

## Occupational Exposure to Respirable Crystalline Silica 29 C.F.R. § 1926.1153

### Frequently Asked Questions ("FAQs") for the Construction Industry

On March 25, 2016, the Occupational Safety and Health Administration (OSHA) published a final rule regulating occupational exposure to respirable crystalline silica (silica) in the construction industry (the standard). 81 Fed. Reg. 16286. OSHA developed these Frequently Asked Questions (FAQs) about the standard in consultation with industry and union stakeholders.

These FAQs provide guidance to employers and employees regarding the standard's requirements. This document is organized by topic. A short introductory paragraph is included for each group of questions and answers to provide background information about the underlying regulatory requirements.

The following acronyms are used throughout this document:

AL - action level (25  $\mu\text{g}/\text{m}^3$  as an 8-hour time-weighted average)

HEPA filter - high-efficiency particulate air filter

PEL - permissible exposure limit (50  $\mu\text{g}/\text{m}^3$  as an 8-hour time-weighted average)

PLHCP - physician or other licensed health care professional

TWA - time-weighted average

### Scope (29 C.F.R. § 1926.1153(a))

OSHA's silica standard for construction applies to all occupational exposures to respirable crystalline silica in construction work, except where employee exposures will remain below the AL of 25  $\mu\text{g}/\text{m}^3$ , calculated as an 8-hour TWA, under any foreseeable conditions. 29 C.F.R. § 1926.1153(a). The exception applies only where exposures below 25  $\mu\text{g}/\text{m}^3$  as an 8-hour TWA are expected or achieved without using engineering or other controls. The exception is intended to ensure that the standard does not apply to employees whose work results in only minimal silica exposures. See 81 Fed. Reg. at 16706.

1. Has OSHA identified specific tasks that are likely to be outside the scope of the standard because they typically generate exposures below the AL of 25  $\mu\text{g}/\text{m}^3$  as an 8-hour TWA under all foreseeable conditions?

Yes. When the following tasks are performed in isolation from other silica-generating tasks, they typically do not generate silica at or above the AL of 25  $\mu\text{g}/\text{m}^3$  as an 8-hour TWA under any foreseeable conditions: mixing small amounts of mortar; mixing small amounts of concrete; mixing bagged, silica-free drywall compound; mixing bagged exterior insulation finishing system (EIFS) base and finish coat; and removing concrete formwork. In addition, tasks where employees are working with silica-containing products that are, and are intended to be, handled while wet, are likely to generate exposures below the AL under any foreseeable conditions (examples include finishing and hand wiping block walls to remove excess wet mortar, pouring concrete, and grouting floor and wall tiles).

2. Does the standard cover employees who perform silica-generating tasks for only 15 minutes or less a day?

The standard does not include a specific exemption for tasks with only short-term exposures (e.g., tasks with exposures for 15 minutes a day or less). However, in many cases, employees who perform construction tasks for very short periods of time, in isolation from activities that generate significant exposures to silica (e.g., some tasks listed on Table 1, abrasive blasting), will be exposed below the AL of 25 µg/m<sup>3</sup> as an 8-hour TWA under any foreseeable conditions. Short-term silica exposures must be very high in order for those exposures to reach or exceed 25 µg/m<sup>3</sup> as an 8-hour TWA; for example, if an employee is exposed for only 15 minutes, his or her exposure would have to be higher than 800 µg/m<sup>3</sup> for that 15-minute period before the 8-hour TWA exposure would be at or above 25 µg/m<sup>3</sup>. See 81 Fed. Reg. at 16706. Some examples of tasks that could generate very high short-term exposures include abrasive blasting and grinding, which are typically associated with high levels of visible dust.

OSHA has identified carpenters, plumbers, and electricians as types of workers who may perform tasks (e.g., drilling with a handheld drill) involving occasional, brief exposures to silica that are incidental to their primary work. See 81 Fed. Reg. at 16706. Provided that these employees perform these tasks in isolation from activities that generate significant exposures to silica, and perform them for no more than 15 minutes throughout the work day, their exposures will usually fall below the AL of 25 µg/m<sup>3</sup> as an 8-hour TWA under all foreseeable conditions; when that is the case, these employees will not be covered by the standard.

**3. If employees are not covered by the standard because their exposures will remain below the AL under any foreseeable conditions, does the employer need to document this determination?**

No. The standard does not require employers to document determinations about the applicability of the standard or the data on which such determinations are based. See 81 Fed. Reg. at 16706. However, an employer may document these determinations for its own purposes. Furthermore, OSHA notes that nothing in the silica standard alters employers' duty to maintain employee exposure records under 29 C.F.R. § 1910.1020.

**4. Do construction employers have to consider exposures from other contractors when determining if their employees' exposures will remain below the AL of 25 µg/m<sup>3</sup> as an 8-hour TWA under any foreseeable conditions?**

Yes, if it is foreseeable that the exposures of employees will be affected by exposures generated by other contractors. On many construction sites, there are multiple contractors performing silica-generating tasks. The silica generated by these tasks can migrate to employees of other contractors. Employers need to consider these secondary exposures when determining whether their employees' exposures will remain below the AL under any foreseeable conditions. If, however, an employer can ensure - either due to the nature and timing of the work, or through work practice controls - that its employees will not be exposed to silica generated by other contractors, then the employer would not need to consider secondary exposures in determining whether its employees will be exposed below the AL under any foreseeable conditions.

**5. If employee exposures will remain below the AL of 25 µg/m<sup>3</sup> as an 8-hour TWA under any foreseeable conditions, does the standard require the employer to complete a written exposure control plan for the worksite?**

No. None of the standard's requirements apply if, without implementing any controls, all employees' exposures to silica will remain below the AL of 25 µg/m<sup>3</sup> as an 8-hour TWA under any foreseeable conditions.

## Definitions (29 C.F.R. § 1926.1153(b))

The standard defines certain key terms used in the rule. The standard defines such terms as "action level" (a concentration of airborne respirable crystalline silica of 25 µg/m<sup>3</sup>, calculated as an 8-hour TWA), "employee exposure" (exposure to airborne respirable crystalline silica that would occur if the employee were not using a respirator), and "competent person" (an individual who is capable of identifying existing and foreseeable respirable crystalline silica hazards in the workplace, and has authorization to take prompt corrective measures to eliminate or minimize them and the knowledge and ability necessary to fulfill the responsibilities set forth in paragraph (g) of the standard). 29 C.F.R. § 1926.1153(b).

6. How can an employer determine who qualifies as a "competent person" under the standard? Does an employee have to take a particular training class to meet the definition of a competent person under the standard?

The standard does not specify particular training requirements for competent persons. Instead, it defines a competent person in terms of *capability*, *i.e.*, whether a designated competent person has the knowledge and ability to perform the duties prescribed by the standard. The employer must also give the competent person the authority to perform those duties. See 29 C.F.R. § 1926.1153(b).

To determine whether a given employee has the appropriate *knowledge and ability* to perform the duties of the competent person, an employer needs to confirm that the employee is *capable* of:

1. Identifying existing and foreseeable silica hazards; and
2. Promptly eliminating or minimizing those hazards.

See 29 C.F.R. § 1926.1153(b). In addition, the employee must be *capable* of making frequent and regular inspections of job sites, materials, and equipment for purposes of implementing the written exposure control plan, to ensure that the engineering controls, work practice controls, required respiratory protection, housekeeping measures, and procedures to restrict access in the workplace are implemented for the silica-generating tasks listed in the plan. See 29 C.F.R. § 1926.1153(g)(1)(i)-(iv), (g)(4).

A person with these capabilities (whether acquired through training, education, work experience, or otherwise), who is authorized by the employer to perform the duties of a competent person, qualifies as a competent person under the standard.

7. Some provisions in the standard refer to high-efficiency particulate air (HEPA) filters. The standard defines a HEPA filter as a "filter that is at least 99.97 percent efficient in removing mono-dispersed particles of 0.3 micrometers in diameter." May an employer rely on a manufacturer's representation of the effectiveness of a filter to comply with this requirement?

Yes. The standard does not require employers to independently test the effectiveness of filters to determine if they meet the definition in paragraph (b). Employers can rely on a manufacturer's representation that a filter is at least 99.97 percent efficient in removing mono-dispersed particles of 0.3 micrometers in diameter or that it is compliant with the OSHA definition of a "HEPA filter." However, employers must properly select, use, maintain, and replace HEPA filters in order to ensure that they continue to function according to the manufacturer's specifications.

## Exposure Control Methods (29 C.F.R. § 1926.1153(c) and (d))

The standard permits construction employers to select from two methods of compliance to control exposures to respirable crystalline silica: "specified exposure control methods" or "alternative exposure control methods."

Under "specified exposure control methods," employers can comply by fully and properly implementing the engineering controls, work practices, and respiratory protection set forth for the relevant task on "Table 1." 29 C.F.R. § 1926.1153(c). Employers that follow Table 1 do not have to assess employee exposures or separately ensure compliance with the PEL. Table 1 includes common construction tasks.

For tasks that are not listed on Table 1, or where the employer does not fully and properly implement the engineering controls, work practices, and respiratory protection described on Table 1, the employer must comply with "alternative exposure control methods." 29 C.F.R. § 1926.1153(d). Under this compliance option, the employer must ensure that no employee is exposed to an airborne concentration of respirable crystalline silica in excess of the PEL of 50 µg/m<sup>3</sup>, calculated as an 8-hour TWA. 29 C.F.R. § 1926.1153(d)(1). The employer must assess exposures using either a performance option or a scheduled monitoring option. 29 C.F.R. § 1926.1153(d)(2).

Further, as with other health standards, employers following alternative exposure control methods must use engineering and work practice controls to reduce and maintain employee exposure to silica to or below the PEL, unless the employer can demonstrate that such controls are not feasible. If feasible engineering and work practice controls are not sufficient to reduce employee exposure to or below the PEL, the employer must nonetheless use those controls to reduce exposures to the lowest feasible level, and then supplement the controls with the use of respiratory protection. 29 C.F.R. § 1926.1153(d)(3)(i).

#### *Specified Exposure Control Methods - Table 1*

8. If all of the jobs and tasks an employer performs are included on Table 1, can the employer comply with Table 1 exclusively, instead of following alternative exposure control methods?

Yes. Most of the tasks that generate exposure to silica in construction are listed on Table 1, and OSHA anticipates that most employers will choose to follow Table 1 for tasks listed on the table.

9. Many of the entries on Table 1 require employers to "[o]perate and maintain" tools "in accordance with manufacturer's instructions to minimize dust emissions." See 29 C.F.R. § 1926.1153(c)(1)(i)-(vii), (x)-(xiii), (xvi). If an employer is following Table 1, and employees are performing one of these tasks, does the silica standard require the employer to follow every element of the tool manufacturer's instructions?

No, the silica standard requires employers to follow manufacturer instructions that are related to *dust control*. In determining which instructions might relate to dust control, employers should consider whether the failure to follow the particular instruction would increase employee exposure to silica. Examples of manufacturer instructions for minimizing dust emissions could include:

- Instructions on the use of water, water supply, flow rates, etc., including installation and maintenance of integrated water delivery systems;
- Instructions on when to change water, where water supply is reused;
- Instructions on the use, installation, and maintenance of dust collectors or vacuums, including recommended flow rate (cubic feet per minute (CFM)), HEPA filters, and capacity;

- Instructions on the maintenance and replacement of blades; and
- Instructions on the rotation (e.g., speed, direction) of blades.

Examples of manufacturer instructions that are *not* generally related to minimizing dust emissions include:

- Warnings related to electrical hazards, guarding hazards, and noise hazards;
- Instructions regarding the use of personal protective equipment (including respiratory protection);
- Instructions on fueling and refueling; and
- Instructions on transporting the tool from worksite to worksite.

OSHA recognizes that sometimes manufacturers adopt particular instructions to serve multiple purposes. Where a given instruction is reasonably related to the level of dust generated, the standard requires employers to follow that instruction, regardless of whether that instruction serves more than one purpose.

OSHA notes that manufacturers' instructions that do not relate to minimizing dust emissions may still be relevant to compliance with other OSHA standards and the OSH Act.

10. The manufacturers' instructions for a number of tools state that respiratory protection is required whenever employees use the tools. Does that language supersede the respiratory protection requirements on Table 1?

No. The standard does not require employers to follow tool manufacturers' instructions for respirator use. Respirator requirements for employers following Table 1 are specified on the table, and those employers must fully and properly implement the dust control and respiratory protection requirements specified for the relevant task. See 29 C.F.R. § 1926.1153(e).

11. Some entries on Table 1 require the use of a dust collection system that provides, at a minimum, the air flow recommended by the manufacturer. Does the standard require employers to conduct their own air flow assessments to ensure compliance with this requirement?

No. Employers may normally rely on statements made by the manufacturer of equipment to determine compliance. Employers do not need to perform their own testing to determine if a dust collection system functions at the level required by the standard. However, employers must properly select, use, maintain, and replace dust collection systems in order to ensure that they function as designed, e.g., by ensuring that the port and hose are not obstructed.

12. For Table 1 tasks performed indoors or in enclosed areas, paragraph (c)(2)(i) requires a means of exhaust as needed to minimize the accumulation of visible airborne dust. Can an employer use a portable fan to comply with this requirement?

Yes. When tasks are performed indoors or in enclosed areas, the dispersal of dust can be impeded, causing dust concentrations to build. In these environments, sufficient air circulation is critical to ensure the effectiveness of the controls included on Table 1 and to prevent the accumulation of airborne dust. Thus, the standard requires a means of exhaust in those circumstances. The required "means of exhaust" could include: portable fans (e.g., box fans, floor fans, axial fans, oscillating fans), portable ventilation systems, or other systems that increase air movement and assist in the removal and dispersion of airborne dust. To be effective, the exhaust ventilation must be positioned

to move dust away from workers' breathing zones and set up so that movements of employees during work, or the opening of doors and windows, will not negatively affect the airflow. See 81 Fed. Reg. at 16721.

### 13. What constitutes an enclosed area for purposes of compliance with Table 1?

Some of the entries on Table 1, as well as paragraph (c)(2)(i), include specific requirements for tasks performed "indoors or in enclosed areas." This term refers to any areas where, without the assistance of forced ventilation, the dispersal of airborne dust can be impeded and concentrations can build up. For example, a work area with only a roof that does not affect the dispersal of dust would not be considered enclosed; however, an open-top structure with three walls and limited air movement could be considered enclosed. Parking garages, pits, trenches, and empty swimming pools may qualify as enclosed areas.

### 14. For a few tasks on Table 1, respirator requirements vary based on task duration, *i.e.*, whether the task is performed for "less than or equal to four hours/shift" or "greater than four hours/shift." Does the employer have to track the *exact* amount of time that employees are performing a job throughout a shift to be in compliance with Table 1?

No. Before the task is performed, the employer must make a good-faith judgment about whether the task will take more than four hours. This judgment should be based on previous experience and other available information. If the employer anticipates that an employee will be engaged in a task for more than four hours, the employer must provide the employee, at the beginning of the shift, the respiratory protection required in the "greater than four hours/shift" column on Table 1. If, in contrast, the employer anticipates that an employee will be engaged in a task for four hours or less, the employer needs to provide respiratory protection in accordance with the "less than or equal to four hours/shift" column (which in many cases does not call for the use of *any* respiratory protection). However, if the employer experiences unforeseen difficulties or other circumstances that are expected to extend the task duration beyond four hours, the employer must provide the respiratory protection required in the "greater than four hours/shift" column as soon as it becomes evident that the duration of the task may exceed the 4-hour threshold. (In that situation, the 4-hour mark is still measured from the beginning of the task, not from the time the expected duration of the task changes.)

For example, in the case of an employee grinding concrete walls indoors, the employer should know, in advance, the area of the surface that is to be worked on in the course of a shift. If, based on the employer's experience, the time needed to grind that area is typically less than four hours, the employer would not have to provide the respiratory protection required in the "greater than four hours/shift" column. If, however, using the same example, unforeseen circumstances arise part-way through the task that will result in the task taking more than four hours, the employer must provide the respiratory protection called for in the "greater than four hours/shift" column as soon as the unforeseen circumstances occur.

### 15. Is an employer following Table 1 required to "minimize dust emissions"? What does it mean to "minimize dust emissions" in this context?

Although many of the entries on Table 1 require employers to "[o]perate and maintain" tools "in accordance with manufacturer's instructions to minimize dust emissions," 29 C.F.R. § 1926.1153(c)(1)(i)-(vii), (x)-(xiii), (xvi), or to "[o]perate and maintain machine[s] to minimize dust emissions," 29 C.F.R. § 1926.1153(c)(1)(xiv)-(xv), the standard does not separately require

employers to minimize dust emissions. An employer generating a limited amount of dust when engaging in a task listed on Table 1 would not be in violation of the standard if it is fully and properly implementing the engineering controls, work practices, and respiratory protection specified on the Table (including operating and maintaining controls so as to minimize emissions). A small amount of dust can be expected even with new equipment that is operating as intended by the manufacturer. However, a noticeable increase in dust emissions may indicate that the dust control system is not operating properly.

16. If an employer is utilizing water to control dust generated by a crushing machine, and has consistent air monitoring results or objective data demonstrating that exposures are under the AL of 25  $\mu\text{g}/\text{m}^3$  as an 8-hour TWA (and thus below the PEL), is the employer required to put operators in ventilated booths or remote control stations, as specified in the relevant entry on Table 1?

No. Employers performing tasks listed on Table 1 can choose to follow alternative exposure control methods in paragraph (d) instead of implementing the controls specified on Table 1. The alternative exposure control methods approach involves assessing employees' silica exposures and limiting exposures to the PEL of 50  $\mu\text{g}/\text{m}^3$  as an 8-hour TWA by following the hierarchy of controls. See 29 C.F.R. § 1926.1153(d).

17. Are handheld powered demolition hammers with bushing tools covered by Table 1?

Yes. OSHA considers handheld powered demolition hammers with bushing tools to be a type of handheld powered chipping tool. Therefore, employers of employees using handheld powered demolition hammers with bushing tools can follow Table 1 by fully and properly implementing the engineering controls, work practices, and respiratory protection specified in paragraph (c)(1)(x).

18. Are tile saws covered by Table 1?

OSHA considers handheld tile saws to be handheld power saws, for purposes of Table 1 (paragraph (c)(1)(ii)). OSHA considers stationary tile saws to be stationary masonry saws, also covered by Table 1 (paragraph (c)(1)(i)). Employers of employees using these types of tile saws can follow Table 1 by fully and properly implementing the engineering controls and work practices in the specified paragraphs.

#### *Alternative Exposure Control Methods*

19. Does an employer using alternative exposure control methods for compliance have to conduct sampling of all employees performing all job tasks?

No. The standard requires employers to assess the exposure of each employee who is or may reasonably be expected to be exposed to silica at or above the AL of 25  $\mu\text{g}/\text{m}^3$  as an 8-hour TWA, but it allows employers to fulfill this obligation using either the "performance option" or the "scheduled monitoring option." 29 C.F.R. § 1926.1153(d)(2)(i). Under the performance option, employers must assess each employee's 8-hour TWA exposure using any combination of air monitoring data or objective data, provided that the data is sufficient to accurately characterize employee exposures to silica. See 29 C.F.R. § 1926.1153(d)(2)(ii).

The term "objective data" means information, such as air monitoring data from industry-wide surveys or calculations based on the composition of a substance, demonstrating employee exposure to silica associated with a particular product or material or a specific process, task, or activity. The data must reflect workplace conditions closely resembling, or with a higher exposure potential than, the processes, types of material, control methods, work practices, and environmental conditions in the

employer's current operations. See 29 C.F.R. § 1926.1153(b). Types of data and exposure assessment strategies that may qualify as objective data include:

- Data from industry-wide surveys;
- Data provided by equipment manufacturers;
- Data provided by trade or professional associations;
- Exposure mapping (determining exposures associated with particular locations based on information obtained from sources that may include personal samples, area samples, and direct-reading instruments);
- Calculations based on the composition of a substance;
- Calculations based on the chemical and physical properties of a substance (in those instances where a substance's physical and chemical properties demonstrate employee exposure to silica associated with a particular product or material or a specific process, task, or activity); and
- The employer's historical air monitoring data, including data obtained prior to the effective date of the standard.

The preamble to the standard provides more ideas about data and exposure assessment strategies that could qualify as or generate objective data. See 81 Fed. Reg. at 16763.

When employers rely on objective data generated by others as an alternative to developing their own data, they are responsible for ensuring that the data relied upon accurately characterize each employee's exposures.

Under the scheduled monitoring option, employers must perform initial monitoring to assess the 8-hour TWA exposure for each employee on the basis of one or more personal breathing zone air samples that reflect the exposures of employees on each shift, for each job classification, in each work area. Depending upon the results of the sampling, the standard may require additional sampling at set intervals. Where several employees perform the same job tasks on the same shift and in the same work area, employers utilizing the scheduled monitoring option may sample a representative fraction of the employees in order to meet these requirements. In representative sampling, the employer must sample the employee(s) expected to have the highest exposure to silica. See 29 C.F.R. § 1926.1153(d)(2)(iii).

20. For alternative exposure control methods, the standard requires employers to assess the exposure of each employee who is or may reasonably be expected to be exposed to silica at or above the AL using either the performance option or the scheduled monitoring option. See 29 C.F.R. § 1926.1153(d)(2)(ii) & (iii). If an employer reasonably expects its employee's exposure to remain below the AL, does the standard require the employer to assess that employee's exposure using one of these two options?

No. The standard only requires an employer using alternative exposure control methods to conduct an exposure assessment if it is reasonable for the employer to expect that exposures will be at or above the AL. See 29 C.F.R. § 1926.1153(d)(2)(i). An exposure assessment is not required if the employer has made a reasonable determination that exposures will remain below the AL due to the use of engineering or work practice controls. (Note that this is in contrast to the determination of whether an employee's exposure is covered by the standard - a determination that must be made

without regard to the decrease in exposures that occurs due to the use of engineering and work practice controls. See 29 C.F.R. § 1926.1153(a.)

To be reasonable, the employer's expectation that engineering and work practice controls will keep employee exposures below the AL must be based on relevant evidence or experience, e.g., data provided by equipment manufacturers or trade or professional associations, air monitoring results, or experience using the relevant controls effectively in similar circumstances. The persistent presence of visible dust, an equipment malfunction, or another unexpected event that could affect employee exposures may indicate that it is no longer reasonable to expect employee exposures to remain below the AL. In those cases, the employer must take prompt corrective measures and, depending on the circumstances, may also need to conduct an exposure assessment to verify corrective measures are effective. See 81 Fed. Reg. at 16761.

**21. Under the scheduled monitoring option, do employers have to monitor exposures every time a new job is started (and thus a new work area is created)?**

Following initial monitoring, the employer can continue to perform periodic monitoring at the frequency specified in the standard, provided that the task and the workplace conditions in the new work area are substantially similar, in that they are not reasonably expected to result in exposures above those detected during the most recent monitoring. See 29 C.F.R. § 1926.1153(d)(2)(iii), (d)(2)(iv). This applies whether the new work area is on the same or a subsequent jobsite.

**22. Can an employer use the scheduled monitoring option, but then switch to the performance option?**

Yes. The employer has the option of switching to the performance option, and can use air monitoring data generated during scheduled monitoring to fulfill assessment requirements under the performance option, provided that the air monitoring data relied on is sufficient to accurately characterize employee exposures. When following *either* exposure assessment option under the silica standard, the employer must reassess exposures following any changes in the production process, control equipment, personnel, or work practices that may reasonably be expected to result in new or additional exposures to silica at or above the AL, or when the employer has any reason to believe that new or additional exposures at or above the AL have occurred. See 29 C.F.R. § 1926.1153(d)(2)(iv).

**Housekeeping (29 C.F.R. § 1926.1153(f))**

The standard includes requirements related to housekeeping on construction worksites. Under the standard, employers must not allow dry sweeping or dry brushing "where such activity could contribute to employee exposure to respirable crystalline silica unless wet sweeping, HEPA-filtered vacuuming or other methods that minimize the likelihood of exposure are not feasible." 29 C.F.R. § 1926.1153(f)(1). In addition, employers must not allow compressed air to be used to clean clothing or surfaces where such activity could contribute to employee exposure to respirable crystalline silica unless: (1) The compressed air is used in conjunction with a ventilation system that effectively captures the dust cloud created by the compressed air, or (2) No alternative method is feasible. 29 C.F.R. § 1926.1153(f)(2).

**23. If employee exposure will remain below the AL of 25 µg/m³ as an 8-hour TWA under any foreseeable conditions, does the prohibition on dry sweeping, dry brushing, and the use of compressed air for cleaning clothing and surfaces apply?**

No, none of the standard's requirements apply if, without implementing any controls, exposures will remain below the AL under any foreseeable conditions. Employers should note, however, that dry sweeping, dry brushing, and the use of compressed air, either alone or in combination with other tasks, *can* result in exposures at or above the AL, and thus coverage under the standard. Employers should consider the duration of the dry sweeping, dry brushing, or use of compressed air; the location and frequency of the tasks; and other factors in determining whether employee exposures will remain below the AL under any foreseeable conditions. (Note that the standard's housekeeping provisions apply in areas where dry sweeping, dry brushing, or the use of compressed air could contribute to the exposures of any employees who *are* covered by the standard.)

[24. Does the standard prohibit an employer from using compressed air as part of a task not related to cleaning clothing or surfaces?](#)

No. The standard generally prohibits the use of compressed air "to clean clothing or surfaces" where that activity can contribute to employee silica exposures. 29 C.F.R. § 1926.1153(f)(2). It does not prohibit the use of compressed air for purposes other than cleaning clothing or surfaces, *e.g.*, for operating a pneumatic tool. Employers may also use compressed air for housekeeping when the compressed air is used in conjunction with a ventilation system that effectively captures the dust cloud created by the compressed air, or if no alternative method for cleaning clothes or surfaces is feasible. See 29 C.F.R. § 1926.1153(f)(2)(i), (ii). When the standard permits the use of compressed air, and the use of compressed air could foreseeably result in employee exposures to silica at or above the AL, the employer must comply with exposure control requirements and other applicable provisions of the standard.

[25. Under the standard, an employer may not allow the use of dry sweeping or dry brushing where such activity could contribute to employee exposure to silica unless wet sweeping, HEPA-filtered vacuuming, or other methods that minimize the likelihood of exposure are not "feasible." 29 C.F.R. § 1926.1153\(f\)\(1\). The standard contains a similar prohibition on the use of compressed air to clean clothing or surfaces; such use is prohibited unless the compressed air is used in conjunction with a ventilation system that effectively captures the dust cloud created by the compressed air or "\[n\]o alternative method is feasible." 29 C.F.R. § 1926.1153\(f\)\(2\). What is the definition of "feasible" in this context?](#)

The standard does not require employers to demonstrate that wet methods, a HEPA-filtered vacuum, or other methods are *impossible* to use in order to establish "infeasibility" for purposes of paragraph (f). As explained in the preamble to the standard, the limited "infeasibility" exceptions included in these housekeeping provisions are intended to encompass situations where wet methods, HEPA-filtered vacuuming, and other exposure-minimizing methods are not effective, would cause damage, or would create a hazard in the workplace. See 81 Fed. Reg. at 16795-96. For example, an employer can establish infeasibility for these purposes by demonstrating that wet sweeping, using a HEPA-filtered vacuum, and other methods that minimize the likelihood of exposure would negatively impact the quality of the work being done. However, even in cases where one of the acceptable cleaning methods may not be feasible, employers may be able to use another acceptable cleaning method.

[26. Does the standard prohibit the use of commercially-available dust-suppression sweeping compounds in conjunction with dry sweeping and brushing?](#)

No. The proper use of commercially-available dust-suppression sweeping compounds in accordance with the manufacturer's instructions is a cleaning "method[]" that minimize[s] the likelihood of exposure" for purposes of paragraph (f)(1). Thus, it is an acceptable housekeeping method under the standard.

27. If a commercially-available dust-suppression sweeping compound contains crystalline silica, does the standard permit employers to use it in conjunction with dry sweeping and brushing?

Yes, provided that the compound is used properly and effectively suppresses the generation of *respirable* crystalline silica dust during dry sweeping or dry brushing.

28. The standard allows the use of compressed air to clean clothing or surfaces when the compressed air is used in conjunction with a ventilation system that effectively captures the dust cloud created by the compressed air. What type of ventilation system is acceptable to use?

The standard does not specify the use of a particular ventilation system for these purposes. Whatever type of system is selected, it must be able to effectively capture any dust cloud created by the use of compressed air, thereby preventing the dust cloud from entering employees' breathing zones and contributing to silica exposures. For example, in the preamble to the standard, OSHA noted that the use of clothes-cleaning booths would be permitted because although such booths use compressed air to clean clothes, the dust is "blown out of the employee's breathing zone and is captured by a filter." 81 Fed. Reg. at 16797.

29. On occasion, construction employees remove and clean filters used in dust collection systems and dispose of the dust, as appropriate. Are there specific engineering or work practice controls employers must implement during this task?

No. The standard does not specify the engineering or work practice controls to be used during filter cleaning and dust disposal. The tasks of filter cleaning and dust disposal are not separately listed on Table 1, but will often be performed as part of a Table 1 task. An employer following Table 1 must operate and maintain the relevant tool in accordance with the manufacturer's instructions to minimize dust emissions, which may include instructions for removing and cleaning filters and disposing of dust.

In some circumstances, the employee cleaning the filter and disposing of the dust may not be performing the task that is being done in accordance with Table 1. In such cases, unless employee exposure will remain below 25 µg/m<sup>3</sup> as an 8-hour TWA under any foreseeable conditions, the employer must comply with paragraph (d) (alternative exposure control methods), which includes assessing the exposures of employees who are or may reasonably be expected to be exposed at or above the AL and ensuring that employees cleaning filters and disposing of dust are not exposed to silica above the PEL. See 29 C.F.R. § 1926.1153(a), (d).

Generally, filters and dust should be handled so as to minimize worker exposures to silica dust. This could involve disposing of filters and dust in sealed containers, such as heavy-duty plastic bags, to prevent the release of dust into the air. Employers must also ensure that filter cleaning and dust disposal are covered in their written exposure control plans, when required by paragraph (g)(1)(i).

### **Written Exposure Control Plan (29 C.F.R. § 1926.1153(g))**

The standard requires employers to establish and implement a written exposure control plan that contains at least the following elements: (1) a description of the tasks in the workplace that involve

exposure to silica; (2) a description of the engineering controls, work practices, and respiratory protection used to limit employee exposure to silica for each task; (3) a description of the housekeeping measures used to limit employee exposure to silica; and (4) a description of the procedures used to restrict access to work areas, when necessary, to minimize the number of employees exposed to silica and their level of exposure, including exposures generated by other employers or sole proprietors. 29 C.F.R. § 1926.1153(g)(1). The plan must be reviewed and evaluated for effectiveness at least annually and updated as necessary. 29 C.F.R. § 1926.1153(g)(2). Furthermore, employers must designate a competent person to make frequent and regular inspections of job sites, materials, and equipment to implement the exposure control plan. 29 C.F.R. § 1926.1153(g)(4).

### 30. Does the standard require employers to have a written exposure control plan for each worksite?

Yes, but the standard does not require employers to develop a *new* written plan for each job or worksite. It requires only that employers have a written exposure control plan applicable to each worksite. Employers may develop a single comprehensive written exposure control plan that covers all required aspects of the plan for all work activities at all worksites. Any such comprehensive plan can be used on all of an employer's worksites if it addresses the materials, tasks, and conditions that are relevant to the work being performed. See 81 Fed. Reg. at 16800. The plan must be readily available for examination and copying, upon request, to covered employees, their designated representatives, OSHA, and the National Institute for Occupational Safety and Health. See 29 C.F.R. § 1926.1153(g)(3).

### 31. Does the standard require employers to list all of the tasks that could involve any exposure to silica in their written exposure control plans?

No. Tasks that are not covered by the standard because employee exposures will remain below the AL under any foreseeable conditions, without implementing any controls, do not need to be included in the written exposure control plan.

### 32. In the written exposure control plan, what level of detail is required for the description of workplace tasks that involve silica exposures?

The written exposure control plan must describe the tasks that involve silica exposures in sufficient detail to enable the employer and employees to consistently identify and control silica-related hazards. See 29 C.F.R. § 1926.1153(g)(1)(i); 81 Fed. Reg. at 16800-1. Thus, for example, if the materials being disturbed or the conditions under which the tasks are performed are relevant to the level of exposure related to a particular task, that information must be included (*e.g.*, using a stationary saw outdoors to cut concrete). The standard permits construction employers to develop a single comprehensive plan that includes all of the tasks the employer will perform on all of its worksites. However, using a broad term that could describe multiple tasks, such as "construction" or "demolition," would not be sufficiently descriptive.

Note that in addition to describing the silica-generating tasks, the exposure control plan must also include a description of the engineering controls, work practices, and respiratory protection used to limit exposure to respirable crystalline silica. See 29 C.F.R. § 1926.1153(g)(1)(ii).

### 33. What procedures can employers use to restrict access to work areas where silica-generating activities occur?

The standard requires that the written exposure control plan include procedures for restricting access to work areas, when necessary, to minimize the number of employees exposed to silica and their level of exposure, including exposures generated by other employers or sole proprietors. See 29 C.F.R. § 1926.1153(g)(1)(iv). The standard does not specify particular procedures employers must use to restrict access to work areas with silica-generating activities. This provision was designed to provide employers flexibility to craft procedures appropriate for their worksites. Acceptable procedures for restricting access can include: (1) erecting permanent or temporary barriers around silica-generating tasks; (2) posting signs or other warnings around silica-generating tasks; or (3) directing employees to stay away from employees performing silica-generating tasks. See 81 Fed. Reg. at 16718, 16803-04. The method selected must be described in the written exposure control plan.

**34. If employees are performing silica-generating tasks on a particular floor of a construction site, does the employer need to restrict access such that no other employees can enter the floor where the silica-generating tasks are occurring?**

No. OSHA does not intend for the standard to prohibit *all* employees from entering entire areas of a construction site simply because employees in those areas are performing some work involving the generation of silica. The standard requires employers to restrict access to work areas only in certain situations, *e.g.*, "where respirator use is required under Table 1 or an exposure assessment reveals that exposures are in excess of the PEL." 81 Fed. Reg. at 16803. Furthermore, the competent person, who is designated by the employer to implement the written exposure control plan under paragraph (g)(4) of the standard, could identify additional situations where limiting access is necessary. See 81 Fed. Reg. at 16803. Also, the rule calls only for minimizing the number of employees in the relevant work areas. The standard does not preclude employees from entering work areas where silica-generating tasks are occurring when it is necessary for them to do so. However, the employer must comply with the standard (including Table 1 or alternative exposure control methods) as it applies to any employees entering these areas.

**35. What are the standard's requirements for reviewing and evaluating the effectiveness of the written exposure control plan?**

The standard requires employers to review and evaluate the effectiveness of the written exposure control plan at least annually, and to update it as necessary. The standard does not specify how employers should review and evaluate the effectiveness of the written exposure control plan. The review and evaluation needed will depend on a number of factors, including the number and variety of jobs conducted by the employer. In general, a review and evaluation that consists of the following steps will be sufficient to fulfill this obligation: (1) an assessment of the written exposure control plan(s) to determine if it continues to accurately describe all current conditions/scenarios at the worksite, as required by paragraph (g)(1)(i)-(iv); (2) a discussion with the competent person(s) regarding the effectiveness of the written exposure control plan(s); and (3) a discussion with a sample of employees regarding the effectiveness of the written exposure control plan(s). There is no set number of employees that need to participate in the review and evaluation. The employees involved should represent a range of exposures in order to allow the employer to adequately review and evaluate the plan's effectiveness.

**36. Does the standard require employers to document their review and evaluation of the written exposure control plan?**

No. The standard requires employers to review and evaluate the effectiveness of the written exposure control plan at least annually, and to update it as necessary, because work conditions can change (e.g., the employer purchases a new type of equipment). However, the standard does not require that the review and evaluation be in writing or documented. Any updates to the plan adopted as a result of the review will need to be documented by incorporation in the written plan, and employers may document the review and evaluation process as a best practice. Retaining such documentation can help employers verify that they have reviewed and evaluated the plan, as required.

37. If a small employer with just a handful of employees intends to designate one of those employees as a competent person on each job site, does the standard require the employer to hire an additional competent person to conduct frequent and regular inspections of its jobsites?

No. The standard requires employers to designate a competent person to make frequent and regular inspections of job sites, materials, and equipment to implement the written exposure control plan, but it does not obligate employers to hire a new employee to carry out these tasks. Employers may designate an existing employee as the competent person provided that employee qualifies as a competent person under the standard. See 29 C.F.R. § 1926.1153(b) (competent person is an individual with the knowledge and ability necessary to fulfill the role who is capable of identifying existing and foreseeable silica hazards and who has authorization to take prompt corrective measures to eliminate or minimize them).

38. Does the competent person have to be on site at all times?

No. The competent person can leave the site periodically, so long as he or she fulfills the responsibilities set forth in paragraph (g). The competent person must "make frequent and regular inspections of job sites, materials, and equipment to implement the written exposure control plan." 29 C.F.R. § 1926.1153(g)(4).

### **Medical Surveillance (29 C.F.R. § 1926.1153(h))**

The standard requires construction employers to make medical surveillance available at no cost, and at a reasonable time and place, to any employee who is required by the silica standard to use a respirator for 30 or more days a year. 29 C.F.R. § 1926.1153(h)(1)(i). All required medical examinations and procedures must be performed by a physician or other licensed health care professional (PLHCP), 29 C.F.R. § 1926.1153(h)(1)(ii), defined as an individual whose legally permitted scope of practice allows him or her to independently provide or be delegated the responsibility to provide some or all of the particular health care services required by paragraph (h) of the standard. 29 C.F.R. § 1926.1153(b). An initial examination must be offered within 30 days of initial assignment, unless the employee has received a medical examination that meets the requirements of the standard within the last three years. 29 C.F.R. § 1926.1153(h)(2). Thereafter, the employee must be offered a follow-up examination at least every three years, or more frequently if recommended by the PLHCP. 29 C.F.R. § 1926.1153(h)(3).

The examinations must include a medical and work history, a physical examination, a chest x-ray, a pulmonary function test, a test for latent tuberculosis infection (initial exam only), and any other tests deemed appropriate by the PLHCP. 29 C.F.R. § 1926.1153(h)(2). See paragraph (h)(2) of the standard for more detailed information about the content of required medical exams. The employee will receive a written medical report from the PLHCP within 30 days of each exam that includes: (1) a

statement indicating the results of the medical examination; (2) any recommended limitations on the employee's use of respirators; (3) any recommended limitations on the employee's exposure to silica; and (4) a statement, if applicable, that the employee should be examined by a specialist. 29 C.F.R. § 1926.1153(h)(5). See paragraph (h)(5) for more detailed information about the required content of written medical reports provided to employees.

The employer must also obtain a written medical opinion from the PLHCP within 30 days of each exam, which contains more limited information than the report to the employee. The PLHCP's opinion to the employer contains the date of the examination, a statement that the examination has met the requirements of the standard, and any recommended limitations on the employee's use of respirators. 29 C.F.R. § 1926.1153(h)(6)(i). If the employee gives written authorization, the written opinion for the employer must also contain any recommended limitations on the employee's exposure to silica and/or a statement that the employee should be seen by a specialist (if applicable). 29 C.F.R. § 1926.1153(h)(6)(ii). The employer must ensure that each employee receives a copy of the written medical opinion provided to the employer within 30 days of his or her exam. 29 C.F.R. § 1926.1153(h)(6)(iii).

**39. Does the standard require employers to count any day during which an employee is required to use a respirator, for any amount of time, as a day of respirator use for purposes of applying the 30-day trigger for medical surveillance?**

Yes. If an employee is required by the standard to use a respirator at any time during a given day, regardless of the duration of the respirator use, that day counts as one day toward the 30-day threshold for medical surveillance. Thus, a "day" of respirator use for purposes of the 30-day threshold does not mean a *full* day of respirator use.

**40. Does the silica standard preclude in-house health care providers from performing the required medical surveillance examinations?**

No. For initial and periodic examinations, employers may choose to use any health care provider that meets the definition of a PLHCP in paragraph (b) of the standard, including a qualified in-house health care professional. Similarly, if an additional examination by a specialist is required by 29 C.F.R. § 1926.1153(h)(7), an employer with a specialist on staff may elect to have the additional examination(s) performed by that in-house physician. Employers must ensure that in-house PLHCPs, like all PLHCPs performing medical surveillance examinations and procedures under the silica standard, adhere to the standard's confidentiality requirements. See 29 C.F.R. § 1926.1153(h)(6)(ii), (7)(iv).

**41. The silica standard limits the information that can be included in a PLHCP's or specialist's written medical opinion for the employer without the employee's written consent. See 29 C.F.R. § 1926.1153(h)(6)(ii), (7)(iv). Does the standard prohibit an employer from receiving any of the information described in 29 C.F.R. § 1926.1153(h)(6)(ii) from sources outside of the medical surveillance examination process, such as via a workers' compensation claim?**

No. The standard limits only the information that can be included in the PLHCP's or specialist's written medical opinion for the employer following an examination offered to an employee for purposes of compliance with the medical surveillance provisions of the standard. If an employer uses the same individual or entity to manage medical surveillance and workers' compensation records, there must be separate procedures for maintaining and managing the separate sources of information.

[42. Under the standard, can an employer require employees who participate in medical surveillance to see a health care professional of the employer's choice?](#)

Yes, the silica standard permits employers to select a health care professional to perform the medical examinations required by the standard. Employers must ensure that all the medical examinations required by the standard are performed by a PLHCP, *i.e.*, "an individual whose legally permitted scope of practice (*i.e.*, license, registration, or certification) allows him or her to independently provide or be delegated the responsibility to provide some or all of the particular health care services required by paragraph (h)." 29 C.F.R. § 1926.1153(b), *see also* 29 C.F.R. § 1926.1153(h)(1)(ii). Employers should consult state or local laws for relevant requirements.

[43. Does the standard require employees to participate in medical surveillance?](#)

No, although the standard requires employers to make medical surveillance available to qualifying employees, the standard does not require qualifying employees to participate in medical surveillance. However, the employer must offer the examination fairly and in good faith, at no cost to employees, and at a reasonable time and place, and must make another examination available if the employee requests it or, at a minimum, the next time an examination is due (*i.e.*, within three years). *See* 29 C.F.R. § 1926.1153(h). In addition, the standard requires employers to train employees on the purpose of the medical surveillance program. *See* 29 C.F.R. § 1926.1153(i)(2)(i)(F). If an employer wishes to document an employee's decision to decline a medical examination, the employer could ask the employee to sign a statement affirming that he or she was offered the benefits and declined to participate.

Note that the medical examination under the silica standard is different than the medical evaluations required under the respiratory protection standard. If an employee declines a medical evaluation under the respiratory protection standard, then the employer may not assign him or her a task requiring respirator use.

[44. Although the standard does not require employees to participate in medical surveillance, can an employer make such participation mandatory?](#)

Nothing in the silica standard precludes an employer from requiring participation in medical surveillance programs, as appropriate under other applicable laws or collective bargaining agreements.

[45. Can an employer send an employee for a second opinion after receiving the PLHCP's written medical opinion for the employee's initial or periodic medical surveillance examination?](#)

The standard does not preclude employers from offering employees a second medical surveillance examination that meets the requirements of paragraph (h). However, if *any* of the written medical opinions provided to the employer as a result of the first or subsequent medical surveillance examinations contains a statement that the employee should be examined by a specialist, or a statement that the employee should receive more frequent periodic examinations, then the employer must make the required examination available, in accordance with 29 C.F.R. § 1926.1153(h)(7) or (h)(3), respectively. Any second examination must also be provided at a reasonable time and place and at no cost to employees, and the restrictions on information that can be provided to the employer without the employee's authorization would apply equally to the second written medical opinion.

46. Paragraph (h) requires employers to make an initial (baseline) medical examination available to each employee required to wear a respirator for 30 or more days per year, unless the employee has received an examination that meets the requirements of the standard within the last three years. Can an employer rely on an employee's verbal statement that he or she has already received such an examination?

No. An employee's verbal statement that he or she received an initial medical examination from a prior employer is not sufficient to discharge the employer's responsibility to offer such an examination. However, an employer may rely on documentation from the employee that demonstrates the employee received a medical examination meeting the requirements of paragraph (h)(2) within the past three years and that contains the information described in paragraph (h)(6) (e.g., a copy of the written medical opinion sent to a prior employer and provided to the employee). See 29 C.F.R. § 1926.1153(h)(6)(iii); 81 Fed. Reg. at 16836. An employer that obtains such documentation need not offer the employee an initial medical exam. The employer must, however, offer the employee periodic medical examinations at least every three years, based on the documented date of the employee's last medical examination with a previous employer. Examinations must be offered more frequently, if the PLHCP who performed an examination recommended more frequent examinations. See 29 C.F.R. § 1926.1153(h)(3); 81 Fed. Reg. at 16818-19. The employer must retain, in accordance with paragraph (j)(3), any medical records upon which it relied to discharge its responsibility to provide a medical examination or determine when the next medical examination must be offered.

47. If a PLHCP recommends that an employee see a specialist, but the employee does not authorize the PLHCP to include that recommendation in the written medical opinion for the employer, does the employer need to make the specialist examination available?

No. The standard requires the employer to make available an additional examination with a specialist only if the PLHCP's written medical opinion for the employer indicates that the employee should be examined by a specialist. See 29 C.F.R. § 1926.1153(h)(7)(i). And the employee must provide written authorization before the PLHCP's written medical opinion for the employer may include a recommendation for a specialist examination. See 29 C.F.R. § 1926.1153(h)(6)(ii)(B). Thus, if the PLHCP's opinion for the employer does not contain the PLHCP's recommendation for a specialist examination because the employee did not authorize the employer to receive it, then the employer is not responsible for offering additional examinations. See 81 Fed. Reg. at 16837.

48. The standard requires respirator use under certain circumstances. Under OSHA's respiratory protection standard, employees must be medically able to use a respirator. What are the employer's responsibilities for employees who are assigned a task that requires the use of a respirator under the standard, but are not medically able to use a negative pressure respirator?

Among other things, OSHA's respiratory protection standard requires employers to provide a medical evaluation to determine the employee's ability to use a respirator, before the employee is fit tested or required to use the respirator in the workplace. See 29 C.F.R. § 1910.134(e)(1). It also requires employers to obtain a written recommendation from the PLHCP on whether the employee is medically able to use a respirator. See 29 C.F.R. § 1910.134(e)(6)(i)(A). If an employee receives medical surveillance under the silica standard, the PLHCP's written medical opinion for the employer also must include any recommended limitations on the employee's use of respirators. See 29 C.F.R. § 1926.1153(h)(6)(i)(C). If a PLHCP determines through either a medical evaluation under the respiratory protection standard, or medical surveillance under the silica standard, that an employee

has a medical condition that places the employee's health at increased risk if a negative pressure respirator is used, but the employee can use a powered air purifying respirator (PAPR), then the employer must provide a PAPR. See 29 C.F.R. § 1910.134(e)(6)(ii). OSHA believes many workers who are medically unable to use a negative pressure respirator will be able to use a PAPR. However, if an employee cannot use either type of respirator, then the employer must not assign the employee to perform a task that would require the employee to use a respirator. In such a situation, the employer may need to consult other local, state, or federal laws and regulations and collective bargaining agreements to determine its obligations with respect to such employees.

49. There are some situations in which employees may want to use respirators even though respirator use is not required by the silica standard. If employees use respirators when respirator use is not required by the standard, does such respirator use count toward the 30-day trigger for medical surveillance?

No. The standard only requires employers to make medical surveillance available to employees who will be required *by the silica standard* to use a respirator for 30 or more days per year. See 29 C.F.R. § 1926.1153(h)(1)(i). See the Small Entity Compliance Guide for the Respiratory Protection Standard (<https://www.osha.gov/Publications/3384small-entity-for-respiratory-protection-standard-rev.pdf>) for additional information about respirator requirements.

### **Employee Information and Training (29 C.F.R. § 1926.1153(i)(2))**

The standard requires employers to ensure that each employee who is covered by the silica standard can demonstrate knowledge and understanding of the health hazards associated with exposure to silica, specific tasks in the workplace that could result in exposure to silica, specific measures the employer has implemented to protect employees from exposure to silica, the contents of the standard, the identity of the competent person designated by the employer, and the purpose and a description of the medical surveillance program. 29 C.F.R. § 1926.1153(i)(2)(i).

50. Does this standard require classroom training for employees on the required subjects of the rule?

No. Employers are in the best position to determine how training can most effectively be accomplished. Therefore, the standard does not specify how an employer needs to train employees. Acceptable forms of training may include hands-on training, videos, slide presentations, classroom instruction, informal discussions during safety meetings, written materials, or any combination of these methods. However, to ensure that employees comprehend the material presented during training, it is critical that trainees have the opportunity to ask questions and receive answers if they do not fully understand the material presented to them. This requirement can be met in a variety of ways. For example, employers that train employees through video presentations or computer-based programs can have a qualified trainer available to address questions after the presentation, or provide a telephone hotline so that trainees have direct access to a qualified trainer. See 81 Fed. Reg. at 16845. Employers may also choose to designate a qualified employee to answer questions for these purposes.

51. How can employees demonstrate knowledge and understanding of the required subjects, as required by the silica standard?

There is no set method employers must use to ensure employees demonstrate knowledge and understanding of the required subjects. Instead, the standard defines employers' training obligations

in terms of performance-oriented objectives meant to ensure that employees are aware of the hazards associated with silica in their workplace and how they can help protect themselves. However, as a general matter, employers can determine whether employees have the requisite knowledge through methods such as discussion of the required training subjects, written tests, or oral quizzes. See 81 Fed. Reg. at 16845.

The requirement for training is performance-oriented in order to allow flexibility for employers to provide training as needed to ensure that each employee can demonstrate the knowledge and understanding required under the rule. Although the standard does not set a fixed schedule for periodic training, additional or repeated training may be necessary under certain circumstances. For example, if an employer observes an employee engaging in activities that contradict knowledge gained through training, it is a sign to the employer that the employee may require a reminder or periodic retraining on work practices. See 81 Fed. Reg. at 16850.

**52. Does the hazard communication standard apply when employees' silica exposures will remain below the AL of 25 µg/m<sup>3</sup> as an 8-hour TWA?**

Yes. The hazard communication standard, 29 C.F.R. § 1910.1200, applies to hazardous chemicals (including respirable crystalline silica) regardless of the airborne exposure level.

**Recordkeeping (29 C.F.R. § 1926.1153(j))**

The standard requires employers to make and maintain records of certain information, including air monitoring data, objective data, and medical surveillance data. Required records must be maintained and made available in accordance with 29 C.F.R. § 1910.1020, which generally requires employers to ensure that these types of records are maintained for at least 30 years. 29 C.F.R. § 1926.1153(j).

**53. How can employers comply with the requirement to ensure that employee medical records are maintained for the proper period of time when they do not receive a copy of the PLHCP's written report to the employee?**

Employers are responsible for maintaining records in their possession (e.g., the PLHCP's written medical opinion for the employer described in paragraph (h)(6)). Employers are also responsible for ensuring the retention of records in the possession of the PLHCP (e.g., the written medical report for the employee described in paragraph (h)(5)). An employer can fulfill this second obligation by including the retention requirement in the agreement between the employer and the PLHCP or by otherwise specifically communicating to the PLHCP the substance of OSHA's record-retention requirements. See 81 Fed. Reg. at 16854.