CMA supports this approach. . . . The use of performance-oriented requirements is the key to achieving an effective standard without unnecessary costs and burdens. Performance-oriented rules allow an employer to design and implement a method of compliance which allows innovation and adaptation to the particular circumstances presented in a workplace, and permits an employer to avoid the expense of satisfying specifications that are of no value in the particular workplace. . . . As long as the employer meets a permissible exposure limit (PEL), controls the skin contact, or meets the appropriate biological levels that are consistent with employee health and safety, OSHA should not require any specific control strategy [Ex. 90–166].

W.R. Grace & Company stated:

Grace supports the concept of allowing any feasible combination of engineering controls, work practices, and personal protective equipment to reduce the exposures from 2f/cc to the new PEL. We believe that such a flexible approach is necessary to achieve any significant degree of compliance with a new reduced PEL [Ex. 90–167].

OSHA agrees that in the abstract, "flexibility" is a desirable compliance goal. However, this record has again convinced the Agency that respiratory protection is inherently less reliable than engineering and work practice controls, and therefore, cannot be granted the same compliance preference, when feasible engineering and work practice controls are available.

In previous sections concerning the Regulatory Impact Analysis and the permissible exposure limit, OSHA found that the 0.2 f/cc limit is generally feasible in almost all general industry workplace settings using engineering and work practice controls. Paragraph (f)(1)(iii) has been included to cover those operations that the Agency's analysis determined generally cannot currently comply with the 0.2 f/cc limit through the use of engineering controls and work practices. Three basic processes are covered by the paragraph: coupling cut off during A/C pipe manufacturing, grinding and sanding during the manufacturing of a number of asbestos products, and spinning and carding during the dry mechanical manufacturing of asbestos textiles. The determination for A/C pipe manufacturing was, in part, based on 1983 data supplied by Dr. Bragg (Exhibit 312 A, Tab H, Table II), which indicate that of the 12 processes studied, the coupling cutoff operation was associated with the highest exposure levels and was the only operation with average exposures in excess of 0.2 f/cc. The determination on grinding and sanding was based on data obtained from several sources (including site visit reports from OSHA's contractor Research Triangle Institute (RTI) and submissions by the Asbestos Information Association (AIA)), which indicate that local exhaust ventilation is inadequate to routinely control exposures to below 0.2 f/cc because of the volume of asbestos dust generated during these operations (see Section VII for summary of these industry specific data). The determination for primary asbestos textile manufacturing was based on data supplied by the Amalgamated Clothing and Textile Workers Union [Exhibit 260–A], by Dr. Bragg [Exhibit 235–A], and by the RTI site visit report [see Appendix B of the RIA], which indicate that exposures during carding and spinning are generally between 0.2 f/cc and 0.5 f/cc.

Thus, for the listed operations, the record supports OSHA's conclusion that most employers cannot currently meet the 0.2 f/cc limit without the use of respirators, but that 0.5 f/cc is feasible using engineering and work practice controls. However, under paragraph (f)(1)(i), employers utilizing the listed operations who are currently capable of meeting the 0.2 f/cc limit with engineering controls and work practices must do so. Those employers who must, for the present, use respirators in these operations must first reduce exposures to a level of 0.5 f/cc using feasible engineering controls and work practices, and must apply additional feasible controls as they become available to achieve the 0.2 f/cc limit.

OSHA anticipates that engineering and work practice controls will become generally feasible for those operations listed in (f)(1)(iii) to achieve the 0.2 f/cc PEL in the future. OSHA's experience with asbestos has shown that employers have consistently reduced worker exposure over the years. The OSHA PEL has been reduced from 12 f/cc to 5 f/cc in 1972 and to 2 f/cc in 1976. OSHA has found that most sectors currently have developed technology to meet the 0.2 f/cc PEL. OSHA expects that these technologies will be modified so that they could be applied to the listed operations. OSHA plans to carefully monitor the progress of control technology and OSHA will enforce the engineering and work practice control requirement at 0.2 f/cc when the technology is feasible. Paragraph (f)(1)(iii) thus provides a temporary solution for employers with current feasibility problems in a limited number of operations affecting a total of fewer than 1000 employees. For operations other than those listed and for which there is no evidence of general infeasibility, paragraph (f)(1)(ii) applies in what OSHA believes will be isolated instances of infeasibility on a case by case basis.

The standard also requires the development and implementation of a written compliance program where the employer has employees exposed to asbestos above the PEL, without regard to the use of respiratory protection. OSHA believes that the written plan is an essential element of the compliance program since it will encourage employers to implement the necessary controls to reduce employee exposure. It also provides the information to allow OSHA, the employer and employees to examine the control methods chosen and to evaluate the extent to which these planned controls are being implemented in the workplace. As with other OSHA health standards, the written compliance plan must be accessible to the individuals designated in paragraph (f)(2)(iii) for inspection and copying (see e.g. § 1910.1018, inorganic arsenic and § 1910.1047, ethylene oxide). This provision reflects section 8(c)(3) of the OSH Act, which provides for the employer to inform employees of corrective actions being taken to lower exposure to the PEL. In addition these plans must be reviewed and updated periodically to reflect the current status of the program.

New paragraph (f)(2)(iv) prohibits the use of employee rotation as a method for reducing exposure to asbestos, thereby changing the existing standard. However, an example of acceptable use of scheduling is performing an operation where asbestos exposure occurs on the work shift with the fewest employees present. Of course, these employees must be adequately protected.

As noted in the April 1984 proposal:

OSHA intends to revoke the requirement in the current standard that personnel rotation should be used to control exposures to asbestos. Personnel rotation merely increases the population at risk from asbestos exposure and would not reduce the absolute number of excess deaths attributable to asbestos, according to mathematical models [49 FR 14125].

In Exhibit 84–405, OSHA demonstrated that the number of excess deaths is not reduced by personnel rotation or employee turnover. Thus, OSHA deems it reasonable to prohibit employee rotation as a method of reducing employee exposures.

A number of commenters expressed their disapproval of employee rotation as a method for reducing exposure to asbestos [Exs. 90–236; Tr. 6/21, p. 68; Tr. 6/27, p. 19]. For example, the Tennessee Valley Authority stated:

TVA agrees with the revocation of the requirement which allows the rotation of