(2) Monitoring provides warning when control measures are not working;

(3) Monitoring provides data on exposure levels that may indicate excess risk of disease;

(4) Monitoring is necessary to demonstrate when controls are required and when use of controls may be discontinued;

(5) Monitoring provides information necessary for the proper selection of respirators.

The Advisory Committee for Construction Safety and Health (CACOSH) affirmed the "need for environmental monitoring as part of effective worker protection programs" (Ex. 84-233). Moreover, Section 6(b)(7) of the Act mandates that standards promulgated shall, where appropriate, "provide for monitoring or measuring employee exposures at such locations and intervals, and in such a manner as may be necessary for the protection of employees" (29 U.S.C. 655(b)(7)).

Based on the requirements of the Act, the recommendations of CACOSH, and comments in the rulemaking record that support the inclusion of requirements for employee exposure monitoring, OSHA has determined that requirements for an effective employee monitoring program are appropriately included in the revised standard for construction. Accordingly, the revised standard for construction includes several monitoring requirements in paragraph (f). Paragraph (f)(1) requires employers to perform monitoring of their employees' breathing zones that will accurately reflect and be representative of their exposures to asbestos. In paragraph (f)(2), construction employers are required to conduct initial monitoring of employee exposures, unless: (1) The employer can demonstrate, on the basis of objective data, that the asbestos-containing product or material being handled cannot cause exposures above the standard's action level even under worst-case release conditions; or (2) the employer has historical or other data demonstrating that exposures on a subsequent job will be below the action level. Periodic monitoring is addressed in paragraph (f)(3), which stipulates that employers whose asbestos operations are being conducted within a regulated area monitor employee exposures daily; an exception to this requirement would permit employers whose employees are all wearing supplied-air respirators to forego periodic monitoring. Monitoring may be terminated when, in accordance with paragraph (f)(4), employers obtain confirmation by means of period monitoring that their employees' exposures are below the action level. Paragraph (f)(5) provides the details of OSHA's reference method (ORM) for asbestos sampling and analysis. It specifies the use of procedures outlined in Appendix A (or use of a method equivalent to the ORM), and also presents the essential elements of a quality assurance program to be followed by laboratories engaged in the paragraphs (f)(6) and (f)(7) pertain to requirements for employee notification of monitoring results and to observation of monitoring, respectively.

The principal differences in the monitoring requirements of the existing and revised standards are that the revised standard: (1) eliminates the existing standard's area monitoring requirements; (2) permits employers who can demonstrate that their employees' exposures to asbestos are below the action level to be exempt from initial monitoring; (3) allows employers to discontinue monitoring if reliable measurements indicate that employee exposures are below the action level; (4) specifically states that representative employee monitoring may be used; (5) restricts periodic monitoring to operations conducted within regulated areas; and (6) imposes the use of an OSHA Reference Method and a laboratory quality assurance program for the sampling and analysis of asbestos exposures. These changes reflect the input of the many construction experts who participated in the asbestos rulemaking, including OSHA's Advisory Committee for Construction Safety and Health. The monitoring requirements have thus been tailored specifically to the needs and characteristics of this sector. The record evidence and OSHA's reasons for including each of the requirements in the monitoring section of this revised standard are discussed in detail below.

Exposure monitoring was one of the more controversial issues raised by the April notice (49 FR 14116). Many commenters provided information and opinions on specific requirements that should or should not be included in the revised standard (Exs. 84-307; 123-A; 84-424; 84-457; 263; 277; 328; 330; 92-008; 92-025; 312-A; Trs. 6/26, pp. 71, 73, 82; 7/11, pp. 98, 107; 6/20, pp. 9, 122; 7/6, pp. 67, 74, 187, 204; 7/5, p. 121; 6/21, p. 64; 7/3, pp. 41, 81, 180; 285; 6/28, p. 252; 6/29, p. 140; 7/12, p. 315). The comments received addressed five major points:

(1) Selection of an appropriate monitoring method;

(2) Requirements for laboratory accreditation;

(3) Requirements for initial monitoring;

(4) Frequency of periodic monitoring;

(5) Choice of sampling strategy.

As in the case of general industry, the need for a standard reference method for conducting asbestos monitoring was supported by several rulemaking participants from the construction industry. OSHA has carefully evaluated these comments regarding the choice of a sampling and analytical method and has discussed this record evidence in Section X of this preamble (Summary and Explanation for General Industry). OSHA has determined, based on this evidence, that requiring employers to use a standard reference method for monitoring exposures to asbestos is necessary to eliminate variability in monitoring results that is caused by the use of different sampling and analytical methods. OSHA has also determined that the OSHA Reference Method described in Appendices A and B, which is derived from the NIOSH 7400 method, is appropriate for measuring asbestos levels on construction sites as well as in general industry workplaces. OSHA has further determined that the same quality assurance program for analytical laboratories that is required in the revised general industry standard is necessary to reduce both intra- and inter-laboratory variability in construction (see the discussion of this program in Section X, above). The record evidence pertaining to the construction standard's other monitoring requirements are discussed below.

Several commenters urged OSHA to require personal rather than area sampling, on the grounds that only personal sampling can adequately characterize employee exposures to asbestos fibers (Exs. 330; Trs. 7/3, p. 41; 7/3, p. 180). Typical of these comments was that of the Building and Construction Trades Department of the AFL-CIO, which stated:

> The BCTD recommends that all samples be personal samples except those area samples needed to determine the bounds of a regulated area, to monitor air quality from ventilation equipment completion and to determine abatement. Area samples can not accurately characterize a worker's exposure. (Ex. 330)

OSHA agrees with the comments of the BCTD and others, and has required in paragraph (f)(1)(i) that employers conduct monitoring to "determine accurately the airborne concentrations of asbestos to which employees may be exposed" and in paragraph (f)(1)(ii) that exposure determinations "be made from breathing zone air samples that are representative of the 8-hour TWA of each employee." This regulatory language has been standard in all of OSHA's prior health rulemakings, and reflects OSHA's belief that area