certain work at operations construction sites, where asbestos-related activities are typically intermittent and of short duration (Exs. 84-307, 84-457, 330, Tr. 6/27, p. VII-17). The Building and Construction Trades Department, AFL-CIO, states:

> Monitoring construction jobs poses a unique problem since exposure levels are constantly changing as the job progresses, and may vary with weather conditions in outdoor operations. . . . Hence, traditional sampling strategies that work well for fixed work sites with predictable and stable exposure levels must be adapted for non-fixed construction exposures. (Ex. 330)

As an alternative to traditional periodic monitoring requirements, the BCTD recommended that employers engaged in asbestos abatement work conduct sampling each day for 5 consecutive days and reduce the frequency of monitoring to weekly if exposure levels remain below 1.0 f/cc. (Ex. 330).

Similarly, the specifications for asbestos abatement submitted by the New York City Office of Design and Construction requires that monitoring be conducted daily within a work area during asbestos removal or encapsulation work. (Ex. 92-25) In addition, one construction employer that participated in the rulemaking hearing stated that he conducted daily monitoring. Mr. Thomas J. Major, Jr., President of Major Insulators of Golden, Colorado noted that his firm conducted both personal and area monitoring on a daily basis for asbestos removal projects. (Ex. 608X. p. 199).

OSHA agrees with the BCTD that, due to the short duration of most construction projects and the frequency with which the work environment changes on construction sites, the traditional quarterly or semi-annual monitoring frequencies that OSHA has mandated in other health standards would not provide an adequate degree of protection to construction employees. This is particularly the case for employees working in regulated areas, where monitoring data are essential for ensuring that appropriate respiratory protection is selected throughout the project. Accordingly, OSHA has required that employers conduct daily monitoring in regulated areas, which are required to be established where the PEL has been exceeded. However, in regulated areas where the maximum level of respiratory protection is afforded employees through the use of Type C full-facepiece supplied-air respirators, the employer may, as stated in paragraph (f)(3), dispense with daily monitoring.

The existing standard (29 CFR 1910.1001) contained requirements for environmental monitoring in addition to requirements for employee exposure monitoring using breathing zone samples. This provision of the former standard stated that "samples shall be collected from areas of a work environment which are representative of the airborne concentrations of asbestos fibers which may reach the breathing zone of employees."

OSHA has not retained this requirement in the revised standards for asbestos because the Agency finds this provision duplicative of the requirements in paragraphs (f)(1)(i) and (f)(1)(ii). OSHA believes that the personal monitoring called for in these two provisions will permit the employer to accurately determine employee exposures and that compliance with the former standard's area monitoring provision will not add to an increase the accuracy of such determinations. Accordingly, the Agency has deleted the former area monitoring requirement from both the revised construction and the general industry standards. In doing so, OSHA is increasing the cost-effectiveness of the standard by eliminating duplication in regulatory requirements. OSHA has not retained the requirements for environmental monitoring in the final rule because the Agency believes that employees are provided adequate protection by the required breathing zone sampling. However, OSHA does not discourage employers from performing environmental monitoring during asbestos-related construction projects if they choose to do so, because the Agency recognizes that environmental monitoring can be useful for (1) determining the extent of emissions of asbestos fibers into the general environment, and (2) establishing the boundaries of regulated areas.

Like the existing standard, the revised standard requires employers to notify employees of their exposure levels and to provide employees exposed to asbestos an opportunity to observe any air sampling being performed in accordance with the standard; designated employee representatives must also be given this opportunity. The revised standard further specified that such observers be provide with and required to wear any protective clothing and equipment required by the standard.

These provisions are consistent with Section 8(c) of the Act, which requires employers to permit employees to observe any required monitoring and to notify employees of their monitoring results. No commenters addressed this provision of the existing rule, and OSHA's experience with that rule and other health standards has shown that these provisions have not presented compliance or other problems in the past. OSHA has therefore determined that inclusion of these observations of monitoring requirements in the revised standard is appropriate.

In sum, OSHA has determined that the monitoring requirements contained in paragraph (f) of the revised standard for construction will attain the goals of monitoring provisions traditionally included in OSHA health standards designed for fixed-site manufacturing facilities to suit the variable conditions on construction worksites, OSHA has tailored the monitoring requirements in the new standard to reflect the recommendation of the CACOSH and of many other commenters in this rulemaking.

Paragraph (g)—Methods of Compliance

The former standard governing occupational exposure to asbestos required that engineering controls and work practices be used to meet the exposure limits contained in the standard. The engineering control methods outlined in the standard included isolation, enclosure, exhaust ventilation, and dust collection. The former standard also provided specific requirements for the design, installation, and maintenance of local exhaust ventilation systems and for the use of local exhaust ventilation on hand and power tools that may produce or release asbestos fibers in excess of the exposure limits of the standard.

Work practices, particularly wet methods, were recognized by OSHA in the former standard as necessary for maintaining exposures at or below the PEL. The use of wet methods was required to the extent practicable to reduce the release of asbestos fibers unless the usefulness of the product would be diminished by the use of such methods.

In the revised standard at paragraph (g)(1)(i), OSHA has presented a list of engineering and work practice control methods that, based on the data collected in the rulemaking record, have been determined to be effective for reducing exposures to asbestos fibers.

The effectiveness of local exhaust ventilation systems that are equipped with HEPA-filtered dust collection systems was addressed by several commenters (Ex. 330; Tr. 7/10, p. 126). The Building and Construction Trades Department described the effectiveness of local exhaust ventilation systems (LEVs) as follows:

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