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29 CFR Part 1910, et al.
Occupational Exposure to Asbestos; Corrections; Final Rule

DEPARTMENT OF LABOR

Occupational Safety and Health Administration

29 CFR Parts 1910, 1915, and 1926

RIN 1218–AB25

Occupational Exposure to Asbestos; Corrections

AGENCY: Occupational Safety and Health Administration, Department of Labor.

ACTION: Corrections to final rule.

SUMMARY: The Occupational Safety and Health Administration (OSHA) is correcting and clarifying the preamble to, and correcting certain provisions of the final asbestos standards issued August 10, 1994 (59 FR 40964, 29 CFR 1910.1001, 1915.1001, and 1926.1101).

EFFECTIVE DATE: June 29, 1995.

FOR FURTHER INFORMATION CONTACT: Mr. Richard Liblong, Director of Information and Consumer Affairs, Occupational Safety and Health Administration, U.S. Department of Labor, Room N3647, 200 Constitution Avenue, NW., Washington, DC 20210, telephone (202) 219–8151.

SUPPLEMENTARY INFORMATION:

Background

On August 10, 1994 OSHA revised its final asbestos standards in general industry and construction and issued a new shipyard employment standard. Subsequently, technical and typographical errors were discovered in both the preamble and regulatory text. Additionally, members of the regulated public have asked OSHA to clarify, correct, or reconsider certain regulatory provisions.

To address these problems, OSHA has made a number of corrections to both the standard and the preamble. The corrections to the standards include (1) correction of typographical errors; (2) corrections that clarify the agency's intent but do not change the substantive requirements imposed by the standard; and (3) corrections intended to better effectuate the agency's intent when it issued the standard. All these corrections to the standard are deemed to be "minor" amendments within the meaning of 29 CFR 1911.5. Because the corrections are based on the existing rulemaking record and are not intended to affect the protection afforded by the standard in a significant way, OSHA finds good cause, pursuant to 29 CFR 1911.5 and the Administrative Procedure Act, for promulgating the corrections without notice and opportunity for public comment.

The discussion which follows is organized by subject matter, not by paragraph number alone. As in the preamble to the revised standards, each of the standards, general industry, construction, and shipyards, contain overlapping, comparable, and in some cases identical provisions covering various subject headings. However, the general industry standard's paragraph designations differ. In this preamble OSHA is separately discussing, topic by topic, all clarifications which are in the nature of preamble changes, as well as corrections and technical amendments concerning that topic. This way, the reader can be apprised of all changes and clarifications on a particular topic at one time. OSHA is not including in these discussions those corrections to the text which are typographical in nature and which are self-explanatory.

1. Definitions

Paragraph (b) Construction and Shipyards Employment Standards.

OSHA is amending its definition of "disturbance" in order to clarify it to reflect the Agency's original intent. OSHA has found its unamended definition confusing to the regulated community. This will eliminate some terminology, such as use of the word "contact" to describe both Class III and IV operations. Thus, disturbance, becomes the operational term to distinguish a Class III operation; while "contact" (without "disturbance") distinguishes Class IV. (See also the discussion clarifying Class IV operations in this document.) The first sentence of the definition now clearly specifies that a disturbance entails "activities that... disrupt the matrix of ACM or PACM... crumble or pulverize ACM or PACM, or generates visible debris from ACM or PACM." OSHA also clarifies that work involving dust that is accompanied by debris in the presence of asbestos containing material, must be treated as an asbestos job. OSHA does not believe that this clarification substantively alters the requirements or the intended worker protection of its job classification scheme. Thus, mere "contact" with asbestos is clearly not a Class III activity. The inclusion of the phrase "disrupt the matrix" in the definition allows inclusion of other, undefined operations which might also result in release of fibers from the material in which they are embedded.

OSHA is correcting the General Industry Standard to include certain definitions inadvertently omitted from the August 10, 1994 publication of the final rule. These include definitions for the following terms: Certified Industrial Hygienist, homogeneous area, presumed asbestos containing material, surfacing material, surfacing ACM, thermal system insulation and thermal system insulation ACM. The added definitions are consistent with those in the Construction and Shipyard Employment Standards.

Class IV Work: OSHA has made minor clarifications to the definition of Class IV as it applies in the construction and shipyard employment standards. They more fully realize OSHA's intent in creating this class of work, distinguish it from housekeeping under the general industry standard, and expressly limit its scope to accepted "construction" activities. The definition now reads: "Class IV asbestos work means maintenance and custodial construction activities during which employees contact but do not disturb ACM or PACM and activities to clean up dust, waste and debris resulting from Class I, II and III activities." Because work under the construction standard must be related to and on the worksite of a construction job, the definition now specifies that Class IV work which is "clean-up" must result from Class I, II and III work. In addition, to distinguish Class IV from Class III work, the definition now states that maintenance activities are Class IV only if employees "contact, but do not disturb" ACM or PACM. It should be noted that housekeeping activities in the general industry standard in some cases might include clean-up of asbestos containing materials, however in the absence of a construction job or site, this clean-up is not a construction activity. OSHA notes however, that use of wet methods, HEPA vacuums and immediate clean-up are required for these activities in all cases. The Agency believes that these changes will allow employers and employees to more easily distinguish Class IV from Class III activities. The Agency is confident that these changes will not weaken employee protection. In fact, by clarifying which activities must be treated as Class IV, OSHA believes enforcement will be facilitated, and the level of compliance will rise.

2. Regulated Areas

Several questions have arisen among participants about the need for regulated areas when Class II or III work is performed for which a negative exposure assessment is produced. OSHA continues to believe that it is necessary to assure that by-standers are protected from unwittingly entering areas where the carcinogen asbestos is being disturbed. OSHA wishes to clarify, however, that when the employer can show that which work is performed by properly trained and informed workers in areas to which no other workers have access, OSHA does

not believe that demarcation of the area is necessary and therefore, is not required.

3. Exposure Assessments and Monitoring

Paragraph (f) Construction and Shipyard Employment Standards.

In response to the concerns of participants, OSHA is clarifying, but not further amending (f)(2)(iii). Some parties have expressed the view that the distinction between the use of historical data and objective data needs additional clarification. In the 1994 final rule, the definition of objective data was changed from that of the 1986 standard to include activities, as well as products, for which a demonstration is made that operations involving the products and/or activities will not result in fiber levels in excess of the PELs. For example, in a facility such as a refinery, gasket removal is a frequent operation due to the large number of pipe joints. If the employer has monitored these jobs in the past and has collected sufficient data to conclude that this activity will not result in fiber levels in excess of the PELs even when improper work practices and lesser trained personnel are used, it may be concluded that the objective data criteria have been met, in which case, further monitoring is not required.

These data must include situations performed under those work conditions having the greatest potential for releasing asbestos fibers, such as in the example above, where the gasket is difficult to remove fully or where the crew is inexperienced. OSHA believes that "objective data" determinations require basic statistical analysis. At the least, the prior data depended on cannot be the result of chance. Data reflecting the results of many jobs and/or employees are likely to provide adequate data on which to base "objective data" determinations. Certainly, when many different employer's employees have performed a particular task, and levels consistently fall below the PEL, it is likely that future jobs will also fall below the PEL.

In requiring objective data determinations to include the worst-case situation, OSHA does not intend to render this an impossible requirement to meet. Rather, as described earlier, the monitoring results from the situations which the employer has encountered in the activity must be included in the information used by the competent person in evaluation of the job. Therefore, using the earlier example, even if a gasket removal was performed in the past using improper work practices which resulted in elevated fiber levels, and the current job is to be performed correctly in compliance with the standard, this job can still meet the objective data criteria if additional data clearly supports its low exposure potential. The employer is not expected to contrive unlikely scenarios, monitor them and conclude that an objective data exemption cannot be claimed. The judgment of a trained, experienced competent person is essential to making this determination. OSHA anticipates wider use of this exemption in situations where it is warranted.

The extent to which objective data documents the effectiveness of controls will vary depending upon the potential for fiber release. A job with very low exposures, for examples, less than 0.01 f/cc, with simple work practices and little potential for control failure, will need minimal data. However, due to the high potential for fiber release from thermal system insulation and surfacing ACM, OSHA has found that the objective data exemption from monitoring of Class I operations may not be relied on, regardless of the control method used (59 FR p. 40983). For example, in the case of glovebag removals of Class I materials, only historic data may be used in the exposure assessment by the competent person. OSHA continues to believe that annual monitoring is needed to assure the continued effectiveness of control of fiber levels in jobs involving removal of significant amounts of thermal system ACM and surfacing ACM.

OSHA has not specified the number of personal monitoring data points required to make these determinations. Rather, it relies on the training and experience of the competent person to use good judgment in assessing each operation to determine the ability of the data to predict potential exposure of workers in that specific job.

4. Methods of Compliance

Paragraph (g) Construction and Shipyard Employment standards.

OSHA is clarifying the language in paragraph (g)(4)(ii) to reflect the Agency's intention that outdoor Class I work performed in areas where no employees are working in the adjacent area need not utilize critical barriers, nor is perimeter monitoring required during such work when control methods in (g)(5) are properly used. Several participants submitted data indicating low levels of fibers were measured during outdoor activities (e.g., Ex.7–39 and Ex. 127).

OSHA is clarifying paragraph (g)(5)(ii) of the construction and shipyards standards to explain when glovebag use is allowed. OSHA allowed glovebags to be used in Class I operations or removal of TSI from "straight runs of piping". OSHA was concerned that the seal of the bags would be stressed if bags were used to remove TSI from structures whose configurations made attachment difficult and unreliable. Therefore, the provision limited glove bag use to "straight runs" of piping, clearly a configuration which bags were manufactured to fit. The Agency did not intend that glove bags could not be used to remove TSI from connecting members, joints, elbows and valves which connect and attach to asbestos-covered pipes, if they too, are manufactured and designed to be used for that purpose. These corrections change the regulatory text in paragraph (g)(5)(ii) of the construction and shipyard standards to add that glovebags may be used on connecting configurations so long as they are designed for that purpose, used as designed, and not modified.

In response to concerns expressed by participants, OSHA wishes to clarify (g)(6)(iii) in which a licensed engineer or certified industrial hygienist is required to consider worst-case conditions in determining the adequacy of a alternate method to control asbestos exposure in Class I operations. "Worst-case conditions" do not include every imaginable scenario, but the worst case is one which can reasonably be expected to be encountered in use of the method. For example, in the case of a power failure, would the control method remain capable of containing the fibers and continue to control exposure? What would be expected if all workers using the method were newly trained? These considerations should include circumstances reasonably expected to occur. The certifying hygienist or engineer is not required to make the determination with absolute and unreasonable certainty. OSHA intends that allowing the use of alternate effective control methods will promote the development of new technologies.

Roofing: After the standard was issued, the National Roofing Contractors Association (NRCA) filed a petition with OSHA asking that a number of provisions of the standard be reconsidered or clarified insofar as they applied to roofing operations. Upon examining NRCA's petition in light of the rulemaking record, OSHA has determined that certain corrections and clarifications to the standard would ease compliance burdens on roofing contractors and avoid creating safety hazards without significantly increasing the amount of asbestos to which roofing workers are exposed. OSHA also

determined that certain corrections and interpretations were needed to clarify the agency's original intent as to the meaning of the standard. OSHA also believes that the meritorious recommendations of the petition are properly responded to by the following corrections and clarifications.

(a) Removal of intact cements, coatings, mastics, and flashings.

The original standard classified all removals of asbestos-containing material from roofs as Class II operations. This classification was based on OSHA's evaluation of the risk associated with removal from roofs of asbestos-containing built-up roofing and removal of asbestos-cement (A/C) shingles. Such jobs were assigned the Class II designation because the large quantity of asbestos-containing material on such roofs dictated that care had to be taken to assure that substantial numbers of asbestos fibers were not released by the removal techniques used or by the manner in which the material was handled after removal.

On many roofs, the shingles or built-up roofing do not contain asbestos but asbestos is present in the form of cements, mastics, coatings, and flashings. These products are not the primary roofing material but are typically used for purposes such as weatherproofing openings or edges. For example, on a flat roof with a parapet around the edge, flashing would be used to seal the area where the built-up roofing meets the parapet. When the only ACM on a roof is in the form of cements, mastics, coatings, and flashings, the amount of asbestos present is much less than when the main roofing material contains asbestos, and the potential for worker exposure is correspondingly lower. There is still the potential for significant fiber release if such materials have deteriorated to the point where they are no longer "intact," i.e., where either before or during removal they crumble, are pulverized, or otherwise become deteriorated to the point where the asbestos fibers are no longer likely to be bound with their matrix. However, such materials lose their waterproofing ability, and are therefore usually replaced, before they have deteriorated to the point where they are non-intact. Thus, in the usual circumstances when such materials are intact both before and during removal, the potential for exposure is low and the full range of precautions required during Class II work is not needed to protect workers against excessive asbestos exposure.

Accordingly, OSHA is correcting the standard to provide that removal of intact cements, mastics, coatings, and flashings is not Class II work. A new paragraph (g)(11) is being added to the construction standard that will exclusively govern such removals and is intended to impose only a few straightforward requirements and prohibitions that reflect the limited asbestos exposure potential of such operations. An identical paragraph (g)(12) is being added to the shipyard employment standard. Under paragraph (g)(11), the material must not be sanded, abraded, or ground but must be removed using manual methods that do not render the material non-intact. Material that has been removed from a roof must not be dropped or thrown to the ground and must be removed from the roof by the end of the work shift, either by being carried or passed to the ground by hand or by being lowered to the ground via covered, dust-tight chute, crane or hoist. Prior to the start of the job, the material must be examined by a competent person to determine whether it is intact and is likely to remain intact throughout the job. And the employees must be trained in the hazards of asbestos exposure and the proper work practices and prohibitions applicable to such work. If these conditions are not met, then the job must be treated as a Class II job.

When cements, mastics, coatings, and flashings are manufactured and installed, the asbestos fibers are tightly encapsulated by adhesive bituminous and resinous compounds that effectively prevent the fibers from being released. In order to provide effective waterproofing, these materials must retain their adhesive quality over their useful life. Accordingly, when such materials are intact prior to removal, the use of commonly used manual methods to remove the material will not result in significant fiber release. A variety of hand tools are typically used to remove cements, mastics, coatings, and flashings, including spud, spade, flat-blade or slicing tools, such as axes, mattocks, pry bars, spud bars, crow bars, shovels, flat-blade knives, and utility knives. When these tools are used to slice, cut, strip-off, shear-under, or pry-up the material, in accordance with standard practice in the roofing industry, their use is acceptable under new paragraph (g)(11). If these tools are used in other, unconventional ways which cause the material to crumble or become pulverized, or if other tools or methods which render the material non-intact are employed, then new paragraph (g)(11) does not apply.

Employees working on jobs covered by new paragraph (g)(11) and no other jobs that are covered by the asbestos standard are not subject to the special training requirements for Class II, III or IV work specified in paragraph (k)(9)(iii)–(v). Workers on jobs covered by new paragraph (g)(11) must, however, be trained in the following topics:

- Identification and Recognition of Asbestos-Containing Roofing Materials
  - Identification of asbestos
  - Uses in roofing, past and present
  - Characteristics of asbestos
- Potential Health Effects of Asbestos
  - Nature of asbestos related disease, including latency and medical tests for identifying asbestos diseases
  - Routes of exposure
  - Dose response relationships
  - Relationship between cigarette smoking and asbestos exposure and availability of smoking cessation programs
- Federal OSHA Construction Asbestos Standard
  - Overview of standard
  - Discussion of alternative methods for handling intact asbestos roof coatings, mastics, cements, and flashings
  - Discussion of PEL and significant risk
- Intact versus Non Intact Materials
  - Definitions
  - How to recognize non intact materials
  - Procedures to be followed when material is found or becomes non intact
- Appropriate Work Practices
  - Applying mastics, cements, coatings
  - Manual methods for removing materials
  - Clean up and waste disposal

The competent persons who inspect jobs covered by new paragraph (g)(11), and who do not supervise other jobs that are covered by the asbestos standard, are not subject to the special training requirements for Class II, III or IV work specified in paragraph (o)(4). Such competent persons must, however, be knowledgeable in the following topics in addition to the above topics covered in worker training:

- Methods of Determining Presence of Asbestos-Containing Roofing Material
- Understanding and Interpreting Air Monitoring Data
  - Some states, building owners, etc. require air monitoring on all ACM projects
  - Understanding a negative exposure assessment
- Notification Requirements—Commercial/Industrial Work Only

In addition to exclusively regulating the removal of intact cements, mastics, coatings, and flashings, paragraph (g)(11) also exclusively regulates the installation of ACM on roofs. Because the use of most asbestos products has been phased out, the only asbestos-containing products currently being installed on roofs are certain cements, mastics, and coatings. These materials are installed in a liquid or semi-liquid state in which the asbestos fibers are encapsulated in the bituminous or

resinous binders used in these products, and new paragraph (g)(11) therefore does not require special work practices to prevent fiber release during installation. In addition to the requirements that apply to removal, paragraph (g)(11) contains a notification requirement applicable to newly-installed products. When materials labeled as containing asbestos pursuant to paragraph (k)(8) of the standard are installed on non-residential roofs, the contractor must notify the building owner of the presence and location of the asbestos-containing material. Under the standard, building owners must be aware of the presence of ACM, and this notification requirement will give the building owner the information needed to fulfill the owner's compliance duty. The requirement is limited to installation of ACM on non-residential roofs because owners of residential dwellings are typically not employers subject to the standard and are therefore not required to maintain records about the presence of asbestos in their buildings.

Because work on jobs covered by new paragraph (g)(11) is not Class I, Class II, or Class III work, such work is not included under paragraph 1101(m)(1)(i) in the determination of which employees are covered by the medical surveillance provisions of the standard unless during such jobs employees are exposed at or above the TWA or excursion limit or wear negative pressure respirators. In addition, the installation or removal of intact asbestos-containing roof coatings, mastics, cements and flashings are not subject to any provision of the standard other than new paragraph (g)(11) as long as the materials remain intact and the requirements of paragraph (g)(11) are satisfied.

OSHA notes that materials very similar to these "incidental" roofing materials are used for other purposes; for example, asbestos impregnated asphaltic wrap is used for protection of underground pipes. OSHA regards removal of such intact materials as being governed by (g)(11) of the construction standard [(g)(12) of the shipyard employment standard.]

The corrections, clarifications and interpretations that are discussed in the following sections apply to roofing operations in which asbestos is present in the primary roofing material, as in the case of built-up roofing (BUR) and A/C shingle roofs.

(b) *Use of Wet Methods and Respirators During Roof Removals*

The standard recognizes that wet methods are an important means of control during asbestos removal operations. When the surface of material being removed is wet, some asbestos fibers that would otherwise be released when the material is disturbed will adhere to the liquid rather than become airborne. Therefore, paragraph (g)(1)(ii) generally requires that wet methods be used to control worker exposure to asbestos during removal, as well as other, operations. However, paragraph (g)(1)(ii) recognizes that wet methods are sometimes infeasible and provides that wet methods need not be used in such circumstances. One situation in which paragraph (g)(1)(ii) indicates that wet methods may be infeasible is when they would create slipping hazards during roofing work.

This reference to slipping hazards in roofing work was included in the standard because a number of commenters expressed concern that an unconditional requirement to use wet methods could increase safety hazards associated with roofing work. (See 59 FR at 41006). Wetting the surface of a roof can make the surface slippery and increase the likelihood that a worker could slip while walking or working on the roof. This would be particularly dangerous on sloped roofs, where a slip could result in a worker falling off the edge of the roof. OSHA recognizes that the potential for falling from a roof makes roofing work hazardous even under the best of circumstances, and use of wet methods that make the roof surface slippery can add significantly to that hazard.

OSHA believes that the potential for increased safety hazards when wet methods are used on sloped roofs dictates that wet methods should not be used on sloped roofs unless there is a realistic likelihood that the TWA or excursion limit would be exceeded if wet methods are not used. Data in the rulemaking record indicate that exceedances of the TWA or excursion limit will not occur when the material being removed is intact and the work practices specified in the standard are followed. (See 59 FR at 41005). Accordingly, the standard is being amended to provide that wet methods are not required on sloped roofs when the ACM being removed is intact.

Two corrections to the standard are being made to effectuate this intent. Paragraph (g)(1)(ii) is being corrected to state that wet methods need not be used during roofing work when they are not required under paragraph (g)(8)(ii). And paragraph (g)(8)(ii)(B) is being corrected to provide that wet methods must be used to remove roofing materials that are not intact or that will be rendered not intact during removal unless wet methods are not feasible or will create safety hazards. As amended, paragraph (g)(1)(ii) makes clear that roofing materials are only subject to requirements for wet methods that are explicitly contained in paragraph (g)(8)(ii). There are two such requirements. First, paragraph (g)(8)(ii)(B), as amended by this notice, retains the requirement for use of wet methods to remove non-intact material unless the competent person determines that wetting the material is not feasible or would create a safety hazard. Second, paragraph (g)(8)(ii)(C) requires that cutting machines be continuously misted during use unless a competent person determines that misting substantially decreases worker safety. As cutting machines are only used in the removal of built-up roofing, which is not found on sloped roofs, the standard does not require the use of wet methods on sloped roofs when the material being removed is intact.

When wet methods are not used, the increased potential for airborne asbestos may dictate the need for other precautions, such as respirator use. Paragraph (h)(1)(iii), as originally written, required use of respirators during all Class II and Class III work that was not performed using wet methods, without regard to actual or anticipated exposure levels. However, respirator use can also increase the safety hazards associated with roofing work by limiting workers' visibility and mobility. Moreover, roofing work is sometimes done in hot weather, which can add to the discomfort associated with respirator use. Respirator use may also increase the risk that roofing workers performing the often physically demanding labor required of them during hot weather will suffer heat stress. OSHA believes that the drawbacks of respirator use on roofs would lead many roofing contractors to use wet methods rather than respirators on sloped roofs if one or the other is required. Therefore, a requirement that either respirators or wet methods be used would lead to increased use of wet methods on sloped roofs, with an attendant increase in slipping and falling hazards.

OSHA is reluctant to include a requirement in the standard that could increase safety hazards during roofing work unless such a requirement is clearly needed to avoid overexposing workers to airborne asbestos. As noted above, evidence in the rulemaking record indicates that asbestos levels will not exceed the TWA or excursion limit when intact roofing material is removed using proper work practices even when wet methods are not used. For the reasons discussed earlier, OSHA has

therefore concluded that wet methods should not be required during such removals. OSHA further concludes that employers should not be forced to choose between wet methods and respirators because such a choice would undoubtedly lead to use of wet methods in many cases and, even where respirators are selected, roofing workers would be exposed to increased safety hazards. Accordingly, paragraph (h)(1)(iii) is being corrected to provide that even when wet methods are not used on sloped roofs, respirators need not be worn when a negative exposure assessment has been made and the ACM is removed in an intact state.

(c) Lowering Removed Material to the Ground

Once asbestos-containing roofing material has been separated from the roof, it must be lowered to the ground for disposal. Proper handling of the material, both on the roof and on the ground, is needed to reduce the release of asbestos fibers. Even when the material is intact, the large quantity of material that must be moved from the roof to the ground during a Class II roof removal job dictates that care be used in the disposal operation. And when material is non-intact, the potential for release of large numbers of asbestos fibers during disposal operations requires additional precautions.

As originally written, paragraph (g)(8)(ii)(E) required that any ACM removed from a roof either be immediately lowered to the ground via covered, dust-tight chute, crane or hoist, or else be placed in an impermeable waste bag or wrapped in plastic sheeting and lowered to the ground no later than the end of the work shift. By oversight, no distinction was made between intact and non-intact material. To correct this oversight, OSHA is clarifying the wrapping or bagging requirement of paragraph (g)(8)(ii)(E) in the case of intact roofing material. As long as the material is lowered to the ground no later than the end of the work shift, the employer is no longer required to wrap or bag intact material while the material remains on the roof. Wrapping or bagging of intact material is inappropriate for two reasons. First, wrapping or bagging requires additional handling of the material and could increase the likelihood of asbestos fiber release, particularly in the case of large sections of built-up roofing, which can be difficult to wrap or bag. Second, wrapping or bagging increases the time required for the job and would thereby increase the time during which workers are exposed to the safety hazards associated with roofing work. OSHA believes that, when ACM that has been removed from a roof is intact, there is little potential for fiber release if the material remains undisturbed on the roof for a short time.

For non-intact material, however, the potential for significant fiber release requires some means of protection if the material is not immediately lowered to the ground. To minimize fiber release from non-intact material while it remains on the roof, paragraph (g)(8)(ii)(E) requires that such material either be kept wet, wrapped, or bagged if the material is not immediately lowered to the ground. The option to keep the material wet was not available under the original version of the standard. However, keeping the material wet will minimize fiber release and will avoid the need the additional handling required when the material is wrapped or bagged. Although wetting may sometimes not be feasible, there is no reason not to allow its use as an alternative to wrapping or bagging in those situations where it is feasible.

As corrected, paragraph (g)(8)(ii)(E) allows material to be carried or passed to the ground by hand as an alternative to being lowered by means of a dust-tight chute, crane or hoist. This gives employers additional flexibility in situations where manual lowering is feasible. For example, some roofing jobs may involve removal of amounts of ACM sufficiently small that the most feasible method of lowering the material to the ground may be to have it carried off the roof by a worker. Also, where the roof is not too high off the ground, it may be feasible to pass the material to the ground from hand to hand. As long as the material is not dropped or thrown to the ground, OSHA does not wish to prohibit use of lowering methods that do not give rise to the potential for significant fiber release.

Two technical amendments dealing with disposal of asbestos-containing roofing material are also being made. Paragraph (l)(2), the general provision for disposing of asbestos waste, is being corrected to state explicitly that the specific requirements for disposal of roofing waste in paragraph (g)(8)(ii) apply in lieu of the general requirement of paragraph (l)(2). And paragraph (g)(1)(iii), which generally requires prompt clean-up and disposal of asbestos waste and debris in leak-tight containers, is similarly being corrected to state that the specific provisions for clean-up and disposal of roofing waste in paragraph (g)(8)(ii) are exclusive. Thus, disposal of roofing waste is governed exclusively by paragraph (g)(8)(ii)(E), which has been discussed above, and paragraph (g)(8)(ii)(F), which requires that once roofing material has been lowered to the ground, unwrapped material shall be transferred to a closed receptacle in a manner that will preclude the dispersion of dust.

(d) Cleanup of Dust and Debris

The standard contains several requirements aimed at assuring that asbestos-containing dust and debris are cleaned up in a manner that minimizes worker exposure. Paragraph (g)(1)(i) requires that HEPA vacuums be used to collect all dust and debris containing ACM or PACM. The general provision for use of wet methods in paragraph (g)(1)(ii) applies during cleanup operations. And dry sweeping, shoveling, or other dry clean-up methods are prohibited by paragraph (g)(3)(iii).

When a roof is to be removed, there is often dust and debris on the roof that has resulted from the roof's exposure to the elements over a long period of time. The standard does not require HEPA vacuuming of such general environmental contamination before roof removal work begins or during such work. HEPA vacuuming of dust and debris is only required if there is an indication that non-intact ACM is the source of the dust and debris. Similarly, if a roofing contractor does clean up environmental dust and debris that is not associated with non-intact ACM before or during a roof removal job, the standard's prohibition on use of dry clean-up methods does not apply.

When a power roof cutter is used to remove built-up roofing, the dust resulting from the cut is non-intact ACM, and the standard requires that the dust be thoroughly and appropriately cleaned up. Rather than requiring that such dust always be HEPA vacuumed, paragraph (g)(8)(ii)(D) is being corrected to give employers additional flexibility when the dust can be removed by other means that prevent it from becoming airborne. When built-up roofing is removed from a smooth-surface roof (i.e., a non-aggregate built-up roof), paragraph (g)(8)(ii)(D) now permits employers, as an alternative to HEPA vacuuming, to gently sweep and then carefully and thoroughly wipe up the still-wet dust and debris generated by the roof cutter and left along the cut line. As long as the dust is completely wiped up while it is wet, this method will assure that the dust is disposed of without becoming airborne. However, where the built-up roofing has an aggregate surface, sweeping and wiping of the dust generated by the roof cutter is not an effective alternative because some dust will remain in the cracks and crevasses of the aggregate surface.

Therefore, HEPA vacuuming is still required in this situation.

A correcting amendment is being made to paragraph (g)(1)(i), the general provision requiring HEPA vacuuming of dust and debris, to acknowledge that paragraph (g)(8)(ii)(D) contains an exception to the requirement for HEPA vacuuming of dust and debris in the case of removal of built-up roofs from smooth bases. The amendment to paragraph (g)(1)(i) does not affect the general requirement that dust and debris associated with non-intact roofing material be HEPA vacuumed.

(e) Small Removal and Repair Jobs

Before a roof has reached the end of its useful life and must be replaced, it can develop leaks that must be repaired. When only a small area of an asbestos-containing roof is disturbed during a removal or repair job, the potential for exposure is much lower than for a complete roof removal job, and all of the precautions required for Class II or III roof removal jobs are not needed. It would, for example, be unnecessarily burdensome to require a HEPA vacuum to be lifted to a roof and connected to a possibly distant source of electricity if only a negligible amount of dust must be collected. Accordingly, a new paragraph (g)(8)(ii)(H) is being promulgated to provide that removal or repair of intact roofing less than 25 square feet in area does not require use of wet methods or HEPA vacuuming as long as manual methods which do not render the material non-intact are used and no visible dust is created. By requiring that hand methods be used and no visible dust be released, the exception is limited to situations where the work is done in a manner that does not release significant numbers of asbestos fibers. Moreover, OSHA believes that the 25 square foot figure, which represents a 5-foot square area, represents a reasonable cutoff between small repair jobs that do not require the full range of protection and larger jobs that present the potential for significant exposures.

Paragraph (g)(8)(ii)(H) is located in a section of the standard that addresses methods of compliance for Class II work. However, a job that qualifies for the exception also does not require use of wet methods and HEPA vacuuming under provisions of the standard applicable to Class III and Class IV roofing operations.

(f) Clarifying Corrections

Several corrections are being made to the regulatory language to clarify OSHA's intent and avoid uncertainty among employers who must comply with the standard.

Paragraph (f)(2)(ii), which describes the basis for making initial exposure assessments, is being corrected to state more directly that the initial exposure assessment must be based on jobsite monitoring unless a negative exposure assessment has been made.

The introductory sentence of paragraph (g)(8)(iii) is being corrected to clarify OSHA's intent that the requirements of paragraph (g)(8)(iii) do not apply to removal of ACM from roofs but only to removal of ACM from building exteriors other than roofs.

Paragraph (k)(7)(ii) is being corrected to assure that signs demarcating a regulated area provide accurate information as to whether respirators and protective clothing are required in the area. As originally written, the provision required all such signs to state that respirators and protective clothing must be worn in the regulated area. However, this information was sometimes inaccurate, because certain work must be performed in regulated areas even when the employees in the area are not required to wear respirators and protective clothing. For example, all Class II work must be performed in regulated areas, but respirators and/or protective clothing are not required during such work if the material remains substantially intact during removal and a negative exposure assessment has been made. Accordingly, paragraph (k)(7)(ii) is being corrected to provide that signs marking regulated areas must state that respirators and protective clothing must be worn within the area only when the standard in fact requires such protection.

(g) Clarifying Interpretations

Definition of "intact": The term "intact" is used in a number of provisions of the standard relating to roofing work. For example, several paragraphs discussed above differentiate between "intact" and "non-intact" roofing materials. Similarly, paragraph (g)(8)(ii)(A), which applies to Class II roofing removals, requires that roofing material be removed in an "intact" state to the extent feasible. "Intact" is defined at paragraph (b) to mean "that the ACM has not crumbled, been pulverized, or otherwise deteriorated so that it is no longer likely to be bound with its matrix." Accordingly, paragraph (g)(8)(ii)(A) is satisfied when the roofing material is removed in a manner that does not cause it to crumble, become pulverized, or otherwise damaged in a manner that is likely to release asbestos fibers. Also, if asbestos-containing roofing material is not removed "in a substantially intact state," paragraph (h)(1)(ii) requires respirator use. In short, the meaning of the term "intact" has considerable importance in determining whether and how roofing operations are regulated under the standard.

Roofing materials that are separated into pieces in the process of removal or repair are not considered to be "non-intact" solely because the material has been cut, sliced, pried, or otherwise separated into smaller units for the purpose of removal. The condition of the smaller units or pieces of removed roofing (for example, a 2 foot by 2 foot section of built-up roofing) must be evaluated against the definition of the term "intact" in paragraph (b) of the standard in order to determine whether the roofing material has been rendered "non-intact" by a removal or repair operation. For example:

a. Built-up roofing (BUR) that has been cut into smaller sections (e.g., using a power roof cutter) and pried up from the roof is not deemed to be "non-intact" solely because it has been separated into pieces. If the pieces of removed BUR have "not crumbled, been pulverized, or otherwise deteriorated so that [they] are no longer likely to be bound with [their] matrix," then they are "intact" as defined in paragraph (b) of the standard. On the other hand, the dust created by the destructive force of the cutting blade of a power roof cutter would be considered "non-intact."

b. The same interpretation applies to other roofing materials which are typically removed by dividing them into smaller units. For example, roof mastics and cements are usually pried, chipped or scraped off; asphalt felt underlayments are sliced and rolled-up or sometimes scraped-off or chipped-off; and flashings are sliced into manageable units and then pried-up. The fact that roofing materials have been removed in this fashion does not by itself render them non-intact under the standard. Rather, the removed pieces of roofing must be evaluated to determine whether they are "intact" as defined in paragraph 1101(b) of the standard.

c. Likewise, although asbestos-cement (A/C) shingles are pried up by hand and removed as individual units of roofing, occasionally incidental breakage of the shingles will occur even during careful removal procedures. Such incidental breaking does not in and of itself render the material non-intact under the standard; the question is whether the shingles (whether broken or not) have been crumbled, pulverized, or otherwise are not likely to be bound with their cementitious matrix as a result of the removal operation. The same interpretation applies to incidental breakage of other asbestos-containing roofing materials during removal or subsequent handling.

Paragraph (h)(1)(ii) requires that respirators be used if the material is not removed in a "substantially intact state." This provision does not require

that respirators be used during removal of built-up roofing when the BUR is cut into pieces.

HEPA Vacuuming, Wet Methods, and Bagging or Wrapping of Removed Material: Certain of the corrections to the standard that have been described earlier limit the situations in which HEPA vacuuming, wet methods, and bagging or wrapping are needed when asbestos-containing roofing materials are "intact" both prior to and after removal. Because many roof removal jobs involve removal of intact material, it is useful to summarize when these precautions are required.

The only wet method required when removing intact roofing material is continuous misting of the cutting blade of a power roof cutter, unless the competent person determines that misting substantially reduces worker safety, during removal of built-up roofing. HEPA vacuuming is only required to remove the dust that the power roof cutter leaves behind on aggregate-surface built-up roofs. And intact material does not need to be bagged or wrapped while it remains on the roof prior to being lowered to the ground. The material must, however, be lowered to the ground before the end of the work shift.

OSHA emphasizes that additional precautions are required when roofing material is non-intact. All dust and debris associated with such material must be HEPA vacuumed. If non-intact material is not immediately lowered to the ground, it must be kept wet, bagged, or wrapped while it remains on the roof. Additional use of wet methods will often be appropriate. However, because of potential safety hazards and other problems that excessive water on a roof can create, the degree to which wet methods are used is left to the sound judgment of the competent person. When non-intact material is removed, and particularly when wet methods are not used or when their use is limited, precautions such as respirators and protective clothing, which must be used if a negative exposure assessment cannot be made, will be required.

Isolation or Shutdown of Air Intakes: Paragraph (g)(8)(ii)(G) requires that roof level heating and ventilation air intake sources be isolated, or the ventilation system shut down, during Class II roof removal work. The purpose of this provision is to prevent asbestos fibers from entering the building's ventilation system and being inhaled by persons in the building.

In general, paragraph (g)(8)(ii)(G) requires isolation or shutdown only of air intakes in the regulated area. Under paragraph (e), regulated areas must be established and demarcated in a manner that will protect persons outside the area from exposure to asbestos. Therefore, when regulated areas have been properly established, there should not be a significant quantity of airborne asbestos fibers available to enter air intakes outside the regulated area. In some circumstances, however, prudence will dictate that air intakes even outside the regulated area be isolated or shut down. For example, if the opening of an intake outside the regulated is downwind from the removal work, variables such as wind speed and proximity and orientation of the intakes to the air flow may warrant isolation or closure of the intake. OSHA expects the competent person to use good judgment to effectuate the intent of the provision. Forms of isolation that will satisfy paragraph (g)(8)(ii)(G), depending on the circumstances of the particular job, include: (1) the use of 20 foot "buffer zones," subject to the exercise of good judgment by the competent person based on site-specific conditions, as discussed in the August 10, 1994 preamble, 59 Fed. Reg. at 41006; (2) the use of HEPA filters over the air intakes; (3) the use of horizontal or vertical extensions that relocate the opening of the air intake outside or above the regulated area or away from or above a nearby upwind source of asbestos fiber emissions; or (4) covering the intake with plastic sheeting or another kind of barrier.

5. Respiratory Protection

Paragraph (h) of Construction and Shipyard Employment Standards.

Respirators: In Class I operations in which a negative exposure assessment is not obtained, OSHA has clarified its respiratory protection requirements and has determined that the use of tight-fitting powered air-purifying respirators is permitted if the exposure assessment and monitoring show that exposure levels do not exceed 1 f/cc as an 8 hour time weighted average. Further when supplied air respirators are used in such circumstances, either HEPA egress cartridges or auxiliary bottles of air for supplied air respirators will be allowed. Paragraph (h)(2)(iv) in the construction and shipyard standards is corrected to incorporate these changes. The respirator tables remain unchanged.

This clarification is made to address the concerns of participants that although a higher degree of respiratory protection is needed in Class I operations where a negative exposure assessment is not produced, there are times when safety hazards (e.g., tripping), worker acceptability, configuration of the work area, and feasibility considerations make the choice of a supplied-air respirator less optimal. The record showed that tight-fitting powered air-purifying respirators (PAPRs) are widely accepted, offer additional mobility, and are effective at those levels and therefore are a protective alternative to supplied air respirators. Therefore, when an employer's exposure assessment shows that exposure levels will be below 1.0 fibers per cubic centimeter (f/cc) as an 8-hour time-weighted average, OSHA is allowing use of PAPRs. Where a negative exposure assessment is not produced, but fiber levels are controlled and do not vary above 1.0 f/cc as an 8-hour time-weighted average, OSHA believes use of PAPRs is appropriate.

Additionally, OSHA has noted that operations having higher fiber levels are often quite variable and that the time required to receive sampling results may be lengthy, hence the standards continue to require supplied air respirators when fiber levels are above the 1.0 f/cc level. Thus, the higher degree of protection offered by supplied air respirators is needed, as pointed out by rulemaking participants (Ex. 7–54; Ex. 143 at 48 and 63).

OSHA is also allowing the use of HEPA egress cartridges with supplied air respirators. Participants expressed concern that an auxiliary positive pressure self-contained breathing apparatus was not the only means of adequately providing for escape from the work area when the air supply failed. Many felt that HEPA-escape cartridges were equally effective and should be allowed. (See discussion in Ex. 143 at 65–69). OSHA notes that careful training in the use of HEPA-egress methods and of auxiliary positive pressure self-contained breathing apparatus is essential to their effective use in emergency situations.

6. Hygiene Facilities and Practices for Employees

Paragraph (j) Construction and Shipyard Employment Standards

Some participants pointed to an apparent inconsistency in the hygiene requirements in the standard. OSHA is correcting the provision dealing with clean rooms, (j)(1)(i)(C) in both standards, to clarify that showering is required and *then* the worker is to use a clean room provided by the employer to put on street clothes.

Briefly, the overall scheme for showering following asbestos work is as follows:

1. Class I work involving more than 25 linear or 10 square feet of TSI or surfacing ACM, adjacent showers required except where infeasible, on

ships or for outdoor work. These may HEPA vacuum their work clothes, change to clean work clothes and proceed to a non-adjacent shower.

2. Following Class I jobs involving less than 25 linear or 10 square feet of TSI or surfacing ACM, and Class II asbestos operations in which the PELS may be exceeded, showering is required, but the shower need not be adjacent to the work site, so long as the workers HEPA vacuum their work clothes on dropcloths and use proper procedures for clean-up before proceeding to a non-contiguous shower.

3. Following Class III work where the PELs may be exceeded, HEPA vacuuming of work clothes is required.

For Class III operations involving thermal system insulation and/or surfacing ACM/PACM where there is no exceedence of the PELs, HEPA vacuuming of workclothing is highly recommended, though not required.

7. Communication of Hazards

Paragraph (k) of Construction and Shipyard Employment Standards and paragraph (j) of General Industry.

OSHA is making some corrections of the regulatory text to clarify (i) which materials an employer *must* presume are asbestos-containing, (ii) when a reasonable employer must investigate the possibility that other materials are asbestos-containing, (iii) how to refute a required presumption that materials contain asbestos, (iv) when to make these decisions, and (v) whom to inform.

The term "due diligence" is not defined, it means however, that a reasonable employer, informed of this standard and other pertinent regulations, must inquire into the possibility that a building material is asbestos-containing. The required extent of the inquiry may vary, depending on the prevalence of the ACM for that use in that location, previous surveys, inspections, and other knowledge sources, and the date the material was installed.

Paragraph (k)(5)(ii)(B) in the construction and in the shipyard employment standard and paragraph (j)(8)(ii)(B) of the general industry standard are clarified to address concerns of participants regarding the requirement for 3 bulk samples to rebut the presumption that a material is ACM. OSHA clarifying that it is referencing the EPA sampling protocol of 40 CFR 763.86. This requires an accredited inspector (OSHA allows a CIH) to collect samples in a random representative manner from each homogenous area of surfacing material: 3 from each homogeneous area of less than 1,000 square feet, 5 from areas between 1,000 and 5,000 square feet and 7 from areas greater than 5,000 square feet. In addition, one sample is adequate from homogenous patched areas of TSI of less than 6 square or linear feet. For insulated mechanical systems and other "miscellaneous" materials, bulk samples are to be collected "In a manner sufficient to determine whether the material is or is not ACM."

Further, this scheme will allow the inspector or CIH to determine that a TSI is fiberglass, foam glass, rubber or other non-asbestos containing material and sampling is not required for these materials. Thus, the number of samples required will be lessened in some situations and increased in others, depending on the amount of material present. Actual sampling may be conducted under the supervision of a certified industrial hygienist or accredited inspector, but a "visual identification" may be made *only* by a CIH or inspector.

Training Requirements: Questions have arisen regarding the time requirements for "refresher" training required in paragraph (k)(9)(ii) of the construction and the shipyard employment standards. OSHA wishes to clarify that for Class I workers and for Class I and Class II competent persons whose training is equivalent to that of 40 CFR part 763, subpart E, appendix C, the annual refresher training shall be of 8 hours duration, equivalent to that in the EPA regulation. For all others trained under the provisions of these standards, annual refresher training is required, but the duration is not specified. OSHA believes that hands-on training is essential for both initial and refresher training. To accomplish this and cover essential health information, a minimum of two hours training will be expected for Class II and III work.

Training for Class II work: In developing the revised standards, OSHA noted that asbestos abatement workers often remove large amounts of the higher hazard materials such as thermal system ACM and sprayed-on ACM and other ACM having somewhat lower exposure potential such as siding, wallboard and other building materials. For this group of workers OSHA continues to believe that training equivalent to that of EPA's asbestos abatement worker training is appropriate.

However, some workers will remove only ACM which is not TSI or surfacing ACM. For those whose work involves removal of only a single generic type of material, OSHA specified that an 8 hour training course would be acceptable. OSHA continues to believe that this time period is necessary for training of workers whose duties include removal of building materials such as roofing, flooring, siding, transite panels and ceiling tiles.

However, it has been brought to the agency's attention that there are some other types of materials other than those listed ACM building components. These other materials include gaskets, firedoors, laboratory hoods, and other materials (for example, see list in Ex. 1–183, EPA's "Greenbook" Appendix G, page 40). However, covering all required training for those other materials is generally not assumed to take 8 hours. The training for these materials continues to require covering all topics in (k)(9)(viii) of the Construction and Shipyard Employment Standard, all pertinent work practices and other controls and must have a "hands-on" component. OSHA believes that such training would be likely to require at least 4 hours to adequately cover the topics, methods, and hands-on portion. OSHA also recognizes that many different operations will be covered in this type of training and that the time required for adequate training will vary and thus the period is not specified.

Training for Class III Work: OSHA has reviewed the training requirements for Class III work for employers with a stable work force which infrequently encounters limited types of asbestos and generates less than a waste bag full of dust and debris (OSHA notes that the waste bag dimensions must not exceed 60" by 60"). These operations occur at various locations such as refineries, power plants, or in the communication industry and may involve rapidly completed operations such as removal of a small gasket from a pipeline or drilling a hole in a shingle to run a cable through it. In submissions to the record, participants (e.g., Exhibits 7–21, 7–99, 7–101, 127, 145) presented sampling data indicating these exposures were well-controlled by the use of work practices by workers trained under the provisions of the earlier standards.

The standards require training equivalent to EPA's "O&M" training as outlined in 40 CFR 763.92. This training, which was originally intended to serve as part of an operation and maintenance program for schools, provides a basis for training for those operations in most other buildings and facilities. However, OSHA has re-evaluated the requirements for this training in light of the fact that Class III operations under its standards include different activities than managing installed asbestos containing building materials in place. This 16 hour course may not serve to properly prepare those

whose duties include other activities such as changing an intact gasket, in a pipeline, replacing packings or making occasional small opening in shingles to run lines. On the other hand, these jobs often involve only small amounts of asbestos and are usually brief in duration, infrequent, and often take place out of doors requiring different skills so that some of the requirements of the 16 hour course are not relevant.

OSHA has clarified that, as for other provisions of the standards, employers may rely on their well-trained competent persons to decide whether the O&M-type course is appropriate to these tasks. If it is determined that the curriculum, equivalent to that of 40 CFR 763.92 does not adequately cover the topics and work practices needed in an operation, the employer's competent person may certify that the training contained in (k)(9)(viii) is more applicable to that situation and may opt to designate this training, as long as the specific work practices, other controls necessary and "hands-on" training will be adequately covered.

OSHA anticipates that the duration of the training will to some extent, reflect the complexity and hazard of the operation, but would be likely to require at least 4 hours of initial training to adequately cover the topics, methods, and hands-on portion. However, the duration of such training is not specified. Annual refresher training for this group of workers is required, without specified duration.

Paragraph (j)(7)(iv) of the General Industry standard is corrected to clarify the requirement for awareness training of housekeepers. The word "facility" is replaced with the word "area." This clarifies OSHA's intention that only those workers whose housekeeping duties require them to work in areas of a building or facility in which asbestos or presumed asbestos is present shall receive awareness training. For example, in a refinery in which the only ACM/PACM is outdoor pipe insulation and the housekeepers duties are only within the office building on the site, the employer is not required to provide them awareness training. Awareness training is required for those whose duties might bring them into contact with ACM/PACM.

Signs: The requirements for signs in the construction standard were inadvertently omitted from the general industry standard. The paragraph (k)(6) of the 1926.1101, which requires asbestos warning signs in areas of buildings where there is ACM/PACM, is added to 1910.1001 and becomes paragraph (j)(3)(v).

8. Medical Surveillance

Paragraph (m) Construction and Shipyard Employment Standard.

OSHA inadvertently included more extensive medical requirements for 2 groups of workers who perform lower risk work. Accordingly, OSHA is clarifying paragraph (m)(1)(i) to reduce requirements for medical surveillance for two groups of workers. For the first group, occasional wearers of respirators, the more comprehensive physical examination required by the asbestos standards is not necessary for workers who are required to wear negative pressure respirators while performing Class I, II, or III work for less than 30 days per year. For this group, a physician must ensure that employees are able to use a respirator. The interval for such determinations is one year. This provision is similar to that of 1910.134, the Respiratory Protection Standard, which is currently in rulemaking. This provision may be amended as a result of that process, at which time OSHA may reconsider this provision in the asbestos standards also.

Class II and Class III Medical Surveillance: The second group are workers who perform Class II and Class III operations very briefly and occasionally, and are exposed below the permissible exposure level (PEL). The standard provides medical surveillance for all workers below the PEL who engaged in Class II or III operations for 30 or more days per year. However, OSHA now clarifies that the 30-day requirement should be corrected to exclude days in which less than one hour is spent in Class II or III work when work practices that fully comply with the standard's requirements are followed. As thus modified, the standard more closely reflects OSHA's policy of requiring medical surveillance for workers exposed at or above an action level for 30 or more days per year.

The 1986 asbestos standard required medical surveillance for workers exposed above the action level (then 0.1 f/cc) for 30 or more days per year. OSHA standards for other toxic air contaminants, including lead, cadmium, benzene, and ethylene oxide, similarly trigger medical surveillance by exposure at or above an action level of 30 or more days per year. When the court of appeals remanded the 1986 standard for OSHA to re-evaluate whether the 8-hour time weighted average exposure limit (then 0.2 f/cc) should be lowered, it also instructed OSHA to reconsider making a corresponding reduction in the action level. However, in lowering the 8-hour time weighted average exposure limit (TWA) to 0.1 f/cc in the present standard, OSHA decided not to set an action level equal to half the new TWA. This decision was based on the difficulty of obtaining reliable and reproducible measurements of asbestos concentrations as low as 0.05 f/cc under jobsite conditions (see 59 FR at 40975).

Instead of triggering medical surveillance by an action level of 0.05 f/cc, the asbestos standard required medical surveillance for all workers who engaged in Class I, II, or III work for 30 days or more per year. Thus, for medical surveillance purposes, the standard uses the classification system as a surrogate for the action level. OSHA believed that using Class II and III work in particular to trigger medical surveillance would be approximately the equivalent of triggering medical surveillance by an action level of 0.05 f/cc, for while most Class II and Class III jobs are not expected to exceed the 8-hour TWA of 0.1 f/cc, they involve the removal of substantial amounts of asbestos containing material and may approach or exceed levels of 0.05 f/cc.

OSHA continues to believe that the classification system is a reasonable surrogate for an action level and that workers who perform Class II and/or Class III work for 30 or more days per year should generally receive medical surveillance under the standard. However, OSHA is correcting the standard to exclude from the 30-day count those days in which the worker engages in Class II or III work for one hour or less when such work is performed in accordance with the work practices required by the standard. When the standard's work practices are followed during Class II and Class III work, the rulemaking record shows that the TWA will usually not be exceeded even if the work continues for all or most of an 8-hour work shift (see 59 FR at 41000–41008). Thus, in most cases, employers will choose not to monitor specific jobs because they have historic and/or objective data.

OSHA believes that where historic and/or objective data exempt an employer from monitoring most exposures will be well below the TWA of 0.1 f/cc, and would also be below 0.05 f/cc, if the job takes less than one hour and the proper work practices are used. Therefore, the classification system will be a more accurate surrogate for an action level if those days in which employees perform Class II or Class III work for one hour or less while using proper work practices are excluded from the number of days that count toward the medical surveillance requirement. OSHA believes that this adjustment better aligns the standard

with OSHA's policy of requiring medical surveillance of workers who are exposed to a level equal to or exceeding an action level of half the permissible 8-hour time weighted average for 30 or more days per year.

OSHA believes that the one-hour period is a reasonable cutoff between jobs of brief duration and those that cover a substantial part of the work shift. In addition to more accurately reflecting OSHA's usual medical surveillance policy, this correction will avoid imposing unnecessary recordkeeping burdens on employers by enabling them to avoid recording, for medical surveillance purposes, each day an employee engages in Class II or III work even when that work may last only a few minutes.

9. Appendices

General Industry Standard, Appendix F, Shipyard Employment Standard, Appendix L:

Throughout the discussion of asbestos exposure during brake and clutch repair work in the preamble, OSHA stated that it would require training of technicians/mechanics in the proper use of work practices to be used during these operations. However, language to that effect was inadvertently omitted from the appendices describing the mandatory work practices. This document corrects the text of the appendix in both 1910.1001 and 1915.1001 to include a requirement that technicians/mechanics be trained in the proper use of the preferred or equivalent work practices.

Equivalency of Alternate Methods for Brake Work: OSHA is also correcting Appendix F of the General Industry and Appendix L of the Shipyards Employment standard to indicate that the fiber level required to demonstrate the equivalency of an alternate method of asbestos control in brake and clutch work is 0.016 f/cc. As originally drafted, the standard set the equivalency criterion at 0.004 f/cc. This was based on a NIOSH study (Ex. 1–112) showing that the preferred methods of asbestos control in brake and clutch work could attain exposure levels ranging from 0.004 to 0.016 f/cc. OSHA has determined that the more appropriate value for an equivalent method to attain is the high end of the range of values found to be attainable in this study, or 0.016 f/cc. Setting the equivalency level at this value will assure that an equivalent method provides workers with effective protection against asbestos exposure without making the equivalency criterion so low as to discourage development of alternative methods of protecting brake and clutch workers. The standard lists two preferred methods of asbestos control during brake and clutch work: the Negative Pressure Enclosure/HEPA Vacuum System Method and the Low Pressure/Wet Cleaning Method. The appendices to the general industry and shipyard standards give detailed descriptions of these methods. When these methods are properly used by trained workers, employers are in full compliance with the standard.

The standard also permits the use of equivalent methods that can be shown to comply with the equivalency criterion, as corrected by this document, of 0.016 f/cc. Like the preferred methods, an equivalent method must include a detailed description of the practices that must be followed when the method is used. Since equivalent methods are not set forth in the standard, an employer who uses such a method must have a written description of the method that contains sufficient detail that the method can be reproduced. When the method meets the equivalency criterion and the workers who use it are properly trained, then just as when a preferred method is used, the employer is in full compliance with the standard.

The proposed standard described a method, referred to as the Spray Can/Solvent System Method, that OSHA did not include as a preferred method in the final standard. However, OSHA has determined from the NIOSH study that the Spray Can/Solvent System Method, as described in the proposed standard, meets the corrected equivalency criterion of 0.016 f/cc. Accordingly, the Spray Can/Solvent Spray System Method qualifies as an equivalent method under the corrected equivalency criterion. When employers use the Spray Can/Solvent System Method, they must adhere to the work practices listed in the proposed standard for the method to qualify as an equivalent method. For convenience, those work practices are reiterated here.

(1) The spray can/solvent system shall be used to first wet the brake and clutch parts. Then, the brake and clutch parts shall be wiped clean with a cloth.

(2) The cloth shall be placed in an impermeable, properly labelled, container and then properly disposed of, or the cloth shall be laundered in a way that prevents the release of asbestos fibers in excess of 0.1 fibers per cubic centimeter of air.

(3) Any spills of solvent or any asbestos-containing waste material shall be cleaned up immediately.

(4) The use of dry brushing during solvent spray operations is prohibited.

The foregoing is an adequate written description of the Spray Can Solvent System Method within the meaning of Appendix F to the general industry standard and Appendix L of the shipyard employment standard.

The standard and this correction document are issued under the authority of sections 4, 6(b), 8(c), and 8(g) of the Occupational Safety and Health Act of 1970 (29 U.S.C. 653, 655, 657); Sec. 107, Contract Work Hours and Safety Standards Act (Construction Safety Act, 40 U.S.C. 333); Sec. 41, Longshore and Harbor Workers' Compensation Act (33 U.S.C. 941); and 29 CFR Part 1911.

Correction of Publication

The following corrections are made in the final rule for Occupational Exposure to Asbestos published in the Federal Register on August 10, 1994 (59 FR 40964).

1. On page 40964, in the first column, in the first paragraph entitled "Summary," line 23 is corrected by removing the words "high hazard".

2. On page 40972, line 11 of the first column, the word "informing" is corrected to read "inform".

3. On page 40972, in the first column, in the second full paragraph, line 14, the words "after 1979" are corrected to read "no later than 1980".

4. On page 40975, in the first column, in the last paragraph, line 10 is corrected by adding the words "perform housekeeping" after the word "who".

5. On page 40977, line 17 of the second column, the words "Class II" are corrected to read "Class III".

6. On page 40977, in the second to third column, in the paragraph under the heading entitled "*Disturbance,*" lines 4 through 7 are corrected to read "definition, disturbance means activities that disrupt the matrix of ACM or PACM, crumble or pulverize ACM or PACM, or generate visible debris from ACM or PACM. It also includes".

7. On page 40978, in the first column, the paragraph under the heading entitled "*Presumed Asbestos-Containing Material (PACM)*" is corrected to read:

* * * * *

In all three standards, "presumed asbestos containing material," "PACM" means thermal system insulation and sprayed on and/or troweled on, or otherwise applied surfacing material in buildings constructed no later than 1980. In many places in the Preamble, OSHA refers to "high risk" ACM and PACM. These terms are not used in the regulatory text. The term "high risk" refers to the possibility or potential for injury and does not mean injury will necessarily occur. OSHA uses these

terms in the Preamble in a relative sense to describe its findings that TSI and surfacing material are more prevalent and can be more friable than many other asbestos-containing materials in buildings. As discussed elsewhere in the Preamble, OSHA finds that the OSHA-required provisions involving all types of ACM should result in low exposure levels that would protect employees from significant risk. Although these materials may have been installed in small quantities after 1980, OSHA finds that their installation is unlikely after that date.

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8. On page 40986, in the first column, in the first paragraph, line 21, the word "a" is corrected to read "an".

9. On page 40986, line 5 of the third column is corrected by removing the word "listing".

10. On page 40987, in the third column, under the heading entitled "*Floor Maintenance,*" in the first paragraph, line 17, the word "speed" is corrected to read "speeds".

11. On page 40988, in the second column, in the second full paragraph, line 15, the word "Method" is corrected to read "Methods".

12. On page 40988, in the third column, in the third full paragraph, line 4 is corrected by removing the comma after the word "prior".

13. On page 40988, in the third column, in the third full paragraph, line 11, the word "if" is corrected to read "is".

14. On page 40988, in the third column, in the last paragraph, line 4 is corrected by adding the word "the" after the word "of".

15. On page 40989, in the second column, under the heading entitled "*Other Basic Controls,*" in the first paragraph, line 13, the number "(2)" is corrected to read "(3)".

16. On page 40990, in the first column, in the second full paragraph, the last line, the words "see (g)(4)(F)" are corrected to read "see paragraph (g)(4)(vi)".

17. On page 40990, in the second column, in the third full paragraph, line 7, the words "paragraph B" are corrected to read "paragraph (b)".

18. On page 40991, line 12 of the first column is corrected to read "asbestos panel: 9 square feet; pipe".

19. On page 41000, in the first column, in the first full paragraph, the last line is corrected by removing the words "in a".

20. On page 41000, in the third column, in the first paragraph, line 5, the words "paragraph (g)(ii)(a)" are corrected to read "paragraph (g)(8)(i)".

21. On page 41004, in the second column, under the heading entitled "*Roofing Operations,*" in the first paragraph, line 19 is corrected by adding the word "the" after the word "to".

22. On page 41009, in the second column, in the last paragraph, line 3, the number "(9)" is corrected to read "(10)".

23. On page 41009, in the second column, in the last paragraph, line 18, the word "contained" is corrected to read "containing".

24. On page 41009, in the second column, in the last paragraph, line 20, the words "Paragraph (g)(9)" are corrected to read "Paragraph (g)(10)".

25. On page 41009, in the third column, in the first paragraph, line 1, the words "paragraph (g)" are corrected to read "paragraph (g)(10)(i)".

26. On page 41009, in the third column, in the first paragraph, line 11, the words "(g)(g)(iv)" are corrected to read "(g)(10)(i)".

27. On page 41010, in the first column, in the third full paragraph, line 3, the words "engineeromg cpmtrp" are corrected to read "engineering controls".

28. On page 41014, in the third column, in the last paragraph, line 16, the words "before 1980" are corrected to read "no later than 1980".

29. On page 41015, in the first column, in the third full paragraph, line 1 is corrected by removing the word "the".

30. On page 41016, in the first column, in the last paragraph, lines 8, 9, 10, and 15, the words "high hazard" are corrected to read "high risk".

31. On page 41016, in the second column, in the last paragraph, line 6 is corrected by removing the word "a".

32. On page 41016, line 28 of the third column, the words "high hazard" are corrected to read "potentially high risk".

33. On page 41017, in the first column, in the first full paragraph, line 18, the words "before 1980" are corrected to read "no later than 1980".

34. On page 41017, in the second column, beginning in line 6, the sentence "Neither EPA's revised MAP nor OSHA requires specific training or accreditation of persons who only visually inspect the condition of ACM/PACM." is removed.

35. On page 41020, in the first column, under the heading entitled "*Training Requirements for Employees Performing Class III and IV Work,*" in the first paragraph, lines 25 through 28 are corrected to read "consistent with EPA requirements for training of local education agency maintenance and custodial staff as set forth at 40 CFR 763.92(a)(2).".

36. On page 41023, in the second column, in the first full paragraph, line 11 is corrected by adding the word "school" after the word "asbestos-containing".

37. On page 41023, in the third column, in the second paragraph, lines 8 through 11 are corrected to read "trained in a course consistent with EPA requirements for training of local education agency maintenance and custodial staff as set forth at 40 CFR 763.92(a)(2). If clean-up work is done within"..

38. On page 41044, in Table 7, in the last column entitled "Total annual incremental control costs," the figure "24,787,345" is corrected to read "14,787,345".

§ 1910.1001 [Corrected]

39. On page 41057, in the third column, in § 1910.1001, paragraph (a)(2), line 5, the number "1926.58" is corrected to read "1926.1101".

40. On page 41057, in the third column, in § 1910.1001, paragraph (a)(3), line 7, the number "1915.191" is corrected to read "1915.1001".

41. On page 41058, in the first column, in § 1910.1001, paragraph (b), a definition of "*Certified industrial hygienist*" is added before the definition of "*Director*" to read:

* * * * *

(b) * * *

Certified industrial hygienist (CIH) means one certified in the practice of industrial hygiene by the American Board of Industrial Hygiene.

* * * * *

42. On page 41058, in the first column, in § 1910.1001, paragraph (b), a definition of "*Homogeneous area*" is added before the definition of "*Industrial hygienist*" to read:

* * * * *

(b) * * *

Homogeneous area means an area of surfacing material or thermal system insulation that is uniform in color and texture.

* * * * *

43. On page 41058, in the first column, in § 1910.1001, paragraph (b), the definition of "*PACM*" is corrected to read:

* * * * *

(b) * * *

PACM means "presumed asbestos containing material."

* * * * *

44. On page 41058, in the first column, in § 1910.1001, paragraph (b), a definition of "*Presumed asbestos*

containing material" is added before the definition of "*Regulated area*" to read:

* * * * *

(b) * * *

Presumed asbestos containing material means thermal system insulation and surfacing material found in buildings constructed no later than 1980. The designation of a material as "PACM" may be rebutted pursuant to paragraph (j)(8) of this section.

* * * * *

45–48. On page 41058, in the first column, in § 1910.1001, paragraph (b), the following definitions are added in alphabetical order after the definition of "*Regulated area*" to read:

* * * * *

(b) * * *

Surfacing ACM means surfacing material which contains more than 1% asbestos.

Surfacing material means material that is sprayed, troweled-on or otherwise applied to surfaces (such as acoustical plaster on ceilings and fireproofing materials on structural members, or other materials on surfaces for acoustical, fireproofing, and other purposes).

Thermal System Insulation (TSI) means ACM applied to pipes, fittings, boilers, breeching, tanks, ducts or other structural components to prevent heat loss or gain.

Thermal System Insulation ACM means thermal system insulation which contains more than 1% asbestos.

* * * * *

49. On page 41058, in the first column, in § 1910.1001, paragraph (c)(1), line 4 is corrected by adding the word "in" after the word "asbestos".

50. On page 41058, in the first column, in § 1910.1001, paragraph (c)(1), line 8, the word "of" is corrected to read "to".

51. On page 41058, in the first column, in § 1910.1001, paragraph (c)(2), line 7 is corrected by adding the words "as determined by the method prescribed in Appendix A to this section, or by an equivalent method" after the word "minutes".

52. On page 41058, in § 1910.1001, paragraph (d)(5), line 5 of the third column, the words "action level" are corrected to read "PEL".

53. On page 41059, in the second column, in § 1910.1001, paragraph (f)(1)(viii) is corrected by removing the word "of" on the last line of the paragraph.

54. On page 41059, in the third column, in § 1910.1001, paragraph (f)(3)(i), line 24, the words "Appendix F of" are corrected to read "Appendix F to".

55. On page 41060, in the third column above Table 1, in § 1910.1001, paragraph (g)(2)(iii) introductory text, line 2 is corrected by adding the words "tight-fitting" before the word "powered".

56. On page 41060, in § 1910.1001, paragraph (g)(2) in Table 1, under the heading "Airborne concentration of asbestos or conditions of use," lines 1 through 3 are corrected to read "Not in excess of 1 f/cc (10 X PEL)."

57. On page 41060, in the first column below Table 1, in § 1910.1001, paragraph (g)(3)(iii), line 2 is corrected by removing the comma after the word "shall".

58–59. On page 41060, in the first column below Table 1, in § 1910.1001, paragraph (g)(3)(iv), line 10, the word "employee" is corrected to read "employees".

60. On page 41060, in the second column below Table 1, in § 1910.1001, paragraph (g)(4)(ii), line 11, the word "of" is corrected to read "to".

61. On page 41060, in the second column below Table 1, in § 1910.1001, paragraph (g)(4)(ii), the last line, the number "(ii)" is corrected to read "(i)".

62. On page 41060, in the third column below Table 1, in § 1910.1001, paragraph (h)(2)(iv), the last line, the number "(2)" is corrected to read "(4)".

63. On page 41061, in the first column, in § 1910.1001, paragraph (i)(2)(i), line 4 is corrected by adding a comma after the word "limit".

64. On page 41061, in the second column, in § 1910.1001, paragraph (j) introductory text, line 30 is corrected by removing a closed parenthesis after the number "1926.53".

65. On page 41061, in the second column, in § 1910.1001, paragraph (j)(1), line 5 is corrected by adding the words "*in buildings constructed no later than* 1980" after the word "ACM".

66. On page 41061, in the second column, in § 1910.1001, paragraph (j)(1), line 8, the word "(B)" is corrected to read "(b)".

67. On page 41061, in the second column, in § 1910.1001, paragraph (j)(1), line 9, the word "standard" is corrected to read "section".

68. On page 41061, in § 1910.1001, paragraph (j)(1), line 1 of the third column, the words "paragraph (j)(6)" are corrected to read "paragraph (j)(8)(iii)".

69. On page 41061, in the third column, in § 1910.1001, paragraph (j)(2)(i) is corrected to read:

* * * * *

(j) * * *

(2) * * * (i) Building and facility owners shall determine the presence, location, and quantity of ACM and/or PACM at the work site. Employers and building and facility owners shall exercise due diligence in complying with these requirements to inform employers and employees about the presence and location of ACM and PACM.

* * * * *

70. On page 41061, in the third column, in § 1910.1001, paragraph (j)(2)(iii) is corrected to read:

* * * * *

(j) * * *

(2) * * *

(iii) Building and facility owners shall inform employers of employees, and employers shall inform employees who will perform housekeeping activities in areas which contain ACM and/or PACM of the presence and location of ACM and/or PACM in such areas which may be contacted during such activities.

* * * * *

71. On page 41061, in the third column, in § 1910.1001, paragraph (j)(3)(ii) is corrected to read:

* * * * *

(j) * * *

(3) * * *

(ii) *Sign specifications.* (A) The warning signs required by paragraph (j)(3) of this section shall bear the following information:

DANGER

ASBESTOS

CANCER AND LUNG DISEASE HAZARD

AUTHORIZED PERSONNEL ONLY

(B) In addition, where the use of respirators and protective clothing is required in the regulated area under this section, the warning signs shall include the following:

RESPIRATORS AND PROTECTIVE CLOTHING

ARE REQUIRED IN THIS AREA

* * * * *

72. On page 41061, in the third column, in § 1910.1001, paragraph (j)(3)(iv), line 5, the number "(1)" is corrected to read "(3)".

73. On page 41061, in the third column, in § 1910.1001, a new paragraph (j)(3)(v) is added to read:

* * * * *

(j) * * *

(3) * * *

(v) At the entrance to mechanical rooms/areas in which employees reasonably can be expected to enter and which contain ACM and/or PACM, the building owner shall post signs which identify the material which is present.

its location, and appropriate work practices which, if followed, will ensure that ACM and/or PACM will not be disturbed.

* * * * *

74. On page 41061, in the third column, in § 1910.1001, paragraph (j)(4)(i), line 5 is corrected by adding three sentences after the word "containers." to read:

* * * * *

(j) * * *

(4) * * *

(i) * * * When a building owner or employer identifies previously installed ACM and/or PACM, labels or signs shall be affixed or posted so that employees will be notified of what materials contain ACM and/or PACM. The employer shall attach such labels in areas where they will clearly be noticed by employees who are likely to be exposed, such as at the entrance to mechanical room/areas. Signs required by paragraph (j)(3) of this section may be posted in lieu of labels so long as they contain information required for labelling.

* * * * *

75. On page 41062, in the first column, in § 1910.1001, paragraph (j)(5), line 9, the number "(4)" is corrected to read "(6)".

76. On page 41062, in the first column, in § 1910.1001, paragraph (j)(6), line 2, the number "(2)" is corrected to read "(4)".

77. On page 41062, in the second column, in § 1910.1001, paragraph (j)(7)(iv), line 3, the words "a facility" are corrected to read "an area".

78. On page 41062, in the second column, in § 1910.1001, paragraph (j)(7)(iv), lines 14 and 15, the words "are or will" are corrected to read "perform housekeeping".

79. On page 41062, in § 1910.1001, paragraph (j)(8)(i), line 11 of the third column, the word "(n)" is corrected to read "(m)".

80. On page 41062, in the third column, in § 1910.1001, paragraph (j)(8)(ii)(A), line 4, the word "asbestos" is corrected to read "ACM".

81. On page 41062, in the third column, in § 1910.1001, paragraph (j)(8)(ii)(A), line 5 is corrected by adding the word "or" after the word "material;".

82. On page 41062, in the third column, in § 1910.1001, paragraph (j)(8)(ii)(B), line 3, the word "asbestos" is corrected to read "ACM".

83. On page 41062, in the third column, in § 1910.1001, paragraph (j)(8)(ii)(B), lines 5 through 7 are corrected to read "analysis of bulk samples collected in the manner described in 40 CFR 763.86. The".

84. On page 41062, in the third column, in § 1910.1001, paragraph (j)(8)(ii)(B), line 17, the word "of" is corrected to read "or".

85. On page 41062, in the third column, in § 1910.1001, paragraph (j)(8)(ii)(B), line 19, the word "of" is corrected to read "or".

86. On page 41062, in the third column, in § 1910.1001, paragraph (j)(8)(iii), the last line, the words "asbestos free" are corrected to read "not ACM".

87. On page 41062, in the third column, in § 1910.1001, paragraph (k)(1), lines 3 and 4 are corrected to read "practicable of ACM waste and debris and accompanying dust.".

88. On page 41062, in the third column, in § 1910.1001, paragraph (k)(4), line 3 is corrected by adding the words "asbestos containing waste and debris" after the word "vacuuming".

89. On page 41063, in the first column above Table 2, in § 1910.1001, paragraph (k)(7)(ii), line 3, the word "speed" is corrected to read "speeds".

90. On page 41063, in the first column above Table 2, in § 1910.1001, paragraph (k)(7)(iv) is correctly designated as paragraph (k)(8), and is corrected to read:

* * * * *

(k) * * *

(8) Waste and debris and accompanying dust in an area containing accessible ACM and/or PACM or visibly deteriorated ACM, shall not be dusted or swept dry, or vacuumed without using a HEPA filter.

* * * * *

91. On page 41063, in the first column above Table 2, in § 1910.1001, paragraph (l) entitled "Medical surveillance" is correctly designated as paragraph (l) entitled "Medical surveillance".

92. On page 41063, in § 1910.1001, paragraph (l)(2)(ii), line 6 in the third column is corrected by adding the words "to this section" after the words "Appendix D".

93. On page 41063, in § 1910.1001, paragraph (l)(3)(ii), in Table 2, in the second column heading under the heading of "Age of employee" the number "40" is corrected to read "45".

94. On page 41063, in the third column below Table 2, in § 1910.1001, paragraph (l)(7)(i)(B), line 4 is corrected by removing the word "and".

95. On page 41063, in the third column below Table 2, in § 1910.1001, paragraph (l)(7)(i)(C), line 6 is corrected by removing the period and by adding "; and" after the word "treatment".

96–97. On page 41064, in the second column, in § 1910.1001, paragraph (m)(5)(iii), line 3, the number "(2)" is corrected to read "(3)".

98. On page 41064, in the third column, in § 1910.1001, paragraph (p)(2), line 1 is corrected by removing the letter "F,".

Appendix B to § 1910.1001 [Corrected]

99. On page 41065, in the first and second columns, in § 1910.1001, in Appendix B, the table is corrected so that the word "Air" is removed from between the double lines both places it appears and added following the word "Matrix".

100. On page 41065, in the second column, in § 1910.1001, in Appendix B, under the heading entitled "*1. Introduction,*" in the definition of "*Asbestos,*" the chemical formula for Crocidolite is corrected to read "$Na_2Fe_3^{2+}Fe_2^{3+}Si_8O_{22}(OH)^2$".

101. On page 41065, in the third column, in § 1910.1001, in Appendix B, in the definition of "*Walton-Beckett Graticule,*" line 4, the "#" sign is corrected to read " ".

102. On page 41065, in the third column, in § 1910.1001, in Appendix B, in the definition of "*Walton-Beckett Graticule,*" line 11, the number "2" is corrected to read "1".

103. On page 41065, in the third column, in § 1910.1001, in Appendix B, in the paragraph under the heading entitled "1.2 Principle," line 6 is corrected by removing the word "a".

104. On page 41066, in the second column, in § 1910.1001, in Appendix B, under the heading entitled "*4. Interferences,*" in the second paragraph, the list of common fibers is corrected to read:

* * * * *

4. Interferences

* * * * *

fiberglass
anhydrite
plant fibers
perlite veins
gypsum
some synthetic fibers
membrane structures
sponge spicules
diatoms
microorganisms
wollastonite

* * * * *

105. On page 41066, in the second column, in § 1910.1001, in Appendix B, under the heading entitled "*5.1.1* Sampling assembly," in the first paragraph, line 8, the number "0.8-" is corrected to read "0.4".

106. On page 41066, in the second column, in § 1910.1001, in Appendix B, under the heading entitled "*5.1.1*

Sampling assembly," a new note (e) is added to read:

* * * * *

5.1.1 * * *

Notes: * * *

(e) Other cassettes, such as the Bell-mouth, may be used within the limits of their validation.

* * * * *

107. On page 41066, in § 1910.1001, in Appendix B, under the heading entitled "*5.1.3* Sampling pump," lines 3 and 4 of the third column, the words "2.5 liters per minute (L/min)" are corrected to read "the collection rate".

108. On page 41066, in the third column, in § 1910.1001, in Appendix B, in the paragraph entitled "*5.2.1,*" line 2 is corrected by removing the words "(see Figure 3)".

109. On page 41066, in the third column, in § 1910.1001, in Appendix B, under the heading entitled "*5.2.5,*" lines 8 and 9 of the "Note" are corrected to read "pressure changes, correct the flow rate using the formula shown in the section "Sampling Pump Flow Rate Corrections" at the end of this appendix.".

110. On page 41067, in the first column, in § 1910.1001, in Appendix B, the paragraph entitled "*5.2.11*" is corrected to read:

* * * * *

5. * * *

5.2 * * *

5.2.11 Attach and secure a sample seal around each sample cassette in such a way as to assure that the end cap and base plugs cannot be removed without destroying the seal. Tape the ends of the seal together since the seal is not long enough to be wrapped end-to-end. Also wrap tape around the cassette at each joint to keep the seal secure.

* * * * *

111. On page 41067, in the first column, in § 1910.1001, in Appendix B, in the paragraph entitled "*5.3.2,*" the last line, the words "without rattling" are corrected to read "in such a manner that they will not rattle".

112. On page 41067, in the second column, in § 1910.1001, in Appendix B, under the heading entitled "6.5 Sample Mounting," the paragraph following the Note is corrected by removing the sentence, "A drawing is shown in Figure 4.".

113. On page 41068, in the first column, in § 1910.1001, in Appendix B, under the heading entitled "*6.6.2* Counting Fibers," paragraph (9), the last line, the number "2" is corrected to read "1".

114. On page 41068, in the third column, in § 1910.1001, in Appendix B, under the heading entitled "7.3. Recount Calculations," the formula in the third paragraph is corrected to read:

* * * * *

7.3 Recount Calculations

* * * * *

$$\left|\sqrt{AC_2}-\sqrt{AC_1}\right| > 2.78 \times\left(\sqrt{AC_{AVG}}\right)\times CV_{FB}$$

* * * * *

115. On page 41069, in the second column, in § 1910.1001, in Appendix B, under the heading entitled "*Quality Control,*" in the first paragraph, lines 6 and 7 are corrected by removing the words "for the CV curve shown below".

116. On page 41069, in the third column, in § 1910.1001, in Appendix B, under the heading entitled "*Walton-Beckett Graticule,*" paragraph (7), line 12 is corrected to read "Field Area = $\pi(D/2)^2$".

Appendix F to § 1910.1001 [Corrected]

117. On page 41070, in the first column, in § 1910.1001, in Appendix F, in the introductory paragraph, line 7 is corrected by adding the words "by trained employees" after the word "practices".

118. On page 41070, in the third column, in § 1910.1001, in Appendix F, under the heading entitled "*[A] Negative Pressure Enclosure/HEPA Vacuum System Method,*" paragraph (6), line 5, the words "paragraph (j)(2)(ii)" are corrected to read "paragraph (j)(4)".

119. On page 41070, in the third column, in § 1910.1001, in Appendix F, under the heading entitled "*[A] Negative Pressure Enclosure/HEPA Vacuum System Method,*" paragraph (7), line 5, the word "the" is corrected to read "this".

120. On page 41071, in the first column, in § 1910.1001, in Appendix F, under the heading entitled "*[B] Low Pressure/Wet Cleaning Method,*" paragraph (6), line 5, the words "paragraph (j)(2)(ii)" are corrected to read "paragraph (j)(4)".

121. On page 41071, in the first column, in § 1910.1001, in Appendix F, under the heading entitled "*[C] Equivalent Methods,*" line 12, the number "0.004" is corrected to read "0.016".

122. On page 41071, in the first column, in § 1910.1001, in Appendix F, under the heading entitled "*[D] Wet Method,*" paragraph (2), line 3, the words "paragraph (j)(2)(ii) of the standard" are corrected to read "paragraph (j)(4) of this section".

123. On page 41071, in the first column, in § 1910.1001, in Appendix F, under the heading entitled "*[D] Wet Method,*" paragraph (2), lines 4 and 5, the words "the standard" are corrected to read "this section".

124. On page 41071, in the first column, in § 1910.1001, in Appendix F, under the heading entitled "*[D] Wet Method,*" paragraph (3), line 4, the words "the standard" are corrected to read "this section".

Appendix G to § 1910.1001 [Corrected]

125. On page 41071, in the second column, in § 1910.1001, in Appendix G, paragraph III.B., line 3, the word "to" is corrected to read "the".

Appendix J to § 1910.1001 [Corrected]

126. On page 41071, in the second column, in § 1910.1001, in Appendix J, line 3 of the title is corrected by removing a closed parenthesis after the word "Non-Mandatory".

127. On page 41073, in the second column, in § 1910.1001, in Appendix J, under the heading entitled "1.8 Toxicology," the last line in the paragraph is corrected by adding the words "and 29 CFR 1915.1001" after the number "1928.1101".

128. On page 41073, in the third column, in § 1910.1001, in Appendix J, under the heading entitled "2.4 Shipment," paragraph (a), line 2 is corrected by removing the words "(such as the OSHA 21)".

129. On page 41078, in the first column, in § 1910.1001, in Appendix J, the heading entitled "*Auxiliary Information*" is correctly designated as "*4. Auxiliary Information*".

130. On page 41078, in the second column, in § 1910.1001, in Appendix J, the paragraph under the heading entitled "4.3 Polarized Light Technique," beginning on line 10, is corrected by removing the sentence, "A compensator is a piece of mineral with known properties that "compensates" for some deficiency in the optical train.".

§ 1915.1001 [Corrected]

131. On page 41080, in the first column, in § 1915.1001, the Authority citation, line 7, the word "(41 FR 35736)" is corrected to read "(41 FR 25059), 9–83 (48 FR 35736),".

132. On page 41080, in the second column, in § 1915.1001, paragraph (b), the definition of "*Building/facility owner*" is corrected to read:

* * * * *

(b) * * *

Building/facility/vessel owner is the legal entity, including a lessee, which exercises control over management and record keeping functions relating to a building, facility, and/or vessel in

which activities covered by this standard take place.

* * * * *

133. On page 41080, in the second column, in § 1915.1001, paragraph (b), the definition of "*Certified Industrial Hygienist,*" line 3 is corrected by removing the word "comprehensive".

134. On page 41080, in the third column, in § 1915.1001, paragraph (b), the definition of "*Class IV asbestos work*" is corrected to read:

* * * * *

(b) * * *

Class IV asbestos work means maintenance and custodial activities during which employees contact but do not disturb ACM or PACM and activities to clean up dust, waste and debris resulting from Class I, II, and III activities.

* * * * *

135. On page 41080, in the third column, in § 1915.1001, paragraph (b), the definition of "*Disturbance,*" the first sentence is corrected to read:

* * * * *

(b)* * *

Disturbance means activities that disrupt the matrix of ACM or PACM, crumble or pulverize ACM or PACM, or generate visible debris from ACM or PACM.* * *

* * * * *

136. On page 41081, in the first column, in § 1915.1001, paragraph (b), the definition of "*Glovebag,*" line 1, the word "an" is corrected to read "not more than a 60 x 60 inch".

137. On page 41081, in the first column, in § 1915.1001, paragraph (b), the definition of "*Intact,*" line 3, the word "it" is corrected to read "the asbestos".

138. On page 41081, in the first column, in § 1915.1001, paragraph (b), the definition of "*Modification,*" line 2, the words "paragraph (g)(6)(2)" are corrected to read "paragraph (g)(6)(ii) of this section".

139. On page 41081, in the first column, in § 1915.1001, paragraph (b), the definition of "*Modification,*" line 12 is corrected by removing the number "(ii)".

140. On page 41081, in the first column, in § 1915.1001, paragraph (b), the definition of "*Negative Initial Exposure Assessment,*" line 4, the words "paragraph (f)(iii)" are corrected to read "paragraph (f)(2)(iii)".

141. On page 41081, in the first column, in § 1915.1001, paragraph (b), the definition of "*Presumed Asbestos Containing Material,*" line 7, the number "(4)" is corrected to read "(5)".

142. On page 41081, in the first column, in § 1915.1001, paragraph (b), the definition of "*Qualified person*" is corrected to read:

* * * * *

(b) * * *

Qualified person means, in addition to the definition in 29 CFR 1926.32(f), one who is capable of identifying existing asbestos hazards in the workplace and selecting the appropriate control strategy for asbestos exposure, who has the authority to take prompt corrective measures to eliminate them, as specified in 29 CFR 1926.32(f); in addition, for Class I and Class II work who is specially trained in a training course which meets the criteria of EPA's Model Accreditation Plan (40 CFR part 763) for supervisor, or its equivalent, and for Class III and Class IV work, who is trained in a manner consistent with EPA requirements for training of local education agency maintenance and custodial staff as set forth at 40 CFR 763.92(a)(2).

* * * * *

143. On page 41081, in the second column, in § 1915.1001, paragraph (b), the definition of "*Regulated area,*" line 12 is corrected by removing the number "(6)".

144. On page 41081, in the second column, in § 1915.1001, paragraph (c)(1), line 8, the word "of" is corrected to read "to".

145. On page 41081, in § 1915.1001, paragraph (c)(2), line 5 of the third column, the word "of" is corrected to read "to".

146. On page 41081, in the third column, in § 1915.1001, paragraph (d)(3), line 13 is corrected by removing the number "(1)".

147. On page 41082, in the first column, in § 1915.1001, paragraph (e)(2), line 6 is corrected by removing the words "concentrations of".

148. On page 41082, in the first column, in § 1915.1001, paragraph (e)(2), line 12, the number "(6)" is corrected to read "(7)".

149. On page 41082, in the first column, in § 1915.1001, paragraph (e)(4), line 3, the number "(2)" is corrected to read "(1)".

150. On page 41082, in the first column, in § 1915.1001, paragraph (f)(1)(i), line 2, the word "of" is corrected to read "or".

151–154. On page 41082, in the second column, in § 1915.1001, paragraph (f)(2)(ii) is corrected to read:

* * * * *

(f) * * *

(2) * * *

(ii) Basis of Initial Exposure Assessment: Unless a negative exposure assessment has been made pursuant to paragraph (f)(2)(iii) of this section, the initial exposure assessment shall, if feasible, be based on monitoring conducted pursuant to paragraph (f)(1)(iii) of this section. The assessment shall take into consideration both the monitoring results and all observations, information or calculations which indicate employee exposure to asbestos, including any previous monitoring conducted in the workplace, or of the operations of the employer which indicate the levels of airborne asbestos likely to be encountered on the job. For Class I asbestos work, until the employer conducts exposure monitoring and documents that employees on that job will not be exposed in excess of the PELs, or otherwise makes a negative exposure assessment pursuant to paragraph (f)(2)(iii) of this section, the employer shall presume that employees are exposed in excess of the TWA and excursion limit.

(iii) * * *

* * * * *

155. On page 41082, in the third column, in § 1915.1001, paragraph (f)(3)(iii), line 4 is corrected to read, "operated in the pressure demand mode, or other positive pressure mode respirator,".

156. On page 41082, in the third column, in § 1915.1001, paragraph (f)(4), line 1 is corrected to read, "(4) *Termination of monitoring.* (i) If".

157. On page 41083, in § 1915.1001, paragraph (f)(4)(i), line 3 of the first column, the word "measurement" is corrected to read "measurements".

158. On page 41083, in the first column, in § 1915.1001, paragraph (f)(5) is redesignated as paragraph (f)(6) and a new paragraph (f)(5) is added to read:

* * * * *

(f) * * *

(5) *Employee notification of monitoring results.* (i) The employer shall notify affected employees of the monitoring results that represent that employee's exposure as soon as possible following receipt of monitoring results.

(ii) The employer shall notify affected employees of the results of monitoring representing the employee's exposure in writing either individually or by posting at a centrally located place that is accessible to affected employees.

* * * * *

159. On page 41083, in the first column, in § 1915.1001, paragraph (g)(1)(i) is corrected to read:

* * * * *

(g) * * *

(1) * * *

(i) Vacuum cleaners equipped with HEPA filters to collect all debris and dust containing ACM and PACM, except

as provided in paragraph (g)(8)(ii) of this section in the case of roofing material;

* * * * *

160. On page 41083, in the first column, in § 1915.1001, paragraph (g)(1)(ii), lines 9 and 10, the words "slipping hazards;" are corrected to read "except as provided in paragraph (g)(8)(ii) of this section;".

161. On page 41083, in the first column, in § 1915.1001, paragraph (g)(1)(iii), line 3 is corrected by adding the words "except in roofing operations, where the procedures specified in paragraph (g)(8)(ii) of this section apply" after the word "containers".

162. On page 41083, in the third column, in § 1915.1001, paragraph (g)(4)(ii)(A) is corrected to read:

* * * * *

(g) * * *
(4) * * *
(ii) * * *

(A) Critical barriers shall be placed over all the openings to the regulated area, except where activities are performed outdoors; or

* * * * *

163. On page 41083, in the third column, in § 1915.1001, paragraph (g)(4)(ii)(B), line 13 is corrected by adding the words "Phase Contrast Microscopy" before the word "(PCM)".

164. On page 41083, in the third column, in § 1915.1001, paragraph (g)(4)(ii)(B) is corrected by adding the following sentence to the end of the paragraph, "Exception: For work completed outdoors where employees are not working in areas adjacent to the regulated areas, this paragraph (g)(4)(ii) is satisfied when the specific control methods in paragraph (g)(5) of this section are used.".

165. On page 41083, in the third column, in § 1915.1001, paragraph (g)(5)(i) introductory text, line 2, the word "shall" is corrected to read "may".

166. On page 41084, in the first column, in § 1915.1001, paragraph (g)(5)(i)(B)(*1*), line 3 is corrected by adding the word "be" after the word "shall".

167. On page 41084, in the first column, in § 1915.1001, paragraph (g)(5)(ii) introductory text is corrected to read:

* * * * *

(g) * * *
(5) * * *

(ii) Glove bag systems may be used to remove PACM and/or ACM from straight runs of piping and elbows and other connections with the following specifications and work practices:

* * * * *

168. On page 41084, in the first column, in § 1915.1001, paragraph (g)(5)(ii)(A)(*2*) is corrected to read:

* * * * *

(g) * * *
(5) * * *
(ii) * * *
(A) * * *

(*2*) Glovebags used on elbows and other connections must be designed for that purpose and used without modifications.

* * * * *

169. On page 41084, in the first column, in § 1915.1001, paragraph (g)(5)(ii)(B)(*4*), line 3, the number "150°" is corrected to read "150°F".

170. On page 41084, in the first column, in § 1915.1001, paragraph (g)(5)(ii)(B)(*9*), line 2, the word "removals" is corrected to read "removal operations".

171. On page 41084, in the second column, in § 1915.1001, paragraph (g)(5)(iii) introductory text, line 3, the word "shall" is corrected to read "may".

172. On page 41084, in the second column, in § 1915.1001, paragraph (g)(5)(iii)(A), line 2, the word "bags" is corrected to read "bag".

173. On page 41084, in the second column, in § 1915.1001, paragraph (g)(5)(iii)(B)(*1*), line 3, the number "(2)" is corrected to read "(*4*)".

174. On page 41084, in the second column, in § 1915.1001, paragraph (g)(5)(iii)(B)(*2*), line 4 is corrected by adding the words "until it is completed at which time the bag shall be collapsed prior to removal of the bag from the pipe" after the word "operation".

175. On page 41084, in the second column, in § 1915.1001, paragraph (g)(5)(iv) introductory text, line 3, the word "shall" is corrected to read "may".

176. On page 41084, in the second column, in § 1915.1001, paragraph (g)(5)(iv)(A)(*2*), line 2 is corrected by adding the word "the" after the word "in".

177. On page 41084, in the second column, in § 1915.1001, paragraph (g)(5)(iv)(B)(*2*) is corrected to read:

* * * * *

(g) * * *
(5) * * *
(iv) * * *
(B) * * *

(*2*) The box shall be smoke-tested for leaks and any leaks sealed prior to each use.

* * * * *

178. On page 41084, in the third column, in § 1915.1001, paragraph (g)(5)(vi)(C) is correctly designated as paragraph (g)(5)(vi)(B).

179. On page 41084, in the third column, newly designated paragraph (g)(5)(vi)(B)(*1*) is corrected to read:

* * * * *

(g) * * *
(5) * * *
(vi) * * *
(B) * * *

(*1*) Before use, the mini-enclosure shall be inspected for leaks and smoke-tested to detect breaches, and any breaches sealed.

* * * * *

180. On page 41084, in the third column, in § 1915.1001, newly designated paragraph (g)(5)(vi)(B)(*3*), line 1 is corrected by adding a comma after the word "use".

181–182. On page 41084, in the third column, in § 1915.1001, newly designated paragraph (g)(5)(vi)(B)(*3*), line 4, the word "minienclosure" is corrected to read "mini-enclosure".

183. On page 41085, in the first column, in § 1915.1001, paragraph (g)(6)(ii) introductory text, line 20, the words "(g)(4)(i)(B)(*2*)" are corrected to read "(g)(4)(ii)(B)".

184. On page 41085, in the first column, in § 1915.1001, paragraph (g)(6)(iii), line 6 is corrected by adding the words "of this section" after the words "paragraph (g)(6)".

185. On page 41085, in the first column, in § 1915.1001, paragraph (g)(6)(iii), line 10, the word "Supportm" is corrected to read "Support".

186. On page 41085, in the first column, in § 1915.1001, paragraph (g)(6)(iii) is corrected by adding a sentence to the end of the paragraph to read, "The submission shall not constitute approval by OSHA.".

187. On page 41085, in the first column, in § 1915.1001, paragraph (g)(7)(i), line 1 is corrected by removing the comma after the word "work".

188. On page 41085, in the first column, in § 1915.1001, paragraph (g)(7)(ii) introductory text, line 4, the number "(4)" is corrected to read "(2)".

189. On page 41085, in the first column, in § 1915.1001, paragraph (g)(7)(ii) introductory text, line 5 is corrected by adding a comma after the word "job".

190. On page 41085, in the second column, in § 1915.1001, paragraph (g)(7)(ii)(B), line 8, the words "(g)(4)(i)(B)(2)" are corrected to read "(g)(4)(ii)(B)".

191. On page 41085, in the second column, in § 1915.1001, paragraph (g)(7)(iv), line 4, the words "(g)(3)(i) through (v)" are corrected to read "(g)(1)(i) through (g)(1)(iii)".

192. On page 41085, in the second column, in § 1915.1001, paragraph

(g)(8)(i) introductory text, line 11, the number "(8)" is corrected to read "(9)".

193. On page 41085, in the second column, in § 1915.1001, paragraph (g)(8)(i)(F), line 4, the number "(iv)" is corrected to read "(i)".

194. On page 41085, in the third column, in § 1915.1001, paragraph (g)(8)(ii)(B) is corrected to read:

* * * * *

(g) * * *
(8) * * *
(ii) * * *

(B) Wet methods shall be used to remove roofing materials that are not intact, or that will be rendered not intact during removal, unless such wet methods are not feasible or will create safety hazards.

* * * * *

195. On page 41085, in the third column, in § 1915.1001, paragraph (g)(8)(ii)(D) is corrected to read:

* * * * *

(g) * * *
(8) * * *
(ii) * * *

(D) When removing built-up roofs with asbestos-containing roofing felts and an aggregate surface using a power roof cutter, all dust resulting from the cutting operation shall be collected by a HEPA dust collector, or shall be HEPA vacuumed by vacuuming along the cut line. When removing built-up roofs with asbestos-containing roofing felts and a smooth surface using a power roof cutter, the dust resulting from the cutting operation shall be collected either by a HEPA dust collector or HEPA vacuuming along the cut line, or by gently sweeping and then carefully and completely wiping up the still-wet dust and debris left along the cut line. The dust and debris shall be immediately bagged or placed in covered containers.

* * * * *

196. On page 41085, in the third column, in § 1915.1001, paragraph (g)(8)(ii)(E) is corrected to read:

* * * * *

(g) * * *
(8) * * *
(ii) * * *

(E) Asbestos-containing material that has been removed from a roof shall not be dropped or thrown to the ground. Unless the material is carried or passed to the ground by hand, it shall be lowered to the ground via covered, dust-tight chute, crane or hoist:

(*1*) Any ACM that is not intact shall be lowered to the ground as soon as is practicable, but in any event no later than the end of the work shift. While the material remains on the roof it shall either be kept wet, placed in an impermeable waste bag, or wrapped in plastic sheeting.

(*2*) Intact ACM shall be lowered to the ground as soon as is practicable, but in any event no later than the end of the work shift.

* * * * *

197. On page 41085, in the third column, in § 1915.1001, a new paragraph (g)(8)(ii)(H) is added to read:

* * * * *

(g) * * *
(8) * * *
(ii) * * *

(H) Notwithstanding any other provision of this section, removal or repair of sections of intact roofing less than 25 square feet in area does not require use of wet methods or HEPA vacuuming as long as manual methods which do not render the material non-intact are used to remove the material and no visible dust is created by the removal method used. In determining whether a job involves less than 25 square feet, the employer shall include all removal and repair work performed on the same roof on the same day.

* * * * *

198. On page 41085, in the third column, in § 1915.1001, paragraph (g)(8)(iii) introductory text is corrected to read:

* * * * *

(g) * * *
(8) * * *

(iii) When removing cementitious asbestos-containing siding and shingles or transite panels containing ACM on building exteriors (other than roofs, where paragraph (g)(8)(ii) of this section applies) the employer shall ensure that the following work practices are followed:

* * * * *

199. On page 41086, in the first column, in § 1915.1001, paragraph (g)(8)(v)(A), line 2 is corrected by adding the word "to" after the word "prior".

200. On page 41086, in the second column, in § 1915.1001, paragraph (g)(9)(iii), line 9 is corrected by adding the words "or another isolation method" after the word "section".

201. On page 41086, in the second column, in § 1915.1001, paragraph (g)(9)(iv), line 4, the number "(4)" is corrected to read "(2)".

202. On page 41086, in the second column, in § 1915.1001, paragraph (g)(9)(v), line 7, the words "paragraph (e)(4)(iii)" are corrected to read "paragraph (f)(2)(iii)".

203. On page 41086, in the second column, in § 1915.1001, paragraph (g)(10) introductory text, line 5, the number "(8)" is corrected to read "(9)".

204. On page 41086, in the third column, in § 1915.1001, paragraph (g)(11)(ii), line 19 is corrected by adding the words "to this section" after the words "Appendix L".

205. On page 41086, in the third column, in § 1915.1001, a new paragraph (g)(12) is added to read:

* * * * *

(g) * * *

(12) Alternative methods of compliance for installation, removal, repair, and maintenance of certain roofing materials. Notwithstanding any other provision of this section, an employer who complies with all provisions of this paragraph (g)(12) when installing, removing, repairing, or maintaining intact roof cements, mastics, coatings, or flashings which contain asbestos fibers encapsulated or coated by bituminous or resinous compounds shall be deemed to be in compliance with this section. If an employer does not comply with all provisions of this paragraph (g)(12), or if during the course of the job the material does not remain intact, the provisions of paragraph (g)(8) of this section apply instead of this paragraph (g)(12).

(i) Before work begins and as needed during the job, a qualified person who is capable of identifying asbestos hazards in the workplace and selecting the appropriate control strategy for asbestos exposure, and who has the authority to take prompt corrective measures to eliminate such hazards, shall conduct an inspection of the worksite and determine that the roofing material is intact and will likely remain intact.

(ii) All employees performing work covered by this paragraph (g)(12) shall be trained in a training program that meets the requirements of paragraph (k)(9)(viii) of this section.

(iii) The material shall not be sanded, abraded, or ground. Manual methods which do not render the material non-intact shall be used.

(iv) Material that has been removed from a roof shall not be dropped or thrown to the ground. Unless the material is carried or passed to the ground by hand, it shall be lowered to the ground via covered, dust-tight chute, crane or hoist. All such material shall be removed from the roof as soon as is practicable, but in any event no later than the end of the work shift.

(v) Where roofing products which have been labeled as containing asbestos pursuant to paragraph (k)(8) of this section are installed on non-residential roofs during operations covered by this paragraph (g)(12), the employer shall notify the building owner of the

presence and location of such materials no later than the end of the job.

* * * * *

206. On page 41086, in the third column, in § 1915.1001, paragraph (h)(1)(iii) is corrected to read:

* * * * *

(h) * * *

(1) * * *

(iii) During all Class II and III work which is not performed using wet methods, provided, however, that respirators need not be worn during removal of ACM from sloped roofs when a negative exposure assessment has been made and the ACM is removed in an intact state.

* * * * *

207. On page 41087, in the first column above Table 1, in § 1915.1001, paragraph (h)(2)(i), line 5 is corrected by adding the words "or in paragraph (h)(2)(iii) of this section," after the word "Table 1,".

208. On page 41087, in the third column above Table 1, in § 1915.1001, paragraph (h)(2)(iii)(A) is corrected to read:

* * * * *

(h) * * *

(2) * * *

(iii) * * *

(A) An employee chooses to use this type of respirator; and

* * * * *

209. On page 41087, in § 1915.1001, paragraph (h)(2), in Table 1, lines 1 through 3 under the heading "Airborne concentration of asbestos or conditions of use" are corrected to read "Not in excess of 1 f/cc (10 X PEL), or otherwise as required independent of exposure pursuant to paragraph (h)(2)(iv) of this section.".

210. On page 41087, in the first column below Table 1, in § 1915.1001, paragraph (h)(2)(v), line 5, the word "auxiliar76y" is corrected to read "auxiliary".

211. On page 41087, in the second column below Table 1, in § 1915.1001, paragraph (h)(3)(iv), line 10, the word "employee" is corrected to read "employees".

212. On page 41087, in the second column below Table 1, in § 1915.1001, paragraph (h)(3)(iv), line 12 is corrected by adding a comma after the word "position".

213. On page 41087, in § 1915.1001, paragraph (h)(4)(ii), line 2 of the third column below Table 1, the word "of" is corrected to read "to".

214. On page 41087, in § 1915.1001, paragraph (h)(4)(ii), line 6 of the third column below Table 1, the number "(iii)" is corrected to read "(i)".

215. On page 41087, in the third column below Table 1, in § 1915.1001, paragraph (i)(1), line 12, the word "and" is corrected to read "or".

216. On page 41088, in the first column, in § 1915.1001, paragraph (j)(1) introductory text, line 3 is corrected by adding the words "involving over 25 linear or 10 square feet of TSI or surfacing ACM and PACM" after the word "jobs".

217. On page 41088, in § 1915.1001, paragraph (j)(1)(i)(C), line 9 of the second column is corrected by removing the word "Such" and adding the words "Following showering, such" in its place.

218. On page 41088, in the third column, in § 1915.1001, paragraph (j)(2)(iii), line 1, the word "Workclothing" is corrected to read "Work clothing".

219. On page 41088, in the third column, in § 1915.1001, paragraph (k), line 2, the word "Note:" is removed and the text is correctly designated as paragraph (k)(1).

220. On page 41088, in the third column, in § 1915.1001, newly designated paragraph (k)(1), lines 15 and 16, the words "are required to treat" are corrected to read "shall identify".

221. On page 41088, in the third column, in § 1915.1001, newly designated paragraph (k)(1), line 19, the number "(4)" is corrected to read "(5)".

222. On page 41088, in the third column, in § 1915.1001, newly designated paragraph (k)(1), line 25, the words "paragraph (g), of this section" are corrected to read "paragraph (g)(8)(i)(I) of this section.".

223. On page 41089, 8 lines from the top of the first column, in § 1915.1001, paragraph (k)(1) is redesignated as paragraph (k)(2).

224. On page 41089, in the first column, in § 1915.1001, newly redesignated paragraph (k)(2)(i) is corrected to read:

* * * * *

(k) * * *

(2) * * *

(i) Before work subject to this standard is begun, building/vessel and facility owners shall determine the presence, location, and quantity of ACM and/or PACM at the work site pursuant to paragraph (k)(1) of this section.

* * * * *

225. On page 41089, 23 lines from the bottom of the first column, in § 1915.1001, paragraph (k)(2) is redesignated as paragraph (k)(3).

226. On page 41089, in the first column, in § 1915.1001, newly redesignated paragraph (k)(3)(i), line 5 is corrected by adding the words "pursuant to paragraph (k)(1) of this section" after the word "therein".

227. On page 41089, 15 lines from the top of the second column, in § 1915.1001, paragraph (k)(3) is redesignated as paragraph (k)(4).

228. On page 41089, 25 lines from the top of the second column, in § 1915.1001, paragraph (k)(4) is redesignated as paragraph (k)(5).

229. On page 41089, in the second column, in § 1915.1001, newly redesignated paragraph (k)(5)(i), line 11, the number "(4)" is corrected to read "(5)".

230. On page 41089, in the second column, in § 1915.1001, newly redesignated paragraph (k)(5)(ii) introductory text, line 3 is corrected by adding the words "more than 1%" after the word "contain".

231. On page 41089, in the second column, in § 1915.1001, newly redesignated paragraph (k)(5)(ii)(A), line 5 is corrected by adding the word "or" after the word "ACM;".

232. On page 41089, in the second column, in § 1915.1001, newly redesignated paragraph (k)(5)(ii)(B), line 3, the word "asbestos" is corrected to read "ACM".

233. On page 41089, in the second column, in § 1915.1001, newly redesignated paragraph (k)(5)(ii)(B), lines 5 through 7 are corrected to read, "analysis of bulk samples collected in the manner described in 40 CFR 763.86. The".

234. On page 41089, in the second column, in § 1915.1001, newly redesignated paragraph (k)(5)(ii)(B), line 17, the word "of" is corrected to read "or".

235. On page 41089, in the second column, in § 1915.1001, newly redesignated paragraph (k)(5)(ii)(B), line 19, the word "of" is corrected to read "or".

236. On page 41089, in the third column, in § 1915.1001, a new paragraph (k)(5)(iii) is added to read:

* * * * *

(k) * * *

(5) * * *

(iii) The employer and/or building/vessel owner may demonstrate that flooring material including associated mastic and backing does not contain asbestos, by a determination of an industrial hygienist based upon recognized analytical techniques showing that the material is not ACM.

* * * * *

237. On page 41089, 5 lines from the top of the third column, in § 1915.1001, paragraph (k)(5) is redesignated as paragraph (k)(6).

238. On page 41089, in the third column, in § 1915.1001, newly redesignated paragraph (k)(6), lines 4

and 5, the words "TSI or surfacing ACM and PACM" are corrected to read "ACM and/or PACM".

239. On page 41089, 15 lines from the top of the third column, in § 1915.1001, paragraph (k)(6) is redesignated as paragraph (k)(7).

240. On page 41089, in the third column, in § 1915.1001, newly redesignated paragraph (k)(7)(ii) is corrected to read:

* * * * *

(k) * * *

(7) * * *

(ii)(A) The warning signs required by paragraph (k)(7) of this section shall bear the following information:

DANGER

ASBESTOS

CANCER AND LUNG DISEASE HAZARD

AUTHORIZED PERSONNEL ONLY

(B) In addition, where the use of respirators and protective clothing is required in the regulated area under this section, the warning signs shall include the following:

RESPIRATORS AND PROTECTIVE CLOTHING ARE REQUIRED IN THIS AREA

* * * * *

241. On page 41089, in the third column, in § 1915.1001, a new paragraph (k)(7)(iii) is added to read:

* * * * *

(k) * * *

(7) * * *

(iii) The employer shall ensure that employees working in and contiguous to regulated areas comprehend the warning signs required to be posted by paragraph (k)(7)(i) of this section. Means to ensure employee comprehension may include the use of foreign languages, pictographs and graphics.

* * * * *

242. On page 41089, 32 lines from the bottom of the third column, in § 1915.1001, paragraph (k)(7) is redesignated as paragraph (k)(8).

243. On page 41089, in the third column, in § 1915.1001, newly redesignated paragraph (k)(8)(vi) introductory text, lines 2 and 3, the words "paragraphs (k)(2)(i) through (k)(2)(iii)" are corrected to read "paragraphs (k)(8)(i) through (k)(8)(iii)".

244. On page 41090, in the first column, in § 1915.1001, newly redesignated paragraph (k)(8)(vi)(B), lines 2 and 3 are corrected by removing the words "by weight".

245. On page 41090, in the first column, in § 1915.1001, newly redesignated paragraph (k)(8)(vii), line 12, the number "(5)" is corrected to read "(6)".

246. On page 41090, in the first column, in § 1915.1001, paragraph (k)(8) is redesignated as paragraph (k)(9) and is corrected to read:

* * * * *

(k) * * *

(9) *Employee Information and Training.* (i) The employer shall, at no cost to the employee, institute a training program for all employees who are likely to be exposed in excess of a PEL and for all employees who perform Class I through IV asbestos operations, and shall ensure their participation in the program.

(ii) Training shall be provided prior to or at the time of initial assignment and at least annually thereafter.

(iii) Training for Class I operations shall be the equivalent in curriculum, training method and length to the EPA Model Accreditation Plan (MAP) asbestos abatement workers training (40 CFR part 763, subpart E, appendix C).

(iv) Training for Class II work. For work with asbestos containing material involving roofing materials, flooring materials, siding materials, ceiling tiles, or transite panels, training shall include at a minimum all the elements included in paragraph (k)(9)(viii) of this section and in addition, the specific work practices and engineering controls set forth in paragraph (g) of this section which specifically relate to that category. Such course shall include "hands-on" training and shall take at least 8 hours. Exception: For other Class II operations, training shall be provided which shall include at a minimum all the elements included in paragraph (k)(9)(viii) of this section and in addition, the specific work practices and engineering controls set forth in paragraph (g) of this section which specifically relate to that category, and shall include "hands-on" training.

(v) Training for Class III employees shall be consistent with EPA requirements for training of local education agency maintenance and custodial staff as set forth at 40 CFR 763.92(a)(2). Such a course shall also include "hands-on" training and shall take at least 16 hours. Exception: For Class III operations for which the qualified person determines that the EPA curriculum does not adequately cover the training needed to perform that activity, training shall include as a minimum all the elements included in paragraph (k)(9)(viii) of this section and in addition, the specific work practices and engineering controls set forth in paragraph (g) of this section which specifically relate to that activity, and shall include "hands-on" training.

(vi) Training for employees performing Class IV operations shall be consistent with EPA requirements for training of local education agency maintenance and custodial staff as set forth at 40 CFR 763.92(a)(1). Such a course shall include available information concerning the locations of thermal system insulation and surfacing ACM/PACM, and asbestos-containing flooring material, or flooring material where the absence of asbestos has not yet been certified; and instruction in recognition of damage, deterioration, and delamination of asbestos containing building materials. Such course shall take at least 2 hours.

(vii) Training for employees who are likely to be exposed in excess of the PEL and who are not otherwise required to be trained under paragraph (k)(9) (iii) through (vi) of this section, shall meet the requirements of paragraph (k)(9)(viii) of this section.

(viii) The training program shall be conducted in a manner that the employee is able to understand. In addition to the content required by provisions in paragraphs (k)(9) (iii) through (vi) of this section, the employer shall ensure that each such employee is informed of the following:

(A) Methods of recognizing asbestos, including the requirement in paragraph (k)(1) of this section to presume that certain building materials contain asbestos;

(B) The health effects associated with asbestos exposure;

(C) The relationship between smoking and asbestos in producing lung cancer;

(D) The nature of operations that could result in exposure to asbestos, the importance of necessary protective controls to minimize exposure including, as applicable, engineering controls, work practices, respirators, housekeeping procedures, hygiene facilities, protective clothing, decontamination procedures, emergency procedures, and waste disposal procedures, and any necessary instruction in the use of these controls and procedures; where Class III and IV work will be or is performed, the contents of EPA 20T–2003, "Managing Asbestos In-Place" July 1990 or its equivalent in content;

(E) The purpose, proper use, fitting instructions, and limitations of respirators as required by 29 CFR 1910.134;

(F) The appropriate work practices for performing the asbestos job;

(G) Medical surveillance program requirements;

(H) The content of this standard including appendices;

(l) The names, addresses and phone numbers of public health organizations which provide information, materials and/or conduct programs concerning smoking cessation. The employer may distribute the list of such organizations contained in Appendix J to this section, to comply with this requirement; and

(j) The requirements for posting signs and affixing labels and the meaning of the required legends for such signs and labels.

* * * * *

247. On page 41090, 8 lines from the top of the third column, paragraph (k)(9) is redesignated as paragraph (k)(10).

248. On page 41090, in the third column, in § 1915.1001, newly redesignated paragraph (k)(10)(i), line 4 is corrected by adding a comma after the word "cost".

249. On page 41090, in the third column, in § 1915.1001, newly redesignated paragraph (k)(10)(iii), line 10 is corrected by adding the words "to this section" after the words "Appendix J".

250. On page 41090, in the third column, in § 1915.1001, paragraph (l) entitled "Housekeeping" is correctly designated as paragraph (l) entitled "*Housekeeping*".

251. On page 41090, in the third column, in § 1915.1001, paragraph (l)(2), line 7 is corrected by adding the words "except in roofing operations, where the procedures specified in paragraph (g)(8)(ii) of this section apply" after the word "containers".

252. On page 41090, in the third column, in § 1915.1001, paragraph (l)(3)(i), line 6, the words "paragraph (g)" are corrected to read "paragraph (g)(8)(i)(f) of this section".

253. On page 41090, in the third column, in § 1915.1001, the three paragraphs following the first paragraph (l)(3)(i) are redesignated as paragraphs (l)(3)(ii), (l)(3)(iii), and (l)(3)(iv), respectively.

254. On page 41090, in the third column, in § 1915.1001, in newly redesignated paragraph (l)(3)(iii), line 3, the word "speed" is corrected to read "speeds".

255. On page 41090, in the third column, in § 1915.1001, paragraph (l)(4) introductory text is corrected to read:

* * * * * *

(l) * * *

(4) Waste and debris and accompanying dust in an area containing accessible thermal system insulation or surfacing ACM/PACM or visibly deteriorated ACM:.

* * * * * *

256. On page 41091, in the first column, in § 1915.1001, paragraph (l)(4)(ii), line 2 is corrected by adding the word "of" after the word "disposed".

257. On page 41091, in the first column, in § 1915.1001, paragraph (m)(1)(i), is corrected to read:

* * * * * *

(m) * * *

(1) * * *

(i) *Employees covered.* (A) The employer shall institute a program for all employees who, for a combined total of 30 or more days per year, are engaged in Class I, II, or III work or are exposed at or above the permissible exposure limit for a combined 30 days or more per year. For purposes of this subparagraph, any day in which a worker engages in Class II or Class III work or a combination thereof for one hour or less and, while doing so, adheres fully to the work practices specified in this standard, shall not be counted.

(B) For employees otherwise required by this standard to wear a negative pressure respirator, employers shall ensure employees are physically able to perform the work and use the equipment. This determination shall be made under the supervision of a physician.

* * * * * *

258. On page 41091, in the first column, in § 1915.1001, paragraph (m)(1)(ii), line 1 is corrected by removing the words "by a physician".

259. On page 41091, in the first column, in § 1915.1001, paragraph (m)(2)(i)(B) is corrected to read:

* * * * * *

(m) * * *

(2) * * *

(i) * * *

(B) When the employee is assigned to an area where exposure to asbestos may be at or above the permissible exposure limit for 30 or more days per year, or engage in Class I, II, or III work for a combined total of 30 or more days per year, a medical examination must be given within 10 working days following the thirtieth day of exposure;

* * * * * *

260. On page 41091, in the second column, in § 1915.1001, paragraph (m)(3)(i), line 2 is corrected by removing the letter "G,".

261. On page 41091, in the third column, in § 1915.1001, paragraph (n)(1)(i), line 3, the word "demonstrate" is corrected to read "demonstrates".

262. On page 41091, in the third column, in § 1915.1001, paragraph (n)(1)(i), line 4 is corrected by adding the words "or the activity involving such products or material" after the words "containing asbestos".

263. On page 41092, in the first column, in § 1915.1001, paragraph (n)(4), line 3, the number "1" is corrected by enclosing it in parenthesis to read "(1)".

264. On page 41092, in the second column, in § 1915.1001, paragraph (o)(3) introductory text, lines 5 and 6, the words "in paragraph (p)(3)(i) and (ii)" are corrected to read "in paragraph (o)(3)(i)".

265. On page 41092, in the second column, in § 1915.1001, paragraph (o)(3) introductory text, lines 9 and 10, the words "Class II and III" are corrected to read "Class II, III, and IV".

266. On page 41092, in the second column, in § 1915.1001, paragraph (o)(3)(i) introductory text, line 4, the words "paragraph (g)(1)" are corrected to read "paragraph (e)(6)".

267. On page 41092, in the second column, in § 1915.1001, paragraph (o)(3)(i)(E), line 3, the words "protective clothing" are corrected to read "respirators".

268. On page 41092, in the second column, in § 1915.1001, paragraph (o)(3)(i)(E), line 4, the word "respirators" is corrected to read "protective clothing".

269. On page 41092, in the second column, in § 1915.1001, paragraph (o)(3)(i)(F), line 2, the words "set up" are corrected to read "set up, use,".

270. On page 41092, in the third column, in § 1915.1001, paragraph (o)(3)(i)(H), line 1, the word "though" is corrected to read "through".

271. On page 41092, in the third column, in § 1915.1001, paragraph (o)(3)(i)(H), line 2 is corrected by adding a comma after the word "inspection".

272. On page 41092, in the third column, in § 1915.1001, paragraph (o)(3)(i)(I), line 2, the words "paragraph (f)(6)" are corrected to read "paragraph (k)".

273. On page 41092, in the third column, in § 1915.1001, paragraph (o)(4)(i), lines 12 through 16 are corrected to read "that meets the criteria of EPA's Model Accredited Plan (40 CFR part 763) or a course equivalent in stringency, content, and length."

274–276. On page 41092, in the second column, in § 1915.1001, paragraph (o)(4)(ii) is corrected to read:

* * * * * *

(o) * * *

(4) * * *

(ii) For Class III and IV asbestos work, the qualified person shall be trained in aspects of asbestos handling appropriate for the nature of the work, to include procedures for setting up glove bags and mini-enclosures, practices for reducing asbestos exposures, use of wet methods,

the contents of this standard, and the identification of asbestos. Such training shall include successful completion of a course that is consistent with EPA requirements for training of local education agency maintenance and custodial staff as set forth at 40 CFR 763.92(a)(2), or its equivalent in stringency, content, and length. Qualified persons for Class III and Class IV work may also be trained pursuant to the requirements of paragraph (o)(4)(i) of this section.

* * * * *

Appendix A to § 1915.1001 [Corrected]

277. On page 41093, in the first column, the heading for Appendix A to § 1915.1001 is corrected to read:

Appendix A to § 1915.1001—OSHA Reference Method (Mandatory)"

* * * * *

278. On page 41093, in the first column, in § 1915.1001, in Appendix A, in the introductory paragraph, lines 3 and 4 are corrected by removing the words "tremolite, anthophyllite, and actinolite".

279. On page 41093, in the first column, in § 1915.1001, in Appendix A, in the introductory paragraph, line 11, the word "ID–60" is corrected to read "ID–160".

280. On page 41093, in the first column, in § 1915.1001, in Appendix A, in the introductory paragraph, line 12, the words "NIOSH 7400 method" are corrected to read "NIOSH Method 7400".

281. On page 41093, in the first column, in § 1915.1001, in Appendix A, under the heading entitled "*Sampling and Analytical Procedure*," paragraph 1, line 5 is corrected by removing the words "tremolite, anthophyllite, and actinolite".

282. On page 41093, in § 1915.1001, in Appendix A, under the heading entitled "*Sampling and Analytical Procedure*," paragraph 2, line 6 of the second column is corrected by adding a sentence "Other cassettes such as the Bell-mouth may be used within the limits of their validation." after the word "record.".

283. On page 41093, in the second column, in § 1915.1001, in Appendix A, under the heading entitled "*Sampling and Analytical Procedure*," paragraph 3, line 2, the number "2.5" is corrected to read "5".

284. On page 41093, in the second column, in § 1915.1001, in Appendix A, under the heading "*Sampling and Analytical Procedure*," paragraph 3, line 5, the number "2.5" is corrected to read "5".

285. On page 41093, in the second to third column, in § 1915.1001, in Appendix A, under the heading entitled "*Sampling and Analytical Procedure*," paragraph 11 is corrected to read:

* * * * *

11. Each set of samples taken will include 10% field blanks or a minimum of 2 field blanks. These blanks must come from the same lot as the filters used for sample collection. The field blank results shall be averaged and subtracted from the analytical results before reporting. A set consists of any sample or group of samples for which an evaluation for this standard must be made. Any samples represented by a field blank having a fiber count in excess of the detection limit of the method being used shall be rejected.

* * * * *

286. On page 41093, in the third column, in § 1915.1001, in Appendix A, under the heading entitled "*Sampling and Analytical Procedure*," paragraph 13.b. is corrected to read:

* * * * * *

13. * * *

b. In the absence of other information, count all particles as asbestos that have a length-to-width ratio (aspect ratio) of 3 to 1 or greater.

* * * * *

Appendix B to § 1915.1001 [Corrected]

287. On page 41094, in § 1915.1001, in Appendix B, the table is corrected so that the word "Air" is removed from between the double lines at the beginning and added following the word "Matrix".

288. On page 41094, in the first column below the table, in § 1915.1001, in Appendix B, under the heading entitled "*1. Introduction*," in the definition of "Asbestos," the chemical formula for Crocidolite is corrected to read "$Na_2Fe_3^{2+}Fe_2^{3+}Si_8O_{22}(OH)_2$".

289. On page 41094, in the second column below the table, in § 1915.1001, in Appendix B, in the definition of "*Walton-Beckett Graticule*," line 11, the number "2" is corrected to read "1".

290. On page 41094, in the third column below the table, in § 1915.1001, in Appendix B, in the paragraph under the heading entitled "1.2 Principle," line 6 is corrected by removing the word "a".

291. On page 41095, in the second column, in § 1915.1001, in Appendix B, under the heading entitled "*4. Interferences*," in the second paragraph, the list of common fibers is corrected to read:

* * * * *

4. Interferences

* * * * *

fiberglass
anhydrite
plant fibers
perlite veins
gypsum
some synthetic fibers
membrane structures
sponge spicules
diatoms
microorganisms
wollastonite

* * * * *

292. On page 41095, in the second column, in § 1915.1001, in Appendix B, under the heading entitled "*5.1.1* Sample assembly," in the first paragraph, line 8, the number "0.8–" is corrected to read "0.4".

293. On page 41095, in the second column, in § 1915.1001, in Appendix B, under the heading entitled "*5.1.1* Sample assembly," a new note (e) is added to read:

* * * * *

5.1.1 * * *

Notes: * * *

(e) Other cassettes, such as the Bell-mouth, may be used within the limits of their validation.

* * * * *

294. On page 41095, in the second column, in § 1915.1001, in Appendix B, under the heading entitled "*5.1.3* Sampling pump," lines 5 and 6, the words "2.5 liters per minute (L/min)" are corrected to read "the collection rate".

295. On page 41095, in the second column, in § 1915.1001, in Appendix B, in the paragraph entitled "*5.2.1*," line 2 is corrected by removing the words "(see Figure 3)".

296. On page 41095, in the third column, in § 1915.1001, in Appendix B, under the heading entitled "*5.2.5*," lines 8 through 10 of the "Note" are corrected to read, "pressure changes, correct the flow rate using the formula shown in the section "Sampling Pump Flow Rate Corrections" at the end of this appendix."

297. On page 41096, in the first column, in § 1915.1001, in Appendix B, the paragraph entitled "*5.2.11*" is corrected to read:

* * * * *

5. * * *

5.2 * * *

5.2.11 Attach and secure a sample seal around each sample cassette in such a way as to assure that the end cap and base plugs cannot be removed without destroying the seal. Tape the ends of the seal together since the seal is not long enough to be wrapped end-to-end. Also wrap tape around the cassette at each joint to keep the seal secure.

* * * * *

298. On page 41096, in the first column, in § 1915.1001, in Appendix B, in the paragraph entitled "*5.3.2*," line 8, the words "without rattling" are corrected to read "in such a manner that they will not rattle".

299. On page 41097, in the first column, in § 1915.1001, in Appendix B, under the heading entitled "*6.6.2 Counting Fibers,*" paragraph (9), line 5, the number "2" is corrected to read "1".

300. On page 41097, in the third column, in § 1915.1001, in Appendix B, under the heading entitled "7.3. Recount Calculations," the formula in the third paragraph is corrected to read:

* * * * *

7.3. Recount Calculations

* * * * *

$$\left|\sqrt{AC_2}-\sqrt{AC_1}\right| > 2.78 \times\left(\sqrt{AC_{AVG}}\right)\times CV_{FB}$$

* * * * *

301. On page 41098, in the second column, in § 1915.1001, in Appendix B, under the heading entitled "*Quality Control,*" in the first paragraph, lines 6 and 7 are corrected by removing the words "for the CV curve shown below".

302. On page 41098, in the third column, in § 1915.1001, in Appendix B, under the heading entitled "*Walton-Beckett Graticule,*" paragraph (7), line 12 is corrected to read "Field Area = $\pi(D/2)^2$".

Appendix E to § 1915.1001 [Corrected]

303. On page 41119, in the first column, in § 1915.1001, in Appendix E, paragraph (a) is corrected to read:

* * * * *

(a) Chest roentgenograms shall be interpreted and classified in accordance with a professionally accepted classification system and recorded on an interpretation form following the format of the CDC/NIOSH (M) 2.8 form. As a minimum, the content within the bold lines of this form (items 1 through 4) shall be included. This form is not to be submitted to NIOSH.

* * * * *

Appendix F to § 1915.1001 [Corrected]

304. On page 41121, in the first column, in § 1915.1001, in Appendix F, under the heading entitled "*Cleaning the Work Area,*" in the second paragraph, line 4, the word "encapsulate" is corrected to read "encapsulant".

Appendix H to § 1915.1001 [Corrected]

305. On page 41121, in § 1915.1001, in Appendix H, under the heading entitled "*III. Respirators and Protective Clothing,*" paragraph A, line 6 of the third column is corrected by adding the word "a" after the word "conduct".

306. On page 41121, in the third column, in § 1915.1001, in Appendix H, under the heading entitled "*IV. Disposal Procedures and Clean-up,*" paragraph E, line 1, the word "if" is corrected to read "is".

307. On page 41121, in the third column, in § 1915.1001, in Appendix H, under the heading entitled "*V. Access to Information,*" paragraph B, line 5, the word "trowled-on" is corrected to read "troweled-on".

Appendix K to § 1915.1001 [Corrected]

308. On page 41123, in the first column, in § 1915.1001, in Appendix K, line 3 of the title is corrected by removing a closed parenthesis after the word "Non-Mandatory".

309. On page 41125, in the first column, in § 1915.1001, in Appendix K, under the heading entitled "1.8 Toxicology," line 9 is corrected by adding the words "and 29 CFR 1915.1001" after the number "1926.1101".

310. On page 41125, in the second column, in § 1915.1001, in Appendix K, under the heading entitled "2.4 Shipment," paragraph (a), line 2 is corrected by removing the words "(such as the OSHA 21)".

311. On page 41129, in the first column, in § 1915.1001, in Appendix K, the heading entitled "*Auxiliary Information*" is correctly designated as "*4. Auxiliary Information*".

312. On page 41129, in the second column, in § 1915.1001, in Appendix K, the paragraph under the heading entitled "4.3 Polarized Light Technique," beginning on line 10, is corrected by removing the sentence, "A compensator is a piece of mineral with known properties that "compensates" for some deficiency in the optical train.".

Appendix L to § 1915.1001 [Corrected]

313. On page 41131, in the first column, in § 1915.1001, Appendix L, in the introductory paragraph, line 7 is corrected by adding the words "by trained employees" after the word "practices".

314. On page 41131, in the second column, in § 1915.1001, in Appendix L, under the heading entitled "*[A] Negative Pressure Enclosure/HEPA Vacuum System Method,*" paragraph (6), line 5, the words "paragraph (j)(2)(ii)" are corrected to read "paragraph (k)(8)".

315. On page 41131, in the second column, in § 1915.1001, in Appendix L, under the heading entitled "*[A] Negative Pressure Enclosure/HEPA Vacuum System Method,*" paragraph (6), line 6, the words "paragraph (k)" are corrected to read "paragraph (l)".

316. On page 41131, in the second column, in § 1915.1001, in Appendix L, under the heading entitled "*[A] Negative Pressure Enclosure/HEPA Vacuum System Method,*" paragraph (7), line 5, the words "paragraph (k)" are corrected to read "paragraph (l)".

317. On page 41131, in the second column, in § 1915.1001, in Appendix L, under the heading entitled "*[B] Low Pressure/Wet Cleaning Method,*" paragraph (6), line 5, the words "paragraph (j)(2)(ii)" are corrected to read "paragraph (k)(8)".

318. On page 41131, in the second column, in § 1915.1001, in Appendix L, under the heading entitled "*[B] Low Pressure/Wet Cleaning Method,*" paragraph (6), line 7, the words "paragraph (k)" are corrected to read "paragraph (l)".

319. On page 41131, in the second column, in § 1915.1001, in Appendix L, under the heading entitled "*[B] Low Pressure/Wet Cleaning Method,*" paragraph (7), line 5, the words "paragraph (k)" are corrected to read "paragraph (l)".

320. On page 41131, in the third column, in § 1915.1001, in Appendix L, under the heading entitled "*[C] Equivalent Methods,*" line 12, the number "0.004" is corrected to read "0.016".

321. On page 41131, in the third column, in § 1915.1001, in Appendix L, under the heading "*[D] Wet Methods,*" paragraph (2), line 3, the words "paragraph (j)(2)(ii)" are corrected to read "paragraph (k)(8)".

322. On page 41131, in the third column, in § 1915.1001, in Appendix L, under the heading "*[D] Wet Method,*" paragraph (2), line 4, the words "paragraph (k)" are corrected to read "paragraph (l)".

323. On page 41131, in the third column, in § 1915.1001, in Appendix L, under the heading "*[D] Wet Method,*" paragraph (3), line 3, the words "paragraph (k)" are corrected to read "paragraph (l)".

§ 1926.1101 [Corrected]

324. On page 41132, in § 1926.1101, paragraph (b), the definition of "*Certified Industrial Hygienist (CIH),*" the first line of the second column is corrected by removing the word "comprehensive".

325. On page 41132, in the second column, in § 1926.1101, paragraph (b), the definition of "*Class III asbestos work*" is corrected to read:

* * * * *

(b) * * *

Class III asbestos work means repair and maintenance operations, where "ACM," including TSI and surfacing ACM and PACM, may be disturbed.

* * * * *

326. On page 41132, in the second column, in § 1926.1101, paragraph (b), the definition of "*Class IV asbestos work*" is corrected to read:

* * * * *

(b) * * *

Class IV asbestos work means maintenance and custodial activities during which employees contact but do not disturb ACM or PACM and activities to clean up dust, waste and debris resulting from Class I, II, and III activities.

* * * * *

327. On page 41132, in the second column, in § 1926.1101, paragraph (b), the definition of "*Competent Person,*" lines 12 through 19 are corrected to read "course which meets the criteria of EPA's Model Accreditation Plan (40 CFR part 763) for supervisor, or its equivalent and, for Class III and Class IV work, who is trained in a manner consistent with EPA requirements for training of local education agency maintenance and custodial staff as set forth at 40 CFR 763.92 (a)(2).".

328. On page 41132, in the third column, in § 1926.1101, paragraph (b), the definition of "*Disturbance,*" the first sentence is corrected to read:

* * * * *

(b) * * *

Disturbance means activities that disrupt the matrix of ACM or PACM, crumble or pulverize ACM or PACM, or generate visible debris from ACM or PACM.* * *

* * * * *

329. On page 41132, in the third column, in § 1926.1101, paragraph (b), the definition of "*Glovebag,*" line 1, the word "an" is corrected to read "not more than a 60 × 60 inch".

330. On page 41132, in the third column, in § 1926.1101, paragraph (b), the definition of "*Intact,*" line 3, the word "it" is corrected to read "the asbestos".

331. On page 41133, in § 1926.1101, paragraph (b), in the definition of "*Modification,*" line 8 from the top of the first column is corrected by removing the number "(ii)".

332. On page 41133, in the first column, in § 1926.1101, paragraph (b), the definition of "*Presumed Asbestos Containing Material,*" line 7, the number "(4)" is corrected to read "(5)".

333. On page 41133, in the first column, in § 1926.1101, paragraph (b), the definition of "*Regulated area,*" line 12 is corrected by removing the number "(6)".

334. On page 41133, in the second column, in § 1926.1101, paragraph (c)(1), line 8 the word "of" is corrected to read "to".

335. On page 41133, in the second column, in § 1926.1101, paragraph (c)(2), line 8, the word "of" is corrected to read "to".

336. On page 41133, in the second column, in § 1926.1101, paragraph (d)(3), line 13 is corrected by removing the number "(1)".

337. On page 41133, in the third column, in § 1926.1101, paragraph (e)(2), line 6 is corrected by removing the words "concentrations of".

338. On page 41133, in the third column, in § 1926.1101, paragraph (e)(2), line 12, the number "(6)" is corrected to read "(7)".

339. On page 41133, in the third column, in § 1926.1101, paragraph (e)(4), line 3, the number "(2)" is corrected to read "(1)".

340. On page 41133, in the third column, in § 1926.1101, paragraph (f)(1)(i), line 2, the word "of" is corrected to read "or".

340a. On page 41133, in the first column, in § 1926.1101, paragraph (f)(2)(i), the undesignated paragraph beginning on line 10 is correctly moved to line 9 as the second sentence of paragraph (f)(2)(i).

341–344. On page 41134, in the first column, in § 1926.1101, paragraph (f)(2)(ii) is corrected to read:

* * * * *

(f) * * *

(2) * * *

(ii) Basis of Initial Exposure Assessment: Unless a negative exposure assessment has been made pursuant to paragraph (f)(2)(iii) of this section, the initial exposure assessment shall, if feasible, be based on monitoring conducted pursuant to paragraph (f)(1)(iii) of this section. The assessment shall take into consideration both the monitoring results and all observations, information or calculations which indicate employee exposure to asbestos, including any previous monitoring conducted in the workplace, or of the operations of the employer which indicate the levels of airborne asbestos likely to be encountered on the job. For Class I asbestos work, until the employer conducts exposure monitoring and documents that employees on that job will not be exposed in excess of the PELs, or otherwise makes a negative exposure assessment pursuant to paragraph (f)(2)(iii) of this section, the employer shall presume that employees are exposed in excess of the TWA and excursion limit.

(iii) * * *

* * * * *

345. On page 41134, in the third column, in § 1926.1101, paragraph (f)(3)(iii), line 4 is corrected to read, "operated in the pressure demand mode, or other positive pressure mode respirator,".

346. On page 41134, in the third column, in § 1926.1101, paragraph (f)(4), line 1 is corrected to read, "(4) *Termination of monitoring.* (i) If".

347. On page 41134, in the third column, in § 1926.1101, paragraph (f)(4)(i), line 5, the word "measurement" is corrected to read "measurements".

348. On page 41134, in the third column, in § 1926.1101, paragraph (f)(5) is redesignated as paragraph (f)(6) and a new paragraph (f)(5) is added to read:

* * * * *

(f) * * *

(5) *Employee notification of monitoring results.*

(i) The employer shall notify affected employees of the monitoring results that represent that employee's exposure as soon as possible following receipt of monitoring results.

(ii) The employer shall notify affected employees of the results of monitoring representing the employee's exposure in writing either individually or by posting at a centrally located place that is accessible to affected employees.

* * * * *

349. On page 41135, in the first column, in § 1926.1101, paragraph (g)(1)(i) is corrected to read:

* * * * *

(g) * * *

(1) * * *

(i) Vacuum cleaners equipped with HEPA filters to collect all debris and dust containing ACM and PACM, except as provided in paragraph (g)(8)(ii) of this section in the case of roofing material.

* * * * *

350. On page 41135, in the first column, in § 1926.1101, paragraph (g)(1)(ii), lines 9 and 10, the words "slipping hazards;" are corrected to read "except as provided in paragraph (g)(8)(ii) of this section;".

351. On page 41135, in the first column, in § 1926.1101, paragraph (g)(1)(iii), line 3 is corrected by adding the words "except in roofing operations, where the procedures specified in paragraph (g)(8)(ii) of this section apply" after the word "containers".

352. On page 41135, in the second column, in § 1926.1101, paragraph (g)(4)(ii)(A) is corrected to read:

* * * * *

(g) * * *

(4) * * *

(ii) * * *

(A) Critical barriers shall be placed over all the openings to the regulated area, except where activities are performed outdoors; or

* * * * *

353. On page 41135, in the second column, in § 1926.1101, paragraph (g)(4)(ii)(B), line 13 is corrected by adding the words "Phase Contrast Microscopy" before the word "(PCM)".

354. On page 41135, in the second column, in § 1926.1101, paragraph (g)(4)(ii)(B) is corrected by adding the following sentence to the end of the paragraph. "Exception: For work completed outdoors where employees are not working in areas adjacent to the regulated areas, this paragraph (g)(4)(ii) is satisfied when the specific control methods in paragraph (g)(5) of this section are used."

355. On page 41135, in the third column, in § 1926.1101, paragraph (g)(5)(i) introductory text, line 2, the word "shall" is corrected to read "may".

356. On page 41135, in the third column, in § 1926.1101, paragraph (g)(5)(ii) introductory text is corrected to read:

* * * * *

(g) * * *
(5) * * *

(ii) Glove bag systems may be used to remove PACM and/or ACM from straight runs of piping and elbows and other connections with the following specifications and work practices:

* * * * *

357. On page 41135, in the third column, in § 1926.1101, paragraph (g)(5)(ii)(A)(2) is corrected to read:

* * * * *

(g) * * *
(5) * * *
(ii) * * *
(A) * * *

(2) Glovebags used on elbows and other connections must be designed for that purpose and used without modifications.

* * * * *

358. On page 41135, in the third column, in § 1926.1101, paragraph (g)(5)(ii)(B)(4), line 3, the number "150°" is corrected to read "150°F".

359. On page 41136, in the first column, in § 1926.1101, paragraph (g)(5)(ii)(B)(9), line 2, the word "removals" is corrected to read "removal operations".

360. On page 41136, in the first column, in § 1926.1101, paragraph (g)(5)(iii) introductory text, line 3, the word "shall" is corrected to read "may".

361. On page 41136, in the first column, in § 1926.1101, paragraph (g)(5)(iii)(B)(1), line 2 is corrected by adding the word "for" after the word "practices".

362. On page 41136, in the first column, in § 1926.1101, paragraph (g)(5)(iii)(B)(1), line 4, the number "(2)" is corrected to read "(4)".

363. On page 41136, in the first column, in § 1926.1101, paragraph (g)(5)(iii)(B)(2), line 4 is corrected by adding the words "until it is completed at which time the bag shall be collapsed prior to removal of the bag from the pipe" after the word "operation".

364. On page 41136, in the first column, in § 1926.1101, paragraph (g)(5)(iv) introductory text, line 3, the word "shall" is corrected to read "may".

365. On page 41136, in the first column, in § 1926.1101, paragraph (g)(5)(iv)(A)(2), line 2 is corrected by adding the word "the" after the word "in".

366. On page 41136, in the second column, in § 1926.1101, paragraph (g)(5)(iv)(B)(2) is corrected to read:

* * * * *

(g) * * *
(5) * * *
(iv) * * *
(B) * * *

(2) The box shall be smoke-tested for leaks and any leaks sealed prior to each use.

* * * * *

367. On page 41136, in the second column, in § 1926.1101, paragraph (g)(5)(vi)(B)(1) is corrected to read:

* * * * *

(g) * * *
(5) * * *
(vi) * * *
(B) * * *

(1) Before use, the mini-enclosure shall be inspected for leaks and smoke-tested to detect breaches, and any breaches sealed.

* * * * *

368. On page 41136, in the second column, in § 1926.1101, paragraph (g)(5)(vi)(B)(3), line 1 is corrected by adding a comma after the word "use".

369–370. On page 41136, in § 1926.1101, paragraph (g)(5)(vi)(B)(3), line 2 of the third column, the word "minienclosure" is corrected to read "mini-enclosure".

371. On page 41136, in the third column, in § 1926.1101, paragraph (g)(6)(ii), line 19, the words "paragraph (g)(4)(i)(B)(2)" are corrected to read "paragraph (g)(4)(ii)(B)".

372. On page 41136, in the third column, in § 1926.1101, paragraph (g)(6)(iii), line 6 is corrected by adding the words "of this section" after the words "paragraph (g)(6)".

373. On page 41136, in the third column, in § 1926.1101, paragraph (g)(6)(iii) is corrected by adding a sentence to the end of the paragraph to read, "The submission shall not constitute approval by OSHA.".

374. On page 41137, in the first column, in § 1926.1101, paragraph (g)(7)(i), line 1 is corrected by removing the comma after the word "work".

375. On page 41137, in the first column, in § 1926.1101, paragraph (g)(7)(ii) introductory text, line 4, the number "(4)" is corrected to read "(2)".

376. On page 41137, in the first column, in § 1926.1101, paragraph (g)(7)(ii) introductory text, line 5 is corrected by adding a comma after the word "job".

377. On page 41137, in the first column, in § 1926.1101, paragraph (g)(7)(ii)(B), line 8, the words "paragraph (g)(4)(i)(B)(2)" are corrected to read "paragraph (g)(4)(ii)(B)".

378. On page 41137, in the first column, in § 1926.1101, paragraph (g)(7)(iv), line 4, the words "(g)(3)(i) through (v)" are corrected to read "(g)(1)(i) through (g)(1)(iii)".

379. On page 41137, in the first column, in § 1926.1101, paragraph (g)(8)(i) introductory text, line 11, the word "(k)(8)" is corrected to read "(k)(9) of this section".

380. On page 41137, in the second column, in § 1926.1101, paragraph (g)(8)(i)(F), line 4, the number "(iv)" is corrected to read "(i)".

381. On page 41137, in the second column, in § 1926.1101, paragraph (g)(8)(ii)(B) is corrected to read:

* * * * *

(g) * * *
(8) * * *
(ii) * * *

(B) Wet methods shall be used to remove roofing materials that are not intact, or that will be rendered not intact during removal, unless such wet methods are not feasible or will create safety hazards.

* * * * *

382. On page 41137, in the second column, in § 1926.1101, paragraph (g)(8)(ii)(D) is corrected to read:

* * * * *

(g) * * *
(8) * * *
(ii) * * *

(D) When removing built-up roofs with asbestos-containing roofing felts and an aggregate surface using a power roof cutter, all dust resulting from the cutting operation shall be collected by a HEPA dust collector, or shall be HEPA vacuumed by vacuuming along the cut line. When removing built-up roofs with asbestos-containing roofing felts and a smooth surface using a power roof cutter, the dust resulting from the cutting operation shall be collected either by a HEPA dust collector or HEPA vacuuming along the cut line, or by gently sweeping and then carefully and completely wiping up the still-wet dust and debris left along the cut line.

The dust and debris shall be immediately bagged or placed in covered containers.

* * * * *

383. On page 41137, in the second column, in § 1926.1101, paragraph (g)(8)(ii)(E) is corrected to read:

* * * * *

(g) * * *

(8) * * *

(ii) * * *

(E) Asbestos-containing material that has been removed from a roof shall not be dropped or thrown to the ground. Unless the material is carried or passed to the ground by hand, it shall be lowered to the ground via covered, dust-tight chute, crane or hoist:

(*1*) Any ACM that is not intact shall be lowered to the ground as soon as is practicable, but in any event no later than the end of the work shift. While the material remains on the roof it shall either be kept wet, placed in an impermeable waste bag, or wrapped in plastic sheeting.

(*2*) Intact ACM shall be lowered to the ground as soon as is practicable, but in any event no later than the end of the work shift.

* * * * *

384. On page 41137, in the second column, in § 1926.1101, a new paragraph (g)(8)(ii)(H) is added to read:

* * * * *

(g) * * *

(8) * * *

(ii) * * *

(H) Notwithstanding any other provision of this section, removal or repair of sections of intact roofing less than 25 square feet in area does not require use of wet methods or HEPA vacuuming as long as manual methods which do not render the material non-intact are used to remove the material and no visible dust is created by the removal method used. In determining whether a job involves less than 25 square feet, the employer shall include all removal and repair work performed on the same roof on the same day.

* * * * *

385. On page 41137, in the second column, in § 1926.1101, paragraph (g)(8)(iii) introductory text is corrected to read:

* * * * *

(g) * * *

(8) * * *

(iii) When removing cementitious asbestos-containing siding and shingles or transite panels containing ACM on building exteriors (other than roofs, where paragraph (g)(8)(ii) of this section applies) the employer shall ensure that the following work practices are followed:

* * * * *

386. On page 41137, in the third column, in § 1926.1101, paragraph (g)(8)(v)(A), line 2 is corrected by adding the word "to" after the word "prior".

387. On page 41138, in the first column, in § 1926.1101, paragraph (g)(9)(iii), line 9 is corrected by adding the words "or another isolation method" after the word "section".

388. On page 41138, in the first column, in § 1926.1101, paragraph (g)(10) introductory text, line 5, the number "(8)" is corrected to read "(9)".

389. On page 41138, in the second column, in § 1926.1101, a new paragraph (g)(11) is added to read:

* * * * *

(g) * * *

(11) Alternative methods of compliance for installation, removal, repair, and maintenance of certain roofing materials. Notwithstanding any other provision of this section, an employer who complies with all provisions of this paragraph (g)(11) when installing, removing, repairing, or maintaining intact roof cements, mastics, coatings, or flashings which contain asbestos fibers encapsulated or coated by bituminous or resinous compounds shall be deemed to be in compliance with this section. If an employer does not comply with all provisions of this paragraph (g)(11), or if during the course of the job the material does not remain intact, the provisions of paragraph (g)(8) of this section apply instead of this paragraph (g)(11).

(i) Before work begins and as needed during the job, a competent person who is capable of identifying asbestos hazards in the workplace and selecting the appropriate control strategy for asbestos exposure, and who has the authority to take prompt corrective measures to eliminate such hazards, shall conduct an inspection of the worksite and determine that the roofing material is intact and will likely remain intact.

(ii) All employees performing work covered by this paragraph (g)(11) shall be trained in a training program that meets the requirements of paragraph (k)(9)(viii) of this section.

(iii) The material shall not be sanded, abraded, or ground. Manual methods which do not render the material non-intact shall be used.

(iv) Material that has been removed from a roof shall not be dropped or thrown to the ground. Unless the material is carried or passed to the ground by hand, it shall be lowered to the ground via covered, dust-tight chute, crane or hoist. All such material shall be removed from the roof as soon as is practicable, but in any event no later than the end of the work shift.

(v) Where roofing products which have been labeled as containing asbestos pursuant to paragraph (k)(8) of this section are installed on non-residential roofs during operations covered by this paragraph (g)(11), the employer shall notify the building owner of the presence and location of such materials no later than the end of the job.

* * * * *

390. On page 41138, in the second column, in § 1926.1101, paragraph (h)(1)(iii) is corrected to read:

* * * * *

(h) * * *

(1) * * *

(iii) During all Class II and III work which is not performed using wet methods, provided, however, that respirators need not be worn during removal of ACM from sloped roofs when a negative exposure assessment has been made and the ACM is removed in an intact state.

* * * * *

391. On page 41138, in the second column, in § 1926.1101, paragraph (h)(2)(i), line 5 is corrected by adding the word "or" after the word "Table 1".

392. On page 41138, in the third column, in § 1926.1101, paragraph (h)(2)(iii), Table 1, lines 5 and 6 under the heading "Airborne concentration of asbestos or conditions of use" are corrected to read, "of exposure pursuant to paragraph (h)(2)(iv) of this section.".

393. On page 41139, in the first column, in § 1926.1101, paragraph (h)(3)(iv), line 10, the word "employee" is corrected to read "employees".

394. On page 41139, in the first column, in § 1926.1101, paragraph (h)(3)(iv), line 12 is corrected by adding a comma after the word "position".

395. On page 41139, in the first column, in § 1926.1101, paragraph (h)(4)(ii), line 15 is corrected by adding the words "to this section" after the words "Appendix C".

396. On page 41139, in the first column, in § 1926.1101, paragraph (h)(4)(ii), line 19, the number "(iii)" is corrected to read "(i)".

397. On page 41139, in § 1926.1101, paragraph (i)(1), line 1 of the second column, the word "and" is corrected to read "or".

398. On page 41139, in the second column, in § 1926.1101, paragraph (j)(1) introductory text, line 4, the word "Tsi" is corrected to read "TSI".

399. On page 41139, in the second column, in § 1926.1101, paragraph

(j)(1)(i)(B) introductory text, the undesignated paragraph beginning on line 10 is correctly moved to line 9 as the third sentence of paragraph (j)(1)(i)(B) introductory text.

400. On page 41139, in the third column, paragraph (j)(1)(i)(C), line 14, the word "Such" is corrected to read "Following showering, such".

401. On page 41140, in the first column, in § 1926.1101, paragraph (j)(2)(iii), line 1, the word "Workclothing" is corrected to read "Work clothing".

402. On page 41140, in the first column, in § 1926.1101, paragraph (k), line 1, the word "Note:" is removed and the text beginning on line 2 is correctly designated as paragraph (k)(1).

403. On page 41140, in § 1926.1101, newly designated paragraph (k)(1), lines 4 and 5 of the second column, the words "are required to treat" are corrected to read "shall identify".

404. On page 41140, in § 1926.1101, newly designated paragraph (k)(1), line 9 of the second column, the number "(4)" is corrected to read "(5)".

405. On page 41140, in § 1926.1101, newly designated paragraph (k)(1), line 15 of the second column, the words "paragraph (g)" are corrected to read "paragraph (g)(8)(i)(I)".

406. On page 41140, 30 lines from the top of the second column, in § 1926.1101, paragraph (k)(1) is redesignated as paragraph (k)(2).

407. On page 41140, in the second column, in § 1926.1101, newly redesignated paragraph (k)(2)(i) is corrected to read:

* * * * *

(k) * * *

(2) * * *

(i) Before work subject to this standard is begun, building and facility owners shall determine the presence, location, and quantity of ACM and/or PACM at the work site pursuant to paragraph (k)(1) of this section.

* * * * *

408. On page 41140, 2 lines from the bottom of the second column, in § 1926.1101, paragraph (k)(2) is redesignated as paragraph (k)(3).

409. On page 41140, in the third column, in § 1926.1101, newly redesignated paragraph (k)(3)(i), line 5 is corrected by adding the words "pursuant to paragraph (k)(1) of this section" after the word "therein".

410. On page 41140, 35 lines from the top of the third column, in § 1926.1101, paragraph (k)(3) is redesignated as paragraph (k)(4).

411. On page 41140, 25 lines from the bottom of the third column, in § 1926.1101, paragraph (k)(4) is redesignated as paragraph (k)(5).

412. On page 41140, in the third column, newly redesignated paragraph (k)(5)(i), line 10, the number "(4)" is corrected to read "(5)".

413. On page 41140, in the third column, in § 1926.1101, newly redesignated paragraph (k)(5)(ii) introductory text, line 3 is corrected by adding the words "more than 1%" after the word "contain".

414. On page 41140, in the third column, in § 1926.1101, newly redesignated paragraph (k)(5)(ii)(A), line 1, the word "an" is corrected to read "a".

415. On page 41140, in the third column, in § 1926.1101, newly redesignated paragraph (k)(5)(ii)(A), line 5 is corrected by adding the word "or" after the word "ACM;".

416. On page 41141, in the first column, in § 1926.1101, newly redesignated paragraph (k)(5)(ii)(B), line 3, the word "asbestos" is corrected to read "ACM".

417. On page 41141, in the first column, in § 1926.1101, newly redesignated paragraph (k)(5)(ii)(B), lines 5 through 7 are corrected to read, "analysis of bulk samples collected in the manner described in 40 CFR 763.86. The".

418. On page 41141, in the first column, in § 1926.1101, newly redesignated paragraph (k)(5)(ii)(B), line 17, the word "of" is corrected to read "or".

419. On page 41141, in the first column, in § 1926.1101, newly redesignated paragraph (k)(5)(ii)(B), line 19, the word "of" is corrected to read "or".

420. On page 41141, in the first column, in § 1926.1101, a new paragraph (k)(5)(iii) is added to read:

* * * * *

(k) * * *

(5) * * *

(iii) The employer and/or building owner may demonstrate that flooring material including associated mastic and backing does not contain asbestos, by a determination of an industrial hygienist based upon recognized analytical techniques showing that the material is not ACM.

* * * * *

421. On page 41141, 24 lines from the top of the first column, in § 1926.1101, paragraph (k)(5) is redesignated as paragraph (k)(6).

422. On page 41141, in the first column, in § 1926.1101, newly redesignated paragraph (k)(6), lines 4 and 5, the words "thermal system insulation and surfacing ACM/PACM" are corrected to read "ACM and/or PACM".

423. On page 41141, 35 lines from the top of the first column, in § 1926.1101, paragraph (k)(6) is redesignated as paragraph (k)(7).

424. On page 41141, in the first column, in § 1926.1101, newly redesignated paragraph (k)(7)(ii) is corrected to read:

* * * * *

(k) * * *

(7) * * *

(ii) (A) The warning signs required by paragraph (k)(7) of this section shall bear the following information:

DANGER

ASBESTOS

CANCER AND LUNG DISEASE HAZARD

AUTHORIZED PERSONNEL ONLY

(B) In addition, where the use of respirators and protective clothing is required in the regulated area under this section, the warning signs shall include the following:

RESPIRATORS AND PROTECTIVE CLOTHING ARE REQUIRED IN THIS AREA

* * * * *

425. On page 41141, in the first column, in § 1926.1101, a new paragraph (k)(7)(iii) is added to read:

* * * * *

(k) * * *

(7) * * *

(iii) The employer shall ensure that employees working in and contiguous to regulated areas comprehend the warning signs required to be posted by paragraph (k)(7)(i) of this section. Means to ensure employee comprehension may include the use of foreign languages, pictographs and graphics.

* * * * *

426. On page 41141, 12 lines from the bottom of the first column, in § 1926.1101, paragraph (k)(7) is redesignated as paragraph (k)(8).

427. On page 41141, in the second column, in § 1926.1101, newly redesignated paragraph (k)(8)(vi) introductory text, line 2, the words "paragraphs (k)(2)(i) through (k)(2)(iii)" are corrected to read "paragraphs (k)(8)(i) through (k)(8)(iii) of this section".

428. On page 41141, in the second column, in § 1926.1101, newly redesignated paragraph (k)(8)(vi)(B), lines 2 and 3 are corrected by removing the words "by weight".

429. On page 41141, in the second column, in § 1926.1101, newly redesignated paragraph (k)(8)(vii), line 12, the number "(5)" is corrected to read "(6)".

430. On page 41141, 26 lines from the bottom of the second column, in § 1926.1101, paragraph (k)(8) is redesignated as paragraph (k)(9) and is corrected to read:

* * * * *

(k) * * *

(9) *Employee Information and Training.* (i) The employer shall, at no cost to the employee, institute a training program for all employees who are likely to be exposed in excess of a PEL and for all employees who perform Class I through IV asbestos operations, and shall ensure their participation in the program.

(ii) Training shall be provided prior to or at the time of initial assignment and at least annually thereafter.

(iii) Training for Class I operations shall be the equivalent in curriculum, training method and length to the EPA Model Accreditation Plan (MAP) asbestos abatement workers training (40 CFR part 763, subpart E, appendix C).

(iv) Training for Class II work. For work with asbestos containing material involving roofing materials, flooring materials, siding materials, ceiling tiles, or transite panels, training shall include at a minimum all the elements included in paragraph (k)(9)(viii) of this section and in addition, the specific work practices and engineering controls set forth in paragraph (g) of this section which specifically relate to that category. Such course shall include "hands-on" training and shall take at least 8 hours. Exception: For other Class II operations, training shall be provided which shall include at a minimum all the elements included in paragraph (k)(9)(viii) of this section and in addition, the specific work practices and engineering controls set forth in paragraph (g) of this section which specifically relate to that category, and shall include "hands-on" training.

(v) Training for Class III employees shall be consistent with EPA requirements for training of local education agency maintenance and custodial staff as set forth at 40 CFR 763.92(a)(2). Such a course shall also include "hands-on" training and shall take at least 16 hours. Exception: For Class III operations for which the competent person determines that the EPA curriculum does not adequately cover the training needed to perform that activity, training shall include as a minimum all the elements included in paragraph (k)(9)(viii) of this section and in addition, the specific work practices and engineering controls set forth in paragraph (g) of this section which specifically relate to that activity, and shall include "hands-on" training.

(vi) Training for employees performing Class IV operations shall be consistent with EPA requirements for training of local education agency maintenance and custodial staff as set forth at 40 CFR 763.92(a)(1). Such a course shall include available information concerning the locations of thermal system insulation and surfacing ACM/PACM, and asbestos-containing flooring material, or flooring material where the absence of asbestos has not yet been certified; and instruction in recognition of damage, deterioration, and delamination of asbestos containing building materials. Such course shall take at least 2 hours.

(vii) Training for employees who are likely to be exposed in excess of the PEL and who are not otherwise required to be trained under paragraph (k)(9)(iii) through (vi) of this section, shall meet the requirements of paragraph (k)(9)(viii) of this section.

(viii) The training program shall be conducted in a manner that the employee is able to understand. In addition to the content required by provisions in paragraphs (k)(9)(iii) through (vi) of this section, the employer shall ensure that each such employee is informed of the following:

(A) Methods of recognizing asbestos, including the requirement in paragraph (k)(1) of this section to presume that certain building materials contain asbestos;

(B) The health effects associated with asbestos exposure;

(C) The relationship between smoking and asbestos in producing lung cancer;

(D) The nature of operations that could result in exposure to asbestos, the importance of necessary protective controls to minimize exposure including, as applicable, engineering controls, work practices, respirators, housekeeping procedures, hygiene facilities, protective clothing, decontamination procedures, emergency procedures, and waste disposal procedures, and any necessary instruction in the use of these controls and procedures; where Class III and IV work will be or is performed, the contents of EPA 20T-2003, "Managing Asbestos In-Place" July 1990 or its equivalent in content;

(E) The purpose, proper use, fitting instructions, and limitations of respirators as required by 29 CFR 1910.134;

(F) The appropriate work practices for performing the asbestos job;

(G) Medical surveillance program requirements;

(H) The content of this standard including appendices;

(I) The names, addresses and phone numbers of public health organizations which provide information, materials and/or conduct programs concerning smoking cessation. The employer may distribute the list of such organizations contained in Appendix J to this section, to comply with this requirement; and

(J) The requirements for posting signs and affixing labels and the meaning of the required legends for such signs and labels.

* * * * *

431. On page 41142, in the first column, in § 1926.1101, paragraph (k)(9) is redesignated as paragraph (k)(10).

432. On page 41142, in the first column, in § 1926.1101, paragraph (l)(2), line 7 is corrected by adding "except in roofing operations, where the procedures specified in paragraph (g)(8)(ii) of this section apply" after the word "containers".

433. On page 41142, in § 1926.1101, paragraph (l)(3)(i), line 1 of the second column, the words "paragraph (g)" are corrected to read "paragraph (g)(8)(i)(I)".

434. On page 41142, in the second column, in § 1926.1101, the three paragraphs following the first paragraph (l)(3)(i) are redesignated as paragraphs (l)(3)(ii), (l)(3)(iii), and (l)(3)(iv), respectively.

435. On page 41142, in the second column, in newly redesignated paragraph (l)(3)(iii), line 3, the word "speed" is corrected to read, "speeds".

436. On page 41142, in the second column, in § 1926.1101, paragraph (l)(4) introductory text is corrected to read:

* * * * *

(l) * * *

(4) Waste and debris and accompanying dust in an area containing accessible thermal system insulation or surfacing ACM/PACM or visibly deteriorated ACM;

* * * * *

437. On page 41142, in the second column, in § 1926.1101, paragraph (l)(4)(ii), line 1, the word "clean" is corrected to read "cleaned".

438. On page 41142, in the second column, in § 1926.1101, paragraph (l)(4)(ii), line 2 is corrected by adding the word "of" after the word "disposed".

439. On page 41142, in the second column, in § 1926.1101, paragraph (m)(1)(i) is corrected to read:

* * * * *

(m) * * *

(1) * * *

(i) *Employees covered.* (A) The employer shall institute a program for all employees who, for a combined total of 30 or more days per year, are engaged in Class I, II, or III work or are exposed

at or above the permissible exposure limit for a combined 30 days or more per year. For purposes of this subparagraph, any day in which a worker engages in Class II or Class III work or a combination thereof for one hour or less and, while doing so, adheres fully to the work practices specified in this standard, shall not be counted.

(B) For employees otherwise required by this standard to wear a negative pressure respirator, employers shall ensure employees are physically able to perform the work and use the equipment. This determination shall be made under the supervision of a physician.

* * * * *

440. On page 41142, in the second column, in § 1926.1101, paragraph (m)(1)(ii) heading, line 1 is corrected by removing the words "by a physician".

441. On page 41142, in the second column, in § 1926.1101, paragraph (m)(2)(i)(B) is corrected to read:

* * * * *

(m) * * *
(2) * * *
(i) * * *

(B) When the employee is assigned to an area where exposure to asbestos may be at or above the permissible exposure limit for 30 or more days per year, or engage in Class I, II, or III work for a combined total of 30 or more days per year, a medical examination must be given within 10 working days following the thirtieth day of exposure:

* * * * *

442. On page 41142, in the third column, in § 1926.1101, paragraph (m)(3)(i), line 2 is corrected by removing the letter "G,".

443. On page 41143, in the first column, in § 1926.1101, paragraph (n)(1)(i), line 3, the word "demonstrate" is corrected to read "demonstrates".

444. On page 41143, in the first column, in § 1926.1101, paragraph (n)(1)(i), line 4 is corrected by adding the words "or the activity involving such products or material" after the words "containing asbestos".

445. On page 41143, in the second column, in § 1926.1101, paragraph (n)(4), line 3, the number "1" is corrected by enclosing it in parenthesis to read "(1)".

446. On page 41143, in the second column, in § 1926.1101, paragraph (n)(5), line 5, the word "far" is corrected to read "for".

447. On page 41143, in the third column, in § 1926.1101, paragraph (o)(3) introductory text, line 6, the words "(p)(3) (i) and (ii)" are corrected to read "(o)(3)(i)".

448. On page 41143, in the third column, in § 1926.1101, paragraph (o)(3) introductory text, line 10, the words "Class II and III" are corrected to read "Class II, III, and IV".

449. On page 41143, in the third column, in § 1926.1101, paragraph (o)(3)(i) introductory text, line 4, the words "paragraph (g)(1)" are corrected to read "paragraph (e)(6)".

450. On page 41144, in the first column, in § 1926.1101, paragraph (o)(3)(i)(E), line 3, the words "protective clothing" are corrected to read "respirators".

451. On page 41144, in the first column, in § 1926.1101, paragraph (o)(3)(i)(E), line 4, the word "respirators" is corrected to read "protective clothing".

452. On page 41144, in the first column, in § 1926.1101, paragraph (o)(3)(i)(F), line 2, the words "set up" are corrected to read "set up, use,",

453. On page 41144, in the first column, in § 1926.1101, paragraph (o)(3)(i)(H), line 1, the word "though" is corrected to read "through".

454. On page 41144, in the first column, in § 1926.1101, paragraph (o)(3)(i)(H), line 2 is corrected by adding a comma after the word "inspection".

455. On page 41144, in the first column, in § 1926.1101, paragraph (o)(3)(i)(I), line 2, the words "paragraph (f)(6)" are corrected to read "paragraph (k)".

456. On page 41144, in the first column, in § 1926.1101, paragraph (o)(3)(ii) is added and reserved.

457. On page 41144, in the first column, in § 1926.1101, paragraph (o)(4)(i), lines 12 through 16 are corrected to read, "that meets the criteria of EPA's Model Accredited Plan (40 CFR part 763) or a course equivalent in stringency, content, and length.".

458. On page 41144, in the first to second column, in § 1926.1101, paragraph (o)(4)(ii), lines 11 through 17 are corrected to read, "course that is consistent with EPA requirements for training of local education agency maintenance and custodial staff as set forth at 40 CFR 763.92(a)(2), or its equivalent in stringency, content, and length.".

Appendix B to § 1926.1101 [Corrected]

458a. On page 41144, in the third column, the heading for Appendix B to § 1926.1101 is corrected to read:

Appendix B to § 1926.1101—Sampling and Analysis (Non-Mandatory)

* * * * *

459. On page 41145, in § 1926.1101, in Appendix B, the table is corrected so that the word "Air" is removed from between the double lines at the beginning and added following the word "Matrix".

460. On page 41145, in the second column, in § 1926.1101, in Appendix B, under "*1. Introduction,*" in the definition of "*Walton-Beckett Graticule,*" line 11, the number "2" is corrected to read "1".

461. On page 41145, in the second column, in § 1926.1101, in Appendix B, in the paragraph under the heading entitled "1.2 Principle," line 6 is corrected by removing the word "a".

462. On page 41146, in the second column, in § 1926.1101, in Appendix B, under the heading entitled "*4. Interferences,*" in the second paragraph, the list of common fibers is corrected to read:

* * * * *

4. Interferences

* * * * *

fiberglass
anhydrite
plant fibers
perlite veins
gypsum
some synthetic fibers
membrane structures
sponge spicules
diatoms
microorganisms
wollastonite

* * * * *

463. On page 41146, in the second column, in § 1926.1101, in Appendix B, under the heading entitled "*5.1.1* Sample assembly," in the first paragraph, line 8, the number "0.8-" is corrected to read "0.4".

464. On page 41146, in the second column, in § 1926.1101, in Appendix B, under the heading entitled "*5.1.1* Sample assembly," a new note (e) is added to read:

* * * * *

5.1.1 * * *
Notes: * * *
(e) Other cassettes, such as the Bell-mouth, may be used within the limits of their validation.

* * * * *

465. On page 41146, in the second column, in § 1926.1101, in Appendix B, under the heading entitled "*5.1.3* Sampling pump," lines 5 and 6, the words "2.5 liters per minute (L/min)" are corrected to read "the collection rate".

466. On page 41146, in the second column, in § 1926.1101, in Appendix B, in the paragraph entitled "*5.2.1.*" line 2 is corrected by removing the words "(see Figure 3)".

467. On page 41146, in the third column, in § 1926.1101, in Appendix B, under the heading entitled "*5.2.5.*" lines 8 and 9 of the "Note" are corrected to

read, "pressure changes, correct the flow rate using the formula shown in the section "Sampling Pump Flow Rate Corrections" at the end of this appendix.".

468. On page 41147, in the first column, in § 1926.1101, in Appendix B, the paragraph entitled "*5.2.11*" is corrected to read:

* * * * *

5. * * *

5.2 * * *

5.2.11 Attach and secure a sample seal around each sample cassette in such a way as to assure that the end cap and base plugs cannot be removed without destroying the seal. Tape the ends of the seal together since the seal is not long enough to be wrapped end-to-end. Also wrap tape around the cassette at each joint to keep the seal secure.

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469. On page 41147, in the first column, in § 1926.1101, in Appendix B, in the paragraph entitled "*5.3.2*," line 8, the words "without rattling" are corrected to read "in such a manner that they will not rattle".

470. On page 41148, in the first column, in § 1926.1101, in Appendix B, under the heading entitled "*6.6.2 Counting Fibers*," paragraph (9), line 5, the number "2" is corrected to read "1".

471. On page 41148, in the third column, in § 1926.1101, in Appendix B, under the heading entitled "*7.3. Recount Calculations*," the formula in the third paragraph is corrected to read:

* * * * *

7.3. Recount Calculations

* * * * *

$$\left|\sqrt{AC_2}-\sqrt{AC_1}\right| > 2.78 \times \left(\sqrt{AC_{AVG}}\right) \times CV_{FB}$$

472. On page 41149, in the first column, in § 1926.1101, in Appendix B, under the heading entitled "*Quality Control*," in the first paragraph, lines 6 and 7 are corrected by removing the words "for the CV curve shown below".

Appendix F to § 1926.1101 [Corrected]

472a. On page 41150, in the second column, the heading of Appendix F to § 1926.1101 is corrected to read:

Appendix F to § 1926.1101—Work Practices and Engineering Controls for Class I Asbestos Operations (Non-Mandatory)

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473. On page 41152, in the third column, in § 1926.1101, in Appendix F, under the heading entitled "*Cleaning the Work Area*," in the second paragraph, line 4, the word "encapsulate" is corrected to read "encapsulant".

Appendix H to § 1926.1101 [Corrected]

474. On page 41153, in the first column, in § 1926.1101, in Appendix H, under the heading entitled "*III. Respirators and Protective Clothing*," paragraph A, line 17 is corrected by adding the word "a" after the word "conduct".

475. On page 41153, in the first column, in § 1926.1101, in Appendix H, under the heading entitled "*IV. Disposal Procedures and Clean-up*," paragraph E, line 1, the word "if" is corrected to read "is".

476. On page 41153, in the second column, in § 1926.1101, in Appendix H, under the heading entitled "*V. Access to Information*," paragraph B, line 5, the word "trowled-on" is corrected to read "troweled-on".

Appendix K to § 1926.1101 [Corrected]

477. On page 41155, in the second column, in § 1926.1101, in Appendix K, under the heading entitled "1.8 Toxicology," line 9 is corrected by adding the words "and 29 CFR 1915.1001" after the number "1926.1101".

478. On page 41155, in the third column, in § 1926.1101, in Appendix K, under the heading entitled "2.4 Shipment," paragraph (a), line 2 is corrected by removing the words "(such as the OSHA 21)".

Signed at Washington, D.C. this 20th day of June, 1995.

Joseph A. Dear,

Assistant Secretary, Occupational Safety and Health Administration.

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