



# OSHA's Silica Exposure Rule

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# OSHA's Crystalline Silica Rule

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OSHA's Silica Exposure Rule  
Course Number - 1097457

Bradford T. Hammock  
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## Course Description

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Understand the specific requirements of the silica exposure rule and the steps you should take to stay in compliance.

The Occupational Safety and Health Administration's crystalline silica rule is now in effect for general industry, construction, and maritime. The rule is one of the most significant in the Agency's history and enforcement has begun. Employers should be reviewing their exposures and programs NOW to ensure full compliance. This topic helps employers understand the specific requirements of the rule and how recent interpretations of the rule by the Agency impact the rule's application in a wide variety of work environments. The material also explains how OSHA is initially enforcing the rule and key compliance steps employers should be taking initially. This information is critical for employers so they can ensure their compliance efforts for this important rule of in place in the event OSHA comes knocking.





# Learning Objectives

At the end of the this course, participants will be able to:

1. You will be able to discuss key requirements for OSHA's Crystalline Silica Rule.
2. You will be able to explain OSHA enforcement focus.
3. You will be able to identify medical surveillance.
4. You will be able to review the keys to compliance.



## Course Evaluations

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The screenshot shows the AIA CES Discovery website. At the top is the AIA logo and the text "THE AMERICAN INSTITUTE OF ARCHITECTS". Below this is a navigation bar with links: "Discovery Home", "Notifications", "Scheduled Courses", "Course Directory", "Self-Report Activities", "Transcript", and "Resources". The main content area features a banner image of a person working at a computer with the text "CESDiscovery" and "Welcome, AIA Members". On the left side, there is a vertical menu with an arrow pointing to the "Course Evaluation" link. Below the banner, there are four promotional boxes: "Find Courses" (Search the CES Discovery for available courses), "Events" (Check out the schedule of upcoming provider training Web seminars and events), "MCS Requirements" (Find links to all U.S. state and Canadian licensing requirements), and "Get Started" (Need assistance? Explore our online tutorials and simulations that will guide your way through CES Discovery).

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## Agenda

- Status of Rule
- Key Requirements and Interpretations
- Tips for Compliance



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## Status of Rule

- Rule finalized on March 25, 2016
- OSHA began full enforcement for construction in October, 2017
- OSHA began full enforcement for general industry and maritime in June, 2018
- OSHA has issued interim enforcement guidance for both the construction and general industry standards
- OSHA recently issued Frequently Asked Questions (“FAQs”) for construction in consultation with industry and union stakeholders
- FAQs expected soon for general industry and maritime

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## Key Requirements and Interpretations

- Scope
  - 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  $\mu\text{g}/\text{m}^3$  under any foreseeable conditions
  - Several tasks identified that when performed in isolation are outside the scope of the standard: mixing small amounts of mortar; mixing small bags of concrete; mixing bagged, silica-free drywall compound
  - Occasional, brief silica-generating tasks (for 15 minutes or less) also likely not covered by the standard

## Key Requirements and Interpretations

- Scope (cont'd)
  - For general industry, applies to all occupational exposures to respirable crystalline silica, with the following exceptions: does not apply to construction work; does not apply to agricultural operations; does not apply to silica exposures that result from the processing of sorptive clays
  - Also does not apply where the employer has *objective data* demonstrating that employee exposure to silica will remain below the AL of 25  $\mu\text{g}/\text{m}^3$  under any foreseeable conditions
  - If out of the scope of the standard NONE of the standard's requirements apply!

## Exposure Assessment

- Primarily general industry focused
- Employers must assess the exposure of each employee who is or may reasonably be expected to be exposed to respirable crystalline silica at or above the AL using either a performance option or a scheduled monitoring option
  - Under the performance option, employers must assess based on any combination of air monitoring data or objective data sufficient to accurately characterize employees' current silica exposures
  - Under the scheduled monitoring option, employers must conduct initial monitoring and then follow-up monitoring at specified intervals based upon the results of the initial monitoring
- Under both the performance and scheduled monitoring options, employers must reassess exposures whenever a change in the production, process, control equipment, personnel, or work practices may reasonably be expected to result in new or additional exposures at or above the AL, or when there is any reason to believe that new or additional exposures at or above the AL have occurred.

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## Exposure Control Methods/Table 1 - Construction

- 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 with “Table 1.” Employers that follow Table 1 do not have to assess employee exposures or separately ensure compliance with the PEL
- 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”
- Under this compliance option, the employer must ensure using the hierarchy of controls that no employee is exposed to an airborne concentration of respirable crystalline silica in excess of the PEL of  $50 \mu\text{g}/\text{m}^3$ , calculated as an 8-hour TWA

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## Exposure Control Methods/Table 1 – Construction (cont'd)

- Contractors do not need to follow all directions in manufacturer's instructions – only those related to minimizing dust emissions
- Contractors do not need to follow recommendations for respirator use contained in manufacturer's instructions – need to follow requirements in Table 1
- When determining time performing a task under Table 1 for purposes of respiratory protection, contractors do not need to track the exact amount of time, but make a good faith judgement



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## Housekeeping

- 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
- 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

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## Housekeeping (cont'd)

- Prohibitions on dry sweeping, dry brushing, and the use of compressed air do not apply if exposures will remain below the AL under any foreseeable conditions
- Prohibitions apply only to regular housekeeping tasks, not when tasks are performed as part of a (non-housekeeping) work activity
- Dust suppression compounds are allowable, including those that contain some crystalline silica



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## Regulated Areas – General Industry

- Requires employers to establish regulated areas wherever an employee's exposure to airborne concentrations of respirable crystalline silica is, or can reasonably be expected to be, in excess of the PEL.
- Employers must demarcate regulated areas from the rest of the workplace in a manner that minimizes the number of employees exposed to silica in those areas and post signs (with a specified legend) at all entrances to regulated areas
- Employers must provide, and require use of, an appropriate respirator for each employee and designated representative who enters a regulated area

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## Regulated Areas – General Industry (cont'd)

- “Regulated area” defined as an area where an employee’s silica exposure exceeds, or can reasonably be expected to exceed, the PEL
- If an employer has, and adequately enforces, work rules precluding employees from entering a particular area, then the employer does not need to treat that location as a regulated area
- An area does not need to be designated as a regulated area if the employer has and enforces work rules limiting employees’ time in the area so that there is no reasonable expectation that their 8-hour TWA exposures will exceed the PEL



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## Written Exposure Control Plan

- For construction, standard requires employers to establish and implement a written exposure control plan that contains: (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; and (4) a description of the procedures used to restrict access to work areas
  - Contractors may develop a single comprehensive written exposure control plan that covers all required aspects of the plan for all worksites
  - Contractors do not need to prohibit access to whole floors or areas of a worksite when performing silica generating tasks, must minimize employees in the work area
- For general industry, just the first three

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## Medical Surveillance

- Standard requires employers to make medical surveillance available at no cost, and at a reasonable time and place
  - For construction, to any employee who is required to use a respirator for 30 or more days a year
  - For general industry, to any employee exposed over the PEL/AL
- 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

## Medical Surveillance (cont'd)

- Employer must obtain a written medical opinion containing 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
- The employee will obtain a written medical report that contains: (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
  - Allows exchange of information outside of the medical surveillance process (i.e., through workers compensation)
  - Standard does not prohibit employers making medical surveillance mandatory

## Employee Information and Training

- Standard requires employers to ensure that each employee 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.

## Recordkeeping

- Standard requires that employers 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



## OSHA Enforcement Focus

- Inspections largely complaint driven or visual
- Ensure written exposure control plan is up-to-date (including housekeeping methods); compliance officers instructed to review
- Ensure that supervisors understand the plan and exposure control methods (i.e., Table 1) if not following Table 1 fully, OSHA must still show exposures over the PEL
- Ensure employees have received initial training



## Questions



# Thank You!

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Standard Interpretations

/ Interim Enforcement Guidance for the Respirable Crystalline Silica in Construction Standard, 29 CFR 1926.1153

- **Standard Number:** 1910.134 ; 1910.1053 ; 1910.1200 ; 1926.1153 ; 1926.1153(c) ; 1926.1153(c)(1) ; 1926.1153(d) ; 1926.1153(d)(1) ; 1926.1153(d)(2) ; 1926.1153(d)(2)(iii)(B) ; 1926.1153(d)(2)(iii)(E) ; 1926.1153(d)(2)(v) ; 1926.1153(d)(3) ; 1926.1153(e)(1)(ii)(C) ; 1926.1153(i)(2)

OSHA requirements are set by statute, standards and regulations. Our interpretation letters explain these requirements and how they apply to particular circumstances, but they cannot create additional employer obligations. This letter constitutes OSHA's interpretation of the requirements discussed. Note that our enforcement guidance may be affected by changes to OSHA rules. Also, from time to time we update our guidance in response to new information. To keep apprised of such developments, you can consult OSHA's website at <http://www.osha.gov>.

October 19, 2017

**MEMORANDUM FOR:**  
REGIONAL ADMINISTRATORS

**THROUGH:**  
THOMAS GALASSI

Acting Deputy Assistant Secretary

**FROM:**  
PATRICK J. KAPUST, Acting Director  
Directorate of Enforcement Programs

**SUBJECT**  
Interim Enforcement Guidance for the Respirable Crystalline Silica in Construction Standard, 29 CFR 1926.1153

This memorandum provides interim enforcement guidance to Compliance Safety and Health Officers (CSHOs) for enforcing 29 CFR 1926.1153, *Respirable Crystalline Silica*. The Respirable Crystalline Silica in Construction standard establishes a new 8-hour time weighted average (TWA) permissible exposure limit (PEL) of 50 µg/m<sup>3</sup>, and an action level (AL) of 25 µg/m<sup>3</sup>.

As you know, OSHA has been enforcing the Respirable Crystalline Silica in Construction standard since September 23, 2017. However, for the first 30 days, OSHA offered compliance assistance in lieu of enforcement for those employers who were making good faith efforts to comply with the new construction standard. Effective October 23, 2017, OSHA will fully enforce all appropriate provisions of the Silica in Construction standard. This memorandum will serve as interim enforcement guidance while the standard's companion compliance directive is proceeding through the review process. It will expire when the compliance directive becomes effective and available to the field.

This memorandum highlights some of the requirements of 29 CFR 1926.1153, but does not provide guidance on all of the standard's provisions. The attachments provide inspection and citation guidance; as well as flow charts to assist with evaluating employers' control methods. Please consult the Office of Health Enforcement when you need further information or guidance on 29 CFR 1926.1153, *Respirable Crystalline Silica*.

Further, due to the new requirements in 29 CFR 1926.1153, *Respirable Crystalline Silica*, OSHA has revoked CPL 03-00-007, *National Emphasis Program - Crystalline Silica*. However, the inspection procedures for both General Industry and Maritime will remain unchanged until the compliance date for these industries begins on June 23, 2018.

## **Overview**

The final rule on *Occupational Exposure to Respirable Crystalline Silica*, published on March 25, 2016, established a new PEL of 50 µg/m<sup>3</sup> for all covered industries. It also required other employee protections, such as performing exposure assessments, using exposure control methods, using respiratory protection, offering medical surveillance, developing hazard communication information, and keeping silica-related records. The rule included two standards: one for Construction - 29 CFR 1926.1153; and one for General Industry and Maritime - 29 CFR 1910.1053, both of which became effective on June 23, 2016.

Under the construction standard, all obligations were to commence on June 23, 2017, except for requirements for sample analysis in 29 CFR 1926.1153(d)(2)(v), which commence on June 23, 2018. The construction standard has a number of unique features, which warranted development of additional guidance materials. As you are aware, OSHA delayed enforcing this standard until September 23, 2017, to provide training to compliance officers and conduct outreach to the regulated community. Additionally, for the first 30 days, OSHA offered compliance assistance in lieu of enforcement for those employers who were making good faith efforts to comply. Outreach to employers and trainings for CSHOs and other field staff has already been conducted, and additional educational materials are currently being developed.

As a reminder, the September 23, 2017, enforcement date applied only to construction, the requirements for General Industry/Maritime are set to commence on June 23, 2018.

If you have any questions, please contact Audrey Profitt or Sven Rundman in the Office of Health Enforcement at 202-693-2190.

Attachments

## **Attachment A: Enforcement Guidance**

### **General Information**

- 29 CFR 1926.1153, *Respirable Crystalline Silica* applies to all occupational exposures to respirable crystalline silica in construction work, *except* where employee exposure will remain below 25 micrograms per cubic meter of air (25 µg/m<sup>3</sup>) as an 8-hour TWA under any foreseeable conditions.
  - The exemption is based on *total* respirable crystalline silica exposures *from all* sources and must take into account all conditions that may add or contribute to the employee's overall exposure levels.
- 29 CFR 1926.1153, *Respirable Crystalline Silica* establishes an 8-hour TWA PEL of 50 µg/m<sup>3</sup> and an AL of 25 µg/m<sup>3</sup>. The standard also contains a unique, flexible option for employers whose employees are engaged in the construction tasks listed in Table 1 at 29 CFR 1926.1153(c)(1).
- If the employer fully and properly implements the engineering controls, work practices, and respiratory protection listed in Table 1, it is not required to conduct exposure assessments or otherwise comply with a PEL for employees engaged in those tasks.
- The employer must comply with paragraph (d) (the PEL, exposure assessment, and methods of compliance requirements) for employees who are engaged in tasks not listed on Table 1 or where it has not fully and properly implemented the engineering controls, work practices, and respiratory protection listed in Table 1 for all employees engaged in listed tasks.

## **Inspection Guidance - Specified Exposure Control Methods [paragraph (c)] and Alternative Exposure Control Methods [paragraph (d)]**

### **General Information**

- CSHOs should be prepared to collect personal breathing zone samples on the first day of the inspection.
  - When sampling is warranted, CSHOs must perform air monitoring in accordance with the OSHA Technical Manual (OTM), Section II, Chapter 1, and OSHA sampling method ID-142.
  - CSHOs may contact the SLTC Laboratory through the regional office if they need guidance on developing a sampling strategy for unusual worksite conditions.
- CSHOs must review the employer's written silica Exposure Control Plan (ECP) and other relevant programs (*e.g.*, respiratory protection program, hazard communication program, etc.) as part of the investigation.
- If the employer has conducted an exposure assessment, CSHOs should also review the assessment to determine what levels might be expected before entering the work area. As noted above, employers are not required to assess the exposures of employees engaged in Table 1 tasks if the employer has fully and properly implemented the engineering controls, work practices, and respiratory protection listed in Table 1 for the employees engaged in those tasks.
- CSHOs should interview affected employees, including the competent person, as part of the overall assessment of the employer's implementation of its ECP.

### **For Employers Following Table 1 [paragraph (c)]**

- Where the construction employer is *fully and properly* implementing the engineering controls, work practices, and respiratory protections specified in Table 1 for each employee engaged in listed tasks, there is no requirement for the CSHO to collect personal air samples for those tasks.
  - *Fully and properly* implementing the controls specified in Table 1 includes following the requirements of paragraph (c)(2) relating to means of exhaust, water flow rates, and enclosed cabs.
- Where the construction employer: (1) has employees performing a task or using equipment that is not listed in Table 1; or (2) has not *fully and properly* implemented the engineering controls, work practices, and respiratory protection listed in Table 1 for all employees engaged in Table 1 tasks, CSHOs must collect personal air samples to measure the 8-hour TWA for the silica operations likely to exceed the PEL.

**For Tasks Not Listed in Table 1 or Where the Employer Has Not *Fully and Properly* Implemented the Engineering Controls, Work Practices, and Respiratory Protection Described in Table 1 for All Employees Engaged in Listed Tasks [paragraph (d)]**

- These construction employers must comply with paragraph (d) of the standard, including the PEL, exposure assessment, and methods of compliance requirements.
- CSHOs must review the employer's air monitoring records, or other data the employer used to assess exposures. See Exposure Assessment options below.
- CSHOs must collect personal samples to measure the 8-hour TWA for the silica operations likely to exceed the PEL.

**Exposure Assessment Options Under 29 CFR 1926.1153(d)(2)**

- Employers must assess the exposure of each employee who is or may be potentially exposed to respirable crystalline silica at or above the AL using either the performance option or the scheduled monitoring option.
- *Performance Option*
  - Provides some flexibility; the burden is on the employer to demonstrate that the data fully complies with the requirements.
  - Allows employers to assess the 8-hour TWA exposure for each employee on the basis of any combination of air monitoring data or *objective* data sufficient to accurately characterize employee exposures to respirable crystalline silica.
    - Data must reflect worker exposures on each shift, each classification, and in each work area.
  - *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 respirable crystalline silica associated with a particular product or material, or a specific process, task, or activity.
    - To qualify as *objective*, 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 present in the employer's current operations.
    - Employers may use historical monitoring data as *objective* data if it meets these requirements.
- Employers must comply with remaining assessment provisions where applicable (*e.g.*, employee notification of results, observation of monitoring).
  - *Note:* The requirements for methods of sample analysis in paragraph (d)(2)(v) are the only exception to the September 23, 2017, compliance date. These requirements begin on June 23, 2018.
- Employers may characterize employee exposure within a particular range (*e.g.*, employee exposure is between the AL and the PEL).
- *Scheduled Monitoring Option*
  - Requires both initial and periodic monitoring.
    - Employers must perform initial monitoring as soon as work begins to determine exposure levels and where to implement control measures.
    - Employers must conduct periodic monitoring at specified intervals based on most recent monitoring results.
  - Monitoring must 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 on each shift, each job classification, and work area.
    - Where several employees perform the same tasks on the same shift and in the same work area, the employer may sample a representative group of employees to meet this requirement. Representative sampling must be of the employee(s) who are expected to have the highest exposure to respirable crystalline silica.



- Discontinuing the air monitoring requirements is based on monitoring results. See 29 CFR 1926.1153(d)(2)(iii)(B) & (E).

### **Methods of Compliance [paragraph (d)(3)]**

- Requires employers to use engineering and work practice controls to reduce and maintain employee exposures to respirable crystalline silica to or below the PEL, unless the employer can demonstrate that such controls are not feasible.
- Where controls are not sufficient to reduce employee exposure to or below the PEL, the employer must:
  - Use controls to reduce employee exposure to the lowest feasible level and supplement them with the use of respiratory protection.

*Note:* The respirable crystalline silica standards do not prohibit employers from rotating employees to different jobs to achieve compliance with the PEL.

### **Other Silica Construction Standard Provisions**

#### **Respiratory Protection [paragraph (e)]**

- For tasks not listed in Table 1 or where the employer has not *fully and properly* implemented the Table 1 controls, respiratory protection is required where exposures exceed the PEL.
- *Fully and properly* implementing the engineering controls, work practices, and respiratory protection listed in Table 1 for an employee engaged in a listed task includes ensuring that employees are using respiratory protection as specified in Table 1.
  - If Table 1 requires respiratory protection when the anticipated task duration exceeds four hours, employees engaged in the task must wear the respirator during the entire period of time they are performing the task, not just the period of time that exceeds four hours.
  - For the purpose of determining task duration, the duration begins when the employee first puts the tool or equipment into operation, and continues until the tool/equipment is no longer in use. For tasks conducted on an intermittent basis during a shift separated by extended intervals, do not include the time interval between Table 1 tasks in the task duration.
- Where the standard requires the use of respiratory protection, employers must institute a respiratory protection program in accordance with 29 CFR 1910.134.

#### **Housekeeping Practices [paragraph (f)]**

- The paragraph prohibits dry sweeping and dry brushing where such activities could contribute to employee exposures to respirable crystalline silica, *unless* wet sweeping, HEPA-filtered vacuuming, or other methods that minimize the likelihood of exposure are not feasible (*i.e.*, the other cleaning methods would not be effective, would cause damage, or would create a hazard in the workplace). The employer bears the burden of showing that the alternative methods are not feasible.
- Using sweeping compounds (*e.g.*, non-grit, oil- or waxed-based) is an acceptable dust suppression housekeeping method.
- The use of compressed air for cleaning is allowed where the compressed air is used in conjunction with a ventilation system that effectively captures the dust cloud created by the compressed air, or where no alternative method is feasible.
- The employer's exposure control plan must include the description of the housekeeping measures.

#### **Written Exposure Control Plan (Competent person) [paragraph (g)]**

- Employers must establish and implement a written exposure control plan (ECP) that contains certain specified elements.
- The employer must designate a competent person to make frequent and regular inspections of job sites, materials, and equipment to implement the written ECP.
- The competent person must:
  - Be capable of identifying existing and foreseeable respirable crystalline silica hazards in the workplace;
  - Have authorization to take prompt corrective measures to eliminate or minimize identified hazards; and
  - Have the knowledge and ability necessary to fulfill his or her responsibilities.
- While the standard does not require employers to list the name of the competent person in the written ECP (because it could change daily), construction employees must be able to identify the designated competent person.

### Medical Surveillance [paragraph (h)]

- Employers must make medical examinations available to employees who will be *required* to wear a respirator for 30 or more days a year according to 29 CFR 1926.1153, *Respirable Crystalline Silica*. The 30-day trigger applies *per employer* (exposures with previous employers do not count toward the 30-day total).
  - Any partial day of respirator use (even if for only one hour or less) is considered one day of respirator use for the purposes of medical surveillance requirements.
- The employer must make the initial (baseline) medical examination available within 30 days after initial assignment (unless the employee has received a medical examination in accordance with the standard within the past three years).
- The medical opinion provided to the employer must contain only the date of the exam, a statement from the physician or other licensed health care professional (PLHCP) that the exam met the requirements of the standard, and any limitations on the employee's use of respirators.
- If the employee has provided the PLHCP with *written authorization*, then the written medical opinion for the employer must also contain the following: (1) any recommended limitations on the employee's continued exposure to silica; and (2) any PLHCP recommendation that the employee should be referred to a specialist.

### Communication of Hazards [paragraph (i)]

- Required for all employees who are or could foreseeably be exposed to respirable crystalline silica at or above the AL of 25 µg/m<sup>3</sup> as an 8-hour TWA.
- Requires employers to include respirable crystalline silica in their hazard communication program; ensure that employees have access to labels on containers of crystalline silica and related safety data sheets; and train their employees as specified in the Hazard Communication Standard (HCS), 29 CFR 1910.1200, and paragraph (i)(2) of 29 CFR 1926.1153, *Respirable Crystalline Silica*.
- 29 CFR 1910.1200 (HCS) applies and CSHOs should cite employers for hazard communication deficiencies where employees are exposed or potentially exposed to respirable crystalline silica at levels below the AL.

## Citation Guidance

### Tasks Listed in Table 1

- Where the employer **has fully and properly** implemented the engineering controls, work practices, and respiratory protections specified in Table 1, the CSHO **will not cite** the employer for any PEL or exposure assessment violation.
- Where the employer has **not fully and properly** implemented the engineering controls, work practices, and respiratory protections specified in Table 1 *and* the employer *has not* conducted an exposure assessment under

29 CFR 1926.1153(d), the CSHO will cite 29 CFR 1926.1153(c) and (d)(2) as a grouped violation, along with citing any other noted deficiencies (e.g., respiratory protection, hazard communication) as separate violations.

- The CSHO will cite deficiencies in the employer's assessment under paragraph (d)(2) as a grouped violation with 29 CFR 1926.1153(c), along with citing any other noted deficiencies (e.g., respiratory protection, hazard communication).
- Where the employer has **not fully and properly** implemented the engineering controls, work practices, and respiratory protections specified in Table 1, and sampling shows exposure over the PEL, the CSHO will cite 29 CFR 1926.1153(c) and (d)(1) as a grouped violation.
- Where the employer has **not fully and properly** implemented the engineering controls, work practices, and respiratory protections specified in Table 1 but the employer *has* conducted an exposure assessment under 29 CFR 1926.1153(d):
  - If CSHO sampling shows an overexposure and the employer has *not* instituted all feasible engineering and work practice controls or adequately protected employees via an effective respiratory protection program, the CSHO will cite the overexposure as a violation of 29 CFR 1926.1153(d)(1) and (d)(3) grouped with 29 CFR 1926.1153(c).
  - If, in the CSHO's opinion, the employer's exposure data may not be representative (e.g., new or different operations are occurring in the workplace that do not closely resemble the operations represented in the employer's exposure data), the CSHO should also cite 29 CFR 1926.1153(d)(2), as appropriate, and group with 29 CFR 1926.1153(c). Where appropriate, cite any other deficiencies.
  - If CSHO sampling shows an over exposure and the employer *has* instituted all feasible engineering and work practice controls *and* employees are adequately protected via an effective respiratory protection program, then the CSHO **will not cite** the employer for a PEL violation.

### Tasks Not Listed In Table 1

- If CSHO sampling shows an overexposure and the employer has *not* instituted all feasible engineering and work practice controls or adequately protected employees via an effective respiratory protection program, the CSHO will cite the overexposure as a violation of 29 CFR 1926.1153(d)(1).
  - Deficiencies in any of the requirements for engineering and work practice controls and respiratory protection must follow the citation procedures for combining and grouping violations in CPL 02-00-160, *Field Operations Manual (FOM)*.
  - The CSHO should cite 29 CFR 1926.1153(e)(1)(ii)(C) when the employer did not provide necessary respiratory protection where engineering and work practice controls were not sufficient to reduce exposures to or below the PEL.
- If, in the CSHO's opinion, the employer's exposure data may not be representative (e.g., new or different operations are occurring in the workplace that do not closely resemble the operations represented in the employer's exposure data), the CSHO should cite 29 CFR 1926.1153(d)(2).

If the employer violates any other provision of 29 CFR 1926.1153, *Respirable Crystalline Silica*, the CSHO must issue the citation(s) in accordance with the FOM.

### Exposure Variability

- If a CSHO obtains a sample showing exposures above the PEL, but has reason to think, based on the employer's air monitoring data, that the results may be due to *unpreventable* exposure variability, then the Area Director may consider whether to conduct a follow-up inspection in lieu of issuing a citation.
- The CSHO will compare the employer's exposure data with CSHO sampling results to determine whether the employer's data are representative. To be representative, the employer's samples must have been obtained under conditions that closely resemble or have a higher exposure potential than CSHO samples.
- The CSHO should confer with the Area Director regarding whether re-sampling is appropriate.

- The burden is on the employer to demonstrate that the CSHO's samples are not representative of normal exposure levels.

### CSHO Protection

CSHOs must use appropriate PPE for potential hazard exposures. They must not enter a respirable crystalline silica-regulated area, or other area where exposures are likely to exceed the PEL, unless it is absolutely necessary and then only if using appropriate PPE. For inspection and air sampling activities, CSHOs should use remote operations when practical. CSHOs should be conservative about time spent in areas where high concentrations of silica exist or are suspected.

## Attachment B: Flow Charts for Evaluating Construction Employer Methods of Controlling Exposure to Respirable Crystalline Silica

### Flowchart A: Specified Exposure Controls for Table 1 Tasks

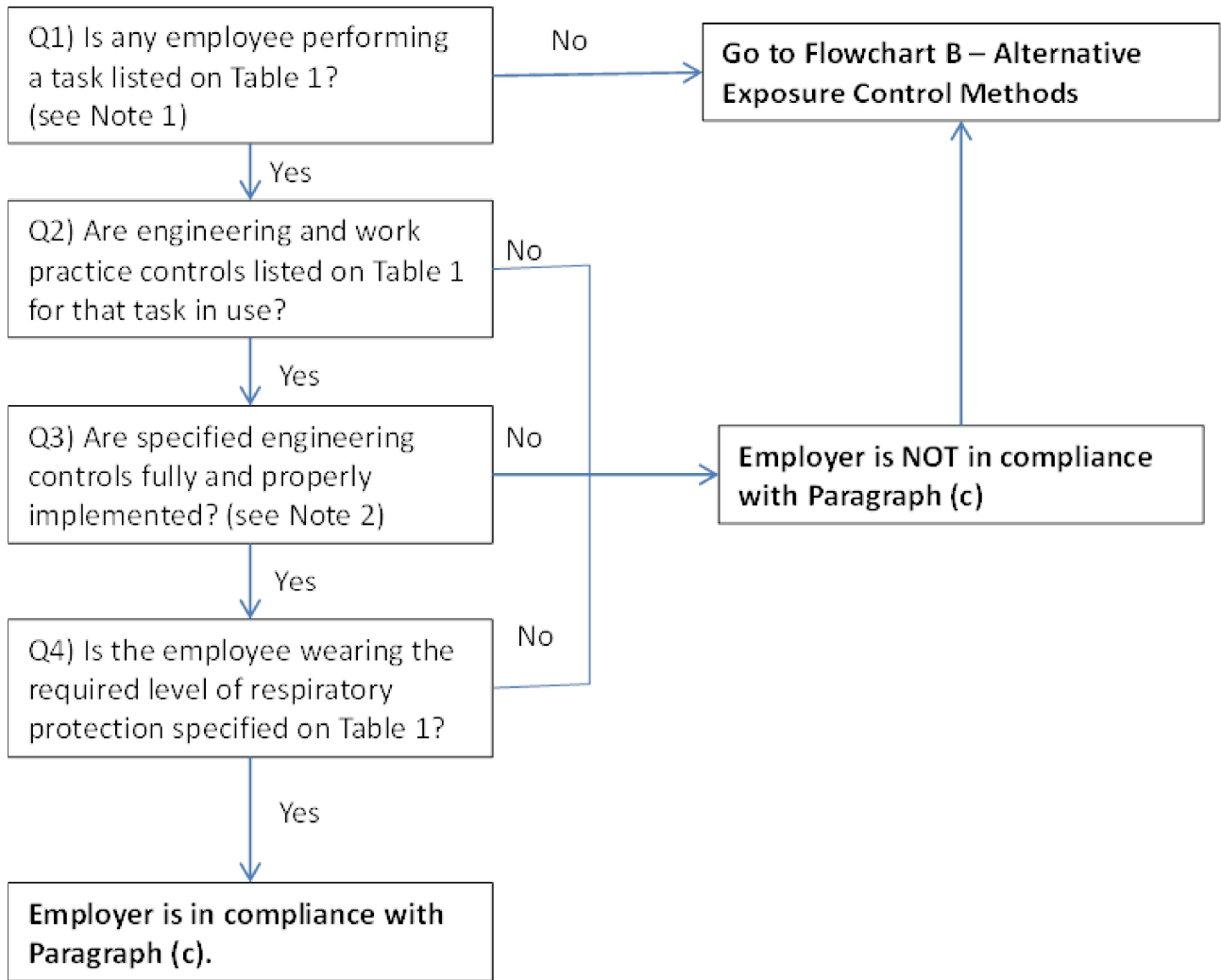
If employees are performing Table 1 tasks, and the employer has not implemented controls, *and* has not conducted an exposure assessment, then the employer is in violation of paragraphs (c) and (d). For each employee with occupational exposure to respirable crystalline silica (RCS), CSHOs should consider the following questions.

1. Is any employee performing a task listed in Table 1?  
If Yes, go to Q2.  
**If No, evaluate compliance with 29 CFR 1926.1153(d) - see Flowchart B.**
2. Are the engineering controls and work practices listed for that Table 1 task in use?  
If Yes, go to Q3.  
**If No, evaluate compliance with 29 CFR 1926.1153(d) - see Flowchart B.**
3. Are the engineering controls *fully and properly* implemented?  
If Yes, go to Q4.  
**If No, evaluate compliance with 29 CFR 1926.1153(d) - see Flowchart B.**
4. Is the employee wearing the required level of respiratory protection?  
If Yes, employer is in compliance with Table 1.  
**If No, evaluate compliance with 29 CFR 1926.1153(d) - see Flowchart B.**

Note 1: CSHOs should repeat Flowchart A for each employee engaged in a Table 1 task.

Note 2: To determine whether the engineering controls, work practices, and respiratory protection specified in Table 1 are *fully and properly* implemented, CSHOs should consult 29 CFR 1926.1153(c)(2), which contains additional requirements for tasks performed indoors or in an enclosed area, and for control measures involving wet methods or an enclosed cab or booth.

**Flowchart A: Specified Exposure Controls for Table 1 Tasks**

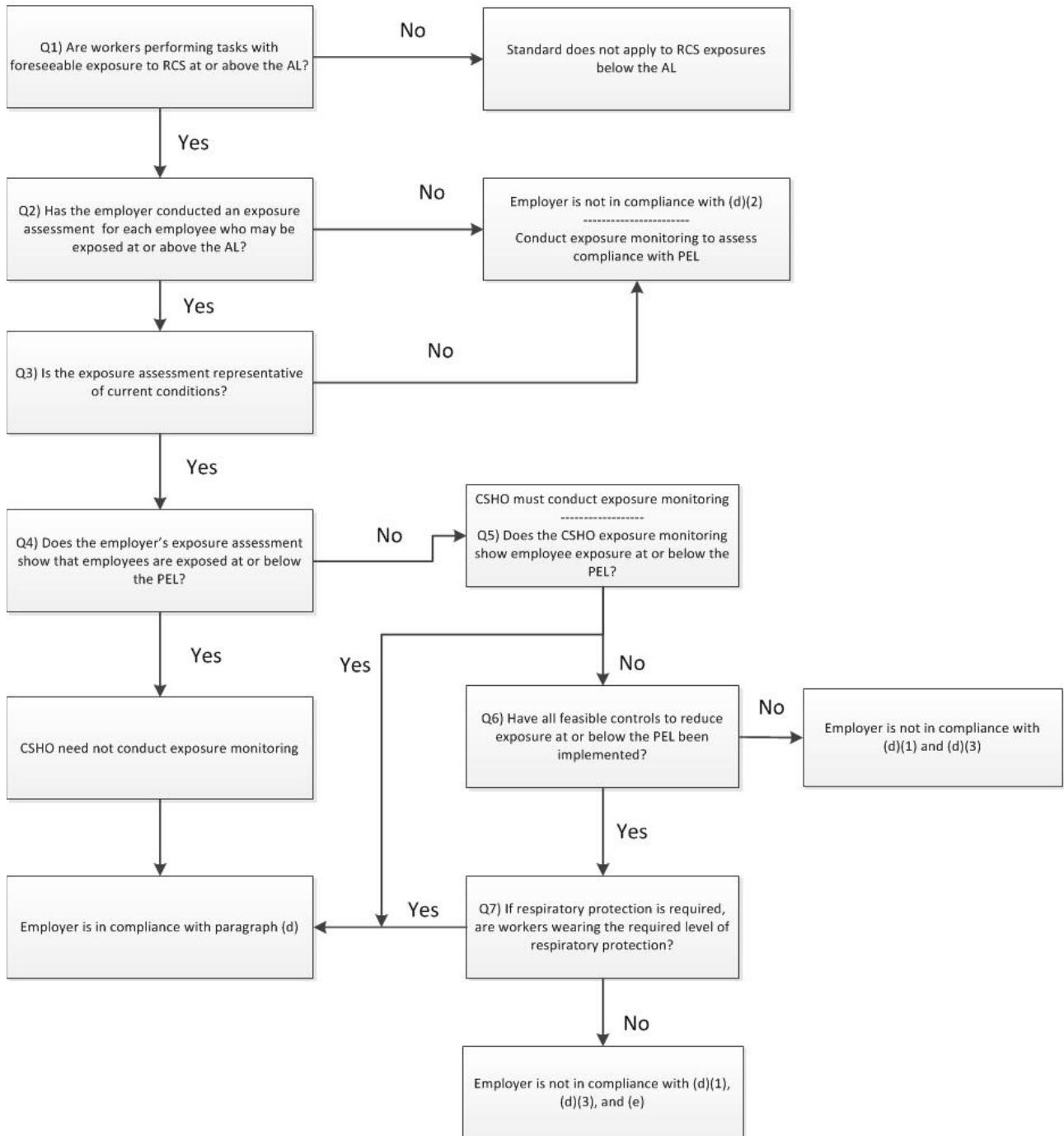


**Flowchart B: Alternative Exposure Control Methods**

1. Are workers performing tasks with foreseeable exposure to RCS at or above the action level? (Note that the use of engineering controls to maintain exposure to below the AL indicates that the standard covers the operation.)  
If Yes, go to Q2.  
**If No, the standard does not apply to exposures below the AL.**
2. Has the employer conducted an exposure assessment for each employee who may be exposed at or above the AL?  
If Yes, go to Q3.  
**If No, the employer is not in compliance with paragraph (d)(2). Conduct exposure monitoring.**
3. Is the exposure assessment representative of current conditions?  
If Yes, go to Q4.  
**If No, the employer is not in compliance with paragraph (d)(2). Conduct exposure monitoring.**
4. Does the employer's exposure assessment show that employees are exposed at or below the PEL?  
If Yes, there is no need to conduct exposure monitoring.  
**If No, conduct exposure monitoring and go to Q5.**

5. Does the CSHO's exposure monitoring show employee exposure at or below the PEL?  
If Yes, the employer is in compliance with paragraph (d)(1).  
**If No, go to Q6.**
6. Has the employer implemented all feasible controls to reduce RCS exposure to at or below the PEL?  
If Yes, go to Q7.  
**If No, the employer is not in compliance with paragraphs (d)(1) and (d)(3).**
7. If respiratory protection is required, are workers wearing the required level of respiratory protection?  
If Yes, the employer is in compliance with paragraph (d)(3).  
**If No, the employer is not in compliance with paragraphs (d)(1), (d)(3), and (e).**

Flowchart B- Alternative Exposure Control Methods



## UNITED STATES DEPARTMENT OF LABOR

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Standard Interpretations

/ Interim Enforcement Guidance for the Respirable Crystalline Silica in General Industry/Maritime standard, 29 CFR 1910.1053 ...

- **Standard Number:** 1910.1053 ; 1926.1153 ; 1926.1153(d)(2)(v)

OSHA requirements are set by statute, standards and regulations. Our interpretation letters explain these requirements and how they apply to particular circumstances, but they cannot create additional employer obligations. This letter constitutes OSHA's interpretation of the requirements discussed. Note that our enforcement guidance may be affected by changes to OSHA rules. Also, from time to time we update our guidance in response to new information. To keep apprised of such developments, you can consult OSHA's website at <http://www.osha.gov>.

June 25, 2018

**MEMORANDUM FOR:**

REGIONAL ADMINISTRATORS  
STATE DESIGNEES

**THROUGH:**

GALEN BLANTON  
Acting Deputy Assistant Secretary

**FROM:**

THOMAS GALASSI, Director  
Directorate of Enforcement Programs

**SUBJECT:**

Interim Enforcement Guidance for the Respirable Crystalline Silica in General Industry/Maritime standard, 29 CFR 1910.1053 – June 23, 2018, Enforcement Date

This memorandum provides interim enforcement guidance to compliance safety and health officers (CSHOs) for enforcing 29 CFR 1910.1053, *Respirable Crystalline Silica*. The *Respirable Crystalline Silica* standard for general industry and maritime established a new 8-hour, time-weighted average (TWA) permissible exposure limit (PEL) of 50 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ), and an action level (AL) of 25  $\mu\text{g}/\text{m}^3$ . It also requires other employee protections, such as performing exposure assessments, using exposure control methods, using respiratory protection, establishing regulated areas, developing and implementing a written exposure control plan, offering medical surveillance, developing hazard communication information, and keeping silica-related records.

As you know, the final rule, published March 25, 2016, established two new standards, 29 CFR 1926.1153 for construction, and 29 CFR 1910.1053 for general industry and maritime. Under the construction standard, all the requirements became enforceable on September 23, 2017, except for the requirements for sample analysis in 29 CFR 1926.1153(d)(2)(v), which went into force on June 23, 2018. The majority of the requirements for general industry and maritime, except for certain requirements relating to hydraulic fracturing operations and an AL trigger for medical surveillance requirements, became enforceable on June 23, 2018.

This memorandum will serve as interim enforcement guidance for the general industry and maritime standard. It is similar to the memorandum issued on October 19, 2017, which provides interim enforcement guidance for the construction standard. Both of these memorandums will expire when the compliance directive becomes effective and available to the field.

The attached interim inspection and citation guidance highlights most of the requirements of 29 CFR 1910.1053. If you have any questions about the attached guidance or any of the provisions not covered in the interim enforcement guidance, please contact Audrey Profitt or Sven Rundman in the Office of Health Enforcement at 202-693-2190.

Attachment

### **Attachment: Enforcement Guidance**

#### **Overview:**

The final rule on Occupational Exposure to Respirable Crystalline Silica, published March 25, 2016, established two new standards, 29 CFR 1926.1153 for construction, and 29 CFR 1910.1053 for general industry and maritime.[1] This guidance covers the general industry and maritime standard, the majority of which became enforceable on June 23, 2018. Note that for the first 30 days (through July 23, 2018), compliance assistance will be offered in lieu of enforcement for employers who are making good faith efforts to comply with the new standard's requirements.

The general industry and maritime standard establishes a new 8-hour, time-weighted average (TWA) permissible exposure limit (PEL) of 50 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ), and an action level (AL) of 25  $\mu\text{g}/\text{m}^3$ . It also requires other employee protections, such as performing exposure assessments, using exposure control methods, using respiratory protection, establishing regulated areas, developing and implementing a written exposure control plan, offering medical surveillance, developing hazard communication information, and keeping silica-related records.

#### **Scope (§1910.1053(a)):**

The standard for general industry and maritime, 29 CFR 1910.1053, applies to all occupational exposures to respirable crystalline silica, except the following:

- Construction work.
- Exposures that result from the processing of sorptive clays.
- Agricultural operations.
- Where the employer has objective data demonstrating that employee exposure to respirable crystalline silica will remain below 25  $\mu\text{g}/\text{m}^3$  as an 8-hour TWA under any foreseeable conditions.

**Note:** The last exception listed above (i.e., the exception related to employee exposure levels) is based on *total* respirable crystalline silica exposures *from all sources* and must take into account all conditions that may add or contribute to the employee's overall exposure level. When using the phrase "any foreseeable conditions," OSHA is referring to situations that can reasonably be anticipated. Coverage under the standard is determined without regard to the use of engineering controls as the failure of engineering controls is generally foreseeable. Although engineering controls are usually a reliable means for controlling employee exposures, equipment does occasionally fail. Therefore, this exception *does not apply* where exposures below 25  $\mu\text{g}/\text{m}^3$  as an 8-hour TWA are expected or achieved only because engineering or other controls are being used to limit exposures.

Where an employer claims exclusion from the standard on the basis of objective data, sufficiency will be determined by evaluating whether the data meet the following conditions:

- The data must demonstrate employee exposure to respirable crystalline silica associated with a particular product or material or a specific process, task, or activity.

- The data must demonstrate that employee exposure will remain below 25 µg/m<sup>3</sup> as an 8-hour TWA under any *foreseeable* conditions.
- 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.

The standard also allows general industry and maritime employers to comply with the construction standard instead of the general industry and maritime standard, in certain circumstances. Specifically, the standard exempts general industry and maritime employers from the standard if all the following conditions are met:

- The employer complies with all the applicable provisions of the construction standard (§ 1926.1153).
- The task performed is *indistinguishable* from a construction task listed in Table 1-Specified Exposure Control Methods (paragraph (c) of §1926.1153). Indistinguishable tasks are those tasks that are performed primarily during maintenance and repair activities in general industry or maritime settings, and involve an activity described in the construction standard's Table 1. These tasks have to be of the same nature and type as the construction tasks.
- The task will not be performed regularly in the same environment and conditions. This exception is intended for situations where the tasks will be performed in different environments and conditions, rather than in a stable and predictable environment.

**Note 1:** This exemption applies *by task*. In other words, an employer who is following the construction standard for a task that meets the criteria described above must continue to follow the standard for general industry and maritime for other tasks covered under the standard unless the other tasks also meet the criteria.

**Note 2:** The exemption requires employers to comply with all the applicable provisions of the construction standard. If the employer fails to comply with an applicable provision, or if the task does not meet the other criteria described above, the exemption *does not apply* and the CSHO should assess compliance under the general industry and maritime standard.

**Permissible Exposure Limit (PEL)- (§1910.1053(c)):**

- Establishes an 8-hour TWA PEL of 50 µg/m<sup>3</sup>. Employers must ensure that no employee is exposed to an airborne concentration of respirable crystalline silica above that PEL.

*Inspection and Citation Guidance*

- Review the employer's written exposure control plan (ECP) to determine which tasks in the employer's workplace involve exposure to respirable crystalline silica and which engineering controls and work practices the employer planned to implement to limit employee exposure during each listed task.
- Review the employer's exposure records or other data the employer used to assess exposures to determine what exposure levels might be expected before entering the work area.
- If the employer's air monitoring records indicate overexposures, obtain copies of the employer's exposure data for the case file.
- Collect personal samples to measure the 8-hour TWA for the silica operations likely to exceed the PEL.
  - Perform air monitoring in accordance with the OSHA Technical Manual (OTM), Section II, Chapter 1, and OSHA sampling method ID-142.
- Cite for exposures above the PEL as follows:
  - If employee exposure is above the 8-hour TWA PEL, cite §1910.1053(c).
  - Deficiencies in any of the requirements for engineering and work practice controls and respiratory protection must follow the citation procedures for combining and grouping violations in CPL 02-00-160, Field

Operations Manual (FOM). Where appropriate, §1910.1053(f)(1) should be cited and grouped with the violation of the PEL §1910.1053(c) and any applicable subparagraphs of §1910.1053(g).

**Exposure Variability:** Differences in exposure can occur due to variable workplace conditions.

- If a CSHO obtains a sample showing exposures above the PEL, but has reason to believe based on the employer's exposure data that the results may be due to *unpreventable* exposure variability, then the Area Director (AD) may consider whether to conduct a follow-up inspection in lieu of issuing a citation.
- The CSHO will compare the employer's exposure data with CSHO sampling results to determine whether the employer's data are representative. To be representative, the employer's samples must have been obtained under conditions that closely resemble or have a higher exposure potential than CSHO samples.
- The CSHO should confer with the AD regarding whether re-sampling is appropriate.
- The burden is on the employer to demonstrate that the CSHO's samples are not representative of normal exposure levels.

**Exposure Assessment (§1910.1053(d)):**

Employers must assess the exposure of each employee who is, or may reasonably be expected to be, exposed to respirable crystalline silica at or above the AL. Employers may assess exposure in accordance with the performance option (§1910.1053(d)(2)) or the scheduled monitoring option (§1910.1053(d)(3)).

• **Performance Option (§1910.1053(d)(2)):**

- Provides the employer with flexibility. However, the burden is on the employer to show that the sampling or objective data complies with the standard's requirements.
  - Allows the employer to assess the 8hour TWA exposure of each employee on the basis of any combination of air monitoring data or objective data sufficient to accurately characterize each employee's exposure to respirable crystalline silica. Data must reflect worker exposure on each shift, each job classification, and in each work area.
  - Employers that rely on objective data generated by others are responsible for ensuring that the data relied upon accurately characterize their own employees' exposures.

**Note:** *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 respirable crystalline 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. §1910.1053 (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; calculations based on the composition of a substance; and the employer's historical air monitoring data, including data obtained prior to the effective date of the standard.
- To qualify as objective, 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 present in the employer's current operations.
- Employers can characterize employee exposure within a range to account for variability in exposure (e.g., employee exposure is between the AL and the PEL). For example, an employer could determine that exposures exceed the PEL by a certain level (such as less than 10 times the PEL) after using all feasible engineering controls. Such assessment would allow the employer to determine the required level of respiratory protection.

- **Scheduled Monitoring Option (§1910.1053(d)(3)):**

- Requires employers to perform initial monitoring to assess the exposure of each employee.
- Requires exposure assessment for each employee on the basis of one or more personal breathing zone air samples that reflect the employee exposures on each shift, for each job classification, and in each work area.
  - Where several employees perform the same tasks on the same shift and in the same work area, the employer may sample a representative fraction of these employees in order to meet this requirement.
  - Representative sampling must be of the employee(s) who are expected to have the highest exposure to respirable crystalline silica.
- May require periodic monitoring, depending on the most recent monitoring results.
- If initial monitoring indicates exposures are below the AL, the employer may discontinue monitoring for employees whose exposures are represented by the monitoring.
- If the most recent (initial or repeat) exposure monitoring:
  - Indicates that exposures at or above the AL, but at or below the PEL, the employer must repeat monitoring within six months of the most recent monitoring (§1910.1053(d)(3)(iii)).
  - Indicates that exposures are above the PEL, the employer must repeat monitoring within three months of the most recent monitoring (§1910.1053(d)(3)(iv)).
- If the most recent (non-initial) monitoring indicates that exposures are below the AL, the employer must repeat monitoring within six months until two consecutive measurements, taken seven or more days apart, are below the AL. At that time, the employer can discontinue monitoring for employees whose exposures are represented by the monitoring.

- **Reassessment of exposures (§1910.1053(d)(4)):**

- The employer is required to reassess exposures whenever a change in the production, process, control equipment, personnel, or work practices, may reasonably be expected to result in new or additional respirable crystalline silica exposures 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.

- **Methods of sample analysis (§1910.1053(d)(5)):**

- Samples taken to satisfy the monitoring requirements of paragraph (d) must be evaluated by a laboratory that analyzes air samples for respirable crystalline silica in accordance with the procedures in Appendix A of the standard, which contains specifications for the methods to be used for analysis of respirable crystalline silica samples.

- **Observation of monitoring (§1910.1053(d)(7)):**

- The employer must provide affected employees, or their designated representatives, with an opportunity to observe air monitoring conducted to assess silica exposures.
- In many cases, observation of employee monitoring may not require entry into regulated areas or places where protective clothing or equipment is required for other workplace hazards. When observation requires such entry, the employer must:
  - Provide affected employees and their designated representatives with protective clothing or equipment at no cost, when its use is required; and
  - Assess whether the observer already has the equipment, respirator medical clearance, and training necessary to enter the area in question, including observers not employed by the employer.

*Inspection and Citation Guidance*

- Review the employer's exposure data used by the employer to characterize employee exposures. The CSHO must determine whether employers have appropriately assessed employee exposures in accordance with either the performance option (§1910.1053(d)(2)) or the scheduled monitoring option (§1910.1053(d)(3)).
  - Document any exposures the employer failed to assess.
  - If the CSHO determines that full-shift sampling is not necessary, the CSHO should explain why the sampling is not necessary in the case file.
- Verify that the employer has re-assessed exposures, if required by §1910.1053(d)(4). The requirement to reassess applies to assessments done under both the scheduled monitoring option and the performance option.
  - If the employer's exposure assessment does not reflect the conditions observed, inquire whether there were any changes in the production, process, control equipment, personnel, or work practices that could affect the respirable crystalline silica exposures.
  - If changes were made, review documentation of the employer's re-assessment of its new exposure scenario (s).
  - Interview employees to determine if any changes occurred that may have resulted in new or additional exposures at or above the AL.
- If there is any uncertainty regarding the accuracy of the employer's exposure assessment, conduct personal sampling.
- If no air monitoring and/or objective data records exist and employees are, or may reasonably be expected to be, exposed to respirable crystalline silica at or above the AL, cite §1910.1053(d)(1).
- If significant differences exist between the air monitoring and/or objective data and current conditions which could cause the employee(s) exposure(s) to be underestimated, §1910.1053(d)(1) should be cited.
- If the employer is using the performance option and the assessment was inadequate because it does not accurately characterize the exposure of each employee, cite §1910.1053(d)(2).
- If the employer is using the scheduled monitoring option and the initial assessment was inadequate because it does not reflect exposures on all shifts, for each job, and in each work area, then cite §1910.1053(d)(3)(i). Also, cite under §1910.1053(d)(3)(i) if the initial assessment was inadequate because: the samples are area (environmental) samples and not personal samples; the employer's personal air samples do not cover the entire exposure period or all tasks; or, (if the employer is using representative sampling) the employer's personal air samples are not representative or the employer failed to sample the employee(s) who were expected to have the highest exposure to respirable crystalline silica.
- If the employer is using the scheduled monitoring option and the employer failed to perform periodic monitoring based on the initial or most recent air monitoring results, as required, cite the applicable subparagraph of §1910.1053(d)(3).
- If the employer fails to reassess exposures when required to do so by §1910.1053(d)(4), cite that provision.
- If the employer fails to use a laboratory that follows the requirements for sample analysis in Appendix A of the standard, §1910.1053(d)(5) should be cited.
- If employees and/or their representatives were not provided the opportunity to observe monitoring, or were not provided with the appropriate personal protective equipment (PPE) at no cost during observation, cite §1910.1053(d)(7)(i) and/or §1910.1053(d)(7)(ii).

**Regulated areas (§1910.1053(e)):**

- *Regulated area* means an area, demarcated by the employer, where an employee's exposure to airborne concentrations of respirable crystalline silica exceeds, or can reasonably be expected to exceed, the PEL. §1910.1053(b).
- Employers must establish a regulated area wherever an employee's exposure to respirable crystalline silica is, or can reasonably be expected to be, in excess of the PEL. §1910.1053(e)(1).

- Employers must demarcate regulated areas from the rest of the workplace in a manner that minimizes the number of employees exposed to respirable crystalline silica within the regulated area and post signs at all entrances to regulated areas that bear the legend specified in §1910.1053(j)(2).
  - Employers may use ropes, markings (such as lines, textured flooring, or warning signs), temporary barricades, gates, or more permanent enclosures to demarcate and limit access to regulated areas. They may also elect to demarcate the regulated area on a temporary basis, on days when exposures are reasonably expected to exceed the PEL, by means of movable stanchions, portable cones, or barricade tape, as long as the required warning sign with prescribed hazard language is posted at all entrances. § 1910.1053(e)(2), (j)(2).
- Employers must limit access to regulated areas to persons authorized by the employer and required by work duties to be present in the regulated area, persons observing exposure monitoring, or any person authorized by the Occupational Safety and Health (OSH) Act or regulations issued under it to be in a regulated area. §1910.1053(e)(3).
- Employers must provide each employee and the employee's designated representative entering a regulated area with an appropriate respirator, in accordance with paragraph (g). Each employee and the designated representative must use the respirator while in the regulated area, regardless of the length of time spent in the regulated area. §1910.1053(e)(4).

**Note:** Where the standard requires the use of respiratory protection, employers must institute a respiratory protection program in accordance with §1910.134.

*Inspection and Citation Guidance:*

- If the employer has established a regulated area, observe the demarcation and persons entering and exiting the area. Determine whether the employer has adequately demarcated a regulated area and whether the demarcation effectively warns employees not to enter unless they are authorized.
- Ask employees whether they enter regulated areas and, if so, why.
- Take photographs to document when there are instances where regulated areas are not demarcated and where signs are not posted at entrances.
- If air monitoring results indicate that exposures are above the PEL and the employer has not established a regulated area, cite § 1910.1053(e)(1).
- If the employer failed to demarcate the regulated area, as required, or post the required signage, cite §1910.1053(e)(2)(i) and/or §1910.1053(e)(2)(ii), as appropriate.
  - If non-compliance is related to signage, consider grouping the violation with §1910.1053(j)(2), as appropriate.
- If the employer failed to limit access to the regulated area to the designated groups of people, cite §1910.1053(e)(3).
  - If the employer failed to provide each employee (or the employee's designated representative) entering a regulated area with an appropriate respirator, cite §1910.1053(e)(4) and group with §1910.1053(g)(1)(iv).

**Methods of Compliance – Engineering and work practice controls (§1910.1053(f)(1)):**

- Requires employers to use engineering and/or work practice controls to reduce and maintain employee exposures to respirable crystalline silica at or below the PEL, unless the employer can demonstrate that such controls are not feasible.
- Where engineering and/or work practice controls are not sufficient to reduce employee exposure to or below the PEL, the employer must use controls to reduce employee exposure to the lowest feasible level and supplement them with the use of respiratory protection.

**Note 1:** Hydraulic fracturing operations in the oil and gas industry have until June 23, 2021, to implement feasible engineering controls to achieve the new PEL, per §1910.1053(l)(3)(ii). Until that time, when employee exposures exceed the PEL, employers must provide their employees with respiratory protection and ensure its use.

**Note 2:** The respirable crystalline silica standard does not prohibit employers from rotating employees to different jobs to limit exposure. While employee rotation is a type of work practice control, its use as a means of avoiding implementation of engineering and other work practice controls is not encouraged. It can be administratively difficult to maintain employees' exposures at or below the PEL solely using rotation.

*Inspection and Citation Guidance:*

- Observe employees using (or ask the employer to describe and/or demonstrate) the engineering and work practice controls to ensure that controls are present and appropriate.
- If air sampling results show that employees are exposed to respirable crystalline silica above the PEL, *and* if the employer has implemented all feasible engineering and work practice controls, and employees are adequately protected by an effective respiratory protection program, then *no PEL* violation should be cited.
  - To assess whether an employer has reduced exposures to the *lowest feasible level*, ask the employer about its efforts to control exposures. Examples of evidence employers might offer to show that they have implemented all feasible engineering and work practice controls and reached the lowest feasible level of exposure include:
    - Results of past control efforts;
    - Evidence of previous efforts to control dust sources using widely recognized control measures; or,
    - Air monitoring results from before and after controls were implemented.
- Evaluate the employer efforts to prevent or fix malfunctions that would result in increased exposures (e.g., review whether the employer inspects and maintains controls).
- Evaluate the implementation of work practice controls, for example:
  - Observe whether tools that use water to control dust spray water at the point of dust generation.
  - Observe positioning of local exhaust hoods.
- If sampling results show that employees are exposed to respirable crystalline silica above the PEL, and the employer has not instituted feasible engineering and work practice controls, or has not maintained the controls that are implemented, cite §1910.1053(c) and grouped with §1910.1053(f)(1).

**Written Exposure Control Plan (§1910.1053(f)(2)):**

- Employers must establish and implement a written exposure control plan (ECP) that contains the elements specified in the standard.
- Employers must review and evaluate the effectiveness of the ECP at least annually and update as necessary.
- Employers must make the ECP readily available for examination and copying, upon request, to each covered employee, their designated representative, and OSHA.

*Inspection and Citation Guidance:*

- Review the employer's written ECP to ensure that it includes each of the required elements.
- Ask the employer how often the written ECP is reviewed and evaluated for effectiveness.
- Question employees to determine if the ECP was made available to them, if requested.
- If the employer does not have a written ECP, cite §1910.1053(f)(2)(i). If the employer's ECP is missing any of the required elements or if the elements are deficient, cite §1910.1053(f)(2)(i)(A)-(C), as appropriate.
- If the employer failed to review and evaluate the written ECP at least annually, cite §1910.1053(f)(2)(ii).
- If the employer failed to make the written ECP available to employees, designated representatives, or OSHA for examination and copying, cite §1910.1053(f)(2)(iii).



**Abrasive blasting (§1910.1053(f)(3)):**

- Requires the employer to comply with other OSHA standards, if applicable, when performing abrasive blasting operations using crystalline silica-containing blasting agents or where abrasive blasting is conducted on substrates that contain crystalline silica. Examples of such OSHA standards include:
  - Ventilation (§1910.94) and
  - Mechanical Paint Removers (§1915.34).

**Note:** Where an alternative abrasive material is being used also evaluate for the hazards associated with the material.

*Inspection and Citation Guidance:*

- When conducting air monitoring for employees performing abrasive blasting, the air sampling device (cyclone) must be placed within the breathing zone, outside any protective equipment including the abrasive blasting respirator.
- Determine whether the ventilation system for the abrasive blasting enclosure prevents escape of dust and provides prompt clearance of dust-laden air. §1910.94 (a)(3)(i) and §1910.94 (a)(3)(i)(b).
- Determine whether each blast cleaning nozzle is properly equipped with an operating valve that must be held open manually. §1910.244(b).
- For supplied-air respirators, evaluate breathing air quality and use. Oil-lubricated compressors must be equipped with a high-temperature or carbon monoxide alarm, or both, to ensure that carbon monoxide levels remain below 10 parts per million (ppm). §1910.94(a)(6) and §1910.134(i).

**Note:** Using an abrasive blasting hood while wearing a filtering face piece respirator violates the NIOSH approval for both respirators.

- If the ventilation system for a blast cleaning enclosure is found to be inadequately designed or ineffective at controlling silica dust, then the applicable section of §1910.94(a) should be cited and grouped with paragraph §1910.1053(f)(1).
- If blast cleaning nozzles are not properly equipped with operating valves that must be held open manually, §1910.244(b) should be cited.
- Violations related to respiratory protection for abrasive blasting operations should be cited under §1910.94(a)(5) and grouped with the applicable provisions of §1910.134, as well as §1910.1053(g).
- Violations related to PPE should be cited, where appropriate, under §1910.94(a)(5), §1910.132, §1915.34, and 1915 Subpart I, respectively.

**Respiratory Protection (§1910.1053(g)):**

- Where respiratory protection is required by the standard, employers must provide each employee with an appropriate respirator that complies with the requirements of this paragraph and OSHA's Respiratory Protection standard. §1910.134.
- Respirators are required:
  - Where exposures exceed the PEL during periods necessary to install or implement feasible engineering and work practice controls;
  - Where exposures exceed the PEL during tasks, such as certain maintenance and repair tasks, for which engineering and work practice controls are not feasible;
  - During tasks for which an employer has implemented all feasible engineering and work practice controls and where such controls are not sufficient to reduce exposures to or below the PEL; and
  - During periods when the employee or designated representative is in a regulated area.

- The employer must assess whether the observer already has the equipment, medical clearance, and training necessary to enter the area in question, including observers not employed by the employer.
- Where respirator use is required, §1910.1053(g)(2) requires the employer to institute a respiratory protection program in accordance with OSHA's Respiratory Protection standard (§1910.134).

*Inspection and Citation Guidance:*

- Evaluate whether respiratory protection is being used when required as described above.
- Review the employer's written ECP to ensure a description of the respiratory protection used to limit employee exposure to respirable crystalline silica for each task is included and implemented.
- Evaluate the adequacy of the respiratory protection that is provided.
- The assigned protection factor of the respirator must be high enough to maintain the employee's exposure to respirable crystalline silica at or below the maximum use concentration (MUC) (i.e., the product of multiplying the approved protection factor (APF) of the respirator by the PEL for silica). §1910.134(d)(3)(i)(B)(1).
- Review the medical evaluation results that are authorized under the Respiratory Protection standard (§1910.134(e)) and conduct interviews to determine whether there are any employees wearing respirators who should not be.
- Determine if the requirements of paragraph (e) of the Respiratory Protection standard are being met by interviewing a number of employees and asking whether they have been provided with a confidential evaluation of their ability to wear a respirator.
- For guidance on inspection procedures for §1910.134, refer to the *Inspection Procedures for the Respiratory Protection Standard*, (CPL 02-00-158).
- If the employer does not provide appropriate respiratory protection for employees in the above situations, the applicable subparagraph of §1910.1053(g)(1) should be cited.
  - For example, when the employer has provided a respirator with an APF that does not maintain an employee's exposure to respirable crystalline silica at or below the MUC, §1910.1053(g)(1) should be cited and grouped with §1910.134(d)(3)(i)(B)(1).

***Housekeeping Practices (§1910.1053(h)):***

- Dry sweeping and dry brushing are prohibited where such activities could contribute to employee exposures to respirable crystalline silica, *unless* wet sweeping, HEPA-filtered vacuuming, or other methods that minimize the likelihood of exposure are not feasible (i.e., other cleaning methods would not be effective, would cause damage, or would create a greater hazard in the workplace). §1910.1053(h)(1).
- The employer bears the burden of showing that the alternative methods are not feasible.
- The use of sweeping compounds (e.g., grit, non-grit, oil- or waxed or water-based) is an acceptable dust suppression housekeeping method provided the employer can demonstrate that such compounds do not create additional exposures.
- Use of compressed air for cleaning is not allowed where such activity could contribute to employee exposure to respirable crystalline silica, unless the compressed air is used in conjunction with a ventilation system that effectively captures the dust cloud created by the compressed air, or no alternative method is feasible. §1910.1053(h)(2).
- Some employers use drivable powered industrial sweepers to clean dust. Sweepers may be equipped with rotating brushes that lift dirt and dust from the floor and feed the dirt and dust into a vacuum located on the underside of the equipment. When these types of sweepers are equipped with HEPA filters and effectively remove the dust, their use should be considered "HEPA-filtered vacuuming" for purposes of paragraph (h) of the standard. CSHOs should evaluate the employer's ECP to assure that the employer has assessed exposures related to use of these sweepers.
- The employer's ECP must include the description of the housekeeping measures.

*Inspection and Citation Guidance*

- Review the employer's written ECP to ensure that the employer's housekeeping practices are included and implemented.
- Interview and/or observe employees who are cleaning up dust that could contribute to respirable crystalline silica exposures to determine whether permissible housekeeping methods are used.
- It may be necessary for the CSHO to collect a bulk sample and/or personal air samples to document that the dust contains crystalline silica.
- §1910.1053(h)(1) should be cited where:
  - An employer allows dry sweeping or dry brushing for cleaning where such activity could contribute to employee exposure to respirable crystalline silica; and,
  - The employer cannot demonstrate that wet sweeping, HEPA-filtered vacuuming, or other cleaning methods that minimize the likelihood for exposure to respirable crystalline silica are not feasible.
- §1910.1053(h)(2) should be cited where:
  - An employer allows the use of compressed air to clean clothing or surfaces where such activity could contribute to employee exposure to respirable crystalline silica; *and*,
  - The compressed air is not being used in conjunction with a ventilation system that effectively captures the dust cloud created by the compressed air or the employer cannot demonstrate that alternative cleaning methods are infeasible.

**Medical Surveillance (§1910.1053(i)):**

- Employers must make medical examinations available to each employee who will be exposed to respirable crystalline silica above the PEL for 30 or more days a year.
  - Exposures occurring with past employers do not count towards the 30-day trigger with the current employer (i.e., the trigger is for employment with *each particular employer*). However, the 30-day trigger would apply when any employer hires a particular employee for more than one short-term assignment during a year, totaling 30 days or more.
  - Medical surveillance must be made available at no cost to the employee and at a reasonable time and place.

**Note:** The requirement to offer medical surveillance is currently triggered by exposures above the PEL for 30 or more days a year. However, on June 23, 2020, this requirement will change and employers will be required to offer medical surveillance to employees who are exposed at or above the AL for 30 or more days per year.

- The employer must make the initial (baseline) medical examination available within 30 days after initial assignment (unless the employee has received a medical examination in accordance with the standard within the past three years).
- Employers must continue to offer a medical examination to each employee who meets the trigger for medical surveillance whenever it comes due again, even if the employee has previously declined such an examination.
- The standard does not prohibit an employer from having an employee sign a statement affirming that she/he was offered medical surveillance and she/he declined to participate. However, the employer would still be required to make the medical examination available within the time that the next examination would have been due (i.e., within three years).
- The written medical opinion provided to the employer by the physician or other licensed health care professional (PLHCP) must contain only the date of the exam, a statement that the exam met the requirements of the standard, and any limitations on the employee's use of respirators.
- If the employee has provided the PLHCP with written authorization, then the written medical opinion for the employer should also contain the following: (1) any recommended limitations on the employee's continued exposure to silica; and (2) a statement that the employee should be examined by a specialist.

- The employer must ensure that each employee receives a copy of the written medical opinion within 30 days of the medical examination.

#### *Inspection and Citation Guidance*

- Ensure that the employer has included the appropriate employees in the medical surveillance program by asking employees about their exposures, respirator usage, entry into regulated areas, and whether they have been offered medical examinations by their employer. Because respirator usage under the standard and the establishment of regulated areas are triggered by exposures above the PEL, employees who must use respirators or enter into regulated areas 30 or more days in a year should have been offered a medical examination.
- Where employees have been evaluated by a PLHCP, ask employees if the evaluation took place prior to or within 30 days of beginning their silica-related work assignments. Interview employees to determine if the employer is requiring employees to pay for the examinations or undergo medical testing at unreasonable times or places.
- Ask employers for copies of the written medical opinions. Whenever reviewing medical opinions, the CSHO should follow OSHA Instruction CPL 02-02-072, *Rules of Agency Practice and Procedure Concerning OSHA Access to Employee Medical Records*.
- Cite §1910.1053(i)(1)(i) if no medical surveillance was provided when employees were exposed above the PEL for 30 or more days a year. This 30-day requirement began June 23, 2018.
- Cite §1910.1053(i)(1)(i) if medical surveillance was not made available at no cost and at a reasonable time and place to employees exposed above the PEL for 30 or more days a year. (Note: Medical surveillance must be made available to employees exposed at or above the AL for 30 or more days per year beginning on June 23, 2020.)
- Cite §1910.1053(i)(6) if the employer cannot produce a requested written medical opinion, and cite §1910.1053(i)(6)(iii) if employees were not given a written medical opinion within 30 days of their examination.

**Note:** CSHOs should have exposure assessment data to support these citations.

#### **Communication of Hazards (§1910.1053(j)):**

- Training is required for all employees who are, or could foreseeably be, exposed to respirable crystalline silica at or above the AL of 25 µg/m<sup>3</sup> as an 8-hour TWA.
- Employers must include respirable crystalline silica in their hazard communication program, ensure that employees have access to labels on containers of crystalline silica and related safety data sheets, and train their employees as required in the Hazard Communication Standard (HCS), §1910.1200 and §1910.1053 (j)(3).
- The HCS applies to silica regardless of the airborne exposure level. CSHOs should cite employers for hazard communication deficiencies where employees are exposed or potentially exposed to respirable crystalline silica at any level.
- Employers must post warning signs at all entrances to regulated areas to ensure that employees are aware of the presence of respirable crystalline silica above the PEL and understand the hazards associated with the area, as well as the need for respiratory protection. The signs must include the following language:

DANGER  
RESPIRABLE CRYSTALLINE SILICA  
MAY CAUSE CANCER  
CAUSES DAMAGE TO LUNGS  
WEAR RESPIRATORY PROTECTION IN THIS AREA  
AUTHORIZED PERSONNEL ONLY

- The signs must include the exact wording listed above. §1910.1053(j)(2). However, employers may choose to include additional information, as long as the additional information is not confusing or misleading and does not detract from the warnings required by the standard.
- Employers must ensure that each employee covered by the standard can demonstrate knowledge and understanding of silica-related health hazards, the specific tasks in the workplace that could result in respirable crystalline silica exposure, the specific measures the employer has implemented to protect employees from exposure, the standard, and the purpose and a description of the employer's silica medical surveillance program. It also requires employers to make a copy of the standard readily available to employees free of charge. §1910.1053(j)(3).

#### *Inspection and Citation Guidance*

- Review the employer's written hazard communication program to determine whether it includes respirable crystalline silica.
- Inspect the entrances to any regulated areas to determine if the employer has posted the appropriate signage.
- Question covered employees to see if they have had training on and can demonstrate knowledge and understanding of the required topics, and to determine if a copy of the standard was made available to them.
- If respirable crystalline silica hazards were not communicated to the employees in accordance with paragraph (j)(1), then §1910.1053(j)(1) should be cited.
  - If applicable, §1910.1200(h)(2)(ii) and §1910.1200(h)(3)(ii)-(iii) should be cited and grouped with paragraphs §1910.1053(j)(1) and §1910.1053(j)(3).
- If the required hazard warning signs were not posted at all entrances to the regulated area(s), then §1910.1053(j)(2) should be cited.
- If covered employees did not receive any of the training required by §1910.1053(j)(3), or if the employee cannot demonstrate knowledge and understanding of any of the required training topics, then §1910.1053(j)(3)(i) should be cited. If employees were not trained on or cannot demonstrate knowledge and understanding of particular topics listed in §1910.1053(j)(3)(i), then the relevant subparagraph (§1910.1053(j)(3)(i)(A)-(E)) should be cited.
- If the employer did not make a copy of the standard readily available to covered employees without cost, then (§1910.1053(j)(3)(ii) should be cited.

#### **CSHO Protection**

- CSHOs who are required to wear any respiratory protection must be medically cleared as per the medical eligibility examination procedures as described in the CPL 02-02-054, *Respiratory Protection Program Guidelines*.
- CSHOs must wear the appropriate PPE for potential hazardous exposures.
- CSHOs must also not enter a respirable crystalline silica-regulated area, or other area where exposures are likely to exceed the PEL, unless it is absolutely necessary, and then only if using appropriate PPE. CSHOs should be conservative about time spent in regulated areas or other areas where high concentrations of silica exist or are suspected.
- For inspection and air sampling activities, CSHOs should use remote operations when practical.

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[1] The shipyard silica standard, 29 CFR 1915.1053, cross-references 29 CFR 1910.1053.

## UNITED STATES DEPARTMENT OF LABOR

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## **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  $\mu\text{g}/\text{m}^3$  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  $\mu\text{g}/\text{m}^3$  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  $\mu\text{g}/\text{m}^3$  for that 15-minute period before the 8-hour TWA exposure would be at or above 25  $\mu\text{g}/\text{m}^3$ . *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  $\mu\text{g}/\text{m}^3$  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  $\mu\text{g}/\text{m}^3$  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  $\mu\text{g}/\text{m}^3$ , 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 µg/m<sup>3</sup> 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 µg/m<sup>3</sup> 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 µg/m<sup>3</sup> 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/m<sup>3</sup> 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  $25 \mu\text{g}/\text{m}^3$  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 stationery 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.

## Notes





