



Asbestos Removal

During Construction
ROICC

6/18/2003

What has to be done? Why?

- Before renovation is possible, it is necessary to remove much of the materials and equipment which are to be replaced with new.
- Many buildings were constructed when asbestos was a routine part of many building materials, such as pipe insulation and floor tiles. This asbestos is not harmful if it's intact, that is, not broken up and covered. There is no release of asbestos fibers. Only when certain types of asbestos are disturbed do asbestos fibers get released into the air.
- Contracts require the removal of asbestos-containing materials prior to new construction. Thus, the removal of asbestos.

THE DESIGNER (A & E)

The designer (A & E) starts the asbestos process by identifying the location of asbestos containing materials in the facility. If a facility was constructed prior to 1980 you can safely bet that there are asbestos containing materials in your project. An asbestos survey is included as part of the A & E guide, a document outlining the scope of the A & E work effort for the design.

NAVY Asbestos Philosophy:

It is not the goal/intent of the Navy to eliminate all the asbestos in every building we have a contract in, however it is our responsibility to assure the contractors we hire are informed of the asbestos locations also known as asbestos inventory in each facility. This is a large step in the process of managing in place asbestos and includes communicating AB locations to Navy, custodial, and contractor personnel.

Design review:

One of the most important steps we can take at the ROICC level during our design review process, is to assure the contracts we award include an accurate survey of the asbestos containing materials for each facility we are working in. This must be communicated to the contractors in the contract documents.

OSHA 29 CFR 1926.1101

OSHA Asbestos Standard for Construction

Before work is begun, building/facility owners must identify the presence, location, and quantity of ACM/PACM and notify the following persons:

- Prospective employers applying for or bidding for work whose employees reasonably can be expected to work in or adjacent to areas containing such material.
- Employees of the owner who will work in or adjacent to areas containing such material
- Tenants who will occupy areas containing such materials.

Follow contract specification requirements:

We have been missing some recently:

- 3rd Party PQP/2nd tier hired by Prime KTR
- Three day turn around on air readings
- Waste shipment records before final payment
- Baseline/exposure assessment

NIGHTMARES ON GILBERT STREET:

DOD School Camp Jacksonville

Flag Quarters G-31, Norfolk

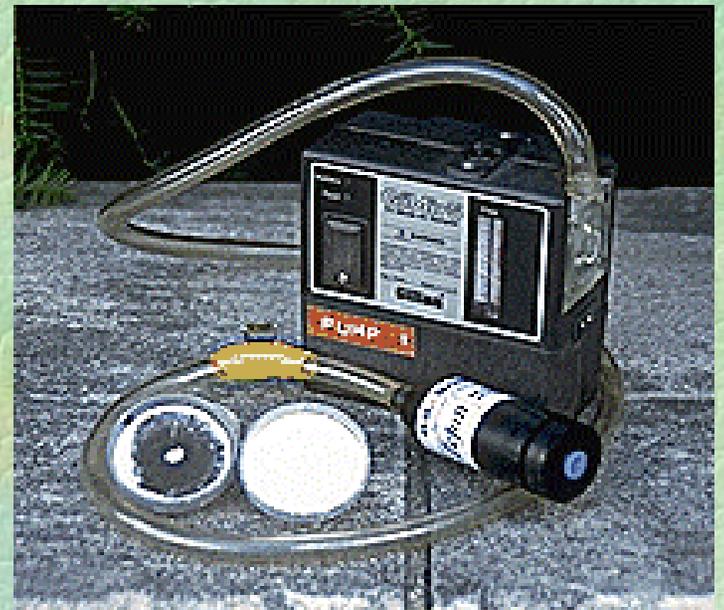
Bainbridge

Quantico

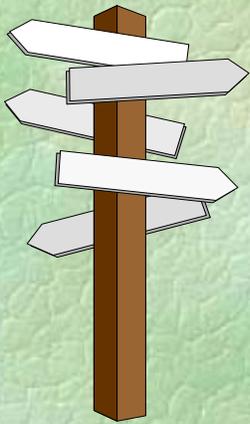
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What Materials Contain Asbestos?

1. Pipe Insulation, Joint Compound
2. Floor Tile, Mastic
3. Window Caulk, Glaze
4. Cloth Wall finishes
5. Caulking
6. Ceiling Tile
7. TSI Thermal System Insulation
8. Roofing mastic/felts
9. High voltage cable fire proofing
10. Gasket material
11. Textured finishes
12. Sprayed on fire proofing
13. Transite siding/roofing



6/18/2003



ROICC ASBESTOS POC

LANTDIV 05

ROICC NORFOLK

ROICC OCEANA

ROICC LITTLE CREEK

ROICC YORKTOWN

ROICC NNSY

ROICC CHERRY POINT

ROICC CAMP LEJEUNE

ROICC KEFLAVIK

ROICC GTMO

BILL GARRETT

JIM HEWITT/DAVE DUPREE

GENE SCHOPPE

KARL BRUNNER

BILL PLEASANT

MANNY SEOANE

WALT BAER/CONRAD GILLEN

RANDY ACOSTA

CHARLES STERMER

TOM DAVIS

Questions?

- Call Bill Garrett (322-8424), or
- Susan Hauser/Mark Blaha (322-4301)

29 CFR 1926.1101

**OSHA's Asbestos Standard
for the Construction Industry**



(a) Scope and Application

- Covers asbestos exposure in all work as defined in 1910.12(b), regardless of the type of worksite or location
- Includes but is not limited to the following where asbestos is present:
 - Demolition or salvage of structures
 - Removal or encapsulation of materials
 - Construction, alteration, repair, maintenance, or renovation
 - Installation of products containing asbestos
 - Spill/emergency clean-up
 - Transportation, disposal, storage, containment and housekeeping activities on the site where construction activities are performed

(b) Definitions

- Asbestos: chrysotile, amosite, crocidolite, tremolite asbestos, anthophyllite asbestos, actinolite asbestos, and any of these minerals that have been chemically altered; includes PACM
- ACM: “asbestos-containing material,” any material containing >1% asbestos
- PACM: “presumed asbestos-containing material”
- Surfacing Material: material that is sprayed, troweled-on, or otherwise applied to surfaces
- Thermal System Insulation (TSI): ACM applied to pipes, fittings, boilers, breeching, tanks, ducts or other structural components to prevent heat loss or gain

(b) Definitions (cont'd)

- Class I Asbestos Work: activities involving the removal of TSI or surfacing ACM and PACM
- Class II Asbestos Work: activities involving the removal of ACM which is not TSI or surfacing material.
Examples: removal of, floor tile, and roofing shingles
- Class III Asbestos Work: repair and maintenance operations where ACM and/or PACM is likely to be disturbed
- Class IV Asbestos Work: 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

(b) Definitions (cont'd)

- Building/Facility Owner: the legal entity, including a lessee, which exercises control over management and recordkeeping function relating to a building and/or facility in which activities covered by this standard take place
- Disturbance: activities that disrupt the matrix of ACM or PACM, crumble or pulverize ACM or PACM, or generate visible debris from ACM or PACM
 - 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
- Intact: ACM that has not crumbled, been pulverized, or otherwise deteriorated so that the asbestos is no longer likely to be bound with its matrix

(b) Definitions (cont'd)

▪ **Competent Person**

- Complies with 1926.32(f): capable of identifying existing asbestos hazards in the workplace and selecting the appropriate control strategy for asbestos exposure and has the authority to take prompt corrective action to eliminate them; and
- For Class I and II work: is specially trained in a training course that meets the criteria of EPA's Model Accreditation Plan for supervisors, or its equivalent (40 CFR 763)
- For Class III and IV work: is specially trained including a course meeting EPA requirements for training of local education agency maintenance and custodial staff (40 CFR 763.92(a)(2))

(c) Permissible Exposure Limits

- Time-Weighted Average Limit: 0.1 fiber/cubic centimeter as an 8-hour TWA
- Excursion Limit: 1.0 fiber/cubic centimeter as averaged over 30 minutes

(d) Multi-Employer Worksites

- An employer whose work requires a regulated area shall inform other employers of
 - Nature of such work
 - Existence of and requirements pertaining to regulated areas
 - Measures taken to ensure that employees of other employers are not exposed
- Abatement shall be by the contractor who created or controls the source of contamination

(d) Multi-Employer Worksites (cont'd)

- All employers of employees exposed shall comply with applicable protective provisions
- All employers of employees working adjacent to regulated areas established by another employer, shall daily ascertain integrity of the enclosure and/or other controls
- All general contractors shall be deemed to exercise general supervisory authority over work covered by this standard and shall ascertain that the asbestos contractor is in compliance

(e) Regulated Areas

- Class I, II, and III asbestos work; also all other operations where PEL is or may reasonably be exceeded
- Demarcated in any effective manner; critical barriers or negative pressure enclosures may be used; signs must be provided
- Access limited to persons authorized by the employer or the OSH Act
- Respirators to be provided based on (h)(2)
- No eating, drinking, smoking, chewing tobacco or gum, or application of cosmetics
- Work within regulated areas supervised by competent person



(f) Exposure Assessments and Monitoring - General

- For each workplace or work operation where monitoring is required
- Breathing zone samples representative of 8-hour TWA and 30-minute Excursion Limit of each employee
- Excursion Limit samples for operations most likely to produce exposures above the Excursion Limit

(f) Exposure Assessments and Monitoring - Initial Exposure Assessment

- Assessment by a competent person before or at the initiation of an operation -- so all appropriate control systems can be applied
- Basis:
 - Exposure monitoring if feasible
 - Observations, information, or calculations which indicate employee exposure, including any previous monitoring
 - “Negative Exposure Assessment” required to conclude that exposures are likely to be consistently below the PELs
 - Exposure above the PELs is assumed for Class I work until exposure monitoring documents otherwise, or employer makes a “negative exposure assessment”

(f) Exposure Assessments and Monitoring - Periodic Monitoring

- For Class I and II work in a regulated area: daily monitoring representative of each employee's exposure unless the employer has a negative exposure assessment for the entire operation
- All other operations: periodic monitoring sufficient to document the exposure
- Exception: employees doing Class I work who are using a control listed in (g)(4)(I), (ii), or (iii) and employees doing Class II work may be equipped with supplied-air respirators operated in the positive-pressure mode in lieu of daily monitoring

(f) Exposure Assessment and Monitoring - Other

- If exposures are shown to be below the PELs by a statistically reliable method, monitoring may be discontinued
- Additional monitoring is required whenever a change in process, control equipment, personnel, or work practice may produce exposures above the PELs
- Employees and their designated representatives may observe monitoring
- Employers will notify affected employees of the monitoring results, in writing or by posting



(g) Methods of Compliance

- Engineering controls and work practices required regardless of level of exposure
 - Vacuum cleaners with HEPA filters for cleanup
 - Wet methods or wetting agents during handling, mixing, removal, cutting, application, and cleanup, unless infeasible due to creation of other hazards; see (g)(8)(ii) for roofing exceptions
 - Prompt cleanup and disposal of wastes and debris in leak-tight containers

(g) Methods of Compliance (cont'd)

- Engineering controls and work practices required to achieve the PELs
 - Local exhaust ventilation with HEPA filter dust collection system
 - Enclosure or isolation of processes producing asbestos dust
 - Ventilation of the regulated area to move air from the employee's breathing zone toward HEPA-filtered collection device or exhaust
 - Other controls that the Assistant Secretary can show to be feasible
 - If the above are not sufficient to reduce employee exposure to or below the PELs, they shall still be used and supplemented with respiratory protection

(g) Methods of Compliance (cont'd)

- Prohibitions
 - High-speed abrasive disc saws that are not equipped with point of cut ventilator or enclosures with HEPA-filtered exhaust air
 - Compressed air to remove asbestos or ACM except in conjunction with an enclosed ventilation system
 - Dry sweeping, shoveling, or other cleanup of ACM or PACM dust and debris
 - Employee rotation as a means of reducing employee exposure

(g) Methods of Compliance - Class I Jobs

- Supervision by a competent person
- Critical barriers over all openings to regulated area, or another barrier or isolation method which prevents the migration of airborne asbestos from the regulated area
 - For Class I jobs involving the removal of >25 linear or 10 square feet of TSI or surfacing material
 - For all other Class I jobs where there is no negative exposure assessment
 - For Class I jobs where employees are working in areas adjacent to the regulated area

(g) Methods of Compliance - Class I Jobs (cont'd)

- Isolation of HVAC systems in regulated area (double layer of 6 mil plastic or equivalent)
- Impermeable dropcloths on surfaces beneath removal activity
- Covering all objects within regulated area with impermeable materials
- Where employer cannot produce a negative exposure assessment, or where PEL is exceeded, ventilation of the regulated area to move air from the employee's breathing zone toward HEPA-filtered collection device

(g) Methods of Compliance - Class I Jobs (cont'd)

- One or more of the following specific control methods shall be used for Class I work:
 - Negative Pressure Enclosure (NPE) Systems, where the configuration of the work area does not make erection feasible
 - Glove Bag Systems, for removal of PACM and/or ACM from straight runs of piping, elbows, and other connections
 - Negative Pressure Glove Bag Systems, for removal of ACM or PACM from piping
 - Negative Pressure Glove Box Systems, for removal of ACM or PACM from pipe runs
 - Water Spray Process System, for removal of ACM and PACM from cold line piping, where employees have completed a separate 40-hour training course in its use

(g) Methods of Compliance - Class I Jobs (cont'd)

- A small walk-in enclosure accommodating no more than 2 persons, if the project can be completely contained in the enclosure
- Alternative control methods that comply with the following:
 - Keep airborne asbestos dust from entering the breathing zone of employees
 - Are evaluated and certified by a CIH or licensed PE (or by a competent person if the material to be removed is <or =25 linear or 10 square feet)
 - Have the required evaluation/certification by a CIH/PE sent to the national OSHA Office of Technical Support

(g) Methods of Compliance - Class II Jobs

- Supervision by a competent person
- Critical barriers over all openings to regulated area, or another barrier or isolation method which prevents the migration of airborne asbestos from the regulated area
 - For all Class II jobs where there is no negative exposure assessment
 - For Class II jobs where there may be exposure above the PELs
 - For Class II jobs where the employer does not remove the ACM in a substantially intact state
- Impermeable dropcloths on surfaces beneath removal activity

(g) Methods of Compliance - Class II Jobs (cont'd)

- Additional specific controls are listed for various types of Class II work
 - Removal of 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
 - Removal of roofing material which contains ACM
 - Removal of cementitious asbestos-containing siding and shingles or transite panels containing ACM
 - Removal of gaskets containing ACM
 - Performing any other Class II removal of asbestos-containing material
 - Installation, removal, or repair of intact bituminous/resinous encapsulated roofing materials (mastics, flashings, etc.) and asphaltic pipeline wraps

(g) Methods of Compliance - Class II Jobs (cont'd)

- Class I methods may also be used for Class II work, except that glove bags and glove boxes are allowed if they fully enclose the Class II material to be removed
- Alternative controls may be used if they comply with the following:
 - Data representing employee exposure during the use of such controls indicate exposure will not exceed the PELs
 - A competent person evaluates and certifies such controls

(g) Methods of Compliance - Class III Jobs

- Performed using wet methods
- Performed using local exhaust ventilation, to the extent feasible
- Where drilling, cutting, abrading, sanding, chipping, breaking, or sawing TSI or surfacing material, performed using impermeable dropcloths and mini-enclosures or glove bag systems or another isolation method
- Where there is no negative exposure assessment or where the PELs are exceeded, performed using impermeable dropcloths and plastic barriers, or isolation using a control system specified for Class I jobs
- Where: TSI or surfacing material involved, or there is no negative exposure assessment, or PELs are exceeded, employees shall wear respiratory protection according to paragraph (h)



(h) Respiratory Protection - General

- Respirators shall be provided and used for
 - All Class I jobs
 - All Class II jobs where ACM is not removed in a substantially intact state
 - All Class II and III jobs not performed using wet methods; exception: sloped roofs
 - All Class II and III jobs where there is no negative exposure assessment
 - All Class III jobs where TSI or surfacing material ACM or PACM is disturbed
 - All Class IV work in regulated areas where employed performing other work are required to wear respirators
 - All work where PELs are exceeded
 - Emergencies

(i) Protective Clothing

- Coveralls, head coverings, gloves, and foot coverings are required for
 - Any employee exposed above the PELs
 - Any employee doing work for which a required negative exposure assessment is not produced
 - Any employee performing Class I work involving removal of > 25 linear or 10 square feet of TSI or surfacing ACM or PACM
- Laundering of contaminated clothing must be done so as to prevent exposures > PELs
- Employers must inform launderers of the requirement to prevent release of airborne asbestos > PELs

(i) Protective Clothing (cont'd)

- Contaminated clothing must be transported in labeled, sealed impermeable bags or containers
- A competent person must examine worksuits at least once per workshift for rips or tears
- Rips/tears must be immediately mended, or the worksuit replaced

(j) Hygiene Facilities and Practices -

Class I Jobs Involving > 25 Linear or 10 Square Feet of TSI or Surfacing ACM and PACM

- Decontamination area must be established adjacent and connected to the regulated area
 - Equipment room
 - Shower area (adjacent to the equipment room and the clean room, where feasible)
 - Clean change room
- Employees must enter the regulated area through the decontamination area
 - Clean room, through Shower area, to Equipment room
- Employees must exit the regulated area through the decontamination area
 - Equipment room to Shower area to Clean room
- For all Class I work: Lunch areas must be provided in which the airborne asbestos concentration is below the PELs

(j) Hygiene Facilities and Practices - Other Class I Jobs, Class II Jobs, and Class III Jobs

- The employer must establish an equipment room or area adjacent to the regulated area for the decontamination of employees and equipment
- Employees must enter and exit the regulated area through the equipment room or area

(j) Hygiene Facilities and Practices - Class IV Jobs

- Hygiene facilities and practices must match those of employees performing higher classification work within the same regulated area, or
- Decontamination facilities specified for “*Other Class I Jobs, Class II Jobs, and Class III Jobs*” must be provided for employees cleaning up debris and material identified as TSI or surfacing ACM or PACM
- **For all jobs covered under this standard: smoking is not permitted where there is exposure to asbestos**

(k) Communication of Hazards - Duties of Building and Facility Owners

- Before work is begun, identify the presence, location, and quantity of ACM/PACM, Including
 - All TSI and sprayed on/troweled-on surfacing materials in buildings or substrates constructed no later than 1980
 - All resilient flooring material installed not later than 1980
- Notify the following persons of the presence, location, and quantity of ACM/PACM
 - Prospective employers applying for/bidding for work
 - Employers of the owner who will work in or adjacent to areas containing such materials
 - All employers on multi-employer worksites whose employees will be performing work within or adjacent to areas containing such materials
 - Tenants who will occupy areas containing such materials

(k) Communication of Hazards - Duties of Building and Facility Owners (cont'd)

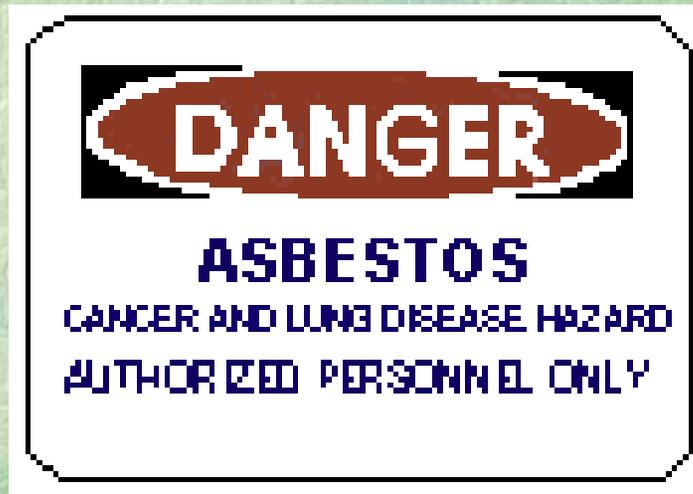
- Post signs at entrance to mechanical rooms/areas which employees may reasonably be expected to enter and which contain ACM and/or PACM
 - Identify material present, its location, work practices to avoid disturbance
- Post signs or labels on previously installed ACM/PACM to inform employees of which materials are affected

(k) Communication of Hazards - Criteria to Rebut the Designation of PACM

- An employer or owner may demonstrate that PACM does not contain asbestos by the following:
 - Having an AHERA inspection
 - Performing tests that demonstrate that the material is not ACM
 - Collection of bulk samples following requirements of 40 CFR 763.86
 - Performed by an accredited inspector or CIH
Analysis of samples by persons/laboratories participating in nationally-recognized testing programs or round robin testing program
 - For flooring materials, a determination by an IH based on recognized analytical techniques
- Data and information must be maintained for as long as they are relied on to rebut the presumption

(k) Communication of Hazards - Signs

- Warning signs must be used to demarcate regulated areas
- Wording for signs:



- Additional wording where applicable:
 - RESPIRATORS AND PROTECTIVE CLOTHING ARE REQUIRED IN THIS AREA

(k) Communication of Hazards - Labels (cont'd)

Wording on labels:

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

Additionally, labels must contain a warning statement against breathing asbestos fibers

(k) Employee Information and Training - Job Class Specific Requirements

- Training for Class I jobs must be equivalent to EPA Model Accreditation Plan asbestos abatement worker training
- Training for Class II work must include “hands-on” training and specific work practices and engineering controls for the category of materials as well as basic information required for all employees
- Training for Class II work with asbestos-containing roofing materials, flooring materials, siding materials, ceiling tiles, or transite panels must be at least 8 hours

(k) Employee Information and Training - Job Class Specific Requirements (cont'd)

- Training for Class III jobs must be consistent with the EPA training course for local education agency maintenance and custodial workers who will disturb ACM or PACM (40 CFR 763.92(a)(2))
 - Must include “hands-on” training and take at least 16 hours
- Exception: If a competent person determines the EPA curriculum is not adequate, training must include the basic information as well as specific applicable work practices and controls and “hands-on “ training

(k) Employee Information and Training - Job Class Specific Requirements (cont'd)

- Training for Class IV jobs must be consistent with the EPA requirements for training local education agency maintenance and custodial workers who contact but do not disturb ACM or PACM (40 CFR 763.92(a)(1))
 - Must be at least 2 hours
 - Must include
 - > Location of ACM/PACM, asbestos-containing flooring material, or flooring material where absence of asbestos has not been certified
 - > Instruction in recognition of damage, deterioration, and delaminating of asbestos-containing building materials





(o) Competent Person - 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) Competent Person - Frequency of Inspections

- Required inspections - frequent and regular inspections of job sites, materials, and equipment
- Additional inspections
 - Class I jobs
 - At least once during each work shift
 - At any time at employee request
 - Class II, III, and IV jobs
 - At intervals sufficient to assess whether conditions have changed
 - At any reasonable time at employee request

(o) Competent Person - Duties

- For Class I or II jobs, the competent person must perform or supervise
 - Set up of regulated area, enclosure, or other containment
 - Ensuring integrity of enclosure or containment
 - Set up of procedures to control entry to and exit from the enclosure and/or area
 - Supervision of employee exposure monitoring
 - Ensuring that employees working within enclosure and/or using glove bags wear required protective clothing and respirators

(o) Competent Person - Duties (cont'd)

- Ensuring that employees set up remove/engineering controls, and use work practices and PPE as required
- Ensuring that employees use hygiene facilities and decontamination procedures as required
- Ensuring that engineering controls are functioning properly and employees are using proper work practices
- Ensuring that notification requirements are met

(o) Competent Person - Training

- For Class I and II jobs
 - Comprehensive course for supervisors meeting criteria of EPA Model Accredited Plan (40 CFR 763, subpart E, Appendix C) for stringency, content, and length
 - Contents - all aspects of asbestos removal and handling
 - Abatement, installation, removal, and handling
 - Contents of the standard
 - Identification of asbestos
 - Removal procedures
 - Other practices for reducing the hazard

(o) Competent Person - Training (cont'd)

- For Class III and IV jobs
 - Contents - aspects of asbestos handling appropriate to the work
 - Procedures for setting up glove bags and mini-enclosures
 - Practices for reducing asbestos exposures
 - Use of wet methods
 - Contents of the standard
 - Identification of asbestos
 - Must include course equivalent in stringency, content, and length to EPA requirements for training local education agency maintenance and custodial workers (40 CFR 763.92(a)(2))