

correct decontamination procedures. The employer-designated competent person is also required by paragraph (e)(6)(iii) to have attended a comprehensive course, such as one of the EPA-sponsored courses offered by a number of universities that have been designated by EPA as Asbestos Information Centers. The universities are located throughout the country and are accessible to all employers who will need to send designated competent persons for training.

There was general support in the record for the inclusion of a provision requiring the establishment of regulated areas by employers who are conducting asbestos-related operations (Exs. 84-424, 84-457, 90-247, 123-A, 186, 270, 277, 330, Tr. 6/27, Tr. 7/3, Tr. 7/12). Some commenters emphasized the need for enclosures to contain asbestos and prevent incidental exposure during asbestos abatement projects (Exs. 90-247, 123-A, 186, 270, 277, 330, Tr. 7/3). William K. Borwegen of the Service Employees International Union (SEIU) of the AFL-CIO expressed concern about protecting building service employees, maintenance workers, and building occupants from asbestos exposure during abatement work and recommended that when this type of work is being conducted:

... work area barriers [should] be constructed of at least 1/4 inch plywood or particle board, constructed on a 2 inch by 4 inch stud frame and covered with 6 mil polyethylene plastic sheets to prevent any asbestos from leaving the abatement areas. All seams and joints of the barrier should be continuously sealed with duct tape and a negative pressure should be maintained within the abatement areas at all times with a HEPA vacuum to maintain a water pressure drop of at least 0.1 inches of water. . . . (Ex. 270)

Dr. Morton Corn, describing the set up of a regulated area prior to the renovation or removal of asbestos indicated that

... negative ventilation is applied, insuring that air flow is from the outside of [a] plastic barrier through the air interlock into the work space. In this manner, fibers from the work area do not . . . [migrate] outside the barrier . . . to insure that contamination [does] not spread from the work area to other employees. (Tr. 7/3)

In its March 1983 *Guidance for Controlling Asbestos Containing Materials in Buildings*, the Environmental Protection Agency (EPA) recommends work area containment for abatement techniques consisting of the use of 6-mil polyethylene plastic sheet, sealing tape, air locks, worker decontamination facilities, and negative air pressure systems on the grounds that

"without adequate containment, increased exposure for building occupants is likely" (Ex. 186). OSHA agrees with these commenters and with EPA's recommendations and has therefore included a requirement that, whenever feasible, negative-pressure enclosures be constructed before beginning asbestos removal, demolition, and renovation operations.

Several comments were submitted regarding the need for a competent person to ensure the integrity of the enclosure and to ensure that employees working in the enclosure follow appropriate work practices (Exs. 84-424, 90-247, 277, 330). The BCTD, referring to OSHA's general requirement that construction employers designate a competent person to make frequent and regular inspections of job sites, materials, and equipment (29 CFR 1926.20(b)(2)), advocated, for the final standard, that

... the competent person [have] the ability to recognize areas or structures which have the potential to contain asbestos products, and . . . that this person . . . [be authorized to supervise] the workers and [ensure] compliance with the other control measures [required by the standard]. . . . (Ex. 330)

AGC suggested that a competent person be required on all jobs where asbestos materials are identified or handled and that this person be defined as one who is specifically trained, experienced, and/or certified in the safe handling of asbestos (Ex. 90-247). The revised rule therefore requires the designation of a competent person to oversee asbestos removal, demolition, and renovation operations.

OSHA has included an exemption from the requirements of paragraph (e)(6) for employers who engage in small-scale, short-duration operations. Examples of these operations include pipe repair, valve replacement, or installing electrical conduit. OSHA intends this exemption to apply to those work operations where it is impractical to construct a negative-pressure enclosure because of the configuration of the work environment. For example, OSHA anticipates that the great majority of these small-scale, short-duration projects can be conducted using worker isolation techniques such as glove bags (see Appendix G). By using these techniques in lieu of a negative-pressure enclosure, employers will generally be able to achieve exposure levels that are below the action level, which will relieve them of many of their compliance obligations under the revised standard. OSHA is confident that most employers engaged in maintenance and renovation projects in environments that do not lend

themselves to the construction of negative-pressure enclosures will elect to use glove bags, wet methods, and other control measures to ensure that their employees' exposures to asbestos remain below the standard's action level.

Paragraph (f)—Exposure Monitoring

The existing asbestos standard, 29 CFR 1910.1001, required that construction employers conduct monitoring to determine employee exposures to asbestos fibers. The standard required initial determinations of employee exposures and personal and environmental monitoring using frequencies and patterns of monitoring sufficient to represent with reasonable accuracy the exposures of employees. The existing standard also required that personal and environmental monitoring be conducted no less frequently than once every 6 months. The method of sampling and measurement prescribed by the existing standard involved using membrane filters and microscopy at a magnification of 400 to 450 times, with phase contrast illumination and a 4-millimeter objective.

The April notice (49 FR 14116) requested information from the public regarding any needed revisions of the revised rule's provisions for exposure monitoring. Specifically, OSHA requested information regarding alternatives to the traditional monitoring approach taken in previous health rulemakings, in recognition of the concerns of CACOSH (Exs. 84-233) and others (Exs. 84-2, 84-307) that these traditional requirements might be inappropriate for the transient, non-fixed nature of construction work sites.

Despite these characteristics of construction work sites, many commenters supported the inclusion of a requirement for employee exposure monitoring in a revised construction standard for asbestos (Exs. 123-A, 328, 330, 84-233). For example, Edward W. Warren, representing the Asbestos Information Association/North America (AIA/NA), stated:

AIA/NA agrees that the monitoring requirements of the present [existing] standard should be revised to increase the coverage and frequency of routine exposure monitoring. Specifically, we urge OSHA to prescribe a trigger of 0.1 f/cc to broaden the scope of routine monitoring. (Ex. 328)

The Building and Construction Trades Department, AFL-CIO (Ex. 330), noted that exposure monitoring serves several purposes:

(1) Monitoring confirms compliance with the PEL;