

**SUBJECT:** Enforcement Procedures for Occupational Exposure to Asbestos.

**Purpose:** This instruction provides guidelines to promote uniform inspection procedures when conducting inspections for workers potentially exposed to asbestos in general industry and construction. It also establishes guidelines for safe work practices for investigators during inspections where asbestos containing materials (ACM) or presumed asbestos containing materials (PACM) is known or suspected to be present.

**Scope:** This instruction applies MNOSHA-wide where asbestos is encountered. Exposure to asbestos is covered by 1910.1001, 1926.1101, 5205.0660 Subp. 3 and 5207.0035.

**References:** Federal OSHA Instruction CPL2-2.63 CH-1, dated January 9, 1996, is adopted by reference, except for sections I., K., and O., which are covered in the Action section of this directive, and sections M., and N., which are covered by the MNOSHA Field Safety and Health Manual. Copies of the federal Directive are available on the web, but are not attached to this directive.

**Cancellation:** This instruction supersedes CPL 2-2.63, dated March 4, 2013.

**Background:** Construction standard 1926.1101 applies to all construction work as defined in 29 CFR 1910.12(b) including maintenance, repair, alteration, or renovation of structures. This standard covers exposure to ACM or PACM in all situations except manufacturing facilities that use asbestos in a product they produce.

Manufacturing facilities using asbestos to produce a finished product are covered by the General Industry Standard 1910.1001. Automotive, bus and truck brake repair operations fall under the 1910.1001 standard. The mandatory Appendix F specifies engineering controls and work practices that must be implemented by the employer during automotive brake and clutch inspection, disassembly, repair and assembly operations. Housekeeping in areas that contain installed ACM/PACM in General Industry (Public & Private Sector) is also covered by 1910.1001.

Asbestos containing materials have seldom been used in new construction since 1980 but it is possible, especially as a contaminant in imported materials. There is no global ban on asbestos at this time. Current asbestos exposures usually relate to removal or repair of installed ACM during demolition or renovation. Investigators are most apt to encounter asbestos when inspecting building renovation or demolition projects or with day-to-day maintenance and clean-up of installed ACM/PACM in general industry facilities. ACM may be also encountered in landfills, waste disposal businesses, pipeline coatings, building material recycling facilities and scrap yards.

Asbestos is a health hazard when it becomes airborne and is inhaled. The combination of smoking and breathing asbestos fibers magnifies the risk of lung cancer for exposed individuals. Asbestos bound within a material, kept wet, or otherwise undisturbed does not pose a dust hazard, only a potential hazard of becoming airborne.

**ACTION:**

A. Personal Protection for OSHIs When Conducting Inspections Involving Exposure to ACM and PACM.

1. Prior to participating in investigations involving exposure to asbestos, the investigator shall receive Employee Right-To-Know training on the hazards of asbestos and the precautions necessary for personal protection.

2. Prior to collecting an asbestos bulk sample, OSHI's must receive an equivalent of Class III training, which includes "hands-on" training. MNOSHA requires all health investigators to take the AHERA Asbestos Building Inspector Course as part of their core training. This level of training exceeds the requirements for class III work and is specific to bulk sample collection.

Refresher training is provided internally to all health staff annually. This training covers the asbestos awareness requirements and specific discussion regarding collection of bulk samples of suspect materials. Items such as respirator medical evaluations, training and fit testing and other PPE use are addressed by MNOSHA's Field Safety and Health Manual and are not covered during this specific training.

3. It is not always necessary or appropriate to collect a bulk sample and OSHI's should only enter an area of active disturbance of ACM and PACM, or negative pressure enclosure, with the approval of their supervisor or OMT Director. The OSHI should consider other sources of hazard documentation and use professional judgment in making this determination. Entry into an enclosure shall not be made if there are inadequate or nonexistent decontamination facilities. If entry is made, suitable personal protective equipment shall be used, including disposable coveralls, head coverings, foot coverings and gloves.
4. When the investigator determines to take a sample of PACM or receives approval to go into an area of active disturbance, the investigator must determine if additional personal protective equipment should be worn. As a general rule, OSHIs should not collect a bulk sample unless wearing an approved HEPA filter respirator. Each investigator who is expected to use (or who chooses to use) a respirator shall contact the Respirator Coordinator and comply with the requirements for respirator use outlined in the Field Safety and Health Manual (FSHM).
5. If bulk samples will be taken, each investigator should have available the following supplies:
  - a. Sampling knife and disposable gloves for handling ACM or PACM bulk samples.
  - b. Squirt bottle with wetting agent or water mixed with surfactant for wetting down samples and cleaning up.
  - c. Petri dishes with labels or marker for labeling and/or whirlpak bags to submit samples.
  - d. Masking tape to seal Petri dishes if used.
  - e. Plastic sealable bags.
  - f. Pre-wetted towelettes or paper towels (for clean up).
  - g. Personal sampling pump and cassettes to conduct exposure monitoring.
6. Where the OSHI plans to collect a bulk sample in a potential exposure situation, such as damaged piping or boiler insulation in general industry, where exposure to employees and OSHI would not normally exceed the PEL, the OSHI should:
  - a. Don gloves and respirator, where appropriate, and obtain a small sample of material from a damaged area or from a small corner or seam. Avoid impacting intact materials.

- b. Place sample in petri dish or whirlpak bag (if sample size allows), seal with tape to prevent accidental opening, label to identify the source, and place in sealed plastic bag.
  - c. If OSHI creates any debris in the sample collection process, it should be cleaned up by OSHI, using water and paper towels/towelettes.
  - d. Collect a breathing zone air sample during the sample collection to document OSHI asbestos exposures.
7. Following an asbestos-related inspection, any disposable clothing used on the inspection should be removed and placed in a labeled, sealed plastic bag. The OSHI may ask to leave it with similar asbestos contaminated materials at the inspection site. If contaminated material must be taken away from the inspection site, there is an asbestos disposal container in the MNOSHA basement lab area. If the Duluth office accumulates any asbestos waste, it should be double bagged and properly labeled. Then on the next trip to the St. Paul office, brought to the basement lab.
8. The OSHI should submit asbestos samples with a fully completed, signed Chain-of-Custody form (see MOOSE Manual, Chapter 8 - Laboratory Submissions & Results). Bulk sample submission will be handled as follows:
- a. The Electronics Technician receives the sealed sample from the OSHI, signs the chain-of-custody form, and takes it to the laboratory for analysis.
  - b. If prompt results are needed, the OSHI should request rush analysis from their supervisor. If approved, OSHI should contact the lab about the incoming samples.
  - c. The recipient at the lab will sign and indicate the date of receipt to maintain the chain of custody.
  - d. Lab results will be emailed to the OSHI.
  - e. A copy of the lab results will be tiffed to the case file as documentation of ACM.

**B. Citation Guidelines for Construction:**

Many of the requirements for compliance with the asbestos in construction standard are similar for all classes of work. Items 1 through 9 of this section cover the portion of the standard that is similar for all classes. Items 10 through 17 cover requirements unique to each specific class of work. Section C applies to general industry.

1. Asbestos building material survey and communication
- a. Prior to disturbing asbestos containing building materials, the building owner or contractor must conduct an asbestos survey, or assume the building materials contain asbestos and treat them accordingly. The survey information must be communicated to employers and employees on the construction site. Determine if the employer has conducted a survey for asbestos-containing materials present in the structure. If the building owner failed to identify ACM/PACM, cite 1926.1101(k)(2)(i). If the employer failed to identify ACM/PACM, cite 1926.1101(k)(3)(i). If it is not in writing, cite Minn. Rules 5207.0035. Determine if all contractors on the site have received the asbestos survey information. If not, cite the facility/building owner under 1926.1101(k)(2)(ii)(c); the general contractor & all subcontractors affected under 1926.1101(k)(3)(ii)(B).

2. Multi-employer work sites

- a. On multi-employer work sites, the employer that creates the hazard must inform other employers about the asbestos hazards and how they will protect the other employers. The communication can be verbal and does not need to be in writing. If this communication has not taken place, cite 1926.1101(d)(1).
- b. Asbestos hazards must be abated by the contractor that created or controls the source of asbestos contamination. If the contractor creates a hazard that is not abated by the contractor, cite 1926.1101(d)(2).
- c. Employers are required to protect their own employees from asbestos hazards. If the employer does not take adequate steps to protect their own employees cite 1926.1101(d)(3).
- d. General contractors (GC) have general supervision over site activities. As the general supervisor, the GC is responsible for ensuring that the asbestos contractor is in compliance with 1926.1101. If the general contractor fails to ensure that asbestos work is conducted according to the standard, cite the GC under 1926.1101(d)(5). Note: many GC's avoid liability with asbestos work and contracts may be written between the asbestos contractor and building owner. OSHI should ensure that the asbestos contractor is a sub of the GC.

3. Regulated area requirements

- a. All Class I – III work must be conducted in a regulated area, including demarcation, restricted access, competent supervision and respiratory protection. Cite 1926.1101(e)(1) for any deficiencies or if the employer failed to establish a regulated area.

4. Exposure assessments and monitoring

- a. Employers conducting Class I – IV work, and work involving material that contains <1% asbestos, must have either initial personal air monitoring or a negative exposure assessment. Determine if the employer has conducted initial monitoring and/or has performed a negative exposure assessment. The negative exposure assessment must meet the conditions listed in 1926.1101(f)(2)(iii). Cite 1926.1101(f)(1)(i) if initial monitoring for work operations where exposure monitoring is required is not performed. Cite 1926.1101(f)(2)(i) if a negative exposure assessment has not been conducted by a competent person or if there are deficiencies.
- b. Periodic (daily) monitoring must be conducted for all Class I – II work and Class III – IV work where exposure is likely to exceed PEL's, unless a negative exposure assessment has been conducted for all operations. Cite 1926.1101(f)(3)(i) for Class I – II or 1926.1101(f)(3)(ii) for Class III – IV if this has not been completed.

5. Methods of compliance

- a. For all Class I – IV work, if an employer uses a vacuum to clean-up debris, it must be equipped with HEPA filters. If the employer uses a normal vacuum, cite 1926.1101 (g)(1)(i).

- b. For all Class I – IV work, and work conducted with material that contains <1% asbestos, wet methods are required for asbestos handling, cutting, removal, and clean-up. If wet methods are not used, cite 1926.1101(g)(1)(ii). Employers should not allow removed material to dry out prior to disposal.
- c. For all Class I – IV work, and work conducted with material that contains <1% asbestos, prompt clean-up and disposal of waste and debris into leak tight containers is required. If the employer has failed to clean-up promptly (If the OSHI observes ACM and/or asbestos-containing dust on the floor and other surfaces), cite 1926.1101(g)(1)(iii). Employers must place materials into leak tight containers by the end of their work shift. Containers must also be appropriately labeled. If containers are not labeled and the material is promptly disposed, cite 1926.1101(l)(2).
- d. If the specific requirements for Class I – IV work are not sufficient to reduce exposure below the PEL, the employer must use several methods for achieving compliance with the PEL. The methods including HEPA filtered local exhaust ventilation, enclosure or isolation, ventilation to move air away from the workers breathing zone, and other feasible engineering controls. If the employer does not implement the engineering controls when exposure is above the PEL, cite the deficient item found in 1926.1101(g)(2)(i) - 1926.1101(g)(2)(iv).

6. Prohibitions

- a. Several practices are prohibited during any type of asbestos work, regardless of measured exposures. If the employer uses a non-ventilated high-speed abrasive disk saw outside of an enclosure cite 1926.1101(g)(3)(i). If the employer uses compressed air for cleaning outside of an enclosure cite 1926.1101(g)(3)(ii). If the employer uses dry sweeping or shoveling to clean-up dust and debris, cite 1926.1101(g)(3)(iii). If the employer uses employee rotation as a means to reduce exposure below the PEL, cite 1926.1101(g)(3)(iv).

7. Protective Clothing

- a. Protective clothing is only required for Class I work involving the removal of over 25 linear or 10 square feet of TSI or surfacing material. For all other classes, it is only required if there is no negative exposure assessment or if the asbestos concentration is above the PEL. If the worker is not properly protected (e.g., respiratory protection, Tyvek suit, gloves, foot protection, etc.), and the contractor does not have monitoring results or a negative exposure assessment, the OSHI should request that the operation be stopped until the worker can proceed safely. If protective clothing is not provided for employees exposed to airborne concentrations of asbestos that exceed the TWA and/or excursion limit, cite 1926.1101(i)(1).

8. Employee Information and Training

- a. For all Class I – IV work, and for employees likely to be exposed above the PEL, the standard requires that employees receive training prior to their assignment. Generally the length and depth of the training increases as the hazard increases; Class I training is 32 hours while Class III and IV training is 16 and 2 hours respectively. Class II training can be a general 32 hour course for all materials or an 8 hour course on one specific type of material (i.e., roofing). Training is covered under the Environmental Protection Agency (EPA) Model Accreditation Plan (MAP) found in 40 CFR Part 763. Such training must be obtained in a course conducted by an EPA or state-approved training provider, certified by the

EPA or a State, or a course equivalent in stringency, content and length. In Minnesota, the Minnesota Department of Health regulates training that meets the EPA requirements. A licensed asbestos worker in the State of Minnesota has met the training requirements for Class I – III work. Section (k)(9) and (k)(10) covers training requirements for Class I-IV work. If deficiencies exist in the employer's training, cite the relevant paragraph.

- b. All Class I – IV work also requires supervision by a competent person (asbestos site supervisor for Class I - II). The requirements for competent person training for Class I and II work is found in section (o)(4)(i). Class III and IV requirements are found in section (o)(4)(ii). If deficiencies exist in the competent person training, cite the relevant paragraph.

9. Competent Supervision

- a. All Class I – IV work requires supervision by a trained competent person (see section 8 for training requirements). The competent person must be capable of identifying existing asbestos hazards, selecting an appropriate control strategy and must have the authority to take prompt corrective action. If the employer did not designate a competent person for the worksite, cite paragraph (o)(1). If the competent person did not conduct adequate inspections of the work site, cite paragraph (o)(3).

10. Class I Asbestos Work

Class I Asbestos Work means activities involving the removal of Thermal System Insulation ACM (TSI) and sprayed-on or troweled-on or otherwise applied surfacing ACM and PACM.

At any point in the investigation of Class I Asbestos Work, the OSHI may contact their Supervisor OMT Director for advice on whether the operation should be shut down.

- a. If the employer did not use work practices and engineering controls for Class I asbestos work cite the appropriate paragraphs from 1926.1101(g)(4) & (5).
- b. Determine if respirator was used. A respirator is required for all Class I jobs. If not used, cite 1926.1101(h)(1)(i) and cite 1926.1101(h)(2)(i) if there is no program.
- c. Determine the amount of material being removed. If Class I work involves less than 25 linear feet or 10 square feet of TSI or surfacing ACM and PACM, the employer shall establish an equipment room or area that is adjacent to the regulated area for the decontamination of employees and their equipment. If employer does not provide the equipment room, cite 1926.1101(j)(2)(i).
- d. Determine if employees are performing Class I asbestos jobs involving greater than 25 linear feet or 10 square feet of TSI or surfacing ACM and PACM. Employers are required to install a decontamination area that is adjacent or connected to the regulated area. The decontamination area shall consist of an equipment room, shower area, and clean room in series. If employer does not provide the decontamination area, cite 1926.1101 (j)(1)(i). Note: The shower can be eliminated if the employer can demonstrate that it is not feasible. The employer is also required to provide a clean lunch area in which the airborne concentration of asbestos is below the permissible exposure limit and/or excursion limit. If employer does not provide a clean lunch room, cite 1926.1101(j)(1)(iv).

- e. Determine if employees have received medical monitoring if negative pressure respirators are used or exposure is likely to occur 30 or more days per year. If medical monitoring has not been performed, cite 1926.1101(m)(1)(A) or (B), if necessary. If the employer is performing asbestos monitoring, obtain copies of monitoring reports and check for the following information: date of measurements; operations involving exposure to asbestos; sampling and analytical methods used and evidence of their accuracy; number, duration, and results of samples taken; type of PPE devices worn; and name, social security number, and exposure level of employees. If monitoring records are not maintained, cite 1926.1101(n)(2).

Note: Citations will not be issued for violations of paragraph 1926.1101(e)(5) for eating, drinking, chewing tobacco and gum, and applying cosmetics in a regulated area unless the worker exposure exceeds the PEL.

11. Class II Asbestos Work

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 (except for asphalt roof coatings, cements, and mastics), siding shingles, and construction mastic, when the material does not remain intact.

Section 12 of this directive covers requirements for removal of roofing material containing incidental asbestos containing materials, where the material remains intact.

Section 14 and Appendix A of this directive cover requirements for removal of asbestos-containing floor tile when installing, removing, repairing or maintaining an intact floor.

At any point in the investigation of Class II Asbestos Work, the OSHI may contact their Supervisor or OMT Director for advice on whether the operation should be shut down.

- a. If the employer did not use work practices and engineering controls for Class II asbestos work, cite the relevant paragraph(s) from 1926.1101(g)(7) or (g)(8) .
- b. Determine if respirator was used. A respirator is required if ACM or PACM is not removed in a substantially intact state, if not using wet methods, or if the employer does not produce a negative exposure assessment, or if exposure is above the PEL's. If a respirator is not used when required, cite 1926.1101(h)(1)(ii), (iii) or (iv) as appropriate and cite 1926.1101(h)(2)(i) if there is no program.
- c. If Class II work operations exceed a PEL or if there has not been a negative exposure assessment produced before the operations, the employer shall establish an equipment room or area that is adjacent to the regulated area for the decontamination of employees and their equipment. If employer does not provide the equipment room or area, cite 1926.1101(j)(2)(i).
- d. Determine if employees have received medical monitoring if negative pressure respirators are used or exposure is likely to occur 30 or more days per year. If medical monitoring has not been performed, cite 1926.1101(m)(1)(i)(A) or (B), if necessary.
- e. If employer is performing asbestos monitoring, obtain copies of monitoring reports and check for the following information: date of measurements;

operations involving exposure to asbestos; sampling and analytical methods used and evidence of their accuracy; number, duration, and results of samples taken; type of PPE devices worn; and name, social security number, and exposure level of employees. If monitoring records are not maintained, cite 1926.1101(n)(2).

12. Asbestos-Containing Roofing Materials

When removal of roofing material containing ACM that does not fit the description in (g)(11)[see item 13] is occurring, the OSHI should check for the following requirements:

- a. Ensure that the roofing material is removed in an intact state to the extent feasible. If methods are used that render the material non-intact, cite 1926.1101(g)(8)(ii)(A).
- b. Ensure that wet methods are used when roofing is not removed intact (unless such wet methods are not feasible or will create a safety hazard). If not, cite 1926.1101(g)(8)(ii)(B) or (c) if cutting machine used without continuous misting.
- c. If a powered roof cutter is used to remove intact built-up roofing containing asbestos felts, the machine is required to be misted during use unless misting causes a substantial risk to employees. The competent person must determine the increased risk. If misting is not performed, the use of a HEPA vacuum or HEPA dust collector is required. If the employer does not provide appropriate controls for the powered roof cutter, cite 1926.1101(g)(8)(ii)(C) for not misting and 1926.1101(g)(8)(ii)(D) for not using HEPA dust collector.
- d. ACM roofing material must not be dropped or thrown to the ground. The ACM must be carried, or passed to the ground by hand, or lowered via a covered, dust tight chute, or lowered by a crane or hoist. If the material is dropped to the ground, cite 1926.1101(g)(8)(ii)(E).
- e. Ensure that material is removed from the roof as soon as practical, but no later than the end of the shift. The non-intact material must be kept wet, placed in bags or wrapped in plastic. If the non-intact material is stored on the roof beyond one work shift or not kept wet, placed in bags or wrapped in plastic cite 1926.1101(g)(8)(ii)(E)(1). If the material is intact and not lowered to the ground 1926.1101(g)(8)(ii)(E)(2).
- f. Unwrapped roofing material lowered to the ground must be transferred to a closed receptacle in such a manner so as not to disperse dust. If not, cite 1926.1101(g)(8)(ii)(F).
- g. Ensure all roof level HVAC intake sources are isolated or the ventilation system is shut down during removal. If not, cite 1926.1101(g)(8)(ii)(G).
- h. Ensure that employees have received the required asbestos training. If employees have not been trained, cite 1926.1101(k)(9)(iv)(A).

13. Alternative Methods of Compliance for Installation, Removal, Repair and Maintenance of Certain Roofing and Pipeline Coating Materials

This section covers installation, removal, repair, or maintenance of intact asphalt pipeline coating materials or intact roof flashings which contain asbestos fibers encapsulated or coated by bituminous or resinous compounds. It is not expected that OSHI's will encounter installation of these materials but they may encounter removal situations. The

employer may follow these minimal provisions if the material remains intact. However, if the material does not remain intact the provisions of paragraph (g)(8) apply. Due to the nature of removing old coated pipelines from the ground, the pipeline material most likely will not remain intact.

- a. Before work is begun and as needed during the job, a competent person must select the appropriate control strategy and ensure that the material is being removed intact. If the employer has not ensured that this has been completed, cite 1926.1101(g)(11)(i).
- b. All employees that conduct the work covered in this section must be trained according to (k)(9)(viii). If the training has not been completed, cite 1926.1101(g)(11)(ii).
- c. The pipeline coating or roof flashing must not be sanded, abraded, or ground. Only manual removal methods can be used that will not render the material non-intact. If the material has been removed by a non-intact means, cite 1926.1101(g)(11)(ii).
- d. ACM roofing material must not be dropped or thrown to the ground. The ACM must be carried, or passed to the ground by hand, or lowered via a covered, dust tight chute, or lowered by a crane or hoist. The material must be removed from the roof as soon as practical, but no later than the end of the shift. If the material is dropped to the ground or is not removed from the roof by the end of the shift, cite 1926.1101(g)(11)(iii).
- e. Removal or disturbance of asphaltic pipeline wrap must be conducted using wet methods. If not, cite 1926.1101(g)(11)(iv).

14. Asbestos-Containing Floor Tile

When vinyl & asphalt flooring materials, which contain ACM or are PACM are being removed, the OSHI should check for the following requirements:

- a. Ensure that employees have received the required asbestos training. If employees have not been trained, cite 1926.1101(k)(9)(iv)(A).
- b. If the employer removing intact flooring material using compliant work practices has not notified other employers working in the same area, cite 1926.1101(k)(3)(ii)(B). The same area would be considered to be any area not separated from the tile removal work area by an impermeable barrier, such as a wall, closed door or window.
- c. If flooring or its backing is being sanded, cite 1926.1101(g)(8)(i)A).
- d. If dry sweeping is being conducted, cite 1926.1101(g)(8)(i)(E). All floor cleaning shall be conducted using a HEPA vacuum, disposable dust bag, & metal floor tool (no brush). If not, cite 1926.1101(g)(8)(i)(B).
- e. If mechanical chipping is being performed outside of a negative pressure enclosure (NPE), cite 1926.1101(g)(8)(i)(F). If floor tile is not removed intact, cite 1926.1101(g)(8)(i)(G), unless removed inside a NPE. If resilient sheeting (linoleum) is removed by ripping up, not wet cutting, cite 1926.1101(g)(8)(i)(C). If adhesive or backing is removed without wet methods, cite 1926.1101(g)(8)(i)(D).

Note: The requirement for an impermeable drop cloth to be placed on surfaces beneath all removal activity does not apply to the removal of flooring material from a solid substrate.

15. Asbestos-containing siding & shingles or transite panels containing ACM on building exteriors (other than roofs)

- a. If the employer cuts, abrades, or breaks siding, shingles, or transite panels, cite 1926.1101(g)(8)(iii)(A).
- b. If panels or shingles are removed without being sprayed with amended water, cite 1926.1101(g)(8)(iii)(B).
- c. If unbagged or unwrapped panels or shingles are dropped to the ground, not lowered appropriately, cite 1926.1101(g)(8)(iii)(C). Cite also if panels or shingles are stored atop scaffolding or other work surfaces past the end of the work shift.
- d. Ensure that the employer is removing nails from shingles or panels using flat, sharp instruments rather than breaking panels or shingles off the structure. If not, cite 1926.1101(g)(8)(iii)(D).

16. Class III Asbestos Work

Class III Asbestos Work means repair and maintenance operations, where ACM and PACM, including thermal system insulation and surfacing material, is likely to be disturbed. "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. Operations may include drilling, abrading, cutting a hole, cable pulling, crawling through tunnels, or attics and spaces above the ceiling where asbestos is actively disturbed or asbestos-containing debris is actively disturbed.

At any point in the investigation of Class III Asbestos Work, the OSHI may contact their Supervisor or OMT Director for advice on whether the operation should be shut down.

- a. Evaluate the use of work practices and engineering controls for Class III work as outlined in 1926.1101(g)(9)(i) through (v). If the employer did not use proper practices and controls, cite the appropriate paragraph.
- b. Determine if respirator was used. A respirator is required if not using the wet method; if the employer does not produce a negative exposure assessment; if TSI or surfacing ACM or PACM is being disturbed, or if exposure is above the PEL's. If a respirator is not used when required, cite 1926.1101(h)(1)(iii), (iv) or (v) as appropriate, and cite 1926.1101(h)(2)(i) if there is no program.
- c. If Class III work operations exceed a PEL or if there has not been a negative exposure assessment produced before the operations began, the employer shall establish an equipment room or area that is adjacent to the regulated area for the decontamination of employees and their equipment. If employer does not provide the equipment room or area, cite 1926.1101(j) (2) (i).
- d. Determine if employees have received medical monitoring if negative pressure respirators are used or exposure is likely to occur 30 or more days per year. If medical monitoring has not been performed, cite 1926.1101(m) (1) (A) or (B), if necessary.

- e. If the employer is performing asbestos monitoring, obtain copies of monitoring reports and check for the following information: date of measurements; operations involving exposure to asbestos; sampling and analytical methods used and evidence of their accuracy; number, duration, and results of samples taken; type of PPE devices worn; and name, social security number, and exposure level of employees. If monitoring records are not maintained, cite 1926.1101(n) (2).

17. Class IV Asbestos Work

Class IV Asbestos Work means maintenance, custodial, and debris clean-up activities (including activities to clean up dust, waste, and debris resulting from Class I, II, & III work) during which employees may contact but not disturb ACM and PACM. This may include dusting surfaces where ACM waste and debris and accompanying dust exists, and cleaning up loose ACM or PACM debris from thermal system insulation or surfacing ACM/PACM, following construction activity. Employees are not involved in repair of ACM.

- a. A respirator is required when Class IV work is conducted in a regulated area or if exposure is above the PEL's. If a respirator is not used when required, cite 1926.1101(h)(1) (vi) and cite 1926.1101(h)(2)(i) if there is no program.

C. Citation Guidelines for General Industry

Employers who use ACM in the manufacturing process, such as the manufacture of brakes or clutch linings, plastic products, cement pipe or sheet, paper products, textiles, insulating products, adhesive and sealants, must comply with 1910.1001. It is not expected that OSHI's will encounter the use of asbestos in manufacturing. OSHI's may encounter asbestos in landfills, waste disposal businesses, building material recycling facilities and scrap yards. In addition, housekeeping around existing ACM installed in facilities is covered by 1910.1001. Where ACM/PACM is installed in General Industry facilities, the investigator should look at the following:

1. Asbestos building material survey and communication

- a. Determine the age or ages of construction of the facility. Thermal system insulation (TSI) and sprayed or toweled on surfacing materials in the building constructed prior to 1980 must be identified as ACM (PACM) unless proven by sampling per paragraph 1910.1001(j)(8) to be non-ACM. Asphalt & vinyl flooring material installed prior to 1980 must also be treated as ACM unless proven by sampling per (j)(8) to be non-ACM.
- b. Determine if employer has conducted an asbestos survey or if the employer is treating installed materials as PACM. If not, a bulk sample to demonstrate the presence of asbestos is necessary in order to cite 1910.1001(j)(1). If no asbestos is present, no hazard exists and therefore, no citation can be issued.
- c. If employer has conducted an asbestos survey or is treating material as PACM, determine if the employer has informed affected employees (maintenance/custodial) of presence of PACM. If not, cite 1910.1001(j)(2)(iii).
- d. If asbestos is present in quantities >1.0% and the material is friable or has become friable, damaged, and accessible to employees (even maintenance or custodial employees), cite MN Rule 5205.0660 subpart 3.
- e. If asbestos is present in quantities >1.0% and maintenance/custodial employees contact the material during work activities but don't disturb, determine if affected

employees have received asbestos awareness training, prior to work assignment & annually thereafter. If not, cite 1910.1001(j)(7)(iv).

- f. If asbestos is present in quantities >1.0% and the employer has not affixed labels or warning signs on materials or areas containing asbestos, cite either 1910.1001(j)(3) & (j)(4) as appropriate.

## 2. Training

- a. If asbestos is present in quantities <1% but greater than or equal to 0.1%, determine if employer has provided ERTK training to affected employees (maintenance/custodial). If not, cite MN Rule 5206.0700 subpart 1 & 2. Asbestos is a carcinogen and must be reported at quantities greater than or equal to 0.1%.
- b. If exposure exceeds the PEL or excursion limit, cite the appropriate paragraph in 1910.1001(j)(7).

Note: Citations will not be issued for violations of paragraph 1910.1001(e)(5) for eating, chewing tobacco or gum, and applying cosmetics in a regulated area unless worker exposure exceeds the PEL.

## D. Asbestos Brake and Clutch Work

Appendix F to 1910.1001 is a mandatory appendix which specifies engineering controls and work practices that must be implemented by the employer during automotive brake and clutch inspection, disassembly, repair, and assembly operations. Proper use of these engineering controls and work practices by trained employees will reduce employees' asbestos exposure below the permissible exposure level during clutch and brake inspection, disassembly, repair, and assembly operations.

Appendix F describes two methods of control which are "preferred" for shops doing more than five brake/clutch jobs per week, the enclosure/HEPA vacuum method and the low pressure/recycle method. In shops with infrequent brake/clutch work (i.e. establishments performing fewer than 5 brake jobs per week), simple wet methods are also allowed among the "preferred" controls. Also, the use of "equivalent" methods of control is permitted. If these methods are properly used, the employer is then exempt from other requirements of the standard. OSHA preliminarily found that the use of these methods would routinely result in exposure levels below the PEL.

### 1. General Guidelines for Asbestos Brake and Clutch Citations.

- a. If the employer is not using an approved method by trained technicians/mechanic for asbestos, or an equivalent method, by a trained technician/mechanic for asbestos work, cite 1910.1001(f)(3)(i) or 1910.1001(f)(3)(ii), respectively. The training of technicians/mechanics in the proper use of asbestos related work practices is considered to be required by this section.
- b. Check for prompt disposal in leak-tight containers of rags contaminated with asbestos waste. If the asbestos waste is not stored in an impermeable container and labeled, cite 1910.1001(k)(6). If the container was not labeled, cite 1910.1001(j)(5).
- c. Check to see if all spills and sudden releases of material containing asbestos are cleaned up immediately. If no provisions or if inadequate, cite 1910.1001(k)(2).

d. If the employer has not provided Right-To-Know training for asbestos, cite 5206.0700 subp (1) & (2). If the exposure exceeds the PEL or excursion level, cite the appropriate paragraph in 1910.1001(j)(7).

2. Preferred Methods - (for shops with more than five brake/clutch jobs per week)

a. Negative Pressure Enclosure/HEPA Vacuum.

- i. The brake and clutch inspection, disassembly, repair, and assembly operations shall be enclosed to cover and contain the clutch or brake assembly and to prevent the release of asbestos fibers into the worker's breathing zone.
- ii. The enclosure shall be sealed tightly and thoroughly inspected for leaks before work begins on brake and clutch inspection, disassembly, repair, and assembly.
- iii. The enclosure shall be such that the worker can clearly see the operation and shall provide impermeable sleeves through which the inspection, disassembly, repair and assembly. The integrity of the sleeves and ports shall be examined before work begins.
- iv. A HEPA-filtered vacuum shall be employed to maintain the enclosure under negative pressure throughout the operation. Compressed-air may be used to remove asbestos fibers or particles from the enclosure.
- v. The HEPA vacuum shall be used first to loosen the asbestos containing residue from the brake and clutch parts and then to evacuate the loosened asbestos containing material from the enclosure and capture the material in the vacuum filter.
- vi. The vacuum's filter, when full, shall be first wetted with a fine mist of water then removed and placed immediately in an impermeable container, labeled according to paragraph (j)(4) of this section and disposed of according to paragraph (k) of this section.
- vii. Any spills or releases of asbestos containing waste material from inside of this enclosure or vacuum hose or vacuum filter shall be immediately cleaned up and disposed of according to paragraph (k) of 1910.1001.

b. Low Pressure/Wet Cleaning.

- i. A catch basin shall be placed under the brake assembly, positioned to avoid splashes and spills.
- ii. The reservoir shall contain water containing an organic solvent or wetting agent. The flow of liquid shall be controlled such that the brake assembly is gently flooded to prevent the asbestos-containing brake dust from becoming airborne.
- iii. The aqueous solution shall be allowed to flow between the brake drum and brake support before the drum is removed.
- iv. After removing the brake drum, the wheel hub and back of the brake assembly shall be thoroughly wetted to suppress dust.

- v. The brake support plate, brake shoes and brake components used to attach the brake shoes shall be thoroughly washed before removing the old shoes.
- vi. In systems using filters, the filters, when full, shall be first wetted with a fine mist of water then removed and placed immediately in an impermeable container, labeled according to paragraph (j)(4) of this section and disposed of according to paragraph (k) of this section.
- vii. Any spills of asbestos-containing aqueous solution or any asbestos-containing waste material shall be cleaned up immediately and disposed of according to paragraph (k) of this section.
- viii. The use of dry brushing during low pressure/wet cleaning operations is prohibited.

3. Wet Method - (only for shops doing five or fewer brake/clutch jobs per week.)

- a. A spray bottle, hose nozzle, or other implement capable of delivering a fine mist of water or amended water or other delivery system capable of delivering water at low pressure, shall be used to first thoroughly wet the brake and clutch parts. Brake and clutch components shall then be wiped clean with a cloth.
- b. The cloth shall be placed in an impermeable container, labeled according to paragraph (j)(4) of the standard and then disposed of according to paragraph (k) of the standard, or the cloth shall be laundered in a way to prevent the release of asbestos fibers in excess of 0.1 fiber per cubic centimeter of air.
- c. Any spills of solvent or any asbestos containing waste material shall be cleaned up immediately according to paragraph (k) of the standard.
- d. The use of dry brushing during the wet method operations is prohibited.

4. Equivalent Methods - (only for shops doing five or fewer brake/clutch jobs per week.)

- a. The spray can/solvent method will be considered equivalent if the following practices are followed:
  - i. The spray can/solvent system shall be used to first wet the brake and clutch parts. Then, the brake and clutch parts shall be wiped clean with a cloth.
  - ii. The cloth shall be placed in an impermeable, properly labeled container and then properly disposed of or laundered in a way that prevents the release of asbestos fibers in excess of 0.1 fibers per cubic centimeter of air.
  - iii. Any spills of solvents or any other asbestos-containing waste material shall be cleaned up immediately.
  - iv. The use of dry brushing during solvent spray operations is prohibited.
- b. Other equivalent methods may be used if the employer can provide sufficient written detail to demonstrate that the exposures resulting from the equivalent method are equal to or less than the exposures which would result from the use of the negative pressure/HEPA method described in paragraph [A] of Appendix F

of 1910.1001. For purposes of making this comparison, the employer shall assume that exposures resulting from the use of the method described in paragraph [A] would not exceed 0.016 f/cc, as measured by the OSHA reference method and as averaged over at least 18 personal samples. These results should be reproducible, and may be tested by the OSHI if there is any doubt.

E. Interaction with Other Agencies

The MN Dept. of Health regulates the abatement of ACM if the quantity meets certain threshold amounts. Questions about licensing of abatement contractors or worker training (certification) should be addressed with their office at 651-201-4620. Their web site also contains a database with current licensed contractors and workers at:  
[http://www.health.state.mn.us/divs/eh/asbestos/find\\_contractor/index.cfm](http://www.health.state.mn.us/divs/eh/asbestos/find_contractor/index.cfm)

The MN Pollution Control Agency regulates the disposal of ACM from certain buildings and certain demolition operations and enforces the EPA NESHAP rules. Contact their office at 651-757-2536.

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James Krueger, Director MNOSHA Compliance  
For the MNOSHA Management Team

Distribution: OSHA Compliance and WSC Director

Attachments: Appendix A - Requirements for Brake and Clutch Work  
Appendix B – Removal Of Asbestos-Containing Floor Tile  
Appendix C – Copy of Federal Memo dated 7/10/97 - distributed 8/28/97

NOTICE: Minnesota OSHA Directives are used exclusively by MNOSHA personnel to assist in the administration of the OSHA program and in the proper interpretation and application of occupational safety and health statutes, regulations, and standards. They are not legally binding declarations and they are subject to revision or deletion at any time without notice.

**Appendix A - Requirements for Brake and Clutch Work**

| Brake and Clutch Work Requirements                         | ≤ 5 Brake/clutch jobs per week*        | >5 Brake /clutch jobs per week           |  |  |   |
|--|--|--|--|--|---|
|  |  | Preferred Methods                        |  | Equivalent Methods                       |   |
|  | Wet Method                             | Negative Pressure Enclosure/ HEPA vacuum | Low Pressure/wet Cleaning              | Spray can/solvent                        | Other Equivalent                            |
| Initial Monitoring 1910.1001(d)(2)                         | Not required                           | Not Required                             | Not Required                           | Not Required                             | at least 18 personal samples <0.016 f/cc    |
| Engineering controls and work practices 1910.1001(f)(3)(i) | Follow Appendix F [D](1-4)             | Follow Appendix F [A](1-7)               | Follow Appendix F [B](1-8)             | Follow Federal Register 6/29/95 p. 33983 | Employer developed based on monitoring data |
| Method done by trained employees 1910.1001(f)(3)(i)        | Required                               | Required                                 | Required                               | Required                                 | Required                                    |
| RTK training 5206.0700 subp (1)&(2)                        | Required                               | Required                                 | Required                               | Required                                 | Required                                    |
| Prompt Disposal of labeled waste 1910.1001(j)              | Asbestos debris and contaminated cloth | Asbestos debris and vacuum's filter      | Asbestos debris and contaminated cloth | Asbestos debris and contaminated cloth   | Asbestos debris and contaminated items      |
| Spill clean-up 1910.1001(k)(2)                             | Required                               | Required                                 | Required                               | Required                                 | Required                                    |
| Dry Brushing 1910.1001(f)(3)(i)                            | Prohibited                             | Not recommended                          | Prohibited                             | Prohibited                               | Not Recommended                             |

\*Employers with this volume of work may also choose any other method.

## **Appendix B - REMOVAL OF ASBESTOS-CONTAINING FLOOR TILE**

### **Removal of sheet vinyl floor covering:**

- The material is sliced with a sharp edged instrument, such as a utility knife into strips approximately 4 to 8 inches wide.
- Each strip is rolled up tightly from end to end.
- As each strip is rolled up, a constant mist of water or amended water is sprayed into the point where the material separates from the backing.
- After a strip has been removed, it is placed in a heavy duty impermeable trash bag or other closed leak-tight container.
- After three strips of flooring material are removed, any residual felt, after being thoroughly wetted, is removed with a stiff-bladed scraper. The felt scrapings are placed while still wet in an impermeable trash bag or other closed leak-tight container.
- As removal progresses, areas from which the flooring has been removed are vacuumed using a HEPA vacuum with a metal floor attachment.
- After the entire floor has been removed and has dried, it is vacuumed using a HEPA vacuum with a metal floor attachment.

### **Removal of floor tiles and associated adhesives:**

- Before removal begins, the entire floor is vacuumed using a HEPA vacuum with a metal floor attachment.
- Each floor tile is pried up individually using a stiff bladed scraper. If a tile does not released from the adhesive when the scraper is forced under the tile by hand, the scraper may be struck with a hammer to cause the tile to release and/or the tile is heated (e.g. using a hot air gun) to soften the adhesive and facilitate removal.
- Alternatively, without first prying up floor tiles using a scraper, heat is applied to the floor tile from a heat source (e.g. infrared heat machine) and the tiles are removed by hand or by using a scraper.
- After the tile is removed, it is placed in a heavy duty impermeable trash bag or other closed leak-tight container without further breakage.
- As small areas of floor are cleared of tile, residual adhesive is removed, to the extent necessary to prepare the surface for installation of new flooring material, by being wetted and scraped using a stiff blade floor scraper.
- Alternatively, after the tile is removed, residual adhesive is removed by using a low speed floor machine and wetted sand or a removal solution.

**APPENDIX C - Copy of Federal Memo dated 7/10/97 - distributed 8/28/97**

**Settlement Agreement and Memorandum of Understanding**  
Between Federal OSHA and the American Iron and Steel Institute

July, 1997 memo from Federal OSHA summarizing provisions of agreement  
Complete copy of the Settlement Agreement - see Alden Hoffman or Shelly Techar