

result of the rule, there will be a decrease in the amount of ambient emissions to the environment. Although any captured fibers could take the form of solid waste or wastewater runoff, sludge, or slurry, this is not anticipated to result in a significant environmental impact.

In achieving compliance with the standard, industry will in some instances need to install engineering controls, implement work practices, provide personal protective equipment, and training. These measures are not expected to have any significant adverse environmental effects, and could be of potential benefit to the environment in terms of air and water quality and solid waste disposal.

The use of local controls, filters, collection devices and wet methods would reduce levels of airborne emissions in the workplace. The placement of proper controls and filtering devices may mean that filtered air is vented to baghouses or other capture/retention devices, thereby lessening the potential release of airborne emissions to the external environment. The use of air-tight enclosures will prevent the release of emissions to the general environment. This is also true where devices such as portable saws with local exhaust ventilation and capture devices are used for cutting asbestos products. Although such collection devices will increase the amount of disposable waste where they are implemented, it is difficult to quantify the degree to which this will occur. No significant adverse effect on air quality is expected to occur as a result of the final rule.

The use of wet methods and processes will also reduce the level of ambient emissions. The use of vacuums and other recommended work practices for cleanup and removal of fibers will reduce the likelihood of any reentrainment of fibers into the atmosphere. Potential wastewater effluents resulting from these methods and processes will also be alleviated depending on the control method (e.g., HEPA vacuums, recirculation and reuse of water) and disposal technique used (e.g., leak-tight containers).

The training of workers should provide an incentive for the proper use and handling of asbestos and asbestos-containing products. Training also has the potential to impact on the discharge and disposal of asbestos materials into the environment.

Finally, the revised rule, as well as the EPA proposed ban on asbestos, is likely to encourage the research, development and use of suitable substitutes.

IX. Standards Recommended to OSHA by Interested Parties

In the course of this rulemaking, several interested parties have developed and submitted to OSHA recommended standards for controlling occupational exposures to asbestos in various workplace settings. Among the organizations and entities submitting such standards were OSHA's Advisory Committee on Construction Safety and Health (hereafter called CACOSH or the Advisory Committee), which provided a number of relevant documents for the record, the Organization of Resource Counselors, Inc. (ORC), the Building and Construction Trades Department (BCTD) of the American Federation of Labor-Congress of Industrial Organizations (AFL-CIO), and the Asbestos Information Association of North America (AIA/NA).

OSHA has benefitted greatly from the recommendations and regulatory suggestions of these groups, and has incorporated many of their recommended approaches into the requirements of the revised standards for general industry and construction. Specific regulatory requirements recommended by these commenters are discussed in the Summary and Explanation sections of the preamble, as appropriate. Specific recommendations made to OSHA by CACOSH, the AIA/NA, and the BCTD are described in Section XI of this preamble (the Summary and Explanation for the revised rule for the construction industry), while specific requirements recommended by the ORC are described in Section X, the Summary and Explanation for maritime and general industry.

The paragraphs below briefly describe the standards recommended by these groups, concentrating on the general approach adopted by each organization in developing its recommended standard. In addition, OSHA's response to these recommendations and the Agency's rationale for accepting, modifying, or rejecting the approaches recommended are discussed.

Recommended Standard for General Industry

The ORC developed a standard that it recommended to OSHA to control occupational exposures to asbestos in the industry sectors predominantly represented by its members (i.e., general industry and maritime). The standard recommended by the ORC (Ex. 91-10) is generally similar to the revised standard being promulgated by OSHA for general industry. For example, the ORC

recommended requirements for monitoring, medical surveillance, recordkeeping, protective clothing, employee training, and signs and labels that are nearly identical to those of OSHA's revised general industry rule. However, the ORC's recommended standard differs substantially from the revised rule in one major respect: the ORC recommends that OSHA adopt two permissible concentrations for exposure to asbestos, a permissible airborne concentration (PAC) and a permissible exposure limit (PEL) that governs actual in-lung employee exposure. The ORC recommended a PAC of 0.5 f/cc or less, and a PEL of 0.2 f/cc. ORC defines a PAC as the "ambient worksite concentration" or maximum 8-hour time-weighted average concentration in "which any employee may work;" ORC assumes that, if engineering controls and work practices are not sufficient to reduce the ambient concentration to this level, employees would be required to wear respiratory protection having a protection factor adequate to do so. Thus, ORC's definition of a PAC is consistent with OSHA's traditional definition of a permissible exposure limit (PEL). The ORC's definition of PEL, however, differs markedly from OSHA's. ORC states that:

The eight hour time weighted average airborne concentration of asbestos fibers to which any employee may be exposed shall not exceed 0.2 fibers (inhaled into the lungs) per cubic centimeter of air (Ex. 91-10).

OSHA has not adopted ORC's two-pronged approach to exposure limits, for several reasons. First, OSHA has traditionally defined PELs and employee exposures as the airborne concentration of a contaminant measured *without regard to the use of respirators*. The Agency has consistently used this definition of exposure because airborne concentrations, in contrast to in-lung concentrations, are easy to control and measure, and limits based on such concentrations are comparatively easy to enforce. In addition, employers are able to determine, by means of established industrial hygiene procedures and controls such as employee monitoring, leak detection systems, continuous alarms, and the use of engineering controls and work practices, what the actual exposures of their employees are. OSHA does not believe that the cause of occupational safety and health would be well served by basing an exposure limit on an endpoint that is as subject to individual variability, as dependent on individual and group behavior, and as difficult to enforce and administer as the in-lung