in 40 CFR Sec. 61.145(c)(1)(iii) applies in this specific instance because the asbestos-containing material ("ACM") cannot be safely removed. In order to remove the material, the walls would need to be taken down and because they are load-supporting, the ceiling or roof would collapse. Therefore, in accordance with 40 CFR Sec. 61.145(c)(1)(iii), Environmental Consultants can leave the vermiculite ACM material in place between the walls during demolition. However, all exposed RACM and all asbestos-contaminated debris must be treated as asbestos-containing waste material and kept adequately wet at all times until disposed of in accordance with 40 CFR Secs. 61.145(c) and 61.150.

In addition, all other RACM in the facility must be removed prior to the facility being demolished. RACM includes, among other things, Category I nonfriable material that will be or has been

subjected to sanding, grinding, cutting or abrading and Category II nonfriable material 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 the demolition. It is EPA's view that the Category II nonfriable window caulking has a high probability of becoming crumbled, pulverized or reduced to powder by the forces expected to act on it during a normal demolition and therefore should be removed prior to demolition.

This response has been reviewed by the Office of Enforcement and Compliance Assurance. If you have any questions regarding this letter, feel free to contact Linda H. Rosen, of my staff, at (312) 886-6810.

Sincerely yours,

George T. Czerniak Chief Air Enforcement and Compliance Assurance Branch

**TAI note:
Since the vermiculite is probably not ACM, it would be better to prove non-ACM with point count using the CARB 435 method of analysis. The NESHAP would then not regulate the waste stream.**

1997 EPA ruling de-regulating replacement of airport taxiways.

Control Number: A970006

Category: Asbestos

EPA Office: Region 5

Date: 06/20/1997

Title: **Demolition of Airport
Taxiway**

Recipient: Nurre, Larry

Author: Czerniak, George

Comments:

Subparts: Part 61, M

National Emission Standards for Asbestos

References: 61.141

61.145

Abstract:

Q: Does subpart M apply to the demolition of an asbestos-containing asphalt taxiway at the Mankato, Minnesota Municipal Airport?

A: No. The asphalt taxiway is neither a "facility" nor a "facility component" as defined in 40 CFR 61.141.

Letter:

(AE-17J)

June 20, 1997

Mr. Larry V. Nurre
Southern Minnesota Construction Co., Inc.
1905 Third Avenue
P.O. Box 3069
Mankato, Minnesota 56002-3069

Re: Demolition of Asphalt Taxiway
at Mankato Municipal Airport

Dear Mr. Nurre:

This is in response to your letter dated June 16, 1997, concerning applicability of Federal rules to the proposed demolition of an asphalt taxiway at Mankato Municipal Airport. According to your letter and the additional information you sent to our office, the asphalt is approximately 7 inches thick, including a top layer about 1.5 inches thick containing 3.5-4.4 percent chrysotile asbestos. You propose a removal process that involves separately wet milling the asbestos containing top layer and sending it to an approved asbestos landfill. You also propose to test this material once it has reached the landfill, to explore its possible future use.

The Federal rule promulgated at 40 C.F.R. 61, Subpart M - National Emission Standard for Asbestos is designed to prevent asbestos fibers from becoming airborne and therefore a threat to human health. We have researched your specific project, however, and we find that the asphalt taxiway at Mankato Municipal Airport is neither a "facility" nor a "facility component" as defined in 40 C.F.R. 61.141. The taxiway is neither a "structure, installation, or building," nor does it contain any specific "load-supporting structural members." Therefore, the demolition project as described in your letter of June 16, 1997, does not fall under the applicability of 40 C.F.R. 61.145 - Standard for demolition and renovation.

Nevertheless, we do believe that the procedure described in your June 16, 1997, letter concerning the removal and disposal of the asbestos-containing asphalt layer takes important precautionary measures toward reducing risk to human health. We highly recommend adequately wetting the material to reduce the risk of any asbestos fibers becoming airborne, as well as disposing of the material in an approved asbestos landfill.

Thank you for this opportunity to discuss this matter with you. If you have any further questions regarding this issue, please contact Julie Brandt, of my staff, at (312)886-6768.

Sincerely yours,

George Czerniak, Chief
Air Enforcement and Compliance Assurance Branch

**2016 EPA ruling reversing
previous ruling on airport
taxiways**



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

APR 06 2016

OFFICE OF
ENFORCEMENT AND
COMPLIANCE ASSURANCE

Kyra L. Moore
Director
Division of Environmental Quality
Missouri Department of Natural Resources
P.O. Box 176
Jefferson City, MO 65102

Dear Ms. Moore:

I am responding to your September 2, 2015, letter where the Missouri Department of Natural Resources requests the United States Environmental Protection Agency (EPA) to reconsider a Region V June 20, 1997 applicability determination (A970006). Clean Air Act applicability determinations can be found at cfpub.epa.gov/adi. The determination stated that airport taxiways are not subject to the applicability standard of the asbestos National Emission Standards for Hazardous Air Pollutants (NESHAP), 40 C.F.R. Part 61, Subpart M. The Region V determination was based upon a finding that a taxiway is not considered a "facility" or "facility component", and is not a "structure, installation or building." In reconsideration of the June 20, 1997 determination, we have concluded that Region V did not correctly apply the asbestos NESHAP regulation. Our rationale for why we conclude that taxiways are potentially subject to the asbestos NESHAP regulation is provided below.

Facility components are broadly defined as "any part of a facility including equipment." An airport is included within the definition of a "facility."¹ In addition, taxiways are an integral part of an airport as they are critical to the functioning of an airport. As such, taxiways would be considered a facility component. See definitions of "facility" and "facility component" at 40 C.F.R. §61.141.

¹ "Facility means any institutional, commercial, public, industrial, or residential structure, installation, or building (including any structure, installation, or building containing condominiums or individual dwelling units operated as a residential cooperative, but excluding residential buildings having four or fewer dwelling units); any ship; and any active or inactive waste disposal site. For purposes of this definition, any building, structure, or installation that contains a loft used as a dwelling is not considered a residential structure, installation, or building. Any structure, installation or building that was previously subject to this subpart is not excluded, regardless of its current use or function." 40 C.F.R. §61.141.

The Background Information Document² to the 1990 Asbestos NESHAP amendments highlights EPA's position at the time about excluding certain structures from the definition of "facility." (See Section 4.8 – Facility).

Comment 1. Commenter 4 requests that the definition of "facility" include the accidental accumulation of asbestos debris resulting from weathering or other deterioration, and exclude certain structures known to contain no asbestos, e.g., bridges, dams, foundations, and motors.

Response: 1. Facilities containing asbestos that has fallen off facility components or accumulated otherwise are covered by the standard. The owners/operators of such facilities are subject to the NESHAP any time that they remove any friable asbestos, in amounts above the threshold, from the facility. **Regarding the commenter's recommendation to exclude certain structures known to contain no asbestos, it is not clear that in some instances such structures, or associated structures, would not contain asbestos. The EPA believes that it is prudent not to exclude such structures.** (Emphasis added.)

Since EPA has no definitive list of what structures did or did not contain asbestos, as the 1990 Background Information Document states, it is prudent not to exclude such structures, including taxiways.³

Section 61.145 of the asbestos NESHAP regulates demolition and renovation operations. Demolition is defined by section 61.141 as:

the wrecking or taking out of any load-supporting structural member of a facility together with any related handling operations or the intentional burning of any facility.

Renovation is defined by section 61.141 as:

altering a facility or one or more facility components in any way, including the stripping or removal of RACM from a facility component. Operations in which load-supporting structural members are wrecked or taken out are demolitions.

While the definitions of demolition and renovation provide that all operations in which load-supporting structural members are taken out would qualify as demolitions, a renovation operation does not require the presence or removal of load-supporting structural members. EPA has previously identified other structures that undergo alterations (e.g., maintenance or

² EPA Publication - National Emission Standards for Asbestos ----Background Information for Promulgated Asbestos NESHAP Revisions. EPA-450/3-90-017, October, 1990.

³ The June 20, 1997 applicability determination that is now being reconsidered (A970006) acknowledged that the airport taxiway at issue was known to contain around four percent chrysotile asbestos.

removal of facility components) without necessitating the wrecking of a load-bearing structure, such that the operations have been considered renovations rather than demolitions under the asbestos NESHAP regulations. Pipelines are an example. When a pipeline is being removed or undergoing maintenance, it is important to note that EPA has previously considered the operation as a renovation under the asbestos NESHAP regulation.⁴ In our experience, a pipeline does not contain a load-supporting structural member.

We reviewed the Federal Aviation Administration's Airport Construction Standards (AC 150/5370-10). An airport runway/taxiway is constructed of various layers of aggregate, sand, and clay, covered with a final surface that can be concrete, Portland cement, asphalt or a bituminous coat. While load-bearing structures could conceivably be incorporated into a runway/taxiway as part of its design or function, the FAA Airport Construction Standards show no requirements for load-bearing structures to be incorporated into the runway/taxiway.

Based upon the above, repair operations on a runway/taxiway could be considered a renovation operation, depending on the fact-specific circumstances. If regulated as a renovation operation, the airport and/or its contractor must complete a thorough inspection of that portion of the runway/taxiway where repair work is to take place. If more than the threshold amount of regulated asbestos-containing material⁵ is to be disturbed during the renovation operation, then the owner and/or operator must comply with the notification requirements in section 61.141(b), work-practice standards in section 61.141(c), the management and transport standards in section 61.150, and the disposal requirements of section 61.154 of the asbestos NESHAP.

This response has been drafted in consultation with the EPA Office of General Counsel, Office of Air Quality Planning and Standards, and the Office of Civil Enforcement. EPA does not consider this response to be a final Agency action in request to a source's request for rule applicability.

Sincerely,



Edward J. Messina, Director
Monitoring, Assistance, and Media Programs Division
Office of Compliance

cc: Steve Anderson, OGC
Susan Fairchild, OAQPS
Gregory Fried, OCE

⁴ For examples, please refer to A960010 and A070004 found on EPA's Applicability Determination Index, <http://cfpub.epa.gov/adi>.

⁵ A regulated renovation or demolition requires either 260 linear feet on pipe, 160 square feet on a facility component or 35 cubic feet off facility components where the length or area could not be measured previously.

Compliance Division (SSCD) for a reply. You specifically ask, "In order to comply with NESHAP requirements for asbestos inspection prior to the demolition or renovation of a structure, is it necessary to collect samples of the cinder blocks, mortar, brick and/or the cement foundation and have them analyzed for asbestos content?"

As cited in 40 CFR 61.145(a), "to determine which requirements of paragraphs (a), (b), and (c) of this section apply to the owner or operator of a demolition or renovation activity and prior to the commencement of the demolition or renovation, thoroughly inspect the affected facility or part of the facility where the demolition or renovation operation will occur for the presence of asbestos including Category I and Category II nonfriable asbestos containing material (ACM)..."

The asbestos NESHAP does not direct an owner or operator to inspect specific materials nor does it list specific suspect materials. The presence of asbestos and the amount of asbestos in materials may be different from one situation to the next. Materials such as cinder blocks, mortar, brick, and/or the cement foundation do not typically contain asbestos and would not normally be sampled. However, if any of the materials are suspected of containing asbestos, they should be sampled and analyzed.

This determination has been coordinated with EPA's Office of Enforcement and the Emission Standards Division of the Office of Air Quality Planning and Standards. If you have any questions, please contact Jeffery KenKnight of my staff at (703) 308-8728.

Sincerely,

Linda J. Lay, Chief
Inorganic Chemicals Section
Stationary Source Compliance Division

**2016 EPA ruling reversing
previous ruling on
sampling concrete.**



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, DC 20460

MAR 10 2016

OFFICE OF
ENFORCEMENT AND
COMPLIANCE ASSURANCE

Mr. Mike Fletcher
Kansas Department of Transportation
Environmental Services Section
Dwight D. Eisenhower State Office Building
700 S.W. Harrison Street
Topeka, KS 66603-3745

Dear Mr. Fletcher:

I am responding to your September 11, 2015, email in which the Kansas Department of Transportation (KDOT) requests the U.S. Environmental Protection Agency (US EPA) grant a waiver from asbestos testing requirements for bare concrete deck bridges that do not involve an asphaltic bridge deck weathering surface or waterproof membrane. As discussed below, the US EPA denies the waiver request.

The waiver KDOT seeks would be from the Asbestos NESHAP regulations regarding the thorough inspection requirement outlined in 40 C.F.R. Section 61.145(a) of the Asbestos National Emission Standards for Hazardous Air Pollutants (NESHAP).

The US EPA classifies asbestos as a known human carcinogen. There is no level of asbestos exposure that is known to be safe. Asbestos causes a number of health effects including mesothelioma, lung cancer, asbestosis, and pulmonary abnormalities such as pleural thickening and reduced lung function. These health effects may not be seen for 15 or more years due to the latency of disease development. Due to its toxicity and prevalence in commercial products, US EPA has regulated asbestos since 1973 under the Asbestos NESHAP, which was last amended in 1990.

Under section 61.145 of the Asbestos NESHAP, the owner and/or operator of a facility is required to conduct a thorough inspection prior to any demolition or renovation operation.¹ The thorough inspection applies to either the whole building/structure or is limited to that part of the building/structure undergoing the renovation or demolition. The KDOT inquiry raises the issue of whether bridges are a facility under the asbestos NESHAP.

¹ Note that there is a distinct standard for construction or maintenance of roadways under section 61.143 of the Asbestos NESHAP.

Section 61.141 defines a facility as:

any institutional, commercial, public, industrial, or residential structure, installation, or building (including any structure, installation, or building containing condominiums or individual dwelling units operated as a residential cooperative, but excluding residential buildings having four or fewer dwelling units); any ship; and any active or inactive waste disposal site. For purposes of this definition, any building, structure, or installation that contains a loft used as a dwelling is not considered a residential structure, installation, or building. Any structure, installation or building that was previously subject to this subpart is not excluded, regardless of its current use or function.

The Background Information Document² to the 1990 Asbestos NESHAP amendments highlights US EPA's position at that time about excluding certain structures from the definition of facility. (See Section 4.8 – Facility).

Comment 1. Commenter 4 requests that the definition of "facility" include the accidental accumulation of asbestos debris resulting from weathering or other deterioration, and exclude certain structures known to contain no asbestos, e.g., **bridges**, dams, foundations, and motors.

Response: 1. Facilities containing asbestos that has fallen off facility components or accumulated otherwise are covered by the standard. The owners/operators of such facilities are subject to the NESHAP any time that they remove any friable asbestos, in amounts above the threshold, from the facility. **Regarding the commenter's recommendation to exclude certain structures known to contain no asbestos, it is not clear that in some instances such structures, or associated structures, would not contain asbestos. The EPA believes that it is prudent not to exclude such structures.** (Emphasis added.)

As indicated above in the 1990 Background Document, The US EPA considers bridges to be structures that may fit within the definition of "facility". Since US EPA has no definitive list of what structures never contained asbestos, as the Document states, it is prudent not to exclude such structures.

A thorough inspection would include all suspect materials that are part of the structure. As identified in your September 11, 2015 email, the inspection would include such items as

² EPA Publication - National Emission Standards for Asbestos ----Background Information for Promulgated Asbestos NESHAP Revisions. EPA-450/3-90-017, October, 1990.

concrete, the asphaltic bridge deck weathering surface, waterproofing membrane, bearing pads or other suspect asbestos containing material. Since concrete is a suspect material, it would be prudent for the KDOT to take a sufficient number of samples to determine whether the concrete is asbestos-containing material, as part of a thorough inspection of the bridge.

Therefore, the US EPA denies the request to grant a waiver from the inspection requirement of the Asbestos NESHAP (40 C.F.R 61.145). There are no regulatory provisions allowing the US EPA Administrator to waive the thorough inspection requirement under any circumstance. However, there are provisions that allow an owner/operator to petition the Administrator to consider giving prior written approval of an alternative work practice or alternative management of asbestos waste.

This response has been drafted in consultation with the EPA Office of General Counsel, Office of Air Quality Planning and Standards, and the Office of Civil Enforcement. EPA does not consider this response to be a final Agency action in request to a source's request for rule applicability.

Sincerely,

A handwritten signature in blue ink that reads "Edward J. Messina". The signature is written in a cursive style.

Edward J. Messina, Director
Monitoring, Assistance, and Media Programs Division
Office of Compliance

cc: Steve Anderson, OGC
Susan Fairchild, OAQPS
Gregory Fried, OCE

EPA Actions to Protect the Public from Exposure to Asbestos

One of EPA's priorities is to protect the public from adverse health effects of asbestos. Actions to protect the public from exposure to asbestos under the Toxic Substances Control Act (TSCA) include the following three pieces.

- **1989 Partial Ban on** the manufacture, import, processing, and distribution of some asbestos-containing products. EPA also banned new uses of asbestos which prevent new asbestos products from entering the marketplace after August 25, 1989. These uses remain banned. The April 2019 final rule does not provide a way for these uses to return to the marketplace.
- **April 2019 Final Rule to ensure that asbestos products that are no longer on the market cannot return to commerce** without the Agency evaluating them and putting in place any necessary restrictions or prohibiting use. The uses covered under this rule were not already prohibited under TSCA and could have returned to the market at any time.
- **Risk evaluation of asbestos under TSCA.** EPA is reviewing a handful of very limited, still ongoing uses of asbestos. The evaluation of the risks associated with ongoing uses of asbestos is required under TSCA section 6. If EPA finds unreasonable risk, the Agency will take prompt action to address those risks.

April 2019 Final Rule

In April 2019 EPA issued a final rule that strengthens the Agency's ability to rigorously review an expansive list of asbestos products that are no longer on the market before they could be sold again in the United States. This action gives EPA the authority to prohibit the use of these products or put in place restrictions to protect public health.

Under this final rule:

- **The public is protected from uses of asbestos that are no longer on the market and are not covered under any other laws or regulations.** Products like certain asbestos vinyl floor tiles, insulation, and other building materials, as well as clothing and manufacturing products, are prohibited from being

produced and sold before EPA reviews them and puts in place any necessary restrictions or prohibits use.

- **EPA is not allowing new uses of asbestos.** Persons subject to the rule are required to notify EPA at least 90 days before commencing any manufacturing, importing, or processing of asbestos or asbestos-containing products covered under the rule. These uses are prohibited until EPA conducts a thorough review of the notice and puts in place any necessary restrictions, including prohibiting use.
- **Uses of asbestos covered under the partial 1989 ban will remain banned.** This rule keeps these prohibitions in place and would not amend them in any way. In other words, this action does not provide a means by which these prohibited products could return to the marketplace.

Examples of products prohibited from entering the market under this rule include the following.

- Adhesives, sealants, roof and non-roof coatings
- Arc chutes
- Beater-add gaskets
- Cement products
- Extruded sealant tape and other tape
- Filler for acetylene cylinders
- Friction materials
- High grade electrical paper
- Millboard
- Missile liner
- Packings
- Pipeline wrap
- Reinforced plastics
- Roofing felt
- Separators in fuel cells and batteries
- Vinyl-asbestos floor tile
- Woven products
- Other building products

The final rule is effective on June 24, 2019.

Banned Uses of Asbestos

Under the 1989 rule *Asbestos: Manufacture, Importation, Processing, and Distribution in Commerce Prohibitions (54 FR 29460, July 12, 1989) (FRL-3476-2)*, five uses of asbestos and any “new use” – defined by that rule as uses of asbestos for which the manufacture, importation, or processing would be

initiated *for the first time* after August 25, 1989 – are banned in the United States.

The manufacture, importation, processing, and distribution of the following asbestos-containing products are banned under TSCA.

- Corrugated paper
- Rollboard
- Commercial paper
- Specialty paper
- Flooring felt
- New commercial uses that begin after August 25, 1989

Under the Clean Air Act (CAA), the following asbestos-containing uses are banned.

- Asbestos pipe insulation and asbestos block insulation on facility components, such as boilers and hot water tanks, if the materials are either pre-formed (molded) and friable or wet-applied and friable after drying.
- Spray-applied surfacing asbestos-containing materials
Spray-on application of materials containing more than 1% asbestos to buildings, structures, pipes, and conduits unless certain conditions specified under [40 CFR 61, Subpart M](#) are met.

Under the Consumer Product Safety Act (Consumer Product Safety Commission), asbestos in artificial fireplace embers and wall patching compounds are banned. Under the Food and Drug Administration (FDA), asbestos-containing filters in pharmaceutical manufacturing, processing and packing are banned.

Risk Evaluation Under TSCA

Understanding the health risks of asbestos and importance of protecting the public from these risks, asbestos was one of the first ten chemicals selected by EPA to undergo risk evaluation under TSCA. EPA's risk evaluation of asbestos includes a handful of very limited, still ongoing uses in the U.S:

- Asbestos diaphragms
- Sheet gaskets
- Oilfield Brake Blocks
- Aftermarket Automotive brakes/linings
- Other vehicle friction products
- Other gaskets

If EPA finds unreasonable risk, EPA will take prompt action to address those risks which could include restricting or banning other asbestos uses in products. The risk evaluation and subsequent steps will ensure that asbestos uses in products not covered by the 1989 partial ban or the April 2019 final rule are evaluated. EPA is committed to a transparent and open process to finalize the asbestos risk evaluation using sound science on the timetable established by Congress.

Regulatory History

- In 1973, EPA banned spray-applied surfacing asbestos-containing material for fireproofing/insulating purposes. See National Emission Standards for Hazardous Air Pollutants (NESHAP) at [40 CFR Part 61, Subpart M](#).
- In 1975, EPA banned installation of asbestos pipe insulation and asbestos block insulation on facility components, such as boilers and hot water tanks, if the materials are either pre-formed (molded) and friable or wet-applied and friable after drying. See National Emission Standards for Hazardous Air Pollutants (NESHAP) at [40 CFR Part 61, Subpart M](#).
- In 1977, the [Consumer Product Safety Commission \(CPSC\)](#) banned the use of asbestos in artificial fireplace embers and wall patching compounds. (See [16 CFR Part 1305](#) and [16 CFR 1304](#)).
- In 1978, EPA banned spray-applied surfacing materials for purposes not already banned. See National Emission Standards for Hazardous Air Pollutants (NESHAP) at [40 CFR Part 61, Subpart M](#).
- In 1989, EPA attempted to ban most asbestos-containing products by issuing a final rule under Section 6 of Toxic Substances Control Act (TSCA). However, most of the original ban on the manufacture, importation, processing, or distribution in commerce for the majority of the asbestos-containing products originally covered in the 1989 final rule was overturned in 1991 by the Fifth Circuit Court of Appeals. As a result, the 1989 asbestos regulation only bans new uses of asbestos in products that would be initiated *for the first time* after 1989 and bans 5 other specific product types. See [40 CFR 763 Subpart I](#).
- In 1990, EPA prohibited spray-on application of materials containing more than 1% asbestos to buildings, structures, pipes, and conduits unless certain conditions specified. See National Emission Standards for Hazardous Air Pollutants (NESHAP) at [40 CFR 61, Subpart M](#) are met.
- In 2019, EPA issued a final rule to ensure that discontinued asbestos products cannot be reintroduced into commerce without the Agency evaluating them and putting in place any necessary restrictions or prohibiting use.

AHERA Contractor/Supervisor

Annual Refresher Quiz

1. Define "Surfacing Material" under the OSHA regulation.

2. What is Presumed Asbestos Containing Material (PACM)?

3. What is Category I Non-friable ACM?

4. When removing ACM floor tile in a building:
Is broken floor tile intact or non-intact under OSHA?

Is broken floor tile friable or non-friable under NESHAP?

When is floor tile RACM under NESHAP?

What is the OSHA class of work if floor tile is RACM?
5. There are 5 regulatory specifications for using Negative Pressure Enclosure. Where, specifically are they found in the regulations?

6. For OSHA compliance, how many hours of training are required for removal of:
ACM Popcorn ceilings?
ACM Roofing?
ACM Drop in ceiling tiles?
ACM Transite pipe?
ACM Gaskets?
Class III work?
Class IV work?

7. What is a “facility component” under the NESHAP?

8. Is moving a facility component a demolition?

Does it require a notification?

9. Define each of the following terms under the OSHA regulation, and give an example of application:

Initial Exposure Assessment:

Negative Exposure Assessment:

Negative Initial Exposure Assessment:

Initial Exposure Monitoring:

10. For OSHA compliance, what is the difference between “intact” and “non-intact”?

Who should make that determination?

11. You are to remove 10,000 square feet of asbestos floor tile in a school building. Is a written specification required?

Is final clearance required?

12. What is the current OSHA Permissible Exposure Limit (PEL)?

13. Which regulation addresses Negative Pressure Enclosure?

14. Using the data below, calculate the TWA value:

Sample A-01 = 0.004 f/cc (sampled for 90 min.)

Sample A-02 = 0.08 f/cc (sampled for 30 min.)

Sample A-03 = 0.0079 f/cc (sampled for 350 min.)

$$TWA = \frac{(C_1 \times T_1) + (C_2 \times T_2) + (C_3 \times T_3)}{480}$$

C = Concentration; T = Time

15. Is NPE a required method of compliance for ACM removal?

16. Describe an OSHA NPE. How is it constructed / operated?

17. In a Negative Pressure Enclosure (NPE), what OSHA required control methods must be used to protect workers from airborne asbestos inside the enclosure?

18. What are the OSHA assigned protection factors for the negative pressure half-mask, the negative pressure full face and the full face PAPR respirators?

19. You are hired to remove acoustical ceiling texture. The texture is damaged and baseline air monitoring indicates air-borne asbestos concentrations at 0.2 f/cc in the work area. The written specification for the job requires you to protect your employees to at least 0.01f/cc. What respirator must your employees wear to protected to this level?

20. In the OSHA Construction Standard for Asbestos, what is the application of paragraph (g)(6)?

When should it be used?

21. If the only suspect ACM in a building to be renovated was point counted and proven to be less than 1% asbestos (trace amount), the NESHAP regulation does not apply. What about OSHA?

22. If a point count analysis comes back at 1.25% chrysotile, is that material ACM?

EPA?

OSHA?

23. There are 5 different situations for NESHAP notification. Identify them and give the required timeframe when each has to be made.

1.

2.

3.

4.

5.

Comment on the OSHA regulation at 29 CFR 1926.1101:

The main purpose / intent of this regulation is to protect employees from exposure to asbestos. This should be done in the best way possible. Do not treat this regulation as a checklist of compliance. Federal regulations are the minimum that you must do. Do not be afraid to implement whatever controls you can come up with that will accomplish this goal.

Notes